Assessment of the Knowledge of United Arab Emirates Dentists of Child Maltreatment, Protection and Safeguarding

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ABSTRACT

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Abstract

Background: Child safeguarding, governed by international, national and local laws, is the responsibility of all members of society. Members of the dental team are in a unique position to recognize Child Abuse and Neglect (CAN) in dental practice and in the wider society.

Objective: To assess the awareness of dentists in the United Arab Emirates (UAE) with regards to child maltreatment, child protection and child safeguarding.

Materials and Methods: A cross-sectional survey of 381 UAE dentists was conducted. Questions related to the knowledge and practice of CAN and related safeguarding issues were tabled and cross tabulated against demographic variables. Statistical analysis was carried out using Chi-square, t-test, ANOVA and Pearson’s correlation test. Statistical significance was set as p <0.05.

Results: 39.4 % (n=152) of the participants had suspected CAN (mean 1.3 CAN cases in the last 5 years); male dentists suspected more CAN than female dentists, however, orthodontists, paediatric dentists (p=0.000) and female dentists (p=0.001) were more knowledgeable about diagnosing CAN. Paediatric dentists attended more CAN-related postgraduate training (p=0.000) than other specialties. Amongst other results, 53.5% (n=204) were not aware of child protection guidelines, 58.1% (n=224) and 54.1% (n=206) had undergraduate and postgraduate training about CAN issues respectively and 90.8 % (n=346) believed that CAN should be addressed. Barriers to dentists referring CAN cases for child
protection 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 significantly fewer barriers for child protection (p=0.022) than the Arab and Gulf Cooperation Council qualified dentists.

**Conclusions:**
The UAE dentists surveyed witnessed CAN with an average of 1.3 cases in the last 5 years. Many variables (such as gender, specialty, and country of qualification) affected the dentist’s knowledge of CAN and the practice of child safeguarding. Despite agreeing that CAN is an issue that should be addressed, a majority were not aware of the local child protection guidelines and had perceived barriers preventing them from arranging a child protection referral. Female dentists, orthodontists and paediatric dentists scored significantly higher in recognizing CAN cases compared to male dentists and other specialties (general dental practitioners, restorative dentists and oral surgeons). Training and practice recommendations were made. Knowledge of CAN did not necessarily mean more practice of child protection. There was no correlation between those who scored high in CAN knowledge and the CAN practice scores.
I would like to dedicate this thesis to my little angels Ali & Maitha you are my greatest accomplishment. I would also like to dedicate this work to every child who suffered from abuse and never had someone to stand by them.
Declaration

I declare that all the content of the thesis is my own work. There is no conflict of interest with any other entity or organization.

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Signature:
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1.0 Introduction

Children’s entitlement to life, survival and development, is an ultimate right recognized by every nation and cemented in universal treaties of human rights. Children across the planet are born into a variety of ethnicities, cultures, societies, religions, and economic states. Each of which, are governed by different laws and customs. Although these social platforms vary, the normal common assumption is that children require care and protection. This common human trait, caring and protecting children, has been considered a common social universal denominator and has been laid down in written laws over the years.

In 1924, the first international treaty concerning children’s rights was recognized with the Declaration of Geneva and stated: “Humanity has to do its best for the child”. Decades later in 1989 the “Convention on the Rights of the Child” by the United Nations International Children's Emergency Fund (UNICEF) was established\(^1\). The United Nations Convention on the Rights of the Child (UNCRC) stated that “children should be protected from all forms of neglect and negligent treatment, as well as having the right to enjoyment of the highest attainable standard of heath and full development” \(^1\). As of today, the International Charter of the Child Rights has been signed by 190 of the 192 states of the United Nations. Most countries have ratified its articles and even introduced local laws to empower children and protect them, including the United Arab Emirates (UAE). Nevertheless, not every child is fortunate to enjoy their life to its full potential.

Child Maltreatment or Child abuse and neglect (CAN) is a prevalent serious ongoing international issue with critical consequences that can affect all cultural, socioeconomic, and ethnic segments of the society \(^2\). In 1962, Dr. C. Henry Kempe coined the term “battered child
syndrome” and introduced it to the medical literature. The term was used “to characterize a clinical condition in young children who have received serious physical abuse(3). Since then, this term and other terms such as CAN have been used interchangeably with child maltreatment, abuse and non-accidental injuries, which can cause psychological trauma. According to NICE in the UK (2009) (4), child maltreatment CM (or CAN) includes neglect, physical, sexual and emotional abuse, and fabricated or induced illness. As such, many countries including the UAE, have sought to introduce laws that protect children from maltreatment. These laws have in effect infiltrated every walk of life dealing with children and their care providers including various professionals such as teachers, police officers, doctors, nurses and even dentists.

Dentistry worldwide has been at the forefront in implementing change and including child protection training in undergraduate and postgraduate dental curricula (5). Dentists’ knowledge and practice of such an important aspect has been immensely studied internationally (6), however working alone as a specialty is considered inadequate (7,9). The emphasis is placed on a holistic approach ensuring that everyone has a role to play when it comes to child protection. The UAE had recently officially published The Child Protection Law (8), making children protection a legal responsibility of all members of society. This study was set to assess the knowledge and awareness of child maltreatment, protection and safeguarding in a population of dentists in the UAE.
2.0 Literature Review

In this chapter the literature available regarding child abuse and neglect is reviewed; the review covers terminology, the scope of the problem, child protection and its relation to dentistry, the worldwide statistics and the responsibilities of societies to safeguard children.

2.1 Terminology

Child abuse and neglect includes a vast extent of circumstances. It might extend from a guardian’s certain acts of control, or the absence of a guardian’s control, that is likely to reap injurious consequences on a child’s well-being in many ways – whether physically, developmentally, and psychosocially.

The clinical circumstances relevant to child abuse and neglect may shift broadly. They vary from the rare instance of a child who is tortured to death by his parents, to a case of a child bruised due to corporal punishment. According to Ludwig, 1993 (10), there are many definitions of child maltreatment, but it all comes to a situation where the caregiver will affect the child either passively or actively, thereby negatively affecting the healthy growth of the child, his/her development, and the well-being of the child.

According to the National Institute of Clinical Excellence in the United Kingdom (NICE-UK) in 2009, the term "Child Maltreatment" was used as an overarching umbrella encompassing other terms and actions. According to the NICE definition, “child maltreatment includes neglect, physical, sexual and emotional abuse, and fabricated or induced illness” (11).
Child Abuse and Neglect (CAN) has been defined by the World Health Organization (WHO) as, “every kind of physical, sexual, emotional abuse, neglect or negligent treatment, commercial or other exploitation resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power” (9). Thus, this definition incorporates both, the issues of action – including physical, emotional, or sexual abuse – and the neglect of the child. The probability of permanent damage to a child developmentally, mentally, and physically, differs according to the magnitude of the abuse and the age of the child.

Many countries have recognized that the health and safety of children is of utmost importance; many countries have safeguarded children from any abuse or neglect (12). Regrettably, however, child maltreatment remains a shocking reality that occurs in different societies and the degree of acceptance of the practice of child abuse varies between cultures. The most traditional categories of child abuse may be recognized as: physical violence/abuse; sexual abuse; emotional abuse, and neglect (13). For example, the Munchausen syndrome, is a common type of abuse, when the caregiver deliberately fabricates, induces, or exaggerates an illness on their child (14). Maltreatment can occur due to family related problems; this may include financial burden, divorce, illness, substance abuse, unemployment, and overcrowded housing (15).

Child abuse has gained increasing attention among governments. In an effort to counter and to criminalize child abuse, a number of international conventions were held and there has been a rise in the implementation of international treaties, laws, and documents that address injustices done to children. The CAN directives and policies took into account the input of pediatricians,
pediatric dentists, and other health professionals, all in one purpose of protecting and safeguarding children from any abuse (16).

2.2 Forms of child maltreatment

2.2.1 Physical abuse

This type of abuse is usually non-accidental and is inflicted by the parent or the caregiver causing injury and harm to the child. Physical abuse is a major subtype of child maltreatment and in some cases may potentially be fatal. The typical scenario of physical abuse is a parent or a caregiver trying to penalize the child for misbehavior. Occasionally, it is a violent lashing out at a child. Physical violence can be classified as “mild (few ecchymoses, abrasions a few bruises, welts, scratches, cuts, scars)”, “moderate (numerous bruises, minor burns, a single fracture)”, and “severe (extensive burn, multiple bone fractures central nervous system injury, abdominal injury, other life-threatening injury)” (17). The effects of physical abuse are not particular to only physical consequences, however; physical abuse may cause the child to feel worthless, and can hence impact the health, social, psychological development, and well-being of the child. Physical abuse may also result in permanent emotional scars (17).

2.2.2 Sexual abuse

The definition of sexual abuse involves any sexual activity with a child under the age of 18 by an adult (18). Children are vulnerable to abuse from many different individuals. In a recent study, it was found that more frequently than them being strangers, offenders were identified as either being family-related, or family acquaintances. There are different forms of CSA, and the most common ones include molestation (fondling or masturbation), intercourse (vaginal, anal, or oral intercourse on a non-assaultive basis), or family-related rape (19).
Child Sexual Abuse (CSA) is a prevalent phenomenon worldwide that affects children from all socioeconomic classes. The WHO in 2006 estimated that “150 million girls and boys under the age of 18 have experienced sexual violence.” Unfortunately, in many countries located in typically low-income regions, some in the Arab nations, the cases are greatly under reported, and as such no actual incidence can be reliably determined. The reason for the prevalence of underreporting can be attributed to a number of reasons one of which are cultural beliefs whereby discussing any sexual conduct is considered to be taboo, notwithstanding sexual violence. This gap undoubtedly deems studies related to the problem of CSA inconsistent and underrepresented.

The outcomes of CSA include, but are not limited to, depression, physical injuries, out-casting, shaming, and psychiatric disorders. These outcomes are similar, regardless of the geographic and cultural differences. Suicidal ideation, suicide attempts, substance abuse, multiple sex partners, and sexually transmitted infections occur more frequently in children who have been victims of sexual abuse. It is without a doubt that child sexual abuse is a horrific, traumatic and indeed troubling behavior that directly disturbs a child's quality of life, very likely creating lifelong mental health issues. 

Virani, described the psychology of sexually abused children as "the child going into what is called the survivor's cycle." The act of sexual abuse has a number of effects on a child’s mental wellbeing. At first, the child may feel confused leading to feelings of self-estrangement. In this period, children may feel very isolated and as such may seek to seclude him/herself from their surroundings. The child may also suffer overwhelming feelings of guilt, and a very negative sense of self. This cycle continues in the mind of sexually abused child and any time the child recalls the abuse, s/he experiences the same feelings of powerlessness.
Also, disclosure of abuse is known to be delayed. Studies have looked into why a delay in disclosure occurs: age, type of abuse, fear of negative consequences, and perceived responsibility all contributed to predicting time to disclosure\(^{(116)}\). There was significant support for suggesting that children, who were older, came from incestuous families, felt greater responsibility for the abuse, and feared negative consequences of disclosure took longer to disclose\(^{(116)}\). Also children’s cognitive appraisal of others’ tolerance of disclosure of child sexual abuse, and their own perceptions of responsibility for the abuse, are crucial to the decision to disclose\(^{(116)}\).

### 2.2.3 Emotional abuse

Emotional abuse is the persistent emotional maltreatment of a child such as to cause severe and persistent adverse effects on the child’s emotional development \(^{(21)}\). It can involve conveying to children many negative feelings hence hindering their ability to feel loved, adequate, valued, or worth something\(^{(26)}\). It may also involve unrealistic expectations of children, many expectations reaching far beyond the abilities of their age. Similarly, the emotional abuse of children may also entail unrealistic expectations with regards to the child’s developmental capability. It may involve an overprotection of the children, thereby limiting their ability to explore, to learn while also inhibiting the ability of the child to partake in normal social interaction. It may also involve causing children frequently to feel frightened or in danger, or the exploitation or corruption of children \(^{(14)}\).
2.2.4 Other types of abuse

2.2.4 a Corporal punishment

Corporal punishment is a disciplinary method that entails the use of physical force, or the threat of using physical force as a behavior modifier\(^{(11)}\). Stemming from societal and cultural views, its use is widespread and has been practiced for generations in the belief that children should be disciplined. There are different forms of corporal punishment which may include pinching, spanking, shoving, shaking, choking, excessive exercise, confinement in closed spaces, and the denial of bathroom privileges\(^{(14)}\).

While it is understandable that every child should learn to be disciplined and understand right from wrong, non-disciplinary action is the best means of discipline. Non-disciplinary action is not associated with the potential for physical harm and may involve techniques including time-out, loss of privileges, parental disappointment, and grounding\(^{(27)}\). Corporal punishment is now identified as a major risk factor for physical abuse, especially when it causes injury\(^{(28)}\).

2.2.4 b Failure to thrive

The failure of a child to thrive is a problem that is usually identified by the primary care physicians in infancy and childhood\(^{(29)}\). These children’s BMI levels are oftentimes below the average for their age group and they are often victims of “weight flattering” - they do not demonstrate appropriate growth patterns. These discrepancies in growth are commonly associated with a multifactorial origin, medical, social factors, and an inadequate nutrition.

The above factors contribute to poor weight gain, delayed development, underdevelopment of cognitive skills or immune function in extreme cases\(^{(30)}\). Diagnosis and intervention play a
crucial role in avoiding malnutrition and developmental sequelae. The hyper vigilance or the neglect of parents and caregivers may contribute to this problem.

Failure to thrive may also be related to systemic disorders such as Down syndrome. Many children with failure to thrive are not diagnosed only until they are given careful attention and whence their growth is plotted at routine checkups. In severe persistent cases, multidisciplinary approaches are suggested. In most cases, however, an outpatient management and an appropriate nutrition and calorie intake are enough to resolve the issue and maintain an appropriate growth velocity (31).

Another recognized cause for failure to thrive is the presence of multiple carious lesions in the child’s mouth leading to persistent pain and limitation in food intake. Researchers have found that once the conditions in the oral cavity are rectified, the child’s weight is very likely to normalize (31).

2.2.4. c Intentional drugging or poisoning

The intentional drugging of children by parents or caretakers involves the administration of a non-prescription or prescription drug that is harmful and not intended for therapeutic reasons in children(32). Sedatives are common, and children can quickly be addicted if given hallucinogenic agents or different kinds of recreational drugs. Despite its danger and possibility to lead to death, this kind of abuse does not have a classic clinical presentation it is an unusual form of child abuse. If physicians were to notice symptoms consistent with this kind of abuse, it is critical that the proper departments are notified such that the wellbeing of the child is ensured in holding it away from the caregiver or parents (3).
2.2.4. Munchausen syndrome by proxy

Munchausen Syndrome by proxy describes children who are victims of parentally fabricated or induced illness (3). The children are usually too young, mostly under the age of 6 years old, and are as such unaware that they are being deceived (33). In multiple occasions, the children visit the emergency room, undergo unnecessary medical investigations, are admitted to the hospital, and undergo various treatments. Parents or caregivers will usually complain that the child is suffering from bleeding from various sites, seizures, central nervous system depression, apnea, diarrhea, vomiting, fever, and rash. The caregivers may also go to the measure of adding their own blood to a child’s specimen to give a false result, if a specimen is needed (15). Factitious signs include recurrent sepsis from injecting contaminated fluids, chronic diarrhea from laxatives, fever from rubbing thermometers, or rashes from rubbing the skin or applying caustic substances. In a recent study, it was found that perpetrators were mothers with a nursing qualifications (34). Early diagnosis is essential so that healthcare providers do not mistakenly harm the child through unnecessary treatments that would only benefit the perpetrator’s psychological needs (35).

2.2.5 Forms of child neglect

Neglect is the most common type of child maltreatment. Throughout history, neglect has not been given as much attention as child abuse. Child neglect was not recognized as a form of maltreatment and as such is not reported as much as other types of maltreatment (36). Defining neglect has been challenging, the most acceptable definition is that “neglect is the persistent failure to meet a child's basic physical and/or psychological needs, likely to result in the serious impairment of the child's health or development” (37). Neglect may range from failure
of the provision to failure of supervision. It negatively affects the child education, social, psychology, and physical levels.

Neglect can start at birth; it may occur when a parent fails to provide adequate food, clothing, and shelter for the child or similarly when the parents fail to protect the child from emotional and physical harm. Neglect may be as simple as leaving a child with no supervision, and failing to provide medical assistance when needed. Furthermore, any failure of the caregiver or parent to recognize or meet their child's needs and comply with professional advice is a common factor in many sorts of neglect \(^{(6)}\).

According to Maslow's hierarchy of needs, there are five levels of needs. The most basic need is to survive, and this is considered to entail biological and physiological needs such as air, drink, food, shelter and warmth. At the next level of the hierarchy, safety and security is key. The third would be the sense of belonging and emotional needs, needs for the sake of self-esteem and self-confidence, such as independence and achievement, self-respect and respect to others. The fifth and last level of the hierarchy includes needs pertinent to self-actualization, which occurs when the person seeks growth and peak experiences \(^{(38)}\). In context, identifying these needs is a prerequisite to the diagnosis of the different types of neglect, thus avoiding any harm to the child in the long term.

2.2.5.a Health care neglect

This type of neglect entails a parent or a caregiver’s refusal or delay in seeking medical assistance for his/her child. A parent is guilty of neglect when s/he denies the treatment of a
child suffering a physical injury, illness, or any other medical condition. Health care neglect may also be described when a child’s treatable condition is deteriorated, due to the parents failure to pay attention to the physician’s recommendations, or when a medical emergency occurs but the parents are not convinced of its urgency and refuse to acknowledge it \(^{(39)}\).

Furthermore, this kind of neglect includes the delay or failure to seek proper medical assistance promptly. This involves avoiding appropriate preventive, dental, and medical care. It also involves avoiding giving the child prescribed medication. Avoiding seeking assistance for mental health care is also considered as neglect \(^{(38)}\).

There are multiple reasons for these types of negligence; it is not always due to an uncaring parent, the reason could be as simple as lack of health insurance coverage hindering the caregiver’s financial ability to seek proper medical care \(^{(15)}\).

Unfortunately, there is no universal law obliging the parents to seek medical services for their child. Regardless, however, it is unethical and morally unacceptable to see a child in harm or a life-threatening condition, and do nothing \(^{(40)}\).

### 2.1.5 b Dental neglect

Children have a right to proper oral health, which is essential and related to their general health and wellbeing. Parents may tend to seek dental treatment for their children only when the child is in pain, and as such has not been sleeping and eating properly. Upon a dental examination, the parent may come to know that multiple cavitated teeth are in need for treatment. While some parents would be keen to restore the oral health of his/her child, some would choose not
to return for completion of care. The personal choice and practice of an adult to visit the dentist only while in pain should not be applied to children.

Dental neglect has many consequences for children\(^{(41)}\): A child with any dental disease may suffer toothache, disturbed sleep, difficulty with eating or a change in food preferences, or an absence from school and an interference with play and socialization. The following definition of dental neglect has been recommended by the American Academy of Pediatric Dentistry (AAPD):

“The failure by a parent or guardian to seek treatment for visually untreated caries, oral infections and/or oral pain, or, failure of the parent or guardian to follow through with treatment once informed that the above condition(s) exists”\(^{(42),(43)}\).

Similarly, the British Society of Paediatric Dentistry (BSPD) defines dental neglect as “the persistent failure to meet a child’s basic oral health needs, likely to result in the serious impairment of a child’s oral or general health or development”\(^{(43),(44)}\).

Historically, many dentists have respected the parent’s choice and thought of it as acceptable and would not challenge it neither report it for further investigation. However, this view is changing particularly due to the fact that dental neglect is frequently encountered. For example, a questionnaire distributed to pediatric dentists in 2005 showed that 81% of them saw children with neglected dentitions once a week or more frequently\(^{(2)}\).

Dental neglect can be easily resolved when it is due to insufficient dental parental knowledge. Therefore, dental management can start by educating the parents - this alone will modify any neglectful situations and will educate parents about warning signs for caries and how to avoid caries all in all. However, when the dentist suspects that the dental neglect of the parents
correlates with other signs of general neglect, it becomes essential to intervene early and prevent ongoing child neglect (42).

Recently, safeguarding children has caught everyone’s attention and is becoming a very widely discussed topic, with many agendas and policies set in place. In the context of increasing emphasis on preventing maltreatment multiple ideas were discussed: improving multi-agency collaboration, encouraging early intervention – rather than intervening only when a crisis. Dental professionals have, in the past, had to reconsider the diagnosis and management of child dental neglect and amend dental training accordingly (26).

2.2.5 c Safety neglect

Safety neglect is defined as the lack of adequate supervision of children, resulting in children getting injured in one way or the other. In some countries, guidelines are set for every age group defining the amount of time they are supervised. Every child is unique and the time of supervision varies according to his/her physical and mental development; for example, a child with a medical problem will require continuous monitoring (45). Usually young children, particularly those under the age of four years, need an adult to supervise them directly. While some accidents are considered as unfortunate, and the parents cannot be blamed for these unpredictable injuries, there are many injuries that can be prevented (46). It is important to note that every child will have their share of accidents, while they learn to walk and crawl, and this is not considered as neglect. Various examples of safety neglect include the exposure of children to hazards, which may lead the child to being poisoned, the inadequate covering of electrical wires, not fencing the stairs, and not keeping small objects out of sight and reach of children. Another example of safety neglect may include the passive second hand smoking by parents who smoke – this can cause a child to have a spectrum of diseases such as respiratory
problems. Rotting foods, insect infestations, and the lack of clean water may also constitute safety neglect on part of the parents. Vehicle safety such as the lack of car safety restraints is also considered a crime and child safety neglect in some countries \(^{(15)}\). Other forms of safety neglect may include leaving a child with the inappropriate caregiver, such as leaving siblings who are not old enough to look after each other, or leaving a child with an adult who has an addiction or substance abuse \(^{(47)}\).

**2.2.5.d Emotional neglect**

Compared with other types of negligence, emotional negligence is more challenging to diagnose and assess. Unfortunately, however, it is serious and has long-lasting consequences, and it is usually accompanied with other forms of neglect or abuse \(^{(38)}\).

Signs of emotional neglect may include inadequate nurturing or affection, where the parent and caregiver pay no attention to the child’s psychological needs. The exposure of the child to chronic domestic violence can cause significant behavior changes that can affect their emotional status. Some parents who are substance abusers may encourage their child to use drugs or alcohol. One other situation of emotional neglect is when the caregiver is aware of maladaptive behavior but does not intervene \(^{(11)}\).

**2.2.5.e Physical neglect**

Defined as the inability, or the failure, to care for children up to par with appropriate standards, physical neglect is one of the most widely recognized forms of neglect. Children who are victims of physical neglect are also evaluated for whether or not they are experiencing emotional abuse \(^{(48)}\).
The abandonment of a child, the expulsion of a child from home, the shuffling of a child to different caregivers, the neglect of a child’s nutritional and clothing needs are all examples of physical neglect \(^{(49)}\).

Because the physical neglect of a child may also include the unduly appearance of a child – such as inadequate or inappropriate clothing, lunches, immunizations, unstimulating environments, it may be confused with poverty, or ignorance \(^{(15)}\). The neglect may also be represented by inadequate after-school supervision, and excessive work.

### 2.2.5.f Educational neglect

This form of neglect comprises of all cases where the parent or the caregiver intentionally allows the child's chronic absence or truancy from educational establishments, such as schools. It involves a child being absent from school for an average of, at least, five days every month. Furthermore, if parents were informed about the situation by the school’s social services and then made no effort to resolve the problem, there exists an obvious lack of concern for the child's well-being on part of the parents \(^{(50)}\).

The obstruction, even the occasional refusal, of the child’s needs for proper education could be due to many reasons. These may include keeping the child home to babysit younger siblings. Also considered as educational neglect is the failure to enroll children in school causing them to miss more than a month of schooling \(^{(51)}\). Occasionally, parents will not allow or will not seek an assessment regarding the treatment of a child’s diagnosed learning disability – this, without a doubt, is another form of neglect.
2.3 Scope of the problem

The problem of CAN has far reaching effects on the child, both in the short term as well as the long term. These effects can range from psychological consequences on the child and may occasionally escalate to unfortunate and painful consequences such as child infanticide and homicide. Therefore, it is important to know the size of the problem, its scope, and how to effectively combat it.

In order to identify and quantify different patterns of child maltreatment, countries and governments always seek information from the authorities. Unfortunately, the data in this regard is still lacking and insufficient. This may be due to the difficulty and complexity of collecting such information. The available estimates may also widely vary, based on different cultures, countries and the methods used in obtaining the data (52).

Recent international studies conducted on adults reveal that at least a quarter of all adults have been physically abused as children. Equally interesting, women had a higher percentage of child abuse; a ratio of 5 to 1 reported that they had been sexually abused as a child, compared to 1 in 13 men (14).

According to the National Study of the Incidence and Severity of Child Abuse and Neglect (NSISCAN) in the USA, between 2005 and 2006 hospitals reported nearly 3 million children had been subject to maltreatment. This occurrence of maltreatment corresponds to one child in every 25 experiencing maltreatment in the United States. Unfortunately, in more than half of the cases that met the criterion for abuse, the hospitals had neglected to report to child protection agencies (53).
2.3.1 The psychological impact of child maltreatment

Physiological trauma is characterized by events that occur both suddenly and without prior notice – this trauma is life-threatening and has a direct effect on a person’s senses (54). There are a large range of events that can be classified as physiological trauma; this may include sexual infringements, witnessing murder or death in manmade or natural disasters, finding someone who has committed suicide, or by being a part of or witnessing an automobile accident. Whether they undergo personal losses, or the loss of their home/country/language, Children – particularly those in areas of conflict – are victims of such trauma on a regular basis as they witness death and destruction (55).

Different children may very well respond to such trauma in different ways. Responses that occur directly following an event are usually characterized as shock and may include sensations of confusion, emotional apathy, as well as physical responses such as trembling, shivering or nausea. Long-term reactions may take the form of fear, vulnerability, depression and pessimism, irritability and anger, sleep disorders, extreme fatigue or difficulty concentrating, as well as the repeated and uncontrollable reliving of the event itself. It is unfortunate to note, however, that the intensity of the experience for the affected child, as well as their profound psychological reactions, are not adequately recognized (56).

In various Arabic cultures, it is the case that parents do not usually speak with children or converse with them about their concerns, thereby deeming the adults unaware of their children’s experiences. Furthermore, due to the fact that it is difficult for adults to come to terms with the dangerous events that may have happened to their children, the adults cannot adequately understand their children’s reactions. Stemming from this, adults also seek to
always protect their children from painful experiences and emotions and do not wish to recognize that their children have gone through traumatic experience (57). Interestingly, the adult may also have gone through the same trauma as a child themselves and, therefore, the child's experiences may open old wounds of the parent and cause many emotions to surface some that the adult may be trying to suppress.

Adults may not always understand the reactions of children as they may be markedly dissimilar. Oftentimes, depressed children are often active and restless, while depressed adults are sluggish and move at a slower speed. Moreover, children who suffer from extreme mood swings may at one point be jubilant and at another time be deeply sorrowful. This behavior alienates and confuses adults, which may lead to their assumption that children "get over things easily" (58). Children are quick to recognize when it is a good time to address and talk about their emotions and when it is not. They are also able to recognize when adults cannot bear to hear about the children’s intense feelings and as such choose to say nothing in an effort to "protect their protectors" (19). Because of these reasons and as a response to the adults’ attitudes, children have a tendency to repress their emotions and thoughts (59).

2.3.2 Social impact of child maltreatment

The maltreatment of children has caught attention from the public – many cases have been published in the media and debated in the courts. Some examples of cases that caused social outcries are: Victoria Climbié, a nine-year-old girl that died due to abuse by her great aunt care provider in the UK (59), and in the UAE the death of Wadeema, an eight-year-old girl that was abused by her father (60). International organizations have recently dedicated much effort to put an end to child maltreatment. Such efforts are characterized by "Humanium", an international
child sponsorship Non-Governmental Organization (NGO) devoted to ending violations of children's rights throughout the world (61). The organization was established in Geneva in 2008, and has proven to be involved in the awareness and education of more than 5 million people in different countries and helped and supported children that were maltreated. Child abuse is now recognized along a continuum that represents, at one end, acceptable and normal parenting practices and at the other end, an abnormal treatment of children.

2.3.3 Homicide

Despite recent increases in the rate of child survival, 5.9 million children continue to die each year; as such, to reduce global childhood mortality remains a key goal and public health priority (62).

An estimate of 41,000 homicide cases are reported globally, every year, for children under 15 years of age (54). Regrettably, this number undervalues the true scope of the problem, since most of the deaths due to child maltreatment are falsely registered to falls, burns, drowning and other causes. In a recent study it was found that there were 300 children who died in the hospital due to physical abuse in USA (63), and 38% of child maltreatment deaths were caused by child neglect (64).

2.4 Child maltreatment worldwide

Unfortunately, child maltreatment is a widespread, global phenomenon that affects the lives of millions of children around the world. Over the past two decades, the incidence of child abuse has increased dramatically, to the point where around 3.6 million cases were recorded, with twenty-five percent substantiated as victims of child maltreatment in 2005 (65).
Intensive research has been done all over the world while looking at CAN – the studies have all had various outcomes and results. Despite having a common theme of attempting to study CAN, different research mechanisms and definitions of the various types of abuse and neglect exist. Cultural differences may get in the way of the research as some practices may be accepted in one culture while these same practices may be frowned upon in another; this difference, however, doesn't change the foremost principle of child maltreatment. According to the WHO, in 2000 an estimated 57 thousand children were victims of homicide, with children aged 0-4 being the most common victims of fatal child abuse. The most common cause of death for these children are head injuries, followed by intentional suffocation (66).

The surveys and reports about CAN make clear various cases of abuse and neglect. For example, girls appear to be victims of sexual abuse more than half the times that boys do (36). Unfortunately, however, boys who are victims of sexual abuse are less likely to disclose this, or it is generally less likely to be detected – which makes the occurrence of sexual abuse with boys underrepresented. Because these cases of sexual abuse usually span over an extended period of time, the violence usually undermines the child’s relationship even the other non-abusive family members because it creates such severe loyalty conflicts (36).

In 1993, Cappelleri et al. (49) presented data from the Second National Incidence and Prevalence Study of Child Abuse and Neglect (NIPSCAN II) in the USA regarding rates of physical and sexual abuse. The report found that the socio-demographic characteristics of the child and their family assisted in determining those subjects at risk of physical and sexual abuse. Among other findings, the report highlighted that low income played a role in the forms of maltreatment that were present.
The National Incidence Study (NIS) is a congressionally mandated, periodic effort of the United States Department of Health and Human Services. The NIS produces cyclic surveys, most recently in 2006. Despite the fact that the study has recognized several limitations, it is remains to be the most accurate available data regarding national estimates of the incidence of child abuse and neglect (50). Besides present the incidence of child abuse and neglect, the data is also helpful in that it highlights basic knowledge about child maltreatment. The effects of the report are plentiful; it may inform public policy, it may help dispel misconceptions about maltreatment. The analysis from the NIS assisted in emphasizing aspects of the study design that need improvement while simultaneously refining our current understanding of child maltreatment.

In 2006, the Department of Health and Human Services of the USA conducted a survey. there were 3.3 million reports of 6 million children, out of this number 905,000 children were victims of maltreatment, and 16% of them sustained physical abuse (67). Another US survey in 2008 of children aged 0–17 reported that 10.2% of children experienced some form of maltreatment. While the trends of physical abuse and sexual abuse have dropped between the year 1990 and 2006, but child neglect has increased (68).

The annual report of England’s OFSTED, the Office for Standards in Education in Children's Services and Skills in the year 2007/08 (69) presented the findings from the first full year of inspection, while also presenting any progress made in safeguarding children. According to this report, local authorities in England notified OFSTED of 424 serious incidents involving the deaths of 282 children. This equates to 199 children experiencing one or more form of abuse annually or almost four children per week. The year 2014/15 saw the highest number of recorded sexual offences in the last decade; police recorded 47,008 sexual offenses against
children in the UK \(^\text{\cite{(70)}}\). It is likely that improved recording of sexual crimes by the police and an increased willingness of victims to come forward might have contributed to this rise.

In a review by Stoltenborgh et al. \(^\text{\cite{(71)}}\), the results of a set of meta-analyses on the prevalence of child physical, emotional, and sexual abuse and physical and emotional neglect were combined and compared, for the various types of maltreatment. The report result of an overall estimated prevalence rates, showing that 226/1000 for physical abuse, 127/1000 for sexual abuse (76 among boys and 180 among girls), 363/1000 for emotional abuse, 184/1000 for emotional neglect, and 163/1000 for physical neglect. The overall estimated prevalence rates for studies using informants were four per 1000 for sexual assault and three per 1000, respectively, for physical abuse and emotional abuse.

The Child Abuse and Prevention, Adoption, and Family Services Act of 1988 in the USA commissioned the study of maltreatment among children with disabilities. The study identified that children who had disabilities were 1.7 times more likely to experience maltreatment than children who do not have disabilities \(^\text{\cite{(72)}}\). Also disturbingly, the report highlighted that disabilities in children contributed to 67\% of abuse cases - 76\% of these cases relating to children with physical health problems and 59\% relating to hyperactive children. Children with disabilities are 2.1 times more likely to experience physical abuse than children without \(^\text{\cite{(73)}}\).

Children with disabilities are not only abused but are also neglected; they are 1.6 times more likely to encounter physical neglect compared to children who do not have disabilities. Similarly, children with disabilities were 2.8 more likely to suffer emotional neglect as opposed to children without \(^\text{\cite{(74)}}\).
In Saudi Arabia, Al Eissa et al.\textsuperscript{(75)} conducted a study to ascertain what the overall prevalence of major forms of abuse was among adolescents. Interestingly, the study revealed that all forms of abuse were higher amongst children living with single parents or with stepparents. The study also suggested that the phenomenon – adolescent maltreatment – should be given more attention and should be discussed at greater lengths, particularly with regards to the effect that it has on girls. The study also suggested that sexual abuse prevention programs should target the adolescent boys of the society.

### 2.5 Legal aspects of child protection from maltreatment

#### 2.5.1 International

The United Nations Convention on the Rights of the Child (UNCRC) identifies a child's right to be safeguarded from violence and harm; it also asserts that "governments must do all they can to ensure that children are protected from all forms of violence, abuse, neglect and mistreatment by their parents or anyone else who looks after them."\textsuperscript{(76)} The United Nations International Children's Emergency Fund (UNICEF) produced a series of 54 articles that summarized the rights of children and the responsibility and the important role that adults and governments play in implementing and upholding the convention\textsuperscript{(77)}.

The UNCRC demands all countries that have ratified the convention (Somalia, USA, and South Sudan are the only non-signatory countries at present) to set up an integrated child protection system in order to ensure a collaborative response to cases of child abuse and neglect\textsuperscript{(1)}. Mandatory reporting of any suspicious cases of child abuse and neglect is considered a primary strategy to deal with violence against children.
The WHO provides information for different countries regarding appropriate preventative measures to combat child abuse and appropriate ways to counter it. Unfortunately, the comparisons on deaths from childhood diseases are robust compared to childhood deaths from accident and intentionally inflicted trauma; this may be due to the substantial variations in national practice and laws on the investigation and registration (78).

Laws dealing with child abuse ensure that any individual causing harm to children becomes legally accountable for his/her actions. These laws are aimed at anyone responsible for the child’s wellbeing, including the parent, or caregiver. These rules include all forms of child abuse and neglect. Many Countries including the UK, many European countries, the USA, Australia and Canada have similar procedures and protocols with a slight difference in jurisdictions (63).

In many countries such as the USA, UK and Canada, there is a system in place for arranging a child protection referral. The process starts with a referral from a professional to the local authority responsible for child protection, or occasionally to the police in order that they may investigate the matter. When a child is suspected to have suffered from child maltreatment, three different approaches may be taken. The child may be immediately removed from the carer’s jurisdiction into temporary care (foster care), an investigation could be commissioned while the child remains at home, or no further action is taken and the case closed (79).

Legislation pertinent to child protection can be divided into: civil and criminal laws. In most places, there are two parallel investigation authorities, the first being the child protective services, and the second being the law enforcement (80). The main difference between the two is that the child protective services deals with the child’s safety, works with the family, and
cases will be handled in the juvenile court. On the other hand, law enforcement would deal with cases involving criminal activity, such as homicide, sexual abuse, physical abuse and cases are taken to the criminal court.

While the maltreatment is investigated, a child protection plan is set to pave the way for many things: firstly, to allow social services to ensure the safety of the child, secondly, to assess how to reduce the risk of abuse, and thirdly to support the family. Furthermore, in the USA if the parents face trial in court, the child may either be reunited with the parents, may stay in permanent foster placement particularly when the parents’ parental rights are terminated (81).

2.5.2 Legal aspects of child protection in UAE

2.5.2 a The UAE and child protection

The UAE is a multilevel pioneering country in the Middle East and North Africa (MENA) region. It was formed in 1971 and composes of seven Emirates (Abu Dhabi, Dubai, Sharjah, Ras Al Khaima, Ajman, Al Fujairah and Um Al Quwain). The UAE is governed by UAE federal laws, while each Emirate has its own internal local laws. The UAE has established a vision and strategy to be the most secure and ideal environment for children to live. His Royal Highness Sheikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai had said, "We want to make Dubai the safest and happiest place for children in the world" setting the vision of the leadership of the UAE (82).

As per Article 273 of the Federal Law No. 3, individuals are obligated to report suspicious cases of child maltreatment to authorities (83). Furthermore, this article ensures that healthcare providers are penalized for failing to report treated injuries – particularly those circumstances which are considered to be suspicious. What this federal law also entails is immunity from
persecution for healthcare providers whence they breach patient-client confidentiality with the intention of reporting something suspicious\(^\text{(84)}\).

The tragic and unfortunate two particular cases were what lead to the establishment of these federal laws. The two cases that elicited the formation of the laws dealt with, firstly, the 2012 case of “Wadeema” who was an eight-year-old girl who was tortured and then subsequently murdered by her father\(^\text{(10)}\); and secondly the 2014 case of “Mariam” who was a four-year-old girl who was both tortured and starved to death by her mother, who would also place Mariam in a garbage bin for long periods of time\(^\text{(85)}\).

### 2.5.2 b Implementation of the UAE child protection law

In June 2016, His Royal Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, issued a new UAE Federal Law concerning children’s rights. The so-called "Wadeema's Law", named in memory of the aforementioned murdered girl\(^\text{(86)}\). Wadeema’s law hits a few issues; firstly, it states that “all children have the right to protection from abuse, neglect, exploitation and discrimination”. It also includes a clause that permits social workers to intervene in cases where they believe children are in imminent danger – they have the right to remove the children from the danger and then into the care of governments. The law also highlights other rights which are necessary in meeting basic human needs that children in the UAE are entitled to: economic rights, social rights, cultural rights as well as the more simple right to food, education, healthcare and shelter\(^\text{(10)}\).

Prior to the issuing of the law, there was no infrastructure in the UAE to safeguard children and ensure social services. After the issuance of the law, there is a lot of inter-agency and ministerial collaboration with the same goal of finding a proper system for reporting and
investigating cases of child abuse and neglect. It will take some time to establish the perfect system, however positive steps and advances have been made to ensure a brighter beginning for every child that lives in this country.

While there are centers for women and child protection in every Emirate, the public isn't aware of what particular actions may be taken for the protection of children. In recent years, a hotline has been established to help report any suspicious behavior towards the child. The Child Protection Centre handled over 60 cases of child abuse/neglect from different nationalities, some of which came from various government agencies. Unfortunately, the majority of the cases of children between seven and twelve years were cases of sexual abuse, while the second most common form of abuse was found to be physical abuse \(^ {85}\).

### 2.6 Child abuse studies and other professionals

This section covers multiple studies that were conducted in various countries relating to child maltreatment and dental profession and other professions.

#### 2.6.1 The dental profession

An Australian study conducted in 1999 explored the knowledge and attitude of dentists toward child abuse. The study concluded that there was a poor understanding overall of the problem, despite a very high level of interest and a strong desire for information. There was a low reporting of abuse cases, this was due to the low levels of training in undergraduate and postgraduate levels \(^ {87}\).
A similar 2005 survey conducted in Scotland by Cairns et al\(^\text{(16)}\) sought to recognize general dental practitioners’ training experience and knowledge with regards to child protection. It was found that there was a lack in training and guidelines for dentists. This study recommended to train and increase dental competence such that they look out for suspicious indicators; it also recommended that dentists be involved and active child protection training that occurs across various agencies.

Another study was conducted in 2009 in the UK by Chadwick et al\(^\text{(88)}\) and involved dental therapists. This survey suggested that dental therapists, similar to the case of dental practitioners, are reluctant to refer cases of suspected child abuse. The study also recognized that whence dentists have undergone postgraduate training, the likelihood that a suspected case will be recognized is increased. However, it is still the case that mechanisms must be set in place that encourages dental teams to report suspected cases of abuse or neglect.

Another study by Al-Habsi et al in 2009\(^\text{(88)}\), surveyed general dental practitioners in London; the study aimed to assess the knowledge of dentists and their referral of suspicious cases to child protection. The study showed that, similar to studies done in the past, the dentists in London displayed a lack of training with regards to how to deal with cases of child abuse. The dentists also displayed an unawareness of the potential significance that they may play in safeguarding children. The study also highlighted that, in safeguarding children, communication between both the dental department and the medical departments is crucial. Further education is required in the form of continuing professional development (CPD).

In Brazil, Azevedo et al\(^\text{(12)}\), conducted a similar survey to determine dentists’ attitudes and perceptions regarding child abuse. The study concluded that the dentists were not aware of
the appropriate protective measures to take to safeguard children. It recommended that the dental team receive interdisciplinary training to hone their ability to assist children and to subsequently safeguard them from harm. Another area of concern that was brought forth by the study was that when dentists did find themselves able to identify cases of potential children abuse, rarely did they actually refer these cases to appropriate authorities indicating a lack of awareness of protective measures.

A systemic review was published in 2013 and it aimed to identify features of oral neglect in children. The review asserted that it is oftentimes difficult to differentiate cases of dental caries from dental neglect and there is a gap in the literature that could help to clarify clinical features that could aid in this distinction. Dentists may feel reluctant to report cases when they find it hard to diagnose dental neglect. While there does exist evidence to support reporting cases that may be dental neglect, a need for quality control studies remains (89).

A study published in 2014 in Saudi Arabia (42) sought to explore the experience and knowledge of dentists in identification of CAN. The survey presented a good level of knowledge regarding the forms and indicators of CAN. Nevertheless, the action of the dentist toward the suspected cases was not appropriate. Therefore, the recommendation was that additional resources and training was required to identify and manage cases of child maltreatment by dental practitioners.

With regards to the UAE, a study published in 2016 by AlAmad et al. assessed dentists’ knowledge when dealing with cases of child abuse. It assessed the extent to which they were exposed to such cases, and the reasons that they may have not reported said cases to appropriate authorities. As this report highlighted the fact that dentists very rarely, if ever,
reported suspected cases to authorities it recognized the need for training that would assist dentists’ in appropriately diagnosing and reporting child abuse cases (7).

2.6.2 Child abuse surveys in other professions

An American study (90) which evaluated the experiences of pediatric nurse practitioners in the identification and management of child abuse revealed the view that the majority of healthcare providers are in need for further education regarding child abuse, whether in curriculum preparation or in order to train health care practitioners how to correctly diagnose and manage child abuse.

Another American cohort study investigated whether or not introducing screening and training for emergency room nurses would increase the detection rate of child abuse. After training the nurses, it was found that the detection rate in children screened for child abuse was five times higher (91).

In the Republic of Cyprus a study was aimed to investigate abuse in the school environment (92). The study found that the gender of the pupils was directly related to abuse, since more boys than girls reported being victims of abuse.

Furthermore, a Dutch qualitative study sought to investigate frontline workers’ child abuse detection and reporting behaviors (17). While the study revealed that the health care practitioners were aware of the signs that are suggestive of child abuse, they were unaware of various distinctions of abuse as well as effective communication skills. As such, the study suggested that frontline workers are in need of appropriate tools to effectively detect child abuse.
A questionnaire survey distributed in Izmir, Turkey\(^{(93)}\) was designed to investigate preschool teachers’ awareness of child abuse and neglect. The results suggested that if you are a preschool teacher who also is: a parent having knowledge in child maltreatment, if your job status is higher, and if you have experience dealing with maltreated children it is likely that you would be able to recognize and identity signs of child abuse. Regardless, the results support that teacher training child abuse and neglect would undoubtedly have a positive impact on teachers’ awareness of the possible signs of child abuse and neglect.

In 2003, a cross-sectional survey was conducted by Al Moosa et al.\(^{(94)}\) to evaluate the knowledge and experiences of pediatricians in Kuwait regarding child maltreatment. It was shown that experience and presence of child neglect was more common than child abuse. It was also found that females are able to spot maltreatment cases more frequently than males, and are more involved in alerting cases to the social services.

The survey additionally highlighted that it would be helpful were there be national guidelines regarding reporting suspected cases of maltreatment. The report highlighted that it is similarly important to implement laws that protect maltreated children, that additional training is required to assist pediatricians.

### 2.7 Child protection and its unique relationship to dentistry

While the exact prevalence of maltreatment is vague, the public is more conscious than ever of the problem. Dealing with abuse is not limited only to law enforcement authorities but also involves and includes social and medical service professionals. It is the duty of everyone that has any contact with children to safeguard the children from any potential harm. With this in
mind, the dental profession is favorably situated to identify and detect child maltreatment; this is because most of the physical injuries that children are subjected to are located the head and neck region – an area that very easily exposed to a dentist when s/he does a dental exam.

Unfortunately, the appropriate protocols and proper channels to report CAN cases are not very clear or may not be known to many healthcare professionals. Dentists may be familiar with CAN but that is not sufficient; they must be actively conscious of their role and responsibility to recognize and report cases. In the dental clinic, the first potential pointer to dental neglect is dental caries and poor oral hygiene. In various research, it was found that more than half of the physical injuries to children were found on the head and neck. In a study by Adelso on deaths of children due to abuse, it was found that 79% of the injuries were in the scalp region, 49% on the cheek, 52% on the forehead and 48% on the mandible. In another study by Becker et al. of maltreated children, 49% of the children presented orofacial injuries and 16% had head trauma.

Nowadays, dentists have become more involved and aware, not only of their role in the treatment of a maltreated child, but also in the detection and reporting of these cases. Numerous studies in the dental literature have emerged alerting us to our legal and moral responsibility as health professionals in recognizing child abuse. Unfortunately, however, although the identification of abused facial injuries is less complicated than other injuries or other regions, the literature shows that the reporting of such cases by the dentist is still low.

A survey of dentist in Massachusetts revealed that the majority were unacquainted of their social and legal responsibilities to report their suspicion of child abuse cases. The study had
shown that 11% percent of all dentists had seen orofacial trauma that was of a suspicious in nature, 22 confirmed cases of maltreated children were noted. Of these, only four were reported to social authorities.

In a survey of pediatric dentists, it was indicated that the common setbacks that inhibit them to report and get involved in abuse cases is: the ignorance about child abuse, the lack of awareness of legal actions to report, the reluctance to believe parents, the fear of dealing with the parents and the fear of economic damage to practice \(^{(101)}\). A study by O'Neil et al. \(^{(102)}\) was conducted to determine the prevalence of dental injuries in a maltreated child. The most common orofacial injuries were fractured teeth, missing teeth without obvious explanations, laceration of the labial frenulum resulting from forced feeding, displaced teeth, abnormality of appearance and mobility of the tongue, fractured maxilla and mandible, and bruised or scarred lips.

In a summary of multiple studies \(^{(103)}\)\(^{(104)}\), it was confirmed that the 50% percent of trauma in physically abused children were in the head region, this would be apparent as soft tissue injury or bruises, while trauma to the upper lip and labial frenulum may be a typical lesion in the severely abused young child. These studies presented in the literature make it very obvious that dentists are in a useful position to detect child abuse. The national figures in USA \(^{(105)}\), show that as many as 1 million children per year are maltreated and out of these, 1000 children die each year due to abuse. According to another study \(^{(54)}\), we can estimate that 50% of children would sustain trauma to the head. As such, the dental team is at an advantageous position and can play a significant role in identifying cases of child abuse and neglect, be it the psychological and emotional behavior of the child or an abnormal child-parent relationship. Because dental visits are common, dentists are in a strategic position over other physicians to
detect suspicious cases of abuse\(^{(106)}\). The regular visit to the dentist may allow the dentist to create a trustworthy relationship with the child. This is where they can help in detecting maltreatment and preventing further trauma to the children by bringing help to these troubled families\(^{(8)}\). Regrettably, however, the association between neglect and dental caries in children remains to be unclear. Therefore, the dilemma of under-reporting suspicions cases may start with the dentist missing the indicators, thinking that it is just a case of dental caries, not understanding that dental caries may also be a sign of general neglect\(^{(107)}\).

### 2.8 Child protection and the duties of the dental team

In this section, the duty of the dental team toward safeguarding children is discussed. This is summarized in the five Rs: responsibility, recognizing, reorganizing responding, and resources.

#### 2.8.1 Responsibility

The cases of child abuse and neglect that we are exposed to on the news are only the tip of the iceberg. The majority of cases are not reported to police or social services. Safeguarding children is a shared responsibility of everyone. As humans, we have both ethical and moral obligations to report areas of concerns when we suspect that a child is being harmed or abused.

The dental team is in a favorable position to observe and detect signs of child abuse and neglect; this will require them to be aware of the local procedures for child protection in their area\(^{(2)}\). While abuse might be easily detected, it is definitely hard to diagnose. To make a confirmed diagnosis is not the responsibility of the dental team alone, but it is definitely their
responsibility to share any concerns. For the benefit of children, it is critical to communicate, cooperate, and support with other authorities and social services, to prevent abuse and support families where children are at risk.

Guidelines and legislation have recently been set by governments in order to improve multi-agency protocols, to thereby emphasize the benefits of early intervention in cases of maltreatment \(^{(108)}\).

**2.10.2 Recognizing**

The dental team should be attentive to the red flags of child maltreatment. They should be able to notice signs, recognize what to consider as abuse and what to consider as neglect, and be able to effectively deal with the situation. Such cases could be presented to the dental team, by a direct accusation from the child or the parent, through signs and symptoms of abuse and neglect, and through the child behavior or parent-child interaction \(^{(109)}\).

When a child is present in a dental clinic, a thorough assessment is required not only to formulate a proper treatment plan for the dental status, but to also look for possible signs of abuse or neglect. In the initial assessment, a detailed history from the child and parents of any injury or presenting complaint is required. The initial assessment must also evaluate past dental, medical history, and family and social circumstances.

Research has shown that injuries occur most frequently in the head and neck region \(^{(110)}\). Because of the fact that this area is the main area exposed during a dental examination, the dentist would have the advantage to examine it and report any concerns and calls for early intervention. Furthermore, the dentist should be alerted when presented with inconsistent or vague history that is not consistent with the clinical picture, when there is a delay in
presentation, when the child does fit developmentally in his age range, and when there are previous concerns to the same child or another sibling in the family \(^{(6)}\).

\textbf{2.10.3 Responding}

Responding to a case of child abuse and neglect is important, but it should never interfere with the dental management; in other words, a child should not endure pain and injury and be left untreated \(^{(111)}\). If you suspect or are concerned about the child’s welfare, as the dental situation is managed it is wise to consult a senior or a colleague to assess the case themselves. In some countries, a professional child protection nurse or social service team is available to help disclose any suspicions and may get involved by communicating with other agencies \(^{(93, 94)}\). Many dentists feel that they have to make a definite diagnosis before referral of the incident; while this is commendable, the truth is that the dentists may only have or may only see a part of the overall story, which may not be enough to confirm a diagnosis. Sharing their concerns with other authorities can bring light to the full picture and help a child that is at risk \(^{(16)}\). Formally, the dental team should clarify their concerns to the child parents, notify them of the referral process and seek their consent, unless this can put the child at more risk. An honest discussion with the parents may be helpful, although also difficult, as it may eventually make it easier to work together to ensure the protection of the child \(^{(26)}\).

\textbf{2.10.4 Reorganizing}

Safeguarding children is not just about referring maltreated children to social services when concerns come to light; instead, it is more, it relates to altering the environment to ensure that the risks of children are minimized and these situations are avoided altogether. The dental team
has the opportunity to achieve this kind of change. This can be achieved by the dental team by starting with identifying a member of the dental team to be a child protection lead and by having appropriate child protection policies and procedures in practice, by training all members of the team, by keeping accurate records and lastly by implementing safe staff recruitment (60). With these regulations and procedures, the dental team will be able to take responsibility for ethical and legislation guidance, and will play an effective role in safeguarding children.

2.10.5 Resources

Dentists should be aware of the available resources that can prove supportive and educational in enabling the appropriate recognition of CAN and the rapid facilitation of child protection procedures. Resources include online resources and authorities available across the globe. For example, the British Dental Association has a wealth of information available for dentists seeking advise about child protection at www.bda.org/childprotection. In the UAE, there are multiple authorities that deal with cases of concern regarding children; such authorities include the Police, the Ministry of Interior Child Protection Centre Child Protection Centre (under CDA Dubai), Dubai Foundation for Women and Children, and the Social Services Department (Sharjah)(83).

This review demonstrates the importance and relevance of this topic to healthcare providers in general and to the dentists in particular. Following the issuance of child protection laws in the UAE, it became prudent to assess the knowledge, experience and practice of UAE dentists in light of these guidelines, hence this study.
2.11 Aim of the study

To assess the awareness of dental practitioners in the UAE with regards to child maltreatment, child protection and child safeguarding, in light of the aforementioned 2016 child protection law.

2.11.1 Specific Objectives

1- To assess dentists’ knowledge in relation to child abuse and neglect in the UAE.

2- To assess dentists’ practice and experience in relation to child neglect and abuse in the UAE.

3- To identify the demographic, social, educational and clinical variables that affect dentists’ knowledge and experience of child abuse and neglect and the practice of child safeguarding in the UAE.

4- To quantify dentists’ knowledge of child abuse and neglect from set scenarios.

5- To quantify dentists’ perception of factors affecting their practice of a child protection referral.
3.0 Materials and Methods

In this chapter the study logistics will be presented, including the study design, criteria and statistical analysis.

3.1 Study design, population and location

This study is a cross-sectional survey with a quantitative, descriptive and comparative design. Data were collected, by means of a paper and online questionnaire, by the principle investigator (HA) by surveying dentists working in the UAE in the period between November 1st 2015 to February 15th 2016. The paper questionnaires were distributed to a convenience sample of dentists participating at two UAE dental conferences (Arab Academy of Paediatric Dentistry Inaugural Congress-AArPD 2015 and the Arab Emirates Exhibition and Dental Conference-AEEDC 2016). Those who expressed willingness to participate in the survey but did not have the time to do so were asked to leave their email details. The online questionnaire, an exact copy of the paper format, was distributed to them by electronic mail in the form of an invitation to complete a Survey Monkey™ styled survey. Therefore, assurance was made that no crossover between the paper and online groups took place.

3.2 Sample size

The sample size was calculated based on the probability of having knowledge equal to 50% and using the formula of Cochran’s sample size calculation for cross-sectional design:
\[ N = \frac{z_{\alpha/2} pq}{B^2} \ D \]

Where

\[ B = \frac{z_{\alpha/2}}{\sqrt{n}} \sqrt{\frac{pq}{n}} \]

Where

\( P \) is a prevalence of erosion from the reference study.

\( q \) is (1-p)

\( z_{\alpha/2} \) is the quartile of 95%, and

\( B \) is the width of the confidence interval of 95% (error)

Using the above formula with error 0.05, the calculation yielded a power sample size of 384 participants.

A total number of 650 paper questionnaires were distributed at the aforementioned events and 100 email survey requests were sent out. Out of the total 750 surveys distributed and emailed, 501 surveys were returned. Of these returned surveys, 120 surveys were excluded as they did not fulfill the inclusion criteria. A final number of 381 surveys were used in the study

3.3 Inclusion criteria

The participant inclusion criteria were as follows:

1- Fully qualified dentists;
2- Working in the UAE and
3- Certified by one the legal medical/dental regulatory authorities in the UAE, namely:
   • Ministry of Health (MOH)
   • Dubai Health Authority (DHA),
   • Health Authority Abu Dhabi (HAAD)
   • Dubai Health Care City (DHCC)

3.4. Exclusion criteria

The participant exclusion criteria were as follows:

1- Dental students
2- Dental nurses
3- Dental technicians
4- Any dentist who did not wish to take part in the study.
5- Participants who completed the questionnaire but left blank field(s).

3.5 Questionnaire and data collection

The structured questionnaire used in this study had been modified and adopted from previous studies that were conducted (Cairns, 2005; Chadwick, 2009) with alterations to reflect the culture in UAE. Permission was obtained from the authors to use their questionnaires in this study (Appendix IV, V). The questionnaire did not include any identifying information, and was completely anonymous. A pilot study was conducted to
validate the questionnaire among 10 dentists from MBRU and minor modifications were made to improve wording and clarity. These ten questionnaires were not included in the final analysis.

After reading an information sheet about the survey (Appendix II), informed consent was signed by the participating dentist before completing the paper questionnaire, while implied consent was used with the online survey. The signed consent forms were kept separately from the completed surveys to maintain confidentiality.

The questionnaire (see Appendix III) consisted of 18 questions to investigate practitioner’s knowledge and practice of CAN related issues. The questions were divided into three main categories,

- The demographics questions (six questions- gender, nationality, years qualified as a dentist, specialty, country of education, no of child patients per week). Q2-Q7
- The knowledge questions (six questions-see Table 3.1)

<table>
<thead>
<tr>
<th>Knowledge Questions-Table 3.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Was Child Abuse/Protection part of your formal undergraduate dental lecture or seminar programme? (Q8)</td>
</tr>
<tr>
<td>• As a postgraduate had you attended any lectures or seminars on Child Abuse/Protection? (Q9)</td>
</tr>
<tr>
<td>• Are you aware of your local area’s Child Protection Guidelines? (Q13)</td>
</tr>
<tr>
<td>• Do you think that general dental practitioners or members of the dental team are well placed to recognise behaviour and/or signs that may be attributable to child abuse? (Q15)</td>
</tr>
<tr>
<td>• Do you agree with the statement “Children who have been abused usually tell someone soon after the abuse”? (Q16)</td>
</tr>
<tr>
<td>• If a child readily states that an adult has caused harm, the accusation should be addressed? (Q17)</td>
</tr>
</tbody>
</table>
The practice questions (five questions - Table 3.2), which contained two questions each with different scenarios related to perception.

<table>
<thead>
<tr>
<th>Practice and perception questions – Table 3.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have you ever suspected child abuse in one or more of your patients? (Q10)</td>
</tr>
<tr>
<td>• If yes, on how many occasions during the last 5 years? (Insert number) (Q11)</td>
</tr>
<tr>
<td>• Have you seen a case in which you suspected child physical abuse in the last six months? (Q12)</td>
</tr>
<tr>
<td>• Factors affect your decision on whether to make a referral in a case of suspected child abuse (seven factors given) (answer: Yes/No) (Q14)</td>
</tr>
<tr>
<td>• If you were faced with various given scenarios, how would you rate them? (abuse, neglect, both or none) (Q18) - 12 scenarios given</td>
</tr>
</tbody>
</table>

For the last two questions, Q 14 and Q 18, a special score of correct answers from the total for each question was created (7 out of 7 for Q 14 and 12 out of 12 for Q 18 respectively). Each participant was given a score compared to the ideal correct answer score for each of these two questions. These scores were called the Score of CAN Referral Influencing Factors (or SoCANRIF) for Q 14 and Score of CAN scenarios (or SoCANS). These allowed for quantifying knowledge and experience of the participants in CAN related matters.
Figure 3.1 Flow chart of the study

Study aim:
To study the knowledge of dental practitioners in United Arab Emirates towards child maltreatment, protection and child safeguarding issues.

Ethical approval to conduct the study was obtained from HBMC/MBRU

Study population
- Power calculation of: 384
- Certified UAE Dentists
- A survey based questionnaire
- 501 participated

381 questionnaires were analyzed

120 questionnaires were excluded as they did not meet the criteria
3.7. Statistical analysis

Data were entered in computer using SPSS for windows version 20.0 (SPSS Inc., Chicago, IL). Descriptive statistics were used to describe categorical and continuous variables. Cross tabulation was used to examine the independency between categorical variables and statistical analysis was performed using $\chi^2$-square and Exact Fischer’s test when appropriate for test of association. Where two or more continuous independent variables were examined (such as the SoCANRIF and the SoCANS), t-test and analysis of variance (ANOVA) with post hoc tests were used as adequate if the measurement were normally distributed. P-value of less than 0.05 was considered significant in all statistical analysis.

3.8. Ethical considerations

This study was conducted in full conformance with the principles of the “Declaration of Helsinki”, Good Clinical Practice (GCP), and within the laws and regulations of the UAE/Dubai Healthcare City. An approval to conduct the study was obtained from the Research and Ethics Committee at HBMCDM/MBRU (reference number- EC1115-001) (Appendix I).
4.0 Results

4.1 Study sample characteristics

Six hundred and fifty questionnaires were distributed (550 papers and 100 emails). The response rate was 501 out of 650 (431 paper questionnaires and 70 online email responses) rendering the response rate as 77%. 103 questionnaires were excluded from the study, because they did not meet the study criteria and 17 questionnaires were excluded due to the presence of blank fields, resulting in a final total of 381 questionnaires that were suitable for analysis. According to the sample size power calculation, the sample size obtained in our study was 99.2% of the power calculation.

The characteristics of the 381 dentists who participated in the study are summarized in Table 4.1. The gender distribution (Figure 4.1) of the study population was: females were 56.2% (n=214), whereas males were 43.8% (n=167). The nationality and country of qualification demographics were both sub grouped into: Gulf Cooperation Council countries (GCC), Arab countries (countries belonging to the Arab league), Western countries (Western Europe, Australia, and North America), and Asian Countries. The nationality distribution (Figure 4.2a) showed that the majority of participants was from the GCC with 46.2% (n=176) followed by Arab countries (31.5%, n=120), Asia 13.4% (n=34) and Western countries with 8.9% (n=34). The basic dental qualifications of participants (see Figure 4.2 b) showed the majority were also qualified from the GCC (49.9%, n=190), followed by Arab countries (22%, n=84), Asia (13.5%, n=51) and 18.1% (n= 69) for Western countries. The majority of those asked
were GDPs (56.7% See Figure 4.3), while the remaining were paediatric dentists, orthodontists, oral surgeons and restorative dentists.

Table 4.1: Social, educational and clinical characteristics of the population under study

<table>
<thead>
<tr>
<th>Items</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>167 (43.8)</td>
</tr>
<tr>
<td>Female</td>
<td>214 (56.2)</td>
</tr>
<tr>
<td><strong>Nationality</strong></td>
<td></td>
</tr>
<tr>
<td>GCC</td>
<td>176 (46.2)</td>
</tr>
<tr>
<td>Arab countries</td>
<td>120 (31.5)</td>
</tr>
<tr>
<td>Western</td>
<td>34 (8.9)</td>
</tr>
<tr>
<td>Asia</td>
<td>51 (13.4)</td>
</tr>
<tr>
<td><strong>Country of qualification</strong></td>
<td></td>
</tr>
<tr>
<td>GCC</td>
<td>190 (49.9)</td>
</tr>
<tr>
<td>Arab countries</td>
<td>84 (22)</td>
</tr>
<tr>
<td>Western</td>
<td>69 (18.1)</td>
</tr>
<tr>
<td>Asia</td>
<td>38 (10)</td>
</tr>
<tr>
<td><strong>Specialty background</strong></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>216 (56.7)</td>
</tr>
<tr>
<td>Restorative</td>
<td>34 (9)</td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>22 (5.8)</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>38 (9.9)</td>
</tr>
<tr>
<td>Paediatric dentistry</td>
<td>71 (18.6)</td>
</tr>
</tbody>
</table>
Figure 4.1 Dentists' Gender

- Female 56%
- Male 44%

Figure 4.2 a: Nationality of participants

- GCC 46%
- Arab 33%
- Asia 13%
- Western 9%
Figure 4.2 b: Country of participants' qualification

Figure 4.3 Specialty of participants
4.2 Participants *experience* and child patient statistics

The mean of years of qualification of the participants was 10.31 years with a standard deviation (SD) of 8.72 years. The average number of children seen by the participating dentists per week was 14.26 children (SD ±8.34). While the majority of those surveyed saw children on a weekly basis, 52 dentists (13.6%) stated that they saw no children in their practice (Table 4.2 and Figure 4.4)

Table 4.2: Participants experience and child patient statistics

| Average of years of qualification | 10.31 years (SD +8.72) |
| Average of number of children seen per week | 14.26 children (SD +8.34) |
| Number of dentists who saw child patients weekly | 329 dentists (86.4%) |
| Number of dentists who saw no child patients | 52 dentists (13.6%) |

Figure 4.4: Participants' experience with children
The results below relate to questions number 8, 9, 13, 15, 16 and 17 of the questionnaire (Appendix III, Table 4.3. and Figure 4.5). While considering the knowledge of the participants towards the objective of our study, 58.8% (n=224) had some kind of training in child abuse as undergraduate students, compared with 41.2% (n=157) that had none. With regards to learning about child maltreatment through postgraduate seminars/lectures, 54.1% (n=206) of those surveyed had some postgraduate training, while 45.9% (n=175) had no training. 53.5% (n=204) of the participants were not aware of their local area child protection guidelines, while 46.5% (n=177) said that they were aware. The majority of dentists surveyed (58.3%, n=222) agreed that GDPs and other members of the dental team were well placed to recognize child maltreatment, and 41.5% (n=158) thought the opposite i.e., they were not placed to recognized child maltreatment. On the other hand, the majority of dentists, 59.8% (n=228) thought that abused children tended not to reveal their abuse to others soon after the abuse, while a minority (40.2%, n=153) thought abused children would inform others soon. An outright majority (90.8%, n=346) thought that in the case of any accusation of child harm caused by an adult, the accusation should be addressed, compared with 9.2% (n=35) who thought not (Table 4.3 and Figure 4.5)
### Table 4.3: Distribution of knowledge and awareness among study sample: descriptive results.

<table>
<thead>
<tr>
<th>Items</th>
<th>No (%)</th>
<th>Yes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studied CAN as undergraduate dental student (Q8)</td>
<td>157(41.2)</td>
<td>224(58.8)</td>
</tr>
<tr>
<td>Attended postgraduate seminars/lectures about CAN (Q9)</td>
<td>175(45.9)</td>
<td>206(54.1)</td>
</tr>
<tr>
<td>Awareness towards local area child protection guidelines (Q13)</td>
<td>204(53.5)</td>
<td>177(46.5)</td>
</tr>
<tr>
<td>Believed that dental team members can recognize CAN (Q15)</td>
<td>158(41.5)</td>
<td>222(58.3)</td>
</tr>
<tr>
<td>Agreed that abused children tell someone soon after the abuse (Q16)</td>
<td>228(59.8)</td>
<td>153(40.2)</td>
</tr>
<tr>
<td>Agreed that the accusation of child harm should be addressed (Q17)</td>
<td>35(9.2)</td>
<td>346(90.8)</td>
</tr>
</tbody>
</table>

### Figure 4.5: Knowledge of CAN amongst participants

![Knowledge of CAN amongst participants](image)

- **Yes**
- **No**
4.4 Descriptive results of practice related CAN questions

The results below relate to the questions numbers 10, 11, 12 (Appendix III) and Table 4.4). When asked if they had ever suspected CAN in any of their patients, the majority 60.1% (n=229) of those surveyed reported that they had not suspected child abuse while 39.9% (n=152) suspected such cases. When asked about the number of occasions of CAN cases that had been experienced in the past five years, an average of 1.3 occasions (SD ± 3.15) was reported. Despite clearly stating in question Q11, that it should be answered by those who only answered “yes” in previous question (Q10), all of the participants answered Q11. The number of dentists who answered that they had seen zero (0) CAN cases in the past 5 years was 231 dentists (60.6%), while those who gave a figure of 1 or more represented 39.4% (n=150) of the sample. When asked about their experience of suspicion of child physical abuse in the past six months, the majority 84% (n=320) had not suspected such cases, and only 16% (n=61) had encountered physical abuse cases. (Table 4.4 and Figure 4.6)

Table 4.4: Distribution of participants by experience towards child abuse

<table>
<thead>
<tr>
<th>Items</th>
<th>No (%)</th>
<th>Yes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever suspected child abuse (Q10)</td>
<td>229 (60.1)</td>
<td>152 (39.9)</td>
</tr>
<tr>
<td>Ever suspected physical abuse child in last 6 months (Q12)</td>
<td>320 (84)</td>
<td>61 (16)</td>
</tr>
<tr>
<td>Average occasions of CAN suspected in last 5 years (Q11)</td>
<td>1.3 occasions (SD±3.15)</td>
<td></td>
</tr>
<tr>
<td>• Number of dentists who suspected CAN in the past 5 years</td>
<td>150 dentists (39.4)</td>
<td></td>
</tr>
<tr>
<td>• Number of dentists who did not suspect CAN in the past 5 years</td>
<td>231 dentists (60.6)</td>
<td></td>
</tr>
</tbody>
</table>
4.5 Perception of influencing factors on the decision to refer a suspected case of CAN: descriptive statistics.

The results in this section are related to question 14 (Table 4.5 and Figure 4.7). The dentists surveyed were asked if certain factors affected their decision to make a referral in case of suspected child abuse (answering yes/no). Those factors were; concern about impact on the practice (financial, time taken, loss of income); fear of family violence to the child; fear of family violence to the dentist; fear of litigation, fear of the consequences to the child from the intervention of statutory agencies; lack of knowledge regarding procedures for referral and finally lack of certainty about the diagnosis.

When looking into the detailed results of this question; a majority of the dentists surveyed felt that concerns about the impact on their practice (71.9%, n=240) had no influencing effect on making a child protection referral compared to 28.1% (n=94). Similar majorities were noticed, when asked about fear of family violence to the dentist, fear of litigation, and fear of
consequences to the child from statutory agencies; The participants did not think that they were influencing factors stating “no” (71.8%, 62.3% and 52% respectively). The converse was noted in relation to fear of family violence to the child, lack of knowledge of referral procedures and lack of certainty of diagnosis. The majority felt that the latter three factors influenced the process of making a child protection referral saying “yes” (59.6%, 60.2% and 54.9% respectively).

Table 4.5 Perception of participants toward factors affecting referral of CAN cases*:

<table>
<thead>
<tr>
<th>Items</th>
<th>No %</th>
<th>Yes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Concerns about impact on the practice</td>
<td>240 (71.9)</td>
<td>94 (28.1)</td>
</tr>
<tr>
<td>2. Fear of family violence to the child.</td>
<td>154 (40.4)</td>
<td>227 (59.6)</td>
</tr>
<tr>
<td>3. Fear of family violence to you.</td>
<td>270 (71.8)</td>
<td>106 (28.2)</td>
</tr>
<tr>
<td>4. Fear of litigation.</td>
<td>233 (62.3)</td>
<td>141 (37.7)</td>
</tr>
<tr>
<td>5. Fear of the consequences to the child</td>
<td>195 (52)</td>
<td>180 (48)</td>
</tr>
<tr>
<td>6. Lack of knowledge of referral</td>
<td>151 (39.8)</td>
<td>228 (60.2)</td>
</tr>
<tr>
<td>7. Lack of certainty about the diagnosis.</td>
<td>169 (45.1)</td>
<td>206 (54.9)</td>
</tr>
</tbody>
</table>

*Shaded areas refer to the expected correct responses. Underlined numbers refer to the majority response.
4.5.1: Score of CAN Referral Influencing Factors (SoCANRIF)

The standard setting of the factors in question 14 was conducted by agreement amongst Faculty that the most appropriate response to all of the seven factors (Table 4.5) was “no”. To be more precise, it was assumed that none of the aforementioned factors should influence a dentist decision to make a child protection referral in a case of CAN; thus working towards an outcome favorable for the child. This allowed for a correct response score to be calculated, with the total score being 7 (a score of one was given to every correct answer “no”). This score was called the “Score of CAN Referral Influencing Factors” or SoCANRIF for short. The ideal SoCANRIF score was 7 out of 7. So if a participant responded with “no” to all the questions, they would score 7. This allowed for comparison between participants across the seven factors. When looking at the descriptive data above (Table 4.5), the overall SoCANRIF for the participants was 4 out of 7 (the shaded areas in Table 4.5). This score was obtained by the majority responses were “yes” rather than “no” in three of the seven
factors above (fear of family violence, lack of knowledge of referral policy and uncertainty of diagnosis).

4.6 CAN scenarios: perception and diagnosis

The results presented here related to question Q18. The participants were asked to give their perceptive diagnosis of a) child abuse, b) child neglect, c) both or d) none to 12 different set scenarios (Table 4.6 and Figure 4.8). The scenarios related to a child (various ages) who was in one of the following situations: unattended, or unkempt (unhygienic), or at home unsupervised, or with decay and missed multiple dental appointments, or was humiliated, or was truant from school, or had his dental appointments continuously rescheduled, or had bruises, or had burns, or had bite marks, or had injuries with a vague history and finally a well-dressed child who had dental caries.

In the 1st scenario, of a 5 year old child left unattended in a mall, the majority 76.4% (n=291) had perceived it as neglect, while 10.2% (n=39) as abuse, 8.4% (n=32) as both and only 19% (n=5) as none. In the 2nd scenario, of an unkempt child’s clothes and hygiene, the majority 75.2% (n=285) had responded with “neglect” 10.3% (n=39) as both, 9.8% (n=37) as abuse and 4.70% (n=18) as none. In the 3rd scenario, related to a child being left alone by shopping parents, 59.6% (n=227) responded with neglect, while 19.7% (n=75) choose both as the answer, 15.2% (n=58) as abuse, and 5.5% (n=21) as none. The 4th scenario, related to a child with caries missing multiple dental appointments, had 70.6 % (n=269) perceiving it as neglect, 19.7% (75) as both, 15.2% (58) as abuse, and 3.7% (n=14) as none. In the 5th scenario, related to a child being humiliated at a dental appointment, 62.5% (n=283) diagnosed it as abuse, while 13.4% (n=51) as both, 12.9% (n=49) as neglect, and 11.3%
The 6th scenario, related to truancy of a child from school because of work with their father, had the majority 44.4% (n=169) categorizing it as abuse, 28.3% (n=108) as both, while only 24.3% (n=89) stated it was neglect, and 3.9% (n=15) answered none. The 7th scenario, related to a child whose dental appointments kept being rescheduled, had the majority 67.7% (n=258) perceiving it as neglect, 12.1% (n=46) as none, 11% (n=42) as abuse, and 9.2% (n=35) answered both. The 8th scenario, related to a child with boney prominences bruises, 63% (n=240) answered abuse, 17.6% (n=67) as both, 11% (n=42) as neglect, and 8% (n=32) as none. The 9th scenario, related to a child with facial burns, had the majority 65.6% (n=250) responding with abuse, 24.7% (n=94) as both, 8.11% (n=31) as neglect, and 1.6% (n=6) had none as the answer. The 10th scenario, related to a child with check bite marks, had the majority 62.6% (n=238) categorizing it as abuse, while 19.2% (n=73) answered both, 11.3% (n=43) as neglect, and 6.8% (n=26) answered as none. In the 11th scenario, related to a child with the aforementioned injuries and a vague history, the majority 56.7% (n=216) diagnosed it as abuse, while 27% (n=103) answered as both, 13.4% (n=51) as neglect, and only 2.9% (n=11) as none. In the last scenario, related to a well-kept child with dental caries, the majority 64.4% (n=244) categorized it as neglect, 23% (n=87) as none, 7.1% (n=27) as abuse, and only 5.5% (n=21) answered as both.
Table 4.6: Perception of participants toward CAN scenarios*

<table>
<thead>
<tr>
<th>Items</th>
<th>Abuse</th>
<th>Neglect</th>
<th>Both</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A 5 years old child that is left unattended in a mall</td>
<td>39 (10.2)</td>
<td>291 (76.4)</td>
<td>32 (8.4)</td>
<td>19 (5)</td>
</tr>
<tr>
<td>2. Mother doesn't attend to her child clothes and hygiene</td>
<td>37 (9.8)</td>
<td>285 (75.2)</td>
<td>39 (10.3)</td>
<td>18 (4.70)</td>
</tr>
<tr>
<td>3. Parents that leave their child unattended</td>
<td>58 (15.2)</td>
<td>227 (59.6)</td>
<td>75 (19.7)</td>
<td>21 (5.5)</td>
</tr>
<tr>
<td>4. Parents that miss multiple dental visits</td>
<td>52 (13.6)</td>
<td>269 (70.6)</td>
<td>46 (12.1)</td>
<td>14 (3.7)</td>
</tr>
<tr>
<td>5. Parents verbally humiliate their child during dental treatment</td>
<td>283 (62.5)</td>
<td>49 (12.9)</td>
<td>51 (13.4)</td>
<td>43 (11.3)</td>
</tr>
<tr>
<td>6. A 10 year old child that doesn't attend school</td>
<td>169 (44.4)</td>
<td>89 (24.3)</td>
<td>108 (28.3)</td>
<td>15 (3.9)</td>
</tr>
<tr>
<td>7. Parents keep on rescheduling their child's dental appointments</td>
<td>42 (11)</td>
<td>258 (67.7)</td>
<td>35 (9.2)</td>
<td>46 (12.1)</td>
</tr>
<tr>
<td>8. A child attends with bruises over bony prominences</td>
<td>240 (63)</td>
<td>42 (11)</td>
<td>67 (17.6)</td>
<td>32 (8)</td>
</tr>
<tr>
<td>9. A child attends with what appears to be burns on their face</td>
<td>250 (65.6)</td>
<td>31 (8.11)</td>
<td>94 (24.7)</td>
<td>6 (1.6)</td>
</tr>
<tr>
<td>10. A child attends with bite marks on their cheek</td>
<td>238 (62.6)</td>
<td>43 (11.3)</td>
<td>73 (19.2)</td>
<td>26 (6.8)</td>
</tr>
<tr>
<td>11. A child with injuries but with a vague history</td>
<td>216 (56.7)</td>
<td>51 (13.4)</td>
<td>103 (27)</td>
<td>11 (2.9)</td>
</tr>
<tr>
<td>12. A well-dressed child who has multiple carious teeth in their mouth</td>
<td>27 (7.1)</td>
<td>244 (64.4)</td>
<td>21 (5.5)</td>
<td>87 (23)</td>
</tr>
</tbody>
</table>

*: Shaded areas referred to the prechosen baseline correct answers while underlined figures related the majority response.
4.6.1 Score of CAN Scenarios (SoCANS):

The standard setting of the factors in question 18 was conducted. Scores for the correct response for each scenario were tabled and prechosen by faculty members and agreed upon (Table 4.6 - shaded areas). If a respondent’s answer correlated with the agreed pre-set response, a score of 1 was given per correct scenario. This allowed for a correct response score to be calculated, with the total score being 12. This score was labeled the “Score of CAN Scenarios” or SoCANS for short. The ideal SoCANS score was 12 out of 12. This allowed for comparison between participants across the 12 scenarios. When looking at the descriptive data above (Table 4.6), the overall SoCANS for the participant was 9 out of 12 (the shaded areas in Table 4.6 that match with the highest percentage).
4.7 CAN knowledge cross tabulated results

In this part, the results of the CAN knowledge related questions was cross tabulated with the demographic variables (dentist gender, nationality, specialty, country of qualification, years of experience as dentist);

4.7.1 CAN related knowledge cross tabulated against dentist's gender

The results below relate to questions number 8, 9, 13, 15, 16 and 17 of the questionnaire. The association between participants knowledge and dentist gender showed no statistically significant association between male and female dentists, with the exception of question Q15 which stated that “members of the dental team are well placed to recognize behavior and/or signs that may be attributable to child abuse”, 66.9% of male dentists (n=111) believed in the aforementioned statement compared to their female colleagues (51.9%, n=111) ($p=0.002$). Otherwise dentist’s gender had no bearing on the knowledge results (Table 4.7 and Figure 4.9)
Table 4.7: Association between items of knowledge of child’s abuse and gender

<table>
<thead>
<tr>
<th>Items</th>
<th>Female</th>
<th>Male</th>
<th>P- Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Studied CAN as undergraduate Q8</td>
<td>93(43.5)</td>
<td>121(56.4)</td>
<td>64(38.3)</td>
</tr>
<tr>
<td>Attended postgraduate CAN seminars Q9</td>
<td>100(46.7)</td>
<td>114(53.3)</td>
<td>75(44.9)</td>
</tr>
<tr>
<td>Awareness of local child protection guidelines Q13</td>
<td>117(54.7)</td>
<td>97(45.3)</td>
<td>87(52.1)</td>
</tr>
<tr>
<td>Dental team members able to recognize CAN Q15</td>
<td>103(48.1)</td>
<td>111(51.9)</td>
<td>55(33.1)</td>
</tr>
<tr>
<td>Children tell others when abused Q16</td>
<td>136(63.6)</td>
<td>78(36.4)</td>
<td>92(55.1)</td>
</tr>
<tr>
<td>Accusation of CAN should be addressed soon Q17</td>
<td>18(8.4)</td>
<td>196(91.6)</td>
<td>17(10.2)</td>
</tr>
</tbody>
</table>

Figure 4.9 Dental team members able to recognize CAN
4.7.2 CAN related knowledge cross tabulated against dentist nationality

The results below relate to questions number 8, 9, 13, 15, 16 and 17 of the questionnaire. When cross tabulating the knowledge questions and the nationality of the participant, no statistical significance was found between different nationalities in any of the related questions (Table 4.8)

Table 4.8 Association between CAN related knowledge and dentist nationality

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>GCC</th>
<th>Arab</th>
<th>Western</th>
<th>Asia</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studied CAN as undergraduate Q8</td>
<td>No</td>
<td>71(40.3)</td>
<td>54(45.0)</td>
<td>12(35.3)</td>
<td>20(39.2)</td>
<td>0.719</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>105(59.7)</td>
<td>66(55.0)</td>
<td>22(64.7)</td>
<td>31(60.8)</td>
<td></td>
</tr>
<tr>
<td>Attended postgraduate CAN seminars Q9</td>
<td>No</td>
<td>76(43.2)</td>
<td>57(47.5)</td>
<td>15(44.1)</td>
<td>27(52.9)</td>
<td>0.635</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>100(56.8)</td>
<td>63(52.5)</td>
<td>19(55.9)</td>
<td>24(47.1)</td>
<td></td>
</tr>
<tr>
<td>Awareness of local child protection guidelines Q13</td>
<td>No</td>
<td>96(54.5)</td>
<td>61(50.8)</td>
<td>16(47.1)</td>
<td>31(60.8)</td>
<td>0.557</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>80(45.5)</td>
<td>59(49.2)</td>
<td>18(52.9)</td>
<td>20(39.2)</td>
<td></td>
</tr>
<tr>
<td>Dental team members able to recognize CAN Q15</td>
<td>No</td>
<td>77(43.8)</td>
<td>42(35.0)</td>
<td>14(42.4)</td>
<td>25(49.0)</td>
<td>0.302</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>99(56.2)</td>
<td>78(65.0)</td>
<td>19(57.6)</td>
<td>26(51.0)</td>
<td></td>
</tr>
<tr>
<td>Children tell others when abused Q16</td>
<td>No</td>
<td>99(56.2)</td>
<td>69(57.5)</td>
<td>24(70.6)</td>
<td>36(70.6)</td>
<td>0.151</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>77(43.8)</td>
<td>51(42.5)</td>
<td>10(29.4)</td>
<td>15(29.4)</td>
<td></td>
</tr>
<tr>
<td>Accusation of CAN should be addressed soon Q17</td>
<td>No</td>
<td>13(7.4)</td>
<td>17(14.2)</td>
<td>2(5.9)</td>
<td>3(5.9)</td>
<td>0.147</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>163(92.6)</td>
<td>103(85.8)</td>
<td>32(94.1)</td>
<td>48(94.1)</td>
<td></td>
</tr>
</tbody>
</table>
4.7.3 CAN related knowledge cross tabulated against dentist country of qualification

The results below relate to questions number 8, 9, 13, 15, 16 and 17 of the questionnaire (Table 4.9 and Figure 4.10). When cross tabulating the knowledge questions and the country of qualification of the participant, there was a statistical significance ($p = 0.022$). It was found that dentists according to their qualification background differed in their response when they were asked if “a child readily states that an adult has caused harm, the accusation should be readily addressed” (Q17). 97.1% of the Western qualified dentists ($n=67$) agreed that the accusation should be addressed. This was followed by Asian qualified dentists (94.7%, $n=36$), then the GCC group (91.1%, $n=173$) and finally the Arab group (83.3%, $n=70$). There were no statistically significant differences in relation to the remaining CAN knowledge questions.

Table 4.9: Association of knowledge between items of knowledge of CAN and country of qualification

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>GCC</th>
<th>Arab</th>
<th>Western</th>
<th>Asia</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studied CAN as undergraduate Q8</td>
<td>No</td>
<td>84(44.2)</td>
<td>35(41.7)</td>
<td>24(34.8)</td>
<td>14(36.8)</td>
<td>0.534</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>106(55.8)</td>
<td>49(58.3)</td>
<td>45(65.2)</td>
<td>24(63.2)</td>
<td></td>
</tr>
<tr>
<td>Attended postgraduate CAN seminars Q9</td>
<td>No</td>
<td>96(50.5)</td>
<td>37(44.0)</td>
<td>25(36.2)</td>
<td>17(44.7)</td>
<td>0.224</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>94(49.5)</td>
<td>47(56.0)</td>
<td>44(63.8)</td>
<td>21(55.3)</td>
<td></td>
</tr>
<tr>
<td>Awareness of local child protection guidelines Q13</td>
<td>No</td>
<td>105(55.3)</td>
<td>39(46.4)</td>
<td>37(53.6)</td>
<td>23(60.5)</td>
<td>0.444</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>85(44.7)</td>
<td>45(53.6)</td>
<td>32(46.4)</td>
<td>15(39.5)</td>
<td></td>
</tr>
<tr>
<td>Dental team members able to recognize CAN</td>
<td>No</td>
<td>81(42.6)</td>
<td>35(41.7)</td>
<td>27(39.7)</td>
<td>15(39.5)</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Yes</td>
<td>109(57.4)</td>
<td>49(58.3)</td>
<td>41(60.3)</td>
<td>23(60.5)</td>
<td>0.968</td>
</tr>
<tr>
<td>----------</td>
<td>-----</td>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>Q15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children tell others when abused Q16</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accusation of CAN should be addressed soon Q17</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Figure 4.10 Accusation of CAN should be addressed soon

![Bar chart showing the percentage of participants who believe that the accusation of CAN should be addressed soon.](chart.png)

**4.7.4: CAN related knowledge cross tabulated against dentist specialty**

The results below relate to questions number 8, 9, 13, 15, 16 and 17 of the questionnaire.

When cross tabulating the knowledge questions and the specialties of the participant, there were significant differences in relation to question 9 and 15 (Table 4.10 and Figures 4.11 and 4.12). When the participants were asked if they had attended any postgraduate seminars on CAN and child protection, 81.2% (n=56) of the paediatric dentistry group said “yes”,

---

66
followed by orthodontics, oral surgery, GDPs and finally restorative dentists (55%, 54.5%, 45.6% and 42.4% respectively) \((p=0.000)\). In Q15, when the participants were asked if they “think that GDPs or members of the dental team are well placed to recognize behavior and /or signs that may be attributable to child abuse” 64.6% of GDPs \((n=133)\) said “yes” followed by orthodontists, oral surgeons, paediatric dentists and finally restorative dentists (52.6%, 52.4%, 49.3% and 42.4% respectively) \((p=0.044)\). No statistical significance was found between different specialties in any of the other CAN knowledge related questions.

Table 4.10: CAN related knowledge cross tabulated against dentist specialty

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>GDP</th>
<th>Restorative</th>
<th>Oral Surgery</th>
<th>Orthodontic</th>
<th>Paediatric</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studied CAN as undergraduate Q8</td>
<td>No</td>
<td>80(38.8)</td>
<td>14(42.4)</td>
<td>9(40.9)</td>
<td>21(55.3)</td>
<td>29(42.0)</td>
<td>0.465</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>126(61.2)</td>
<td>19(57.6)</td>
<td>13(59.1)</td>
<td>17(44.7)</td>
<td>40(58.0)</td>
<td></td>
</tr>
<tr>
<td>Attended postgraduate CAN seminars Q9</td>
<td>No</td>
<td>112(54.4)</td>
<td>19(57.6)</td>
<td>10(45.5)</td>
<td>17(44.7)</td>
<td>13(18.8)</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>94(45.6)</td>
<td>14(42.4)</td>
<td>12(54.5)</td>
<td>21(55.3)</td>
<td>56(81.2)</td>
<td></td>
</tr>
<tr>
<td>Awareness of local child protection guidelines Q13</td>
<td>No</td>
<td>103(50.0)</td>
<td>18(54.5)</td>
<td>9(40.9)</td>
<td>25(65.8)</td>
<td>42(60.9)</td>
<td>0.182</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>103(50.0)</td>
<td>15(45.5)</td>
<td>13(59.1)</td>
<td>13(34.2)</td>
<td>27(39.1)</td>
<td></td>
</tr>
<tr>
<td>Dental team members able to recognize CAN Q15</td>
<td>No</td>
<td>73(35.4)</td>
<td>19(57.6)</td>
<td>10(47.6)</td>
<td>18(47.4)</td>
<td>35(50.7)</td>
<td>0.044*</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>133(64.6)</td>
<td>14(42.4)</td>
<td>11(52.4)</td>
<td>20(52.6)</td>
<td>34(49.3)</td>
<td></td>
</tr>
<tr>
<td>Children tell others when abused Q16</td>
<td>No</td>
<td>115(55.8)</td>
<td>22(66.7)</td>
<td>12(54.5)</td>
<td>28(73.7)</td>
<td>46(66.7)</td>
<td>0.159</td>
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<tr>
<td></td>
<td>Yes</td>
<td>91(44.2)</td>
<td>11(33.3)</td>
<td>10(45.5)</td>
<td>10(26.3)</td>
<td>23(33.3)</td>
<td></td>
</tr>
<tr>
<td>Accusation of CAN should be addressed soon Q17</td>
<td>No</td>
<td>22(10.7)</td>
<td>3(9.1)</td>
<td>2(9.1)</td>
<td>3(7.9)</td>
<td>3(4.3)</td>
<td>0.627</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>184(89.3)</td>
<td>30(90.9)</td>
<td>20(90.9)</td>
<td>35(92.1)</td>
<td>66(95.7)</td>
<td></td>
</tr>
</tbody>
</table>
4.8 CAN related *practice* questions cross tabulated results

The results below relate to the questions numbers 10, 12 of the questionnaire. These questions looked at the participants’ practice of detecting CAN.

4.8.1 CAN related *practice* cross tabulated against dentist *gender*

When cross tabulating the practice questions and gender of the participant, a statistical significance was found ($p=0.015$). When asked “Have you ever suspected child abuse in one or more of your patients?” 21% of male dentists (n=35) said “yes” compared to 12.1% of female dentist (n=26). (Table 4.11 and Figure 4.13)

Table 4.11: CAN related practice cross tabulated against dentist gender

| Gender | Female | | | Male | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|        | No | Yes | No | Yes | P- Value |        |        |        |
| Have you ever suspected child abuse? Q10 | 188(87.9) | 26(12.1) | 132(79.0) | 35(21.0) | 0.015* |
| Ever suspected physical abuse in a child in last 6 months? Q12 | 129(60.3) | 85(39.7) | 100(59.9) | 152(39.9) | 0.510 |
4.8.2: CAN related practice cross tabulated against dentist nationality

When cross tabulating the practice questions and the nationality of the participant, no statistical significance was found in any of the related questions (Table 4.12). Across nationality groups, the majority had not seen or suspected child abuse in their practice.

Table 4.12: CAN related practice cross tabulated against dentist nationality

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>GCC</th>
<th>Arab C</th>
<th>Western</th>
<th>Asia</th>
<th>P- Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever suspected child abuse? Q10</td>
<td>No</td>
<td>145 (82.4)</td>
<td>100 (83.3)</td>
<td>32 (94.1)</td>
<td>43 (84.3)</td>
<td>0.396</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>31 (17.6)</td>
<td>20 (16.7)</td>
<td>2 (5.9)</td>
<td>8 (15.7)</td>
<td></td>
</tr>
<tr>
<td>Ever suspected physical abuse in a child</td>
<td>No</td>
<td>100 (56.8)</td>
<td>73 (60.8)</td>
<td>21 (61.8)</td>
<td>35 (68.6)</td>
<td>0.493</td>
</tr>
<tr>
<td>in last 6 months? Q12</td>
<td>Yes</td>
<td>76 (43.2)</td>
<td>47 (39.2)</td>
<td>13 (38.2)</td>
<td>16 (31.4)</td>
<td></td>
</tr>
</tbody>
</table>
4.8.3 CAN related practice cross tabulated against dentist country of qualification

When cross tabulating the practice questions and the country of qualification of the participant, no statistical significance was found in any of the related questions (Table 4.13). Across country of qualification groups, the majority had not seen or suspected child abuse in their practice.

Table 4.13: CAN related practice cross tabulated against dentist country of qualification

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>GCC</th>
<th>Arab C</th>
<th>Western</th>
<th>Asia</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever suspected child abuse? Q10</td>
<td>No</td>
<td>162(85.3)</td>
<td>66(78.6)</td>
<td>58(84.1)</td>
<td>34(89.5)</td>
<td>0.405</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>28(14.7)</td>
<td>18(21.4)</td>
<td>11(15.9)</td>
<td>4(10.5)</td>
<td></td>
</tr>
<tr>
<td>Ever suspected physical abuse in a child in last 6 months? Q12</td>
<td>No</td>
<td>114(60.0)</td>
<td>48(57.1)</td>
<td>42(60.9)</td>
<td>25(65.8)</td>
<td>0.841</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>76(40.0)</td>
<td>36(42.9)</td>
<td>27(39.1)</td>
<td>13(34.2)</td>
<td></td>
</tr>
</tbody>
</table>

4.8.4: CAN related practice cross tabulated against dentist specialty

When cross tabulating the practice questions and the specialty of the participant, no statistical significance was found in any of the related questions (Table 4.14). Across specialty groups, the majority had not seen or suspected child abuse in their practice. There was a slight tendency for the oral surgery group to have the opposite results compared to the other groups, however this was not significant.
4.9 Perception and practice scores (SoCANRIF & SoCANS) cross tabulated results

In this section, the scores that were calculated from questions Q 14 and Q18 (SoCANRIF and SoCANS respectively) were cross tabulated against the variables such as specialty, nationality and gender.

4.9.1 Analysis of Score of CAN referral influencing factors (SoCANRIF)

The results below relate to the question number Q14 of the questionnaire.

4.9.1.a: Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist specialty

The results below relate to the question number 14 of the questionnaire and the calculated SoCANRIF. As explained in section 4.5.1. the top SoCANRIF score was considered to be 7 out of 7. In this section, the average SoCANRIF across all specialties was 3.70 (SD 2.06). The scores of the various specialties (GDP, paediatric dentistry, orthodontics, oral surgery,
and restorative dentists) ranged between 3.55 (SD ±2) for GDPs to 4.59 (SD+ 1.9) for oral surgeons however there was no statistical significance between the different specialties (p=0.184). No group reached the score of 7. (Table 4.15).

Table 4.15: SoCANRIF score cross tabulated against dentist specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Mean (Std. Deviation)</th>
<th>P- Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.5583 (2.04)</td>
<td>0.184</td>
</tr>
<tr>
<td>Restorative</td>
<td>3.5455(2.34)</td>
<td></td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>4.5909(1.91)</td>
<td></td>
</tr>
<tr>
<td>Orthodontics</td>
<td>3.6842(1.93)</td>
<td></td>
</tr>
<tr>
<td>Paediatric Dentistry</td>
<td>3.9420(2.04)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.7038(2.06)</td>
<td></td>
</tr>
</tbody>
</table>

4.9.1. b: Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist country of qualification

When cross tabulating the SoCANRIF and the country of qualification of the participant, a statistical significant difference was found (ANOVA, p=0.032). The highest score (out of 7) was 4.18 (SD 2.03) followed by 4.14 (SD 2.03) for those dentists qualified in Asia and Western countries respectively, while the lowest was GCC qualified dentists (3.42, SD2.02). When conducting *Post Hoc multiple comparisons*, the SoCANRIF of GCC qualified dentists was significantly lower than those qualified in Western countries and Asia (p=0.038 and 0.13 respectively (Table 4.16 and Figure 4.14)
Table 4.16: CAN referral influencing factors score cross tabulated against dentist country of qualification

<table>
<thead>
<tr>
<th></th>
<th>Mean(Std. Deviation)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCC</td>
<td>3.4263 (2.02)</td>
<td></td>
</tr>
<tr>
<td>Arab countries</td>
<td>3.7619 (2.10)</td>
<td>0.032*</td>
</tr>
<tr>
<td>Western</td>
<td>4.1449 (2.03)</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>4.1842 (2.01)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.14 SoCANRIF cross tabulated against dentist country of qualification
4.9.1.c Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist gender

When cross tabulating the SoCANRIF and the dentist gender, no statistical significant difference was found (T-Test, \( p=0.056 \)) (Table 4.17). There was a tendency for male dentists to score higher (3.93) than female dentists (3.52) out of 7.

Table 4.17 Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist gender

<table>
<thead>
<tr>
<th>Item</th>
<th>Female</th>
<th>Male</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoCANRIF</td>
<td>3.52(2.07)</td>
<td>3.93(2.02)</td>
<td>0.056</td>
</tr>
</tbody>
</table>

4.9.1.d: Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist nationality

When cross tabulating the SoCANRIF and the nationality of the participant, no statistical significant difference was found (ANOVA, \( p=0.066 \)) (Table 4.18). The scores ranged from 3.44 to 4.18, out of total of 7.
Table 4.18 Score of CAN referral influencing factors (SoCANRIF) cross tabulated against dentist nationality

<table>
<thead>
<tr>
<th></th>
<th>Mean(Std. Deviation)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCC</td>
<td>3.4545 (2.04)</td>
<td></td>
</tr>
<tr>
<td>Arab countries</td>
<td>3.8833(2.01)</td>
<td>0.066</td>
</tr>
<tr>
<td>Western</td>
<td>4.3824 (2.08)</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>3.7059(2.09)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.7060(2.05)</td>
<td></td>
</tr>
</tbody>
</table>

4.9.1.e Score of CAN referral influencing factors (SoCANRIF) in correlation with years of experience

There was a statistically significant correlation (p=0.000) between the SoCANRIF and years of experience since qualification. The SoCANRIF score was higher, when the years of experience of the participants increased (Pearson correlation, r =0.194**).

4.9.2 Analysis of the Score of CAN scenarios (SoCANS)

The results below relate to the question number 18 of the questionnaire and the calculated score called SoCANS. The total is 12 out of 12

4.9.2 a. SoCANS cross tabulated against dentist specialty

When cross tabulating the SoCANS and the specialty of the participant, there was a statistical significant difference found between the specialty groups (ANOVA, p=0.000). The highest score was achieved by orthodontists (7.63, SD 1.69) followed by paediatric dentists (7.39, SD
1.87), restorative dentists (6.39, SD 2.22) GDPs (6.32, SD1.93) and finally oral surgeons (5.5 (SD2.36).( See Table 4.19 and Figure 4.15)

When Post Hoc multiple comparisons were conducted. It was clear that orthodontists and paediatric dentists scores were not significantly different from each other (p=0.544). On the other hand it was clear that orthodontists and paediatric dentists scored higher SoCANS than GDPs, restorative dentists and oral surgeons (for orthodontics; p=0.000, p=0.008 and p=0.000 respectively. For paediatric dentists; p =0.000, p=0.017 and p=0.000 respectively)

Table 4.19 SoCANS cross tabulated against dentist specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Mean (Std. Deviation)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>6.32(1.93)</td>
<td></td>
</tr>
<tr>
<td>Restorative</td>
<td>6.39 (2.22)</td>
<td></td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>5.50 (2.22)</td>
<td>0.000*</td>
</tr>
<tr>
<td>Orthodontic</td>
<td>7.63(1.69)</td>
<td></td>
</tr>
<tr>
<td>Paediatric</td>
<td>7.39(1.87)</td>
<td></td>
</tr>
</tbody>
</table>
4.9.2 b. SoCANS cross tabulated against dentist gender

When cross tabulating the SoCANS and the dentist gender there was a statistical significant difference (t-test, \( p=0.001 \)). Out of a total score of 12; female dentists scored higher (6.92, SD 1.92) compared to male dentists (6.23, SD 2.09). (See Table 4.20 and Figure 4.16)

Table 4.20 SoCANS cross tabulated against dentist gender

<table>
<thead>
<tr>
<th>Item</th>
<th>Female Mean (Sd)</th>
<th>Male Mean (Sd)</th>
<th>P- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoCANS</td>
<td>6.99 (1.9)</td>
<td>6.23(2.09)</td>
<td>0.001*</td>
</tr>
</tbody>
</table>
4.9.2 c. SoCANS cross tabulated against dentist nationality

When cross tabulating the SoCANS and the dentist nationality there was no statistical significant difference (ANOVA, p=0.087). The scores (out of 12) for dentist nationals of the GCC, Arab countries, Western countries and Asia were similar (ranging from 6.28 to 7.05). The Western group tended to score highest SoCANS but this was not significant. (See Table 4.21)

Table 4.21 SoCANS cross tabulated against dentist nationality

<table>
<thead>
<tr>
<th>Item</th>
<th>SoCANS Mean (Sd)</th>
<th>P- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCC</td>
<td>6.80(1.93)</td>
<td>0.087</td>
</tr>
<tr>
<td>Arab countries</td>
<td>6.28(2.18)</td>
<td></td>
</tr>
<tr>
<td>Western</td>
<td>7.05(1.82)</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>6.50(2.00)</td>
<td></td>
</tr>
</tbody>
</table>
4.9.2.b SoCANS correlation with years of experience since qualification

When correlating the SoCANS and the participants years of experience there was no statistical significant difference (p=0.844) and the correlation was weak (*Pearson correlation* $r = -.010$). Therefore those who scored higher SoCANS were not necessarily more experienced. (See Table 4.22)

Table 4.22 SoCANS correlation with years of experience since qualification

<table>
<thead>
<tr>
<th></th>
<th>SoCANS</th>
<th>Years of qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoCANS</td>
<td>Pearson’s correlation 1</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.844</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>381</td>
</tr>
<tr>
<td></td>
<td>Pearson’s correlation</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>379</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.844</td>
</tr>
</tbody>
</table>

4.9.3 Correlation of the two scores: SoCANRIF and SoCANS

When correlating the SoCANRIF and SoCANS there was no statistical significant difference (p=0.124) and the correlation was moderate (*Pearson correlation*, $r = .079$). Therefore, those who scored high in SoCANRIF did not necessarily score high in SoCANS, and vice versa. (see table 2.23)
Table 4.23 Correlation of the two scores: SoCANRIF and SoCANS

<table>
<thead>
<tr>
<th></th>
<th>SoCANS</th>
<th>SoCANRIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoCANS</td>
<td>Pearson’s correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.124</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>381</td>
</tr>
<tr>
<td>SoCANRIF</td>
<td>Pearson’s correlation</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.124</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>381</td>
</tr>
</tbody>
</table>
5.00 Discussion

5.1 Introduction

Child protection is at the core of the interests of any contemporary and modern civilized society. According to NICE in the UK (2009), Child Maltreatment (CM) or Child Abuse and Neglect (CAN) includes a plethora of issues including neglect, physical, sexual and emotional abuse, and fabricated or induced illness. Appropriate guidelines have been set out to help professional healthcare providers to detect CAN. However, this matter does not fall within in the domain of healthcare professionals only. At the core of this subject exists the principle necessity of all to work ‘together to safeguard children'. In every civilized society, local authorities have an overarching responsibility for safeguarding and promoting the welfare of all children and young people under their jurisdiction. In many countries, these authorities have a number of statutory functions (like the Children Act in the UK and the Children’s Protection Law in the UAE) which make their duties and responsibilities clear. This includes specific duties in relation to children in need and children who are suffering or are likely to suffer significant harm, regardless of where they are found. Children’s services in local authorities are the key points of professional and political accountability and are held responsible for the effective delivery of these functions.

Whilst local authorities play a lead role, safeguarding children and protecting them from harm is “everyone’s responsibility”. Everyone who comes into contact with children, such as dentists, doctors, health visitors, nurses, police and the wider public in addition to the children’s families all have a role to play. Safeguarding and promoting the welfare of
children is defined for the purposes of protecting children from maltreatment, from preventing impairment of children's health or development, for ensuring that children grow up in circumstances consistent with the provision of safe and effective care, and lastly for taking appropriate action to enable all children to have the best outcomes.

The UAE has recently issued the Child Protection Law (CPL-UAE2016) which clearly outlines that safeguarding children in the UAE is a legal responsibility for everyone, as it is a legal right for the children in this country. This responsibility applies to UAE dentists, which are the target population of this study. Dentists are in a unique position to be able to recognize child maltreatment by virtue of their regular professional ability to assess the child’s head and neck region (88). Our study was aimed at assessing the knowledge, practice and perception of CAN and child protection issues in this essential sector in UAE society. Although we are aware of one single study (90) that was published at the stage of data collection of this research project, to our knowledge, this is the first of its kind that took place after the CPL-UAE2016 officially became law.

5.2 Discussion of demographics of study

According to the UAE national statistics board, there are around 2,500 dentists working in the UAE in 2016 (90). We aimed to capture a wide range of opinions from dentists working at the health authorities in the UAE despite having been faced with the problem of having a central access to such registered dentists. Dentists in the UAE are not registered with one single regulatory authority, but four: Ministry of Health of the UAE (MoH), Health Authority of Abu Dhabi (HAAD), Dubai Health Authority (DHA) and finally Dubai Healthcare City (DHCC). Because of this, the access to information and contact details of those dental
surgeons and practitioners are not available in the public domain. Therefore, we resorted to access a convenience sample of such dentists attending popular dental conferences held in the UAE. With a power calculation of 384 dentists in mind, we obtained a sample of 381 (99.2%). This sample was relatively large and represented more than a sixth of the UAE dentist working force. Our study had the largest dentist sample size when compared to similarly conducted studies carried out in the region \(^{(7,90)}\). Our study was comparable to larger studies conducted in the West \(^{(16,88)}\).

In line with Al-Daaban et al in KSA \(^{(7)}\), our study included a wide variety of dentists. With the evolving concept that child protection should involve everyone, we justifiably included all specialties in disciplines in dentistry and not only those who are treating child patients (See Figure 4.4). Although GDPs, paediatric dentists and orthodontists are considered the most likely to see child patients, restorative dentists treating adults may be in contact with children by proxy, i.e., children attending with their parents to whom the treatment is being offered. Even out with the dental environment, as a member of society, the role of the dentist transcends the professional boundaries and blends in with their basic civic duties, of which child protection is one. Therefore our study is different from previous studies conducted in the UAE study \(^{(90)}\), which only included dentists that treated children. Other studies have looked at dental professionals complimentary to dentistry (DCPs), confirming the motion that this matter involves everyone \(^{(88)}\).

As CAN is a socially relevant topic, our study, in alignment with previous studies \(^{(16,88)}\) included social variables such as dentists’ gender. Our sample had a relative even distribution between males and females, with female dentists forming a slight majority (56.2%) which was the opposite from AlAmad et al 2016 study \(^{(90)}\).
As the UAE is a cosmopolitan society, and home to 200 nationalities we expected to see dentists from different nationalities, cultures and backgrounds thus adding true social diversity. This was reflected in our study; the majority of our participants belonged to the socially identical GCC, followed by Arab countries but also included Westerners and Asians in that order. Previous studies conducted in the region had not taken into account the nationality of the participants, thus excluding an important variable. A child is considered to be abused if he or she is treated in a way that is unacceptable in a given culture at a given time. The threshold beyond which actions or omissions become abusive or neglectful is, to a certain extent, socially and culturally defined \(^{(88)}\), therefore this variable was included in this study.

This study also included reference to educational and clinical variables such as country of qualification and specialty and was in line with previously conducted studies \(^{(12, 26)}\). The majority of those surveyed were qualified from the GCC, followed by Arab countries, Western nations and finally Asia. The majority of the participants were GDPs (57%) while the rest were specialists, which was in par with other studies \(^{(7, 12, 16)}\). With regards to years of experience, previous studies had used the cut of point of 10 years of experience as marker. Our study showed an average of 10.31 years of experience. The number of children seen routinely per week is an important marker of experience, and our study showed that 14.26 children were seen per week on average, by 86.4% of the participants. This is less than previously reported study \(^{(16)}\) (ranging between 20-40 per week). As mentioned above, we included dentists who did not see child patients, for the reasons outlined above. This may have diluted the average; however they represented only 13.6% of the total number of dentists.
5.3 Discussion of dentist’s knowledge of CAN

5.3.1 Undergraduate and postgraduate education

Dentists from all dental schools around the world are subject to training both in the undergraduate and postgraduate domain. Core dental undergraduate curricula have developed in many countries and changed over the years to include an emphasis on maintaining an ethical stance regarding all patients. Child protection training has become part of mandatory postgraduate training with online and attended courses in some countries, like the UK \(^{108}\). Our study assessed the basic knowledge sources of the surveyed dentists. It found that the majority had received undergraduate and postgraduate training in CAN issues (58.8% and 54.1% respectively). When compared to other studies \(^{16, 88}\), our results demonstrated higher reported undergraduate and postgraduate training compared to another study where 34% of dentist received an education about child abuse and 42% had further postgraduate training \(^{(113)}\). This was overall a positive finding; however, it highlighted that a large minority (41.2% and 45.9% respectively) had not received any child protection training. This matter is important in terms of curriculum development and postgraduate continuous professional education. Our study showed that a highly significant factor linked to receiving postgraduate education in CAN was the specialty of the dentist (p=0.000) (See Figure 4.11): paediatric dentists attended CAN-related postgraduate courses more than any other specialty, including GDPs. This seems to be a logical deduction, as they only see child patients and CAN is a very topical issue in this specialty. For example, the 25\(^{th}\) Congress of the International Association of Paediatric Dentistry (IAPD) held in Glasgow, UK in 2015 was dedicated to child protection under the theme of "the voice of the child". However this should not exonerate the
rest of the specialties from attending such courses, especially if they treat child patients. But there are barriers; research has shown that attending postgraduate courses can be time consuming and have a financial burden on the dentist (16). Therefore funding such courses in dentistry should become a priority in the UAE as it has been shown that attending such courses increases the chance of dentists detecting CAN (16). The need for further UAE dentist training had been previously highlighted (90) where 65% of study sample indicated such a need. Our study found that all the other variables (dentist gender, nationality, country of qualification) had no bearing on the receipt of undergraduate or postgraduate CAN training.

5.3.2: Local child protection guidelines

In some countries the knowledge of local child protection guidelines is compulsory for dentists (108). For example, without specifying which guidelines to follow, the UK’s General Dental Council (GDC) enforces dentists to be aware of child protection guidelines. Our study showed that only 46.5% of the participants were aware of such guidelines. This was higher than other similarly conducted studies, which showed the figure to be around 10% for example (16). The awareness of local guidelines was reflected across all the variables used in this study; i.e., dentist gender, nationality, country of and even specialty. On the contrast, 53.5% were not aware of the guidelines, the reason behind this finding maybe that the UAE did not have any local child protection guidelines available at the time of data collection. However, there was an intense national debate about this issue in the UAE federal council (parliament) which never left the front page headlines. Indeed, the authors of this study were interviewed regarding dentist and child abuse (114). It is also worth noting that the UAE federal penal codes issued in 1987 and 2008 (84) were in force at the time, obligating
healthcare professionals to act to protect harmed patients. In June, 2016, the CPL-UAE 2016 was introduced as law and the ultimate general and local child protection guideline was set forth. Clearly, further studies are now needed to gauge the impact of this law on different professions in the UAE.

5.3.3: The dental team and recognizing CAN

As the head and neck are areas regularly examined by the dentist, it is important for our profession and our children that “dentists believe that the dental team members are well placed to recognize CAN”. This view was reflected in our study as 58.3% of the participants agreed with such a statement. This was a very similar outcome to other reported surveys (16). Importantly, those who were educated to recognize CAN were five times more likely to report it than those who were not (88). Equally, those who could not recognize CAN in the UAE, reported that they needed further training (90). Interestingly, when we quantified knowledge of CAN, via the SoCANS (See 4.6.1 and Table 4.6), the overall score (out of 12) for the sample chosen was 9. This suggested that the participants were able to recognize 9 scenarios of CAN correctly.

Our study found that two highly significant factors (dentists’ gender, specialty) affected the belief in the unique position of the dental team members in recognizing CAN. Initially, male dentists were significantly ($p=0.002$) more in agreement with this statement than their female counterparts. We went further than requesting an opinion about the above statement, by actually testing the participant’s CAN knowledge of which the SoCANS (Table 4.20, Figure 4.16) was an indicator. When actual scenarios of CAN were given to our participants to test their ability to recognize them, female dentists significantly ($p=0.001$) scored higher
(SoCANS= 6.99) compared to male dentists (SoCANS= 6.23). Secondly, GDPs were significantly (p=0.044) highly in favor of this statement compared to other specialties. However, in a similar fashion, we tested the specialties knowledge by tabling them the CAN scenarios. We found that orthodontists and paediatric dentists had scored significantly higher compared to other specialties (p=0.000). The latter is probably explained by the fact that other specialties do not see child patients and consider this matter out with their domain of practice, and may not involve their teams in such training exercises.

Previous studies (12, 16) had also used similar statements to see if dentists agreed or disagreed on their ability to detect CAN. However our study went a step further by applying a test tool to quantify the ability and knowledge to recognize CAN in the form of SoCANS. This highlighted that merely agreeing/disagreeing to a statement about dentists recognizing CAN, did not always match knowledge about CAN.

5.3.4: Dentist opinion about “abused children informing someone about the abuse”

It is well recognized that most cases of abuse and neglect do not come to the notice of professionals and, as a result, children continue to suffer harm (12). Most child abuse occurs within a child’s own family by persons known to the child, therefore reporting CAN is difficult. Abuse or neglect may present to the dental team in a number of different ways: through a direct allegation (sometimes termed a ‘disclosure’) made by the child, a parent or some other person through signs and symptoms which are suggestive of physical abuse or neglect or through observations of child behavior or parent child interaction. Our study showed that only 40.2% agreed that abused children will inform someone soon after the
abuse had taken place, confirming the above observation. This had been noticed in other studies; for example delayed disclosure of childhood rape was very common, and long delays were typical. Few variables were identified that successfully predicted disclosure behavior, but older age and rape by a stranger were associated with more rapid disclosure \(^8\).

5.3.5 Addressing the accusation of CAN

A child who makes a disclosure of abuse should always be taken seriously \(^{115}\). If requested to keep a secret, a dentist should not do so but should explain to the child that they may have to share information. The most important thing to remember if a dentist is faced with a child who may have been abused is that they do not need to manage this on their own. It is also important to remember that the dentist’s first duty is to the child and as such they have a responsibility in dealing with any injury or dental needs \(^{26}\). No child should be left untreated or in pain because of underlying concerns about abuse. Cairns et al\(^{16}\) had found that while 21% of the respondents admitted that they had suspected abuse, they had not addressed it. This corresponds with the results of another study \(^{88}\) on dental therapists; 18% of the participant had suspected CAN cases but failed to report these cases. In a recent UAE study \(^{90}\), it was found that while 25% of dentists had suspected CAN cases, only a third had addressed their findings. Therefore, despite the general awareness and suspicion of child abuse there was poor reporting of cases. This may be due, in part, to the lack of legislation for dental practitioners governing the reporting of suspected child abuse in the UAE, in comparison to the mandated reporting in the UK and USA. This is disappointing, since the consequences of failing to report a case can be life-threatening. Proficiency in detection and addressing CAN cases can save a child’s life. Interestingly, our study showed that 90% of the
participants agreed that the accusation of CAN should be addressed; this result was much higher than comparative studies \( ^{12, 16} \). This was a reassuring result; however, we found that actual practice may not match this. When we looked at the influencing factors which affect a dentist making a child protection referral (using the SoCANRIF which overall was 4 out of a total score of 7) we were able to identify that many barriers exist when addressing CAN. Some of these barriers include the fear of family violence to the child, lack of knowledge of referral and lack of certainty about the diagnosis; these were regarded as inhibiting factors for CAN to be addressed. It was reassuring however, to note that concerns about the impact on the dental practice, fear of family violence to the dentist, fear of litigation and finally fear of the consequences to the child were not inhibiting factors (See Table 4.5 and Figure 4.7).

In cross tabulating “dentist addressing the accusation of CAN” experience to the other variables, there was a significant factor \( (p=0.022) \) when it came to the country of qualification of the participant. Dentists that were qualified from the Western nations were more in agreement that the accusation should be addressed soon, compared to Asian, GCC and Arab countries dentists (See Table 4.9, Figure 4.10). This may be due to the fact that there is a mandatory training in child protection with different levels in those countries. In certain countries, like the UK, staff at all levels, medical, non-medical and students from all medical disciplines will receive child protection training to an appropriate competency level. The level will vary within the programme and will depend on individual learning & development requirements\(^{90}\). This result was also partially confirmed by the SoCANRIF (See Table 4.16 and Figure 4.14), as Western qualified dentists (in addition to Asian qualified dentists) scored higher compared to GCC and Arab qualified dentists \((p=0.032)\). This means that the former two groups had fewer barriers for addressing CAN by making a child protection referral.
compared to the latter two groups (qualified in the GCC, Arab countries). This indicated a major educational divide between the aforementioned groups.

With regards to the dentist’s gender, nationality and specialty: they had no effect on this aspect of the study. They all clearly agreed equally that the accusation of CAN should be addressed.

5.4. Discussion of dentist’s practice and experience of CAN

As mentioned earlier, dentists are in a unique position to identify CAN, since most injuries are in the head and neck region. As shown in previous studies, between 13% (6) to 50% of dentists suspect cases due to their profession and close proximity to the head and neck region, but unfortunately less than half actually refer these suspicions to appropriate authorities.

In this study, we looked at the experiences of CAN over past 5 years and past 6 months. When asked if the dentists have ever suspected child abuse, 39% of the participants had seen such cases (see Table 4.4 and Figure 4.6). This is similar to Chadwick et al study that reported 34% of the dentist have suspected abuse cases but is also comparably lower than other studies, where it was reported to be 47.8% to 50% . In another similar study the proportion among dentists who had ever suspected abuse was (67%) higher than demonstrated in previous studies worldwide with general dentists.

Harris et al found that approximately two out of three respondents had previously seen a case suspicious of abuse but fewer than one in three respondents had ever made a child protection referral. This represents a 38% gap between recognizing and responding in cases of suspected abuse. When we asked the participants if they have witnessed physical abuse
within the last 6 months, 16% has seen cases, this lower percentage of CAN cases may not represent the actual incidence but rather undiagnosed cases of child maltreatment.

In our study 39.4% of the participants had seen or suspected an average of 1.3 CAN cases in the last 5 years, this is higher than other study (7) which reported 29% of the sampled dentists had suspected an abuse case during their career, and one in five dentists within the last five years. In Harris et al. study (16), the rate was lower than that in our study, showing that 15.9% of the respondents had suspected three or more cases in five years yet only 1.5% had referred three or more cases in that time.

When we looked at the experience and practice of detecting CAN, and cross tabulated it against the social, educational and training variables we found that male dentists reported a slightly higher experience of ever suspecting CAN (p=0.015) than female dentists (See Table 4.11 and Figure 4.13). Using the SoCANRIF, we found that male dentists had a tendency to be less concerned about barriers for making a child protection referral compared to female dentists. SoCANRIF scores (See Table 4.17) for males was slightly higher at 3.93 compared to females (3.52) but this what not significant (p=0.056). When cross tabulating the CAN practice and experience against the other variables (nationality, specialty, and country of qualification) there was not statistical significant difference. This meant that the experience of CAN was similar across all groups.

5.5: Discussion of the factors affecting referral of CAN cases

Factors influencing professional judgments in referral processes are wide ranging. The process was described as ‘both a head and heart activity’ (8). Upon recognition of a case of
CAN, especially child abuse, a dentist has a duty to make a referral of the child. There are clearly several barriers to report suspected cases of child abuse. Studies have shown that dentists find the decision to refer CAN cases difficult \(^{(7, 8)}\).

In our study we looked at different factors that can affect the decision of referral, the most common factor was lack of knowledge of referral process with a 60%, and this was comparatively lower than some studies (85%) \(^{(88)}\), but also higher than others (41%) \(^{(16)}\). In the UAE, a recent study revealed that 21% of the respondents did not know who to report to \(^{(90)}\), while another study reported that 32% of the dentist lacked the knowledge of referral procedures \(^{(113)}\). In UAE the child protection law recently came into effect; training toward the referral process should be put into a proper mechanism so that children at risk of child abuse are flagged for close monitoring.

Another factor that rendered dentists unable to refer cases is the fear of family violence to the child, as 59% of the dentists in our study had concerns that this was a barrier to make a referral. It is well known that the majority of abuse cases toward children are from the caregiver or the parents, and this would make the fear to avoid referring understandable, but doesn’t change the fact that the welfare of the child is paramount. Other studies have reported a wide range of figures compared with our study, 34% \(^{(90)}\), 61% \(^{(16)}\) and 84% \(^{(88)}\).

A recurring theme in this study and in previous studies \(^{(12, 16)}\) is the role of uncertainty in preventing referral. As demonstrated in our study, the uncertainty of a diagnosis can be related to knowledge of the condition, the processes for referral and the consequences of referral in the broadest sense. Welbury et al \(^{(88)}\) reported that these uncertainties were lessened by child protection training; although as in all areas, training needs to be
periodically updated. They suggested that familiarity with guidelines and improved communication lines with other health professionals would facilitate a better child protection practice. In our study 55% of the participating dentists disclosed that there was an uncertainty in diagnosis. In a study comparing GDPs and paediatric dentists, it was found that 86.5% of the GDPs were uncertain about the diagnosis compared with only 50% from the paediatric specialists (118). In a UAE study the results were lower than of our study, with 32% of the dentist were worried that the diagnosis was not accurate (90).

It is important that dentists understand their role when it comes to referring CAN cases, the child protection guidelines makes it quite clear that the threshold for referring a child to social services is ‘having concern’ (90). Diagnosis is a shared responsibility of the child protection team, no matter what obstacles and fears the dentist may have, the main priority is the child.

The SoCANRIF score in our study was formulated to quantify the referral influencing factors that negatively affect the referral. A score of 7 out of 7 was given for the dentist who did not perceive any barrier. The score showed that the majority of dentists had a 4 out of 7 correct and no one scored 7 out of 7. This shows that participating dentists had issues as explained earlier with the referral of CAN cases. When cross tabulating the SoCANRIF against different variables, a significant factor was the country of qualification. It was noticed as previously mentioned above that dentists qualified in Western and Asian countries scored better than those qualified in GCC and Arab countries. This could be related to the lack of undergraduate training and attendance of postgraduate courses which are mandatory in some countries in the West and in some Asian countries (like Singapore, Hong Kong and Malaysia), but not the GCC and Arab nations.
Another significant correlation was between SoCANRIF and years after qualification, the more the experience the higher the score was. This may be due to the fact that with higher levels of awareness the dentist is more aware about signs and symptoms of CAN, and the experience level will ease the difficult situation of referral\(^{(26)}\). Experienced practitioners usually have more confidence and competency, have earned their status in the professional and social communities and are less concerned about the factors mentioned in the study.

**5.6 Discussion of child protection scenarios**

In a departure from previous studies, our study aimed to quantify dentists’ knowledge and perception toward child abuse and neglect as set in the questionnaire (Q18). The division of the 12 questions, had participants categorized some cases as abuse, while others as neglect, both or none. Out of the 12 questions the overall average score was 9 out of 12 (See Table 4.6). This showed that dentists were relatively, but not completely, confident enough when it came to differentiating different scenarios of CAN. Two studies\(^{(16,90)}\) had mentioned that it was the lack of certainty in identifying the signs was the biggest barrier the dentist had when faced with a CAN situation,

In our study seven questions had neglect as the correct answer, while the majority had answered the correct answer about neglect, but when it came to a child not attending school, a small majority (45%) had abuse as the answer. The latter could be explained that the UAE government had rules making it compulsory to attend school whether private of public from Kg1 to grade 12 unless a child suffers from a disability\(^{(119)}\).

One common wrong answer in our study was observed when participants were asked about a child with a bruise over bony prominences, the majority (63%) had considered it as abuse.
The correct answer should be (none) as accidental falls\textsuperscript{119} usually cause bruises involving the skin overlying bony prominences such as the forehead or cheekbone instead of the soft tissues of protected areas\textsuperscript{6}. While bruising in children who are not independently mobile area cause for concern\textsuperscript{26} we did not specify that in the scenario.

Another common wrong answer in our study was when participants were asked about a child with a bite mark on his/her cheek, the majority (62\%) again chose abuse, it is true that any case where a child has been harmed as a result of abuse or neglect might potentially involve a criminal offence against that child. However, we could not exclude the fact that it might only be an accident like a sibling fight. Hence, this scenario, in our opinion, might be considered as parental neglect. The correct answer to this scenario would be “both”.

It is surprising but reassuring that the majority of the dentists thought that a well-dressed child with multiple carious teeth was neglect (65\%); other studies\textsuperscript{6} had shown this form to be an under reported type of neglect and as such never referred to authorities. Welbury et al\textsuperscript{45} reported ‘cultural relativism’ as practitioners considering this child neglect as a cultural norm thus having lower expectations of the child presentation.

Many parents from different cultural backgrounds lack the proper knowledge and education regarding the importance of children’s oral health in general and the importance of the health of primary teeth in particular. A perception that the “milk teeth” do not need to be treated because they are temporary is a common one in many cultures. Parents around the world tend to seek dental care only when a child is in pain frequently.

When we cross-tabulated the SoCANS against other variables, there were two significant factors. The female dentists in our study scored better than their male colleagues (p=0.001).
This was similar to other study, (16) that reported younger and female respondents to be more aware of CAN issues than their male and older counterparts. There is no clear explanation for this.

Another highly significant factor in our study is the dentist’s specialty (p=0.000). It was found that orthodontists and paediatric dentists were significantly more knowledgeable when compared to other specialists, this is compatible to a UK study (12), where it was found that more specialists and consultants in paediatric dentistry were aware of the key indicators in detecting CAN. The dentists’ nationality and country of qualification had no effect on this aspect of the study.

5.7 Discussion of the relation between the SoCANS and SoCANRIF

The ideal situation to safeguard a child in the dental context would be that the dentist has sufficient knowledge in the different forms of CAN, and no factor should stop him/her from arranging a child protection referral. A study by Sonbol et al (113) reported that one important factor in recognizing CAN is having an adequate knowledge of different forms of CAN. In our study we checked the relationship between SoCANS (a score of CAN knowledge) and SoCANRIF (a score of practice of child protection referral), we found that there was no significant correlation between the two. Therefore, those dentists who scored higher in identifying the signs and symptoms of CAN did not necessarily score higher in the ability to overcome the barriers that prevent a child protection referring. Sonbol et al, (113) studied the dentist knowledge of CAN and referral factors, but did not correlate them to each other. To our knowledge this would be the first study to look at these factors and to their relationship to each other.
5.8 Study limitations

The limitations for this study would be as follows:

- The study sample was a convenient one, of dentists who had attended dental conferences. This targeted a sample of dentists seeking knowledge, and therefore we did not reach a truly representative sample. It would have been beneficial if all UAE dental authorities were linked together and a questionnaire was sent to everyone who was qualified as a dentist in UAE. This was not possible in this study due to authority regulations, and time restraints for only one researcher to collect data.

- In this study we had asked dentists about suspecting CAN cases. It would have been beneficial to ask if they had reported such cases, and to whom they would have reported them.

- The survey was conducted both through paper and electronic means; this might have influenced the results. A single method of conduction for the survey would be preferred.

- Participants were not asked whether they had reported any CAN cases when suspected. They also were not asked of their knowledge of reporting channels.
6.0 Conclusions

In the sample of UAE dentists surveyed it was found that:

- A large minority (39.9%) of them had suspected CAN with an average of 1.3 cases in the last 5 years.
- More male dentists suspected CAN cases than female dentists, and also believed that members of the dental team are in a position to recognize CAN, however female dentists actual knowledge of CAN diagnosis was higher.
- A majority of the respondents (54.1%) were not aware of local child protection guidelines.
- The majority had received undergraduate and postgraduate training in CAN related issues, but when it came to postgraduate education, paediatric dentists attended CAN courses the most compared to other specialties.
- A majority (58.1%) believed that members of the dental team were in a position to recognize CAN, especially general dental practitioners and male dentists.
- A majority (59.8%) believed that abused children will not inform anyone else about the abuse soon after it took place.
- A large majority (90.8%) believed that the accusation of child harm should be addressed after the abuse. UAE dentists qualified in the West were more likely to believe so compared to those qualified in Asia, GCC and Arab countries.
- The influencing factors preventing (barriers to) the surveyed dentists from arranging a child protection referral were the lack of knowledge of the referral protocol, fear of family violence to the child and lack of certainty about the diagnosis.
In quantifying their knowledge of CAN scenarios, female dentists, orthodontists and paediatric dentists scored higher in recognizing CAN cases compared to male dentists and other specialties (general dental practitioners, restorative dentists and oral surgeons).

In quantifying their practice of child protection referral, more experienced UAE dentists who qualified in Asia or the West scored higher. Therefore they had less influencing factors/barriers affecting their decision to arrange for a child protection referral compared to dentists qualified in the GCC and Arab countries.

Knowledge of CAN did not necessarily mean more practice of child protection. There was no correlation between those who scored high in CAN knowledge and the CAN practice scores: thus those who had demonstrated more knowledge in CAN related scenarios were not necessarily less concerned about factors influencing a child protection referral.
7.0 Recommendations

This study demonstrated that not everyone is aware of their overarching social responsibility toward CAN. Dentists are only one example of healthcare providers that need to accept their role in assuring the safeguarding of children.

7.1 Improvement in training

In order to close the gap in recognizing CAN and referral obstacles, improvement in training at the undergraduate level by improving the curriculum to involve basic information on safeguarding children is necessary. Furthermore, recurrent mandatory free of charge training should be implemented and specified to the area of specialty. Besides training in recognizing CAN, specific training on what to do once CAN is recognized is equally important; i.e., what should the dentist do, what protocols should be followed, sharing information with other concerned agencies and who should be contacted. This training should be tailored specifically, not only to account for the amount of contact the dentist has with children patients, but also transcend the dental surgery boundaries to reach out to children in the wider society. This training should include all the team involved in caring for children to ensure that the dentist is properly supported when it comes to this issue. The new child protection guidelines (CPL-UAE 2016) should be sent as a booklet to all qualified dentists in UAE.
7.2 Improvements in Practice

Clear identification of process for the referral of suspected CAN cases should be in place. The concerned authorities should support the dentist with their referral process and provide all necessary help. Dedicated personnel to deal with dental referrals of CAN cases might be helpful.

UAE dentists should become, professionally and socially, actively involved in recognizing CAN by working together with other professions, on the basis that it is “everybody’s job to make sure a child is alright”. Dentists should be able to share information and communicate with different agencies and authorities caring for children in order to enforce child safeguarding. A clear mechanism should be placed in order to ease this communication. Accurate and contemporaneous record keeping should also be mandatory in the patient’s file in case of future investigations.

To make effective changes in the UAE, authorities should implement training courses in recognition and referral of CAN cases for everyone dealing with children. School teachers, nurses, physicians, social workers, in our opinion, are a priority when it comes to such training.
References


Appendix List

Appendix I: Ethical approval from HBMCDM Research Ethics Committee

Appendix II: Study Consent sheets to be signed by Dentist

Appendix III: The original questionnaire form

Appendix IV: Permission to use the questionnaire from Dr Cairns

Appendix V: Permission to use the questionnaire from Dr Chadwick
Appendix I

Athanasios E. Athanasiou, D.D.S., M.S.D., Dr. Dent.
Dean
Professor & Program Director in Orthodontics
Hamdan Bin Mohammed College of Dental Medicine

Ref: HBMCDM/EC/2031
Date: March 8, 2016

Dr. Hind Al Hajeri
Resident, Paediatric Dentistry
Hamdan Bin Mohammed College of Dental Medicine
PO Box 505997
Dubai Healthcare City
Dubai

Title of project: Assessment of the Knowledge of Dentists in the United Arab Emirates of Child Maltreatment and Safeguarding
Reference: EC1115-001

Dear Dr. Hind,

Thank you for submission of your proposal for approval to the Research & Ethics Committee.

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion, effective 9th February, 2016, on the basis described in the application form.

The favourable opinion is given provided that all data used for the study and that are archived are anonymous.

The Committee recommended Dr. Hind to ensure that the surveys completed during the AEEDC were taken from the doctors in UAE, as mentioned in the proposal.

Yours sincerely,

Professor Athanasios E. Athanasiou
Chairman, Research & Ethics Committee
Appendix II

Questionnaire Consent Form

This research is being conducted by Dr Hind Al Hajeri a paediatric dentistry resident in Hamdan bin Mohammed Collage of Dental Medicine.

Purpose: To Study the knowledge of dental practitioners in United Arab Emirates towards child maltreatment, protection and child safeguarding issues.

Participants: In order to qualify for this study, you must be the certified dentist in the United Arab Emirates. We anticipate that 480 people will participate in this study.

Voluntary participation: Participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. The alternative to participate in this study is to not participate.

Confidentiality: All identifying information obtained from this study will be kept strictly confidential, except as may be required by law. Any information that will be obtained will be seen only by the investigator and supervisor; it will be kept under lock and key. Data files will not contain potentially identifying information, and will not be published.

Consent: I have read and understood the above information, have had any questions answered satisfactorily, and I willingly consent to participate in this study. I freely consent to participate in this study. I authorize the use and disclosure of the information according to that described above.

Your name: Signature

Approved by ethical committee of research, Hamdan Bin Mohammed College of Dental Medicine.
Appendix III

Dentist Questionnaire

1- Serial Number: ____________________________
2- Gender : F ______  M________
3- Nationality : __________________________
4- Years qualified as a dentist : ______________
5- specialty: _____________________________________
6- Country of education : ______________________
7- No. of children patients seen per week : __________
8- Was Child Abuse/Protection part of your formal undergraduate dental lecture or seminar programme?
   a. Yes
   b. No
9- As a postgraduate have you attended any lectures or seminars on Child Abuse/Protection?
   a. Yes
   b. No
10- Have you ever suspected child abuse in one or more of your patients?
    a. Yes
    b. No
11- If yes to question 10, on how many occasions during the last 5 years (insert number)?________
12- Have you seen a case in which you suspected child physical abuse in the last six months?
    a. Yes
    b. No
13- Are you aware of your local area Child protection Guidelines?
    a. Yes
    b. No
14- Might any of the following factors affect your decision on whether to make a referral in a case of suspected child abuse?
    a. Concerns about impact on the practice (financial, time taken, loss of income, income withdrawal).    YES_____ NO ______
    b. Fear of family violence to the child.       YES_____ NO ______
    c. Fear of family violence to you.           YES_____ NO ______
    d. Fear of litigation.                       YES_____ NO ______
    e. Fear of the consequences to the child from the intervention of statutory agencies.  YES_____ NO ______
    f. Lack of knowledge regarding procedures for referral  YES____NO
    g. Lack of certainty about the diagnosis.     YES_____ NO ______
15- Do you think that general dental practitioners or members of the dental team are well placed to recognize behavior and/or signs that may be attributable to child abuse?
   a. Yes  
   b. No

16- Do you agree with the statement “Children who have been abused usually tell someone soon after the abuse”?
   a. Yes  
   b. No

17- If a child readily states that an adult has caused harm, the accusation should be addressed?
   a. Yes  
   b. No

18- Please see the scenarios below and categorize them by ticking the appropriate box

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Abuse</th>
<th>Neglect</th>
<th>Both</th>
<th>None (Normal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 5 years old child that is left unattended in a mall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother doesn’t attend to her child clothes and hygiene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents that leave their 7yrs child at home alone, and go shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents that miss multiple dental visits when their child has multiple deep cavities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents that verbally humiliate their child for not opening their mouth during dental treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 10 year old child that doesn’t attend school because he works with his dad</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents keep on rescheduling their child’s dental appointments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A child attends with bruises over bony prominences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A child attends with what appears to be burns on their face</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A child attends with bite marks on their cheek</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A child with one of the above injuries but with a vague history that is not compatible with the injury</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A well dressed and smart and happy child who has multiple carious teeth in their mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix IV

Barbara Chadwick

To: Hind AlHarbi

Re: research on child protection

October 3, 2015 at 6:43 PM

Delighted to have you use it, adapt it as befits your group and good luck. We based our questionnaire on the one used by Claire referenced in the paper - she is still in Glasgow.

Barbara Chadwick

On 3 Oct 2015, at 19:08, Hind AlHarbi <hind_alharbi@HBMCOM.ac.ae> wrote:

Dear Dr. Chadwick:

I hope this email finds you well.

My name is Dr. Hind Al Harbi from the United Arab Emirates, I am a 3rd year paediatric resident in Hamdan bin Mohd College of Dental Medicine.

I have just read your article on child protection (Child protection: training and experiences of dental therapists?) it is a very important and hot subject.

I am doing a similar research on the assessment of knowledge of dentist in the UAE, and I was wondering if I can use your instrument too. I might do some changes in it, your participation will be acknowledged when I publish my thesis.

I hope to hear from you soon.

Regards

Dr. Hind AlHarbi
Appendix V

Caims, Alison
To: Hind AlHajeri
RE: research on child abuse

Thanks,
I am happy for you to use the questionnaire as long myself and Professor Richard Welbury are acknowledged. Any modifications you make should be clear.
Good luck with your research.
Alison

Dr Alison M Caims
Senior Clinical University Teacher Honorary Consultant in Paediatric Dentistry

Original Message

From: Hind AlHajeri [mailto:Hind.AlHajeri@HIMCOM.ac.ae]
Sent: 04 October 2015 21:14
To: Caims, Alison
Subject: research on child abuse

Dear Dr. Caims

I hope this email finds you well,
My name is Dr. Hind Al Hajeri from the United Arab Emirates, I’m a 3rd year paediatric resident in Hamdan Bin Mohd College of Dental Medicine.
I have just read your article on child protection (The dental practitioner and child protection in Scotland) it is a very important and hot subject.
I’m doing a similar research on the assessment of knowledge of dentist in the UAE, and I was wondering if I can use your instrument too, I might do some changes in it. your participation will be acknowledged when I publish my thesis.

I hope to hear from you soon

Regards

Dr. Hind Al Hajeri