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Assessment of the knowledge of United Arab Emirates dentists of Child Maltreatment, protection and safeguarding

ABSTRACT

Aim Child safeguarding is society's responsibility. Dentists are uniquely positioned to recognise Child Abuse and Neglect (CAN) in dental practice and the wider society. The United Arab Emirates (UAE) introduced a child protection law in 2016. We aimed to assess the awareness of UAE dentists of child maltreatment, protection and safeguarding.

Study Design A cross-sectional survey.

Methods We surveyed 381 UAE dentists about the knowledge and practice of CAN and safeguarding issues using a self-administered anonymous questionnaire. Statistical analysis was carried out using Chi-square, t-test, ANOVA and Pearson's correlation test and statistical significance was set as $p < 0.05$.

Results Over 39 % ($n=152$) of the responders suspected CAN; male dentists suspected more CAN than females ($p=0.015$). Orthodontists, paediatric dentists ($p<0.001$) and female dentists ($p=0.001$) were more knowledgeable about diagnosing CAN. Paediatric dentists attended more CAN-related postgraduate training ($p<0.001$) than other specialties. Over 90% ($n=346$) believed that CAN should be addressed, 58.1% ($n=224$) and 54.1% ($n=206$) had CAN undergraduate and postgraduate training

respectively but 53.5% ($n=204$) were unaware of local child protection guidelines. Dentists barriers to child protection reporting were; fear of family violence (59.6%, $n=227$), lack of knowledge of referral process (60.2%, $n=228$) and lack of diagnosis certainty (54.9%, $n=206$). UAE dentists qualified in Western and Asian countries had fewer barriers for child protection reporting ($p=0.022$) than the Arab and Gulf Cooperation Council qualified dentists.

Conclusions A large minority of UAE dentists suspected CAN. Factors influencing child protection reporting were identified. Dentists' gender, specialty, and country of qualification affected their knowledge of CAN and practice of safeguarding. Child protection training is recommended.

Keywords Child maltreatment; Child abuse; Child neglect; Child protection; Dentists; United Arab Emirates

Introduction

Children's rights are protected by universal agreements [United Nations, 1947 and 1989]; however child maltreatment remains a shocking global reality [United Kingdom Government, 2015; United States Children's Bureau, 2015; Australian Government, 2016]. In 2012, an eight-year-old child called "Wadeema", a child hitherto unknown to be the subject of years of abuse, was brutally killed in Dubai in the United Arab Emirates (UAE) by her father and stepmother. The "Wadeema" tragedy expedited an already ongoing federal UAE governmental process to enforce child protection. In 2016, and after years of public media coverage, the UAE government issued the Federal Law 3 on Child's Rights and named it the "Wadeema Law" [UAE Government, 2016]. It laid out the rights of children and set out the mechanisms for child protection, making child protection and safeguarding a legal duty of all members of society. It centered on the concept that able individuals and organisations in UAE society have a legal and social duty to report any concerns to, and work together with, the appropriate authorities if they have suspicion that a child is being subjected to any type of maltreatment or deprivation of rights. This development was in line with other developed nations; "working together to protect children" has been reflected internationally in numerous laws, regulations, reports and bodies that aim at maintaining children's welfare [United Kingdom Government, 2015; United States Children's Bureau, 2015; Australian Government, 2016].

The dental profession and dental team are considered favorably situated to identify and detect

child maltreatment. This is because most of the physical injuries that children are subjected to are located in the head and neck region [Mogaddam et al., 2016; Finkelhor et al., 2013; Sperber, 1981; Needleman, 1986; Jesse, 1994; Harris et al., 2004] – an area that is very easily exposed when a child visits the dentist. However, physical abuse is only one aspect of child maltreatment, as it encompasses all types of abuse and neglect too [NICE-UK, 2009]. The knowledge and role of dentists and dental teams with regards to Child Abuse and Neglect (CAN) and child safeguarding had been widely reported worldwide [Welbury et al., 2003; Cukovic-Bagic et al., 2015; Cairns et al., 2005; Al-Jundi et al., 2010;; Al-Dabaan et al., 2014; United States Children’s Bureau, 2015]. In addition, the knowledge of UAE dental students [Hashim and Al-Ani, 2013] and the protection role of UAE dentists [Al-Amad et al., 2016] in relation to child abuse had been previously assessed and were found to be inadequate. To the best of our knowledge, no studies have assessed these aspects in light of the recent “Wadeema Law”.

Therefore, in light of the recently established law, we aimed to assess the knowledge and awareness of dental UAE practitioners with regards to child maltreatment, protection and safeguarding. Our specific objectives were to: assess dentists’ knowledge in relation to CAN and the local guidelines in the UAE; assess dentists’ practice and experience in relation to CAN in the UAE; identify the demographic, social, educational variables that affected dentists’ knowledge and experience of CAN and practice of child safeguarding in the UAE; quantify dentists’ knowledge of CAN from set scenarios; quantify dentists’ perception of factors affecting their practice of a child protection referral.

Materials and Methods

The design of this study followed the guidelines published by “Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement” [von Elm et al., 2007].

Study design and participants

This study was an observational cross-sectional study. Data were collected by means of a questionnaire completed by UAE dentists. The eligibility criteria were that the dentist was registered and was working in the UAE continuously for at least five years, regardless of specialty (Table 1) in 2016. The UAE is a federal country of seven intricately linked Emirates (Abu Dhabi, Dubai, Sharjah, Ajman, Ras Al-Khaima, Um Al-Quwain, Al-Fujaira) and has four separate health authorities. To access as many UAE dentists as possible, and due to the lack of a UAE central dentist registry, the questionnaires were distributed to UAE dentists participating in the largest dental event in Middle East and North Africa

Demographics of study (N=381)	n (%)
Gender	
Male	167 (43.8)
Female	214 (56.2)
Nationality grouped	
GCC	176 (46.2)
Arab countries	120 (31.5)
Western	34 (8.9)
Asia	51 (13.4)
Country of qualification grouped	
GCC	190 (49.9)
Arab	84 (22)
Western	69 (18.1)
Asia	38 (10)
Specialty background	
GDP	216 (56.7)
Restorative	34 (9)
Oral Surgery	22 (5.8)
Orthodontics	38 (9.9)
Paediatric dentistry	71 (18.6)

TABLE 1 Demographics of the participants.

GCC: Gulf Cooperation Council (UAE, Qatar, Bahrain, Oman, Saudi Arabia and Kuwait); GDP: General Dental Practitioner.

Region (MENA) held in Dubai every year. It represented a major provider of global continuing dental education credit hours, attracting dentists from all over the world, and is a very important date on the UAE dental calendar; thus, the likelihood for a large turnout of UAE dentists was considered very high. Using a Cochran formula of sample size calculation with a power of at least 80%, based on a study [Cairns et al., 2005] that had an attrition rate of approximately 50%), 384 participants were required in our study, and hence 650 surveys were distributed. The sample was chosen from a major conference, and may be considered a convenience sample. The study was conducted in full concordance 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 Hamdan Bin Mohammed College of Dental Medicine (HBMCDM) at Mohammed Bin Rashid University (MBRU) (Ref HBMCDM/EC/2031).

Data collection tool

We used a structured self-administered questionnaire written in English. The questionnaire consisted of 18 questions (Tables 2, 3, 4 and 5 for the questions) that

Knowledge Question	Total	Was Child Abuse/Protection part of your formal undergraduate dental lecture or seminar programme? (Yes)		As a postgraduate have you attended any lectures or seminars on Child Abuse/Protection? (Yes)		Are you aware of your local area Child Protection Guidelines? (Yes)		Do you think that general dental practitioners or members of the dental team are well placed to recognise behavior and/or signs that may be attributable to child abuse? (Yes)		Do you agree with the statement "Children who have been abused usually tell someone soon after the abuse"? (Yes)		If a child readily states that an adult has caused harm, do you think the accusation should be addressed? (Yes)	
		N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Overall	n=	224	(58.8)	206	(54.1)	177	(46.5)	222	(58.3)	153	(40.2)	346	(90.8)
F	214	121	(56.4)	114	(53.3)	97	(45.3)	111	(51.9)	78	(36.4)	196	(91.6)
M	167	103	(61.7)	92	(55.1)	80	(47.9)	111	(66.9)	75	(44.9)	150	(89.8)
P-Value		0.183		0.401		0.346		0.002*		0.059		0.338	
GCC	176	105	(59.7)	100	(56.8)	80	(45.5)	99	(56.2)	77	(43.8)	163	(92.6)
Arab	120	66	(55.0)	63	(52.5)	59	(49.2)	78	(65)	51	(42.5)	103	(85.8)
West	34	22	(64.7)	19	(55.9)	18	(52.9)	19	(57.6)	10	(29.4)	32	(94.1)
Asia	51	31	(60.8)	24	(47.1)	20	(39.2)	26	(51.0)	15	(29.4)	48	(94.1)
P-Value		0.719		0.635		0.557		0.302		0.151		0.147	
GDP	216	126	(61.2)	94	(45.6)	103	(50.0)	133	(64.6)	91	(44.2)	184	(89.3)
Resto	34	19	(57.6)	14	(42.4)	15	(45.5)	14	(42.4)	11	(33.3)	30	(90.9)
Oral	22	13	(59.1)	12	(54.5)	13	(59.1)	11	(52.4)	10	(45.5)	20	(90.9)
Ortho	38	17	(44.7)	21	(55.3)	13	(34.2)	20	(52.6)	10	(26.3)	35	(92.1)
Paed	71	40	(58.0)	56	(81.2)	27	(39.1)	34	(49.3)	23	(33.3)	66	(95.7)
P-Value		0.465		0.000*		0.182		0.044*		0.159		0.627	
GCC	190	106	(55.8)	94	(49.5)	85	(44.7)	109	(57.4)	79	(41.6)	173	(91.1)
Arab	84	49	(58.3)	47	(56.0)	45	(53.6)	49	(58.3)	38	(45.2)	70	(83.3)
West	69	45	(65.2)	44	(63.8)	32	(46.4)	41	(60.3)	22	(31.9)	67	(97.1)
Asia	38	24	(63.2)	21	(55.3)	15	(39.5)	23	(60.5)	14	(36.8)	36	(94.7)
P-Value		0.534		0.224		0.044*		0.968		0.362		0.022*	

TABLE 2 Knowledge related questions and "yes" answer responses. Overall responses and breakdown according to dentist's gender, nationality, specialty and country of qualification. Chi-square. * indicates statistical significance.

investigated the practitioner's knowledge and practice of CAN related issues. The participants completed the survey in standardised conditions after inviting them to the MBRU stand at the conference and were given ample time to complete it anonymously and place it in a return box. The questions were divided into three main categories: demographics, CAN knowledge and awareness related questions, and CAN practice related questions. The structured questionnaire used in this study had been adapted, with written permission, from previous studies [Cairns et al., 2005; Chadwick et al., 2009] with alterations to reflect the culture in UAE. Demographics were cross-tabulated against the knowledge and practice responses. Specifically, for this study we also calculated a special score of correct answers from two test questions (see Tables 4 and 5) to quantify knowledge and practice of protection in relation to CAN. Each participant was given a score

compared to the ideal correct answer score for each of these two scenario-based questions. We called these specific two scores the Score of CAN scenarios (SoCANS), and the Score of CAN Referral Influencing Factors (SoCANRIF) (Tables 4, 5 and 6). These two scores facilitated quantification of both knowledge and practice of the participants in CAN related matters. A pilot study was conducted to validate the questionnaire among 10 dentists from our university and minor modifications were made to improve wording and clarity. These 10 questionnaires were not included in the final analysis.

Statistical analysis

Data were entered in computer database using SPSS for windows version 20.0 (SPSS Inc., Chicago, IL). Descriptive statistics were used to describe the categorical variables (dentist gender etc) by proportions

Dentist Practice/CAN Experience Questions	Have you ever suspected child abuse in one or more of your patients? (Yes)		Have you seen a case in which you suspected child physical abuse in the last six months? (Yes)	
	N.	%	N.	%
General	152	(39.9)	61	(16)
F	10	(5)	85	(39.7)
M	35	(21)	152	(39.9)
P-Value	0.015*		0.510	
GCC	31	(17.6)	76	(43.2)
Arab	20	(16.7)	47	(39.2)
West	2	(5.9)	13	(38.2)
Asia	8	(15.7)	16	(31.4)
P-Value	0.396		0.493	
GDP	37	(18.0)	76	(36.9)
Resto	2	(6.1)	11	(33.3)
Oral	5	(22.7)	13	(59.1)
Ortho	5	(13.2)	14	(36.8)
Paed	8	(11.6)	30	(43.5)
P-Value	0.283		0.266	
GCC	28	(14.7)	76	(40.0)
Arab	18	(21.4)	36	(42.9)
West	11	(15.9)	27	(39.1)
Asia	4	(10.5)	13	(34.2)
P-Value	0.405		0.841	

TABLE 3A

A - B CAN-related practice and experience questions with baseline dentist’s experience with children. Chi-square. *Statistical significance.

and continuous variables (like SoCANS) were described by means and standard deviations (SD). Cross tabulation was used to examine the independency between categorical variables and statistical analysis was performed using χ^2 -square and Exact Fisher’s test when appropriate for test of association. Where two or more continuous independent variables were examined (such as SoCANRIF and SoCANS), t-test and analysis of variance (ANOVA) with *post hoc* tests were used if the measurements were normally distributed. Pearson’s correlation test was utilised to assess linear correlations. Significance was set at the 5% level for all analyses.

Results

The results are divided into: demographics (Table 1); knowledge/awareness of CAN (descriptive and cross-tabulated) (Table 2); practice and experience in relation to CAN (descriptive and cross-tabulated) (Table

Number of occasions dentist experiences child abuse and neglect in the past 5 years	1.3 occasions (SD + 1.15)
Do you see more than 1 child patient weekly? (Yes) N=381	329 (86.4)
Average years of experience after qualification	10.31 years (SD ± 4.22)
Number and % of dentists who suspected child abuse and neglect in past 5 years	150 (39.4)
Average number of children seen per week	14.26 child (SD ± 8.34)

TABLE 3B

3); SoCANS and SoCANRIF (descriptive and cross-tabulated) (Tables 4, 5 and 6).

Demographics (Table 1)

Six hundred and fifty questionnaires were distributed. There were 501 completed questionnaires out of 650 (response rate of 77%). Some 120 questionnaires were further excluded from the study for incomplete fields thus 381 surveys were used in the study. The sample size obtained in our study was 99.2% of the original power calculation (set at 384). The demographics of the 381 dentists who participated in the study are summarised in Table 1. The UAE dentists were from various training, nationality and specialty backgrounds and conformed to UAE multinational cosmopolitan society norms. The experience of the participants in relation to treating children is summarised in Table 3.

Knowledge / awareness of CAN (Table 2)

Knowledge / awareness – overall descriptive results

A majority of those surveyed (90.8%) thought that any accusation of child harm caused by an adult should be addressed. In addition, 58.3% also agreed that General Dental Practitioners (GDPs) and other members of the dental team were well-placed to recognise child maltreatment and 59.8% reported that abused children tended not to reveal their abuse to others soon after the abuse. It was apparent that a majority had received

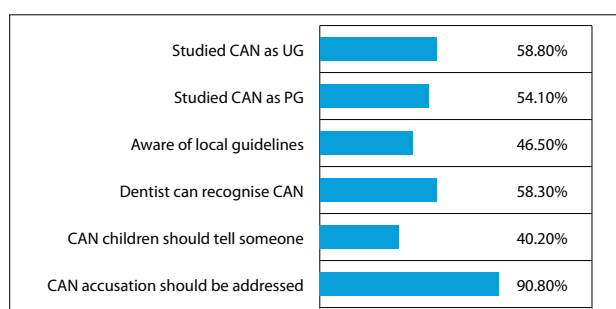


FIG. 1 Overall awareness and knowledge of CAN amongst participants (N=381). UG: Undergraduate. PG: Postgraduate

Please see the scenarios below and categorize them	Abuse	Neglect	Both	None
A 5 years old child who was left unattended in a shopping mall	39 (10.2)	291 (76.4)	32 (8.4)	19 (5)
Mother doesn't attend to her 7 year old child's clothes and hygiene	37 (9.8)	285 (75.2)	39 (10.3)	18 (4.70)
Parents who leave their 7-year-old child at home alone and go shopping	58 (15.2)	227 (59.6)	75 (19.7)	21 (5.5)
Parents who miss multiple dental visits and the child has multiple deep cavities	52 (13.6)	269 (70.6)	46 (12.1)	14 (3.7)
Parents verbally humiliate their child for not opening mouth during dental treatment	283 (62.5)	49 (12.9)	51 (13.4)	43 (11.3)
A 10-year-old child that does not attend school because he works with his dad	169 (44.4)	89 (24.3)	108 (28.3)	15 (3.9)
Parents keep on rescheduling their child's dental appointments	42 (11)	258 (67.7)	35 (9.2)	46 (12.1)
A normally developed 9-year-old child attends with bruises over bony prominences	240 (63)	42 (11)	67 (17.6)	32 (8)
A child attends with what appears to be cigarette burns on their face	250 (65.6)	31 (8.11)	94 (24.7)	6 (1.6)
A child attends with bite marks on their cheek	238 (62.6)	43 (11.3)	73 (19.2)	26 (6.8)
A child with injuries but with a vague history	216 (56.7)	51 (13.4)	103 (27)	11 (2.9)
A well-dressed smart and happy child who has multiple carious teeth in their mouth	27 (7.1)	244 (64.4)	21 (5.5)	87 (23)

TABLE 4 Breakdown of the questions related to the CAN scenarios (SoCANS data). The bold numbers represents the majority response while the shaded represents the correct predetermined responses.

Might any of the following factors affect your decision on whether to make a referral in a case of suspected child abuse and neglect?	No (n, %)	Yes (n, %)
Concerns about impact on the practice (financial time taken, loss of income, income withdrawal)	240 (71.9)	94 (28.1)
Fear of family violence to the child.	154 (40.4)	227 (59.6)
Fear of family violence to you.	270 (71.8)	106 (28.2)
Fear of litigation.	233 (62.3)	141 (37.7)
Fear of the consequences to the child from the intervention of the statutory agencies	195 (52)	180 (48)
Lack of knowledge regarding procedures for referral	151 (39.8)	228 (60.2)
Lack of certainty about the diagnosis.	169 (45.1)	206 (54.9)

TABLE 5 Breakdown of the questions related to the child protection referral inhibiting factors (SoCANRIF data). The bold numbers represents the majority response while the shaded represents the correct predetermined responses.

training regarding CAN as undergraduate students in addition to attending continuing medical education (CME) postgraduate seminars/lectures about CAN (58.8% and 54.1% respectively). A majority (53.5%) of the participants said they were unaware of their local area child protection guidelines (Figure 1 and Table 2).

Knowledge / awareness results cross- tabulated against demographic variables (dentist's gender, nationality, training background and specialty)

The association between participant's knowledge/ awareness and dentist's gender revealed no statistically

significant differences with the exception of the question that "members of the dental team are well placed to recognise behaviour and/or signs that may be attributable to child abuse". Some 66.9% of male dentists (n=111) believed in the aforementioned statement compared to 51.9% (n=111) of their female colleagues (p=0.002). When cross-tabulating the knowledge/awareness questions and the country of qualification of the participants, it was found that dentists 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". While the majority in all groups agreed that the accusation should be addressed, more Western-qualified dentists (97.1%, n=67) than Arab qualified dentists (83%, n=77) were in agreement than those from the remaining groups (p = 0.022). There were no statistically significant differences in relation to the remaining CAN knowledge questions and country of qualification. When cross-tabulating the knowledge/awareness questions and the specialty of the participant, there were clear significant differences relating to attendance at any postgraduate seminars on CAN and child protection (p<0.001); more paediatric dentists (81.2%, n=56) attended such seminars compared to the remaining groups (orthodontics, oral surgeons, GDPs and finally restorative dentists - 55%, 54.5%, 45.6 % and 42.4% respectively. In addition, when the participants were asked if they "think that GDPs or members of the dental team are well placed to recognise behaviour and /or signs that may be attributable to child abuse" GDPs ranked the highest; some 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.

	SoCANS (Score of CAN scenarios- Out of 12). The higher the score indicates more CAN-related knowledge		SoCANS Post Hoc multiple comparisons				SoCANRIF (Score of CAN referral influencing factors- Out of 7): A higher score suggests less inhibitors to make a child protection referral		SoCANRIF Post Hoc multiple comparisons	
	N.	SD					N.	SD		
Average Score (SD)	6.25	(2.78)					3.70	(2.06)		
F	6.99	(1.9)					3.52	(2.07)		
M	6.23	(2.09)					3.93	(2.02)		
P-Value	0.001*						0.056			
GCC	6.80	(1.93)					3.45	(2.04)		
Arab	6.28	(2.18)					3.88	(2.01)		
West	7.05	(1.82)					4.38	(2.08)		
Asia	6.50	(2.00)					3.70	(2.09)		
P-Value	0.087						0.066			
GDP	6.32	(1.93)	X	X			3.55	(2.04)		
Resto	6.39	(2.22)			X	X	3.54	(2.34)		
Oral	5.50	(2.22)					3.59	(1.91)		
Ortho	7.63	(1.69)		X		X	3.68	(1.93)		
Paed	7.39	(1.87)	X		X		3.94	(2.04)		
P-Value	0.000*		0.000*	0.000*	0.0017*	0.0008*	0.184			
GCC	6.55	(1.99)	X				3.42	(1.02)	X	X
Arab	6.28	(2.13)			X		3.76	(1.10)		
West	7.18	(1.63)	X		X		4.14	(1.03)		X
Asia	6.17	(1.88)					4.18	(1.01)	X	
P-Value	0.044*		0.025*		0.006*		0.032*		0.038*	0.013*

TABLE 6 SoCANS and SoCANRIF data (scores of knowledge and practice in relation to CAN). * statistically significant. #t-test, otherwise ANOVA conducted.

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. See Table 2 for details.

Practice and experience in relation to CAN (Table 3)

Practice and experience—overall descriptive results

The majority of the responders reported that they had never suspected child abuse in their practice, while 39.9% (n=152) suspected such cases. When asked about the number of occasions they had suspected CAN cases in the past five years, an average of 1.3 occasions (SD 1.15) per dentist was reported. When asked about their experience of suspected child physical abuse cases in the past six months, the majority 84% (n=320) had not suspected such cases.

Practice /experience of CAN results cross-tabulated against demographic variables

Statistical significance was found (p=0.015) when asked “Have you ever suspected child abuse in one or more of your patients?” 21% (n=35) of male dentists said “yes” compared to 5% (n=10) of female dentists. When cross-tabulating the practice questions and the nationality, the country of qualification and the specialty of the participant no statistical significance was found in any of the related questions. Across nationality groups, country of qualification groups, and across specialty groups, the majority had not seen or suspected child abuse in their practice.

Score of CAN Scenarios (SoCANS) - descriptive results (Table 4)

Perception of CAN scenarios

The results presented here relate to the scenarios

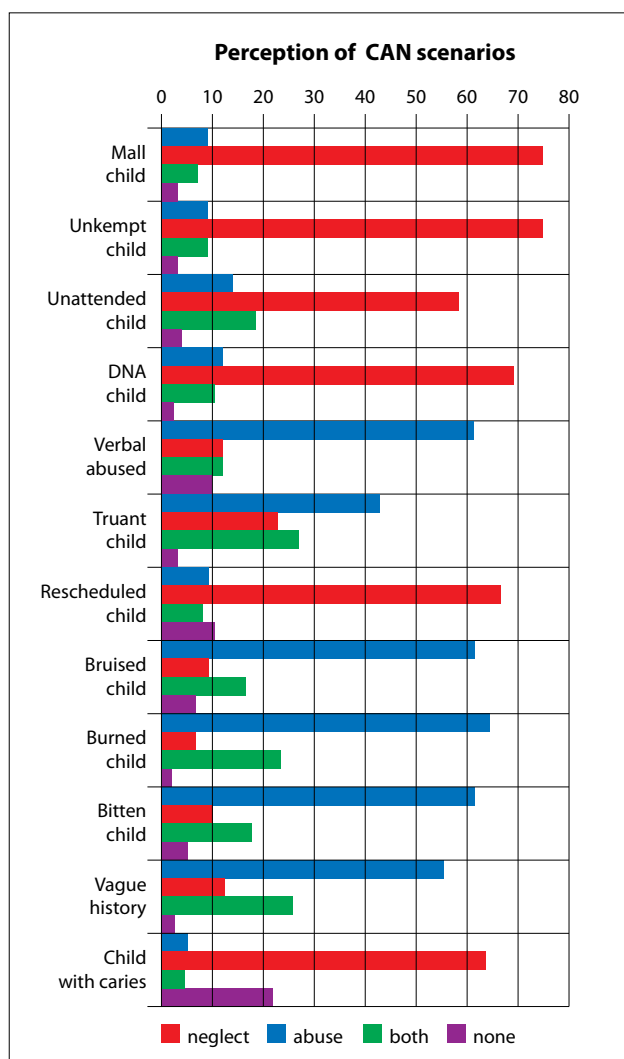


FIG. 2 Overall perception of the 12 given CAN scenarios outlined in Table 4 amongst the study participants (N=381). DNA: Did not attend.

question (see Table 4 and Figure 2). The participants were asked to give their perceptive diagnosis of: a) child abuse; b) child neglect; c) both; or d) none, in relation to 12 different scenarios. These scenarios were based on existing child protection training sessions provided to medical and dental staff at a UK based National Health Service Trust [Mires, 2010] attended by one of the authors (IH). The scenarios related to a child (various ages) who was in one of the following situations (see Table 4 for details): unattended 5 year old; unkempt (unhygienic child); at home alone unsupervised child; a child with decay and missed multiple dental appointments; a verbally humiliated child while at the dentist; a truant child; a child whom had his dental appointments continuously rescheduled; a bruised child; a child with burns; a child with bite marks; a child who had injuries with a vague history; a well-dressed happy child who had dental caries.

The overall "Score of CAN Scenarios" (SoCANS)

A standard setting exercise was conducted for the responses to the scenarios (Table 4). Scores for the ideal response for each scenario were previously tabled and pre-chosen by three paediatric dentistry faculty members (Table 4 shaded areas). If a respondent's answer correlated with the agreed pre-set response, a score of 1 per correct scenario was given. This allowed for a correct response score to be calculated, with a possible total score of 12. The SoCANS was considered a score for knowledge and perception of CAN. The top SoCANS score was 12 while the lowest was 0. This allowed for comparison between participants/groups across the 12 scenarios. When looking at the descriptive data above (Table 4), the overall SoCANS for the participants was 9 out of 12 (corresponding to the shaded areas in Table 4 that matched with the highest percentage- the underlined figures). Therefore, if someone scored a SoCANS of 7.63 their knowledge of CAN is higher than someone else scoring a SoCANS of 5.50.

Analysis of Score of CAN scenarios (SoCANS) cross-tabulated against demographic variables

When cross tabulating the SoCANS (Table 6) and the dentist's gender there was a statistical significant difference (t- test, $p=0.001$). Out of a total score of 12, female dentists scored higher (mean=6.99, SD 1.92) compared to male dentists (6.23, SD 2.09). When cross tabulating the SoCANS and the dentist's nationality there was no statistical significant difference (ANOVA, $p=0.087$). The scores (out of 12) for dentists from the Gulf Cooperation Council (GCC), Arab countries, Western countries and Asia were similar (ranging from 6.28 to 7.05). The Western group tended to score highest but this was not significant. When cross tabulating SoCANS and the country of qualification of the participant, a statistical significant difference was found (ANOVA, $p=0.044$). The highest score (out of 12) was 7.18 (SD 1.63) for those dentists qualified in Western countries whilst the lowest was for GCC qualified dentists (6.55, SD1.99). When conducting *post hoc* multiple comparisons, the SoCANS of GCC and Arab qualified dentists was significantly lower than those qualified in Western countries and Asia ($p=0.025$ and 0.006 respectively). When cross tabulating the SoCANS and the specialty of the participant, there was a highly statistically significant difference found between the specialty groups (ANOVA, $p<0.001$). 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). 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, these groups had significantly higher SoCANS than GDPs, restorative dentists and oral surgeons (for orthodontics; $p < 0.001$, $p = 0.008$ and $p < 0.001$ respectively; for paediatric dentists; $p = 0.000$, $p = 0.017$ and $p < 0.001$ respectively). Finally, when correlating SoCANS and years of experience there was no linear correlation (Pearson's correlation; $r = -0.01$, $p = 0.844$). Therefore, those who had higher SoCANS (i.e., more knowledgeable) were not necessarily more experienced.

Score of CAN Referral Influencing Factors (SoCANRIF) - descriptive results

Descriptive results of perception of influencing factors on the decision to refer a suspected case of CAN for child protection

The results in this section are related to the question outlined in Table 5 and Figure 3. 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 (Figure 3): 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; lack of certainty about the diagnosis. The majority said that three factors influenced the process of making a child protection referral: fear of family violence to the child; lack of knowledge of referral procedures; lack of certainty of diagnosis (59.6%, 60.2% and 54.9% respectively). A majority said that concerns about the impact on their practice, fear of family violence to the dentist, fear of litigation, and fear of consequences to the child from statutory agencies had no influencing effect on making a child protection referral.

The overall score of CAN referral influencing factors (SoCANRIF)

Standard setting conducted amongst faculty staff agreed that none of the seven factors should influence a dentists' decision to make a child protection referral in a case of CAN (see shaded areas in Table 5). 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"). The top SoCANRIF score was 7 and the lowest was 0. This allowed for comparison between participants across the seven factors. The overall SoCANRIF for all the participants was 4 out of 7 (the shaded and underlined areas in Table 5). This score was obtained because the majority of responses were "yes" rather than "no" in three of the seven factors (fear of family violence, lack of knowledge of referral policy and uncertainty of diagnosis) (Figure 3).

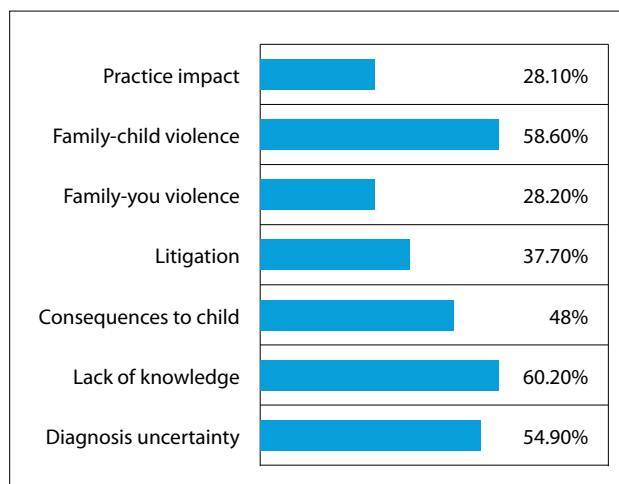


FIG. 3 Responses of participants toward "might any of the following factors affect your decision on whether to make a referral in a case of suspected child abuse and neglect" (N=381).

Analysis of SoCANRIF cross-tabulated against demographic variables

No group reached the score of 7 (Table 6). The mean SoCANRIF across all specialties was 3.70 (SD 2.06). When cross tabulating the SoCANRIF and the dentist's gender, nationality and the specialty of the participant, there was no statistical significance between the various groups (gender, $p = 0.056$; nationality, $p = 0.066$; specialties, $p = 0.184$ respectively). However, there was a non-significant tendency for male dentists, western nationality dentists and paediatric dentists to score higher than the remaining groups. When cross-tabulating SoCANRIF and the country of qualification, a statistical significant difference was found (ANOVA, $p = 0.032$). The highest scores (out of 7) were 4.18 (SD 1.01) and 4.14 (SD 1.03) for those dentists qualified in Asia and Western countries respectively, while the lowest was for GCC qualified dentists (3.42, SD1.02). 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 0.013 respectively, Table 6). Finally, when we correlated SoCANRIF with the years of experience, they were positively linearly correlated ($p < 0.001$). SoCANRIF was higher when the years of experience of the participants increased (Pearson's correlation, $r = 0.194^{**}$).

Correlation of the two scores: SoCANRIF and SoCANS

When correlating the SoCANRIF and SoCANS, no linear correlation was found (Pearson's correlation; $= 0.079$, $p = 0.124$). Therefore, those who scored high in SoCANRIF did not necessarily score high in SoCANS and vice versa.

Discussion

Our study was aimed at assessing the knowledge, practice and perception of CAN and child protection issues amongst UAE dentists. Child maltreatment may be recognised as: physical violence/abuse; sexual abuse; emotional abuse, and neglect [NICE-UK, 2009]. At the core of child protection exists the principle necessity for all professionals to work “together to safeguard children” [Harris et al., 2004; Welbury et al., 2003]. This was reflected in the UAE’s “Wadeema’s Law” and this responsibility applies to all able adults in the UAE, including dentists. Dentists are in a unique position to be able to recognise child maltreatment by virtue of their regular professional ability to assess the child’s head and neck region [Chadwick et al., 2009]. Although 94.3 % of UAE dental undergraduates believed they had an ethical duty to report CAN [Hashim and Al-Ani, 2013], actual CAN reporting by UAE dentists was low [Al-Amad et al., 2016]. Our study showed that many UAE dentists suspected child maltreatment but face inhibiting factors to act upon their suspicion.

Although a large study involving UAE dental students and related to CAN was published [Hashim and Al-Ani, 2013], we targeted active UAE dentists who have doubled in numbers since 2007 [GNYDM, 2011]. In our study we managed to capture a large sample from the estimated total UAE dentist work force, reported to number between 2200-2500 [Al-Amad et al., 2016; Knoema-Search Engine, 2014]. Our study had the largest dentist sample size when compared to similarly conducted studies carried out in the region [Al-Dabaan et al., 2014; Al-Amad et al., 2016] and was comparable to larger studies conducted internationally [Cairns et al., 2005; Laud et al., 2013; Cukovic-Bagic et al., 2015]. Because child protection is “everyone’s responsibility” [Harris et al., 2004] we included all dental specialties in the UAE and included even those who did not treat children. Although GDPs, paediatric dentists and orthodontists are considered the most likely to see child patients, restorative dentists and oral surgeons treating adults may be in contact with children by proxy, i.e. children attending with their parents to whom the treatment is being offered. These responsibilities may also need to be exercised outside the dental surgery in society at large. In addition, the UAE is a cosmopolitan society and residence to some 200 nationalities thus we expected to see dentists from different nationalities, cultures and backgrounds in our study. This was indeed reflected in our study; and although the majority of our participants belonged to the socially identical GCC, usually studied as a single entity [Alayyan et al., 2017] followed by Arab countries (Syria, Lebanon, Egypt etc.), they also included Westerners (Europe, USA, and Canada) and Asians (India, Pakistan, Bangladesh and Sri Lanka). 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 [Harris et al., 2004]. The threshold beyond which actions or omissions become abusive or neglectful is, to a certain extent, socially and culturally defined, therefore the dentists’ nationality, in addition to the country of qualification, was included in this study.

Discussion of UAE dentists’ knowledge of CAN

Undergraduate and postgraduate training

Child protection training has become a mandatory dental training requirement in some countries, like the UK [General Dental Council, 2013a and 2013b]. Our study showed that the more than half of the respondents had received undergraduate and postgraduate training in CAN issues (58.8% and 54.1% respectively) and this demonstrated higher reported undergraduate and postgraduate training compared to other studies [Laud et al., 2013 and Sonbol et al., 2012, Hashim and Al-Ani, 2013]. This was a positive finding but it highlighted that a large minority (41.2% and 45.9% respectively) had not received any child protection training. This is important in terms of future undergraduate curriculum development, an area where development had been strongly recommended [Hashim and Al-Ani, 2013], and improving postgraduate continuous professional education. A highly significant factor in our study linked to receiving postgraduate education in CAN was the specialty of the dentist ($p < 0.001$); 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. As the question does not differentiate between CME and postgraduate formal education, the knowledge could be due to their postgraduate training. However, this should not exonerate the rest of the specialties from attending such courses, especially if they treat child patients in addition to their social responsibilities outside the dental practice. There are in addition barriers such as the financial burden of courses on dentists; therefore, funding such courses locally in dentistry should become a priority in the UAE. It has been shown in Scotland that attending such courses does increase the chance of dentists detecting CAN [Cairns et al., 2005]. Our own SoCANS score (a score of CAN knowledge) was not related to the years of experience indicating there is a need for further UAE dentist training and this had been highlighted previously by 65% of UAE dentists [Al-Amad et al., 2016]. 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.

Local child protection guidelines/procedures

The knowledge of local child protection guidelines is compulsory for some dentists around the world [General Dental Council, 2013b]. In the UAE, individual Emirates each have their own local child protection mechanism/procedures [Dubai Government, 2017; Sharjah Government 2017]. Our study showed that more than half of the respondents (54.6%) were not aware of such guidelines/procedures (for example, knowing the Sharjah Emirate local child protection toll-free hotline number 800 700 available since 2007 and covers all of the UAE). This may be better than other similarly conducted studies [Cairns et al., 2005] but similar lack of awareness of local guidelines was reflected across all the variables used in this study; i.e., dentist gender, nationality, country of and even speciality. This was disappointing despite an intense UAE national debate and a mainstream and social media campaign to highlight what to do in cases of CAN.

The dental team and recognition of 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 recognise CAN [Al-Habsi et al., 2009]. This view was reflected in our study as 58.3% of the participants agreed with such a statement and was a very similar outcome to other reported surveys [Cairns et al., 2005]. Importantly, those who were educated to recognise CAN were five times more likely to report it than those who were not [Chadwick et al., 2009]. Equally, those who could not recognise CAN in the UAE report that they needed further training [Al-Amad et al., 2016]. When we tested recognition and knowledge of CAN, via the SoCANS score, the overall score (out of 12) for the sample was 9. This was encouraging. Our study found that two highly significant factors (dentists' gender and speciality) 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 was an indicator. When actual scenarios of CAN were given to our participants the female dentists scored significantly higher SoCANS ($p=0.001$) compared to male dentists. Therefore, although male dentists said the general dental practitioner is in better position to recognise CAN, female dentists actually scored higher in their knowledge of CAN scenarios. Similarly, we found that orthodontists and paediatric dentists scored significantly higher SoCANS compared to other specialties ($p<0.001$). The latter is probably explained by the fact that other specialties do not see

child patients regularly and consider this matter out with their domain of practice and as such they may not involve their teams in CAN training exercises. Previous studies [Cairns et al., 2005; Al-Habsi et al., 2009] had also used similar scenario 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 recognise 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.

Children reporting CAN

It is well recognised that most cases of abuse and neglect do not come to the notice of professionals and as a result children continue to suffer harm [Mogaddam et al., 2016; Al-Habsi et al., 2009]. Our study showed that only 40.2% agreed that abused children will inform someone soon after the abuse had taken place, thus confirming the above observation. Therefore, relying on children to come forward and report CAN, especially those at higher risk and not able to communicate (children under 4) [Harris et al., 2004] is insufficient. This was the same across all the variables in this study.

Dentists addressing the accusation of CAN

A child who makes a disclosure of abuse should always be taken seriously [Goodman-Brown et al., 2003]. If requested to keep a secret, a dentist should not do so but should explain to the child/carers that they may have to share information [Welbury et al., 2003]. Cairns et al. [2005] 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 other studies [Al-Amad et al., 2016; Chadwick et al., 2009]. Therefore, despite the general awareness and suspicion of child abuse there was poor reporting of cases [Laud et al., 2013]. 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. Reassuringly, our study showed that 90% of the participants agreed that the accusation of CAN should be addressed and this result was much higher than comparative studies [Cairns et al., 2005; Al-Habsi et al., 2009; Laud et al., 2013]. Unfortunately, we found that actual practice in our study did not match this. When we looked at the influencing factors which affect a dentist making a child protection referral (SoCANRIF) 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 that prevented the practice of child protection from taking place and was

similar to another report [Laud et al., 2013]. Despite no one scored 7 out of 7 for SoCANRIF it was reassuring 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 less inhibiting factors. When cross tabulating the "dentist addressing the accusation of CAN" experience to the other variables, there was a significant difference ($p=0.022$) concerning 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. This may be due to the fact that there is a mandatory training in child protection with different levels of training in those countries. In certain countries in the West, 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 [United Kingdom Government, 2015; Mires, 2010]. In our study, this result was also partially confirmed by the SoCANRIF, as Western qualified dentists (in addition to Asian qualified dentists) scored higher compared to GCC and Arab qualified dentists ($p=0.032$). This suggests 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 highlights that those GCC/Arab qualified dentists in the UAE (a majority in this study) need to be proactive in taking the initiative and making child protection referrals thus endorsing the conclusion that this is a training and knowledge issue. It's worth noting that dentist's gender, nationality and specialty had no effect on this aspect of the study. They all clearly agreed that the suspicion of CAN should be addressed.

Discussion of UAE dentists' practice and experience of CAN

Evidence shows that although dentists do suspect cases of abuse and neglect in close proximity to the head and neck region; less than 1.6% refers these suspicions to appropriate authorities [Laud et al., 2013; Harris et al., 2009]. In this study, we looked at the experience of CAN over the past 5 years and more recently in the last 6 months. When asked if the dentists have ever suspected child abuse, some 39% had seen such cases. This is more than what was reported in Croatia (26.27%; Cukovic-Bagic et al., 2015) but is lower than other studies, where it was reported to be 47.8% [UK; Cairns et al., 2005] to 50% [UAE; Al-Amad et al., 2016]. When we asked participants if they had suspected physical abuse within the last 6 months, some 16% responded positively which was close to what was reported elsewhere [Laud et al., 2013; Cukovic-Bagic et al., 2015; Mogaddam et al., 2016]. Nevertheless, it is important to remember that this lower percentage of

CAN cases may not represent the actual incidence but rather undiagnosed cases of child maltreatment.

When we looked at the experience of detecting CAN, and cross tabulated it against the social, educational and training variables in our study we found that male dentists reported a significantly higher experience of ever suspecting CAN ($p=0.015$) than female dentists. When cross tabulating the CAN practice and experience against the other variables (nationality, specialty, and country of qualification) there was no statistically significant difference. This suggests that the experience of CAN that had been noted in our study was similar across all groups.

Discussion of the factors affecting referral of CAN cases (SoCANRIF)

Factors influencing professional judgments in referral processes are wide ranging. The process was described as 'both a head and heart activity' [Harris et al., 2009a]. On recognition of suspicion 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 [Harris et al., 2004; Azevodo et al., 2012; Cukovic-Bagic et al., 2015]. Studies have shown that dentists find the decision to refer CAN cases difficult [Al-Dabaan et al., 2014; Laud et al., 2013]. In our study we looked at different factors that can affect the decision of referral, the most common factor was lack of knowledge of the referral process (60%). This was comparatively lower than the 85% reported in one study [Chadwick et al., 2009], but higher than the 41% in another [Cairns et al., 2005]. In the UAE, a recent study revealed that 21% of the respondents did not know whom to report to [Al-Amad et al., 2016], while a study in Jordan reported that 32% of dentists lacked the knowledge of referral procedures [Sonbol et al., 2012]. In the UAE training towards the referral process should be put into a proper mechanism so that children at risk of child abuse are flagged for close monitoring. Some 59% of the dentists in our study had concerns about fear of family violence to the child if they made a referral. Other studies have reported a wide range of figures compared with our study: 34% [Al-Amad et al., 2016]; 61% [Cairns et al., 2005]; and 84% [Chadwick et al., 2009]. It is well known that the majority of abuse cases toward children are from the caregiver or the parents [Harris et al., 2004], and thus it is an understandable potential barrier to referral. A recurring theme in this study and in previous studies [Al-Habsi et al., 2009; Cairns et al., 2005] was the role of uncertainty about the diagnosis in preventing referral. Uncertainty of a diagnosis can be related to deficiency in knowledge of the condition, the processes for referral and the consequences of referral in the broadest sense. Harris et al. [2004] 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 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 GPs and paediatric dentists by Welbury et al. [2003] it was found that 86.5% of the GPs were uncertain about the diagnosis compared with only 50% of the paediatric specialists. In the previous UAE study [Al-Amad et al., 2016] the results were lower than our study with 32% of the dentists worried that the diagnosis was not accurate. It is important that dentists understand their role when it comes to referring CAN cases. The child protection guidelines make it quite clear that the threshold for referring a child to social services is 'having concern' [Harris et al., 2004] and not being sure about the diagnosis. Diagnosis is a shared responsibility of the child protection team and no matter what obstacles and fears the dentist may have; the main priority is the child.

In our study, the SoCANRIF was formulated to quantify the referral influencing factors that negatively affected the referral. A score of 7 out of 7 was given for the dentist who did not perceive any barrier for a child protection referral and no one scored 7 out of 7. This confirmed that some participants had issues with the referral of CAN cases. When cross tabulating the SoCANRIF against different variables, a significant factor was the country of qualification ($p=0.032$). Dentists who qualified in Western and Asian countries scored better than those qualified in GCC and Arab countries. This could be related to the lack of availability of undergraduate training [Hashim and Al-Ani, 2013] and postgraduate courses in GCC and Arab nations which are mandatory in some countries in the West and Asia [Mires, 2010]. Another significant correlation was between SoCANRIF and years after qualification, with more experience dentists getting a higher score ($p<0.001$), suggesting that more experienced dentists may be less hesitant to make a child protection referral. They may have greater awareness of the signs and symptoms of CAN and this may make referral easier [Harris et al., 2004]. Experienced practitioners usually have more confidence and competency and have earned their status in their professional and social communities and thus may be less concerned about the potential inhibiting factors mentioned in the study. Therefore, consulting with a senior colleague in cases of suspicion of CAN may be helpful and perhaps more likely to lead to a child protection referral.

Discussion of CAN scenarios

In a departure from previous studies highlighted above, our study aimed to quantify dentists' knowledge and perception of child abuse and neglect, from scenarios used for child protection training sessions in

the UK. Out of the 12 questions the overall participant score was 9 (out of 12). This showed that dentists were relatively, but not completely confident enough when it came to differentiating different scenarios of CAN. Previous studies [Cairns et al., 2005; Cukovic-Bagic et al., 2015; Al-Amad et al., 2016] had mentioned that it was the lack of certainty in identifying the signs that was the biggest barrier the dentist had when faced with a CAN situation, however, it is important to realize that culture plays a role [Harris et al., 2004] as the signs may differ from society to other. For example, taking a child to a shopping mall at 12 midnight may raise eyebrows in a country like the UK, but is considered a norm in the UAE, especially during certain holidays. In our study, seven questions had neglect as the correct answer and while the majority had answered these correctly when it came to a child not attending school some 45% had abuse as the answer. It is possible that local UAE legislation which makes it compulsory to attend school unless a child suffers from a disability, could be a factor in this answer. One common wrong answer we observed was when participants were asked about a normally developing 9 year-old child with bruising over bony prominences and the majority (63%) had considered it as abuse. Accidental falls usually cause bruises involving the skin overlying bony prominences such as the forehead or cheekbone instead of the soft tissues of protected areas in developing children [Harris et al., 2004]. While bruising in children who are not independently mobile is a cause for concern [Harris et al., 2004; NICE-UK, 2009], we clearly did not specify that to be the case 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 and the majority (62%) again chose abuse. This would be true in a case where a child had been harmed by an adult but we could not exclude the fact that it might have been caused by another sibling and thus could be considered parental neglect. Hence in this scenario, the correct answer would be "both". It was reassuring that the majority of the dentists thought that a well-dressed child with multiple carious teeth was neglect (65%); as this has historically been shown to be an under reported type of neglect [Harris et al., 2004]. Harris et al. [2009a], reported 'cultural relativism' related to the practitioners' consideration of this type of child neglect as a "cultural norm" and therefore have a higher threshold for referral. Additionally, 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. The perception that "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 ($p=0.001$), meaning they were more knowledgeable when it came to CAN and this was similar to other studies [Cairns et al., 2005]. Another highly significant factor in our study was the dentist's specialty ($p<0.001$). Orthodontists and paediatric dentists were significantly more knowledgeable when compared to other specialists. This was similar to a study in the UK [Al-Habsi et al., 2009], where it was found that more specialists and consultants in paediatric dentistry were aware of the key indicators in detecting CAN. Finally, in our study, dentists' nationality and country of qualification had no effect on the SoCANS.

Discussion of the relation between SoCANS and SoCANRIF

The ideal situation to safeguard a child in the dental setting 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. In the study by Sonbol et al. [2012], one important factor in recognizing CAN was having an adequate knowledge of different forms of CAN. In our study we checked the relationship between the SoCANS (a score of CAN knowledge) and the SoCANRIF (a score of practice of child protection referral) and we found that there was no significant correlation between the two. Therefore, those dentists who scored higher in identifying scenarios of CAN did not necessarily score higher in the ability to overcome the barriers that prevent a child protection referral. Sonbol et al. [2012] studied the dentist knowledge of child abuse and referral factors in Jordan, but did not correlate them to each other. To our knowledge our study presented here is the first to look at these factors and their relationship to each other.

In summary, and in the sample of UAE dentists studied, some 39.9% had suspected CAN with an average of 1.3 cases in the last 5 years. Despite being largely unaware of local child protection guidelines more than 90% believed that the CAN should be addressed and that members of the dental team were in a position to recognise CAN. More male dentists suspected CAN cases than female dentists; however female dentists' actual knowledge of CAN was higher. Paediatric dentists in UAE attended more CAN related courses than other specialties. The main influencing factors preventing dentists from arranging a child protection referral were: lack of knowledge of the referral protocol; fear of family violence to the child; lack of certainty about the diagnosis. In quantifying knowledge of CAN scenarios, female dentists, orthodontists and paediatric dentists scored higher in recognizing CAN cases compared to male dentists and other specialties. In quantifying practice of child protection referral, more experienced UAE dentists who qualified in Asia or the

West scored higher than UAE dentists who qualified in GCC and Arab countries and also had fewer influencing factors/barriers affecting their decision to make a child protection referral. More years of experience did not correlate with an increased knowledge of CAN but was correlated with an increased practice of child protection referral and those who had demonstrated more knowledge in CAN did not necessarily overcome the barriers that prevented a child protection referral. In the UAE, child protection is everybody's duty and the results of this study suggest the need for further standardised training and education for dentists and their teams, in addition to multi-agency mechanisms, to ensure an organized child protection process where CAN is suspected by dentists.

Conclusion

A large minority of UAE dentists suspected CAN. Factors influencing child protection reporting were identified. Dentists' gender, specialty, and country of qualification affected their knowledge of CAN and practice of safeguarding. Child protection training is recommended.

Acknowledgments and authors contributions

We dedicate this paper to the memory of Wadeema.

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Conflicts of interest

The authors have no conflicts of interest to declare

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