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Dentists' intention to report suspected violence: a cross sectional study in eight Arab countries

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Abstract

Objectives

This study assessed the intention of dentists in eight Arab countries to report suspected exposure to violence among their patients and factors associated with this intention based on the theory of planned behavior.

Methods

A cross sectional study was conducted in 2016 including dentists practicing in public, private and academic sectors in Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. Respondents were selected using a convenience sample. They answered a self-administered questionnaire that collected information about personal and professional background and perceived ability to identify victims of violence. The questionnaire also assessed (on a scale from 1 to 10 using 6 negative statements) dentists' perception of healthcare system mandated reporting of suspected violence. Six other statements were used to assess professional attitude toward reporting suspected violence. Logistic regression analysis was used to assess the association between intention to report suspected violence and perceived ability, perception and attitude adjusting for confounders.

Results

The response rate was 65.2% (n= 2,936) with 68.8% intending to report and 52.2% considering themselves able to identify victims of violence. The mean (SD) negative perception score= 5.3 (2.1) and the mean (SD) professional attitude score= 7.5 (1.9). In multivariate regression, intention to report was associated with professional attitude (OR= 1.08, 95%CI= 1.03, 1.14), ability to identify violence victims (OR= 1.76, 95%CI=1.45, 2.12) and negative perception that reporting is not mandated (OR= 0.89, 95%CI=0.85, 0.94). Significant differences existed between countries in intention to report.

Conclusion

Most dentists intended to report suspected violence and their intention could be explained by the theory of planned behavior which offers a framework for professional development so that dentists can support victims of violence. Sharing of training resources, policies and guidelines is needed to ensure that practices similar to international guidelines are consistently adopted by dentists across Arab countries.

Strengths and limitations

- We included dentists from eight Arab countries which increases the geographic representativeness of our findings and fills a knowledge gap about the intended practices of dentists in this region.
- The theory of planned behavior provides a frame to explain the intention to report and helps in planning professional development activities to better prepare dentists to help their patients.
- Social desirability might have affected our estimates of dentists' intention to report suspected violence.
- Dentists in private practice were under represented compared to dentists from the public and academic sectors.

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Competing interest statement

None declared.

Data sharing statement

The dataset will be made available from the corresponding author.

Introduction

In 2014, the World Health Organization (WHO) issued the first report on the global status of violence prevention [1]. The report defined interpersonal violence as violence that occurs between family members, intimate partners, friends, acquaintances and strangers and includes child maltreatment, intimate partner violence and elder abuse in addition to some other forms of violence. The report showed that although the problem is preventable and efforts were already under way to reduce it, much remained to be done. Global statistics [1] indicate that most cases of violence against children, women and elderly are not reported to authorities or service providers. This emphasizes the need of the health sector to have a more active role in documenting and reporting cases of violence.

The Eastern Mediterranean Region which includes Arab countries has one of the highest prevalence of intimate partner violence, the most extensively surveyed of all types of violence, among the six WHO regions (37%). Comprehensive information about violence against children and the elderly is not available [1]. Arab countries are more defined by their shared culture than by being a specific race [2]. Given that what constitutes violence depends on contextual and cultural norms, what would be labelled as violence against women or children in western countries, may be culturally acceptable or may be considered a private matter in Arab countries [3]. Because of this, studies related to violence management that were conducted in western countries may not apply in Arab countries.

Dental care settings are often the primary contact point for violence victims since head and face injuries are sites with common manifestation of physical violence [4]. Like all health care professionals, dentists' main goal is to protect human life and the wellbeing of their patients [5] and therefore, they can play an important role in identifying and reporting victims of violence. However, we know little about Arab dentists' willingness to report cases of violence. A review of literature showed that there were few studies that were conducted

among dentists in Arab countries and that they focused on children abuse; in Jordan [6,7], Saudi Arabia [8, 9] and the United Arab Emirates [10]. However, none of these studies investigated dentists' intention to report suspicion of violence among adults.

Based on the limited number of studies addressing the issue, there is a need to assess the willingness of dentists in Arab countries to report suspected violence. Such information helps inform public health policy, laws and future intervention programs targeting prevention and management of violence. The hypothesis of the study was that dentists' intention to report violence can be explained by the theory of planned behavior [11] where dentists would be more willing to report if they perceive that the health care system requires them to report (normative beliefs), if they have favorable professional attitude toward reporting (behavioral beliefs) and if they think they are able to identify victims of violence (control beliefs). The aims of this study were to 1) assess the intention of dentists in eight Arab countries to report cases of suspected violence and to 2) identify factors associated with this intention.

Methods

Data for this cross sectional study was collected from April to December 2016 after obtaining the approval of the Research Unit, College of Dentistry, University of Dammam, Saudi Arabia (EA216008) and in accordance with the guidelines of the Helsinki Declaration. Dentists were targeted in 8 Arab countries; Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. To assess the prevalence of intention to report, sample size was calculated (http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator) using the following assumptions: confidence level= 95%, confidence interval= 5%, total number of dentists in each country [12] with an estimated percentage of reporting suspected violence= 32% [10]. The number was increased by 25% to allow for non-response. The minimum required sample size per country ranged from 300 to 470 dentists.

Participants were selected using convenience sampling including dentists affiliated with professional groups, or from regions where they would be clustered such as capitals and big cities and from different areas in each country to ensure geographic coverage. Because of the war situation in Libya, data collection was restricted only to Eastern Libya. In Algeria, only the city of Annaba was included and the respondents were alumni of Annaba University.

Dentists were invited to participate if they 1) had a bachelor of dentistry or equivalent degree and 2) were practicing in one of the eight Arab countries. In the beginning, dentists were included only if they were nationals of the country. Later on, this criterion was dropped due to the presence of a considerable percentage of expats in some countries so that the sample would reflect the profession profile in the participating countries.

Data was collected using a questionnaire that was developed based on previous studies [9, 10, 13]. It consisted of five sections including 20 close-ended questions. The first section sought information about personal background (age in years, gender (male or female) and having children (yes or no)). The 2nd section inquired about professional background including specialization (general practitioner or specialist/ consultant), type of practice (private, public or academic sectors), receiving training (yes or no) and perceived ability to identify victims of violence (yes or no). The 3rd section assessed perception of mandated reporting of suspected violence. Participants were asked to indicate how much they considered each of six statements was true of the place they worked on a scale from not true at all (1) to very true (10). The statements were all negatively phrased and indicated that reporting was not required by law, not enforced, not a rule of the place one worked, not the dentist's job to do, not culturally acceptable and that there was no specific authority to report to. The 4th section assessed respondents' attitude toward reporting violence using 6 statements to which they were asked to indicate agreement on a scale from completely disagree (1) to completely agree (10). The statements indicated that reporting was the right thing to do, was

the dentist's responsibility, that the dentist would always document the manifestations of suspected violence (positive) in addition to statements indicating that the dentist was too busy with patients to report, that the issue of violence was a family's business where nobody should interfere and that it was embarrassing to check about violence (negative). In the 5th section, respondents were asked whether they would report suspected violence to the police, social services agencies/ Ministry of Social Affairs, Ministry of Health, non- governmental organizations (NGOs) or others.

The questionnaire was preceded by a brief explanation of the study purpose and explained that by responding, the dentist indicated consent to join the study. It took about ten minutes to complete and was self-administered, in Arabic and English, as printed and electronic versions. A respondent received the questionnaire by hand or a link to the electronic version was sent to an email list or by WhatsApp message. The investigator issued three reminders over a period of three months in case of non-response.

Analysis

The internal consistency of the statements of perception and attitude was assessed using Cronbach alpha. Overall scores of the two constructs were developed by averaging the items' scores after reverse coding negative attitude statements. Higher perception score thus indicated negative perception that dentists were not mandated to report and higher attitude score indicated more positive professional attitude. Separate logistic regression models were developed to assess the association between intention to report suspected violence (dichotomous outcome: yes vs no) and each of (a) perception of mandated reporting (norms) (measured on a scale from 1 to 10), (b) professional attitude toward reporting (measured on a scale from 1 to 10) and (c) perceived ability to identify victims of violence (control) (yes vs no) in addition to personal and professional factors (all were categorical variables except age). Countries were considered to have protective services for children or adults based on the

WHO report whether these services were limited, partial or full [1]. All factors were included in a multivariable model where they were simultaneously adjusted after removing the factors whose estimates showed correlation. All models were adjusted for country of practice. Odds ratios, 95% confidence intervals and p values were calculated for all models and so was the percentage of correctly classified cases for the model including all variables.

Results

The overall response rate was 65.2% ranging from 51% in Palestine to 78% in Yemen (Table 1). Some nationalities practiced in their own countries and in other countries included in the study (Egyptians 28.1% vs 29.9%, Jordanians 11.8% vs 12.6% and Yemenis 9.9% vs 10.4%). The majority of expats were from Asian (5.4%) or other Arab countries not included in the study (3.1%). Protective services for victims of violence were not documented in Kuwait, Libya and Palestine.

Table 1: Response rate, presence of protective services and intention to report by country

Country	Response rate	Documented presence of protective services	Intention to report N (%)
Algeria	110/ 175= 62.9%	Yes	88 (80%)
Egypt	826/ 1271= 65%	Yes	505 (61.1%)
Jordan	347/ 475= 73.1%	Yes	271 (78.1%)
Kuwait	449/ 632= 71%	No	305 (67.9%)
Libya	225/389= 57.8%	No	159 (70.7%)
Palestine	380/ 745= 51%	No	326 (85.8%)
Saudi Arabia	308/ 446= 69.1%	Yes	190 (61.7%)
Yemen	291/ 373= 78%	Yes	175 (60.1%)

Total	2936/ 4506= 65.2%		2019 (68.8%)

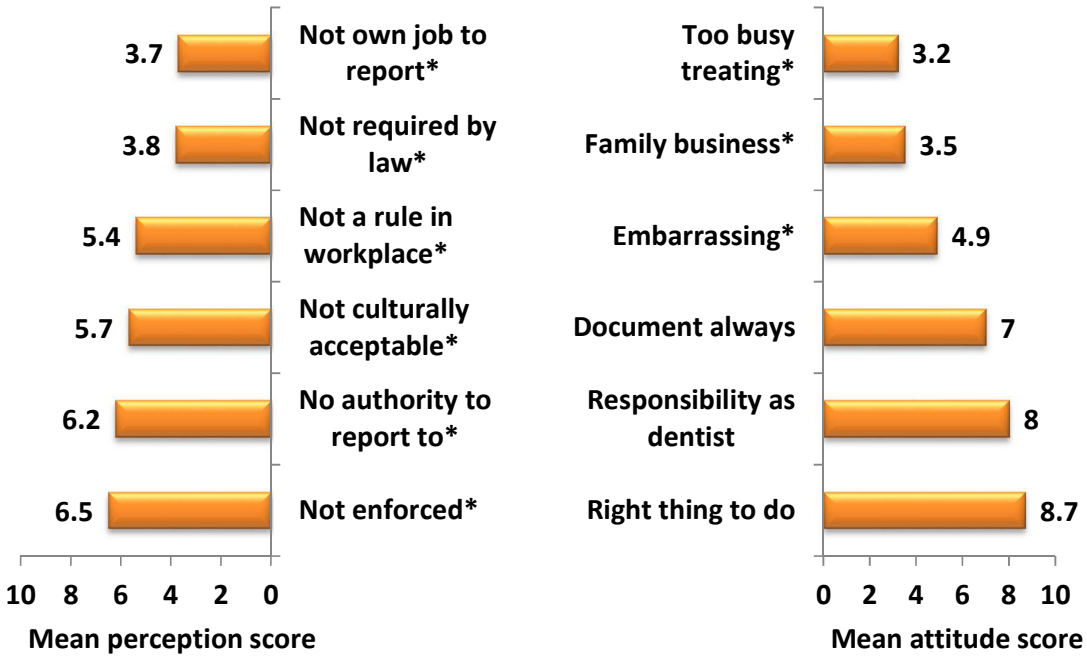
The mean (SD) age in years was 31.0 (9.2), 56.7% were females and 53.7% had no children (Table 2). Most respondents were general practitioners (70.9%) working in the public (43.9%) or private sectors (34.2%). Only 19.3% reported receiving training to manage victims of violence and 52.2% claimed that they can identify them. Protective services for victims of violence were present in the countries of practice of 64.1% of the respondents.

Table 2: Personal and professional background of participants

Factor		N (%)
Age	Mean (SD)	31.0 (9.2)
Gender	Male	1268 (43.3%)
	Female	1659 (56.7%)
Has no children		1571 (53.7%)
Specialization	General practitioner	2047 (70.9%)
	Specialist/ consultant	839 (29.1%)
Type of practice	Private sector	976 (34.2%)
	Public sector	1257 (43.9%)
	Academic sector	623 (21.9%)
Received training		565 (19.3%)
Perceived ability to identify victims of violence		1445 (52.2%)
Presence of protective services for children or adults in country of practice		1882 (64.1%)

The majority of respondents indicated their intention to report suspected violence (2019, 68.8%); mainly to the police (933, 31.8%), or social affairs agencies (842, 28.7%) followed by the Ministry of Health (303, 10.3%) and NGOs (132, 4.5%). There was a significant difference among countries in the percentage of dentists indicating intention to report ranging from 60.1% in Yemen to 85.8% in Palestine (P< 0.0001, Table 1).

Figure 1 shows that the highest mean negative perception item score was for perceiving that reporting was not enforced (6.5) followed by perceiving that there was no authority to report to (6.2). The internal consistency of perception statements was acceptable (Cronbach alpha = 0.68, 95% C.I.= 0.66, 0.70, P<0.0001) and the mean (SD) equals 5.3 (2.1). The highest mean score for statements of attitude toward reporting was for indicating that it was the right thing to do (8.7) and the lowest was for the negative statement indicating that the respondent was too busy treating patients to report (mean= 3.2). The internal consistency of the statements was good (Cronbach alpha = 0.72, 95% C.I.= 0.70, 0.74, P<0.0001) and the mean (SD) equals 7.5 (1.9).



(a) (b)

Figure 1: (a) Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10, (b) Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10.

(*: negatively phrased statement)

Dentists who practiced in countries where there were protective services for violence victims had significantly higher negative perception and lower attitude scores than those without such services (P< 0.0001 and 0.02). Dentists who reported being able to identify violence victims had significantly lower negative perception and higher attitude scores than those who did not (P< 0.0001, Table 3). There was a significant moderate negative correlation between perception and professional attitude (Pearson r= -0.32, P< 0.0001).

Table 3: Association of perception and attitude with presence of protective services and ability to identify victims of violence

	Score: mean (SD)		P value
	Protective services in country of practice	No protective services in country of practice	
Negative perception	5.50 (2.13)	4.87 (2.11)	<0.0001*
Positive professional attitude	7.41 (1.94)	7.59 (1.87)	0.02*
	Able to identify victims of violence	Not able to identify victims of violence	
Negative perception	4.98 (2.17)	5.56 (2.06)	<0.0001*
Positive professional attitude	7.72 (1.85)	7.25 (1.99)	<0.0001*

*: statistically significant at P< 0.05

Table 4 shows that attitude, perception and reported ability to identify violence victims were significantly associated (P< 0.0001) with intention to report in the separate models (model 1) in addition to gender (P< 0.0001), age (P= 0.004) and presence of protective services (P< 0.0001). In the multivariable model 2, higher odds of intention to report were significantly associated with higher professional attitude score (OR= 1.08, 95% C.I.= 1.03, 1.14) and reported ability to identify victims of violence (OR= 1.76, 95% C.I.= 1.45, 2.12). Lower odds of intended reporting were significantly associated with higher score of negative perception (OR= 0.89, 95% C.I.= 0.85, 0.94). In addition, the presence of protective services was associated with significantly lower odds of intention to report (OR= 0.34, 95% C.I.= 0.22, 0.50). The multivariable model 2 correctly classified 71.6% of dentists based on intention to report suspected violence.

Table 4: Factors associated with intention to report suspected violence

Factors	Model 1		Model 2	
	OR (95% C.I.)	P value	OR (95% C.I.)	P value
Higher attitude score by one point	1.10 (1.06, 1.15)	<0.0001*	1.08 (1.03, 1.14)	0.002*
Higher negative perception score by one point	0.88 (0.84, 0.92)	<0.0001*	0.89 (0.85, 0.94)	<0.0001*
Ability to identify victims of violence vs not	1.80 (1.52, 2.14)	<0.0001*	1.76 (1.45, 2.12)	<0.0001*
Male vs female	1.74 (1.47, 2.06)*	<0.0001*	1.85 (1.52, 2.25)	<0.0001*
Older dentist by one year	1.01 (1.004, 1.02)	0.004*	1.01 (0.99, 1.02)	0.36
Has children vs does not have children	1.14 (0.97, 1.35)	0.12	-	-
General practitioner vs specialist/ consultant	0.99 (0.83, 1.19)	0.93	-	-
Working in public vs private sector	0.95 (0.77, 1.18)	0.66	1.11 (0.87, 1.42)	0.40
Working in academic vs private sector	0.83 (0.66, 1.05)	0.11	0.88 (0.68, 1.15)	0.37
Presence of protective services in country of practice vs not	0.25 (0.17, 0.36)	<0.0001*	0.34 (0.22, 0.50)	<0.0001*

Model 1: includes individual factors adjusted for country of practice

Model 2: includes all factors adjusted for country of practice

OR: odds ratio, C.I.: confidence interval, *: statistically significant at $P < 0.05$. Percent correctly classified by multivariable model: 71.6%.

Discussion

Our results indicated a moderate level of dentists' intention to report suspected violence with significant difference among the eight Arab countries. The findings supported the hypothesis and showed that the theory of planned behavior [11] correctly classified most dentists regarding their intention to report suspected violence. A combination of dentist's professional attitude, perceived ability to identify victims of violence and perception of mandatory rules and regulation were associated with intention to report. The presence of protective services in the country of practice was associated with less intention to report.

Most dentists in the present study (68.8%) indicated they intended to report violence. This finding is similar to those of previous studies in Arab countries such as Jordan [6] and Saudi Arabia [8,9] and western countries such as Scotland [14] and Brazil [15]. However, less intention to report was shown in some studies from Italy [16], Brazil [17] and France [5].

Even with the most favorable intentions, dentists will not report violence if they cannot identify its signs. In the present study, 52.2% of the respondents reported being able to identify victims of violence. Previous studies showed differences in dentists' perceived ability to identify victims of violence across countries [5,6, 8, 16-18] which might be attributed to variations in training requirements and opportunities across countries.

Our definition of subjective norms was based on dentists' perception of mandated reporting in the workplace. We used this definition instead of focusing on significant others since the mobility of dentists across countries meant that the values shared by these others may differ from those prevailing in country of practice. The approach we followed was similar to the definition of Ben Natan et al [19] where they focused on those who educated

nursing students. In the present study, the mean score of negative perception was 5.3/ 10 indicating that, on average, no clear message was received by dentists from their work place whether or not to report suspected violence. This was more because dentists felt the law was not enforced than their perception that reporting was not mandated (mean = 6.5 and 3.8). This agrees with Adair et al [20] who concluded that the likelihood of intending to report suspected violence was greater if dentists recognized that they were legally mandated to report. Negative perception in the current study was also related to perceiving that there was no authority to report to and the absence of clear rules. Similar perceptions were reported in previous studies addressing child abuse in Arab countries such as Saudi Arabia [8,9] and in other countries including India [13], United States [21], Brazil [15] and Northern Ireland [22]. This inadequate knowledge of how or who to report to might be due to the presence of several potential recipients of violence reports [10] or recent enactment of laws [9].

In the present study, the presence of protective services was associated with lower odds of intention to report (OR= 0.34), greater negative perception and less positive professional attitude. This might be attributed to dentists not perceiving these services as indicative of real change in social and cultural norms or health care system perspective regarding reporting. Alternatively, they might have considered that care of violence victims was shifted to these services so that they would be ethically justified not to report violence. However, studies using qualitative research techniques are needed for further investigation.

In our study, respondents had positive professional attitude toward reporting violence (mean= 7.5/ 10) which agrees with previous studies from Saudi Arabia concerning reporting suspected child abuse [9] and domestic violence [23]. It also agrees with the positive attitude expressed by dentists toward their role in managing child abuse in India [24], Scotland [14], Jordan [6], Brazil [18] and Greece [25] as well as domestic violence reporting in Brazil [15], India [26] and France [5]. Such positive professional attitude - similar to dentists' attitude in

other countries- might differ from some negative attitudes and practices in Arab societies that are seen in violence statistics [1]. The predominance of professional attitude over societal practices agrees with a study showing that cultural differences between Arab and Jewish nursing students in Israel did not affect the intention to screen for domestic violence due to the similarity of their education [19]. It also agrees with a study from Taiwan, a country with eastern cultural values, which showed that nurses did not accept the cultural belief that parents can physically discipline their children because these nurses were exposed to mixed cultural influences from the east and west [27]. The young age of nurses in that study was similar to that of our participants and might explain the similarity between the two studies. However, the professional attitude in our study disagrees with Usta et al [28] who reported that Lebanese physicians considered domestic violence a social problem not a medical one and were ready to intervene only when there was actual physical injury. The difference between that study and ours might be because most of the physicians were in private practice and more likely to be worried about the implications on practice income if their local community resented their intervention. Most of the participants in our study, on the other hand, were in the public or academic sectors.

Female dentists in our study were less likely to intend reporting suspected violence. The impact of dentist gender in the issue of suspected violence varied among studies. At the level of knowledge of rules and regulation, female dentists in Saudi Arabia were better than males [9]. However, actual reporting of suspected violence was more likely among male dentists in Jordan [7]. Similarly, among Brazilian nurses, of whom 86% were female, under-reporting of violence was noticed and was attributed to conforming to cultural norms [29]. Future studies using qualitative research techniques may help elucidate this gender difference and whether it is due to cultural expectations of how females- including dentists- should act or because they are less involved with victims of violence.

In our study, the theory of planned behavior correctly classified most dentists based on intention to report violence. Previously, the theory predicted the intention of 28% of Israeli nurses to report child abuse [30, 31] and 32% of their intention to screen for domestic violence where attitudes and subjective norms were significant predictors (regression coefficients= 0.15 and 0.05) [19]. Similarly, Feng and Wu [32] explained Taiwanese nurses' intention to report child abuse using the same theory. Greater association with the outcome was attributed to professional attitude than subjective norms. The least impact was for perceived control which was attributed to the inadequate instructions of how to report.

There are some limitations to this study that should be considered. We assessed the intention to report which might differ from actual reporting [5] and future studies are needed to assess these differences. Self-reporting and social desirability could have affected our estimates of intention to report. We also assessed the intention to report regardless of the type of violence (physical, verbal or otherwise) or victim background (age or gender) and there is a need to investigate how these factors might affect the intention to report. In addition, our estimate of intention to report might have been affected by the under representation of dentists in private practice compared to those in the public and academic sectors.

Conclusions

Our study included about 3,000 dentists out of 59.5 thousand dentists [12] (5%) caring for 213 million in eight Arab countries [33]. Their intention to report violence was associated with professional attitudes, perceptions and perceived abilities which were similar to those of dentists in other countries but never the less, showed differences by country of practice. Our findings have implications for training to improve the reporting of suspected violence by developing dentists' abilities to identify diagnostic signs, fostering favorable attitude and increasing awareness of already existing rules and regulations. There is a need to develop

shared training resources, policies and clear guidelines that allow consistent professional practices and at the same time acknowledge cultural diversity across countries.

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Authors' contribution

- Maha El Tantawi, Maha Abdelsalam and Balgis Gaffar developed the study idea and questionnaire.
- Maha El Tantawi developed the study methods.
- Arheiam Arheiam, Wafaa AbdelAziz, Ola B. Al-Batayneh, Mansor Alhowiti, Sadeq Al-Maweri, Mai A. Dama, Mounir Zaghez, Khalid Saddiq Hassan, Mona Al-Sane, Fatma Abdelgawad, Thiyezen Abdullah Aldhelai, Omar Abd El Sadek El Meligy, Jehan AlHumaid and Fahad Al-Harbi collected data.
- Maha El Tantawi, Arheiam Arheiam and Wael Sabbah analyzed and interpreted the results.
- Maha El Tantawi, Arheiam Arheiam, Wael Sabbah, Arwa I. Owais, Omar Abd El Sadek El Meligy, Sadeq Al-Maweri and Wafaa AbdelAziz drafted the manuscripts.
- All authors read and approved the final manuscript.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5& 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7& 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7& 8
Bias	9	Describe any efforts to address potential sources of bias	-
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	8
		(*b*) Describe any methods used to examine subgroups and interactions	-
		(*c*) Explain how missing data were addressed	-
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	-
		(*e*) Describe any sensitivity analyses	-
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed	9

		eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	-
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9& 10
		(b) Indicate number of participants with missing data for each variable of interest	-
Outcome data	15*	Report numbers of outcome events or summary measures	11&12
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12& 13
		(*b*) Report category boundaries when continuous variables were categorized	-
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	-
Discussion			
Key results	18	Summarise key results with reference to study objectives	14
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	17
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	14-17
Generalisability	21	Discuss the generalisability (external validity) of the study results	17
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	4

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Dentists' intention to report suspected violence: a cross sectional study in eight Arab countries

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Dentists' intention to report suspected violence: a cross-sectional study in eight Arab countries

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Abstract

Objectives

This study assessed dentists' intention in eight Arab countries to report suspected exposure to violence among patients and factors associated with this intention based on the theory of planned behavior.

Methods

A cross-sectional study was conducted in 2016 including a convenience sample of dentists practicing in public, private and academic sectors in Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. Respondents answered a self-administered questionnaire collecting information about personal and professional background and perceived ability to identify victims of violence. The questionnaire assessed (on a scale from 1 to 10 using 6 negative statements) dentists' perception of healthcare system mandated reporting of suspected violence. Six statements were used to assess professional attitude toward reporting suspected violence. Logistic regression was used to assess the association between intention to report suspected violence and perceived ability, perception and attitude adjusting for confounders.

Results

The response rate was 65.2% (n= 2,936/ 4506) from general practitioners (70.9%) of mean age= 31 years with 56.7% females. Of those, 68.8% intended to report and 52.2% considered themselves able to identify violence victims. The mean (SD) negative perception score= 5.3/10 (2.1) and the mean (SD) professional attitude score= 7.5/10 (1.9). In multivariate regression, intention to report was associated with professional attitude (OR= 1.08, 95%CI= 1.03, 1.14), ability to identify violence victims (OR= 1.76, 95%CI=1.45, 2.12) and negative perception that reporting is not mandated (OR= 0.89, 95%CI=0.85, 0.94). Significant differences existed among countries in intention to report.

Conclusion

Most dentists intended to report suspected violence and their intention could be explained by the theory of planned behavior which offers a framework for professional development to support violence victims. Sharing of training resources, policies and guidelines is needed to ensure that practices similar to international guidelines are consistently adopted by dentists across Arab countries.

Strengths and limitations

- We included dentists from eight Arab countries which increases the geographic representativeness of our findings and fills a knowledge gap about the intended practices of dentists in this region.
- The theory of planned behavior provides a framework to explain the intention to report and helps in planning professional development activities to better prepare dentists to help their patients.
- Social desirability might have affected our estimates of dentists' intention to report suspected violence.
- Dentists in private practice were under represented compared to dentists from the public and academic sectors.

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Competing interest statement

None declared.

Data sharing statement

The dataset will be made available from the corresponding author.

Introduction

In 2014, the World Health Organization (WHO) issued the first report on the global status of violence prevention [1]. The report defined interpersonal violence as violence that occurs between family members, intimate partners, friends, acquaintances and strangers and includes child maltreatment, intimate partner violence and elder abuse in addition to some other forms of violence. The report showed that although the problem is preventable and efforts were already under way to reduce it, much remained to be done. Global statistics [1] indicate that most cases of violence against children, women and elderly are not reported to authorities or service providers. This emphasizes the need of the health sector to have a more active role in documenting and reporting cases of violence.

The Eastern Mediterranean Region which includes Arab countries has one of the highest prevalence of intimate partner violence, the most extensively surveyed of all types of violence, among the six WHO regions (37%). Comprehensive information about violence against children and the elderly is not available [1]. Arab countries are more defined by their shared culture than by being a specific race [2]. Given that what constitutes violence depends on contextual and cultural norms, what would be labelled as violence against women or children in western countries, may be culturally acceptable or may be considered a private matter in Arab countries [3]. Because of this, studies related to violence management that were conducted in western countries may not apply in Arab countries.

Dental care settings are often the primary contact point for violence victims since head and face injuries are sites with common manifestation of physical violence [4]. Like all health care professionals, dentists' main goal is to protect human life and the wellbeing of their patients [5] and therefore, they can play an important role in identifying and reporting victims of violence. However, we know little about Arab dentists' willingness to report cases of violence. A review of literature showed that there were few studies that were conducted

among dentists in Arab countries and that they focused on children abuse; in Jordan [6,7], Saudi Arabia [8, 9] and the United Arab Emirates [10]. However, none of these studies investigated dentists' intention to report suspicion of violence among adults.

Based on the limited number of studies addressing the issue, there is a need to assess the willingness of dentists in Arab countries to report suspected violence. Such information helps inform public health policy, laws and future intervention programs targeting prevention and management of violence. The hypothesis of the study was that dentists' intention to report violence can be explained by the theory of planned behavior [11] where dentists would be more willing to report if they perceive that the health care system requires them to report (normative beliefs), if they have favorable professional attitude toward reporting (behavioral beliefs) and if they think they are able to identify victims of violence (control beliefs). The aims of this study were to 1) assess the intention of dentists in eight Arab countries to report cases of suspected violence and to 2) identify factors associated with this intention.

Methods

Data for this cross-sectional study was collected from April to December 2016 after obtaining the approval of the research ethics committee; the Research Unit in the College of Dentistry, University of Dammam, Saudi Arabia (EA216008) and in accordance with the guidelines of the Helsinki Declaration. Dentists were targeted in eight Arab countries; Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. To assess the prevalence of intention to report, sample size was calculated (http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator) using the following assumptions: confidence level= 95%, confidence interval= 5%, total number of dentists in each country [12] with an estimated percentage of reporting suspected violence= 32% [10].

The number was increased by 25% to allow for non-response. The minimum required sample size per country ranged from 300 to 470 dentists.

Participants were selected using convenience sampling including dentists affiliated with professional groups, or from regions where they would be clustered such as capitals and big cities and from different areas in each country to ensure geographic coverage. Because of the war situation in Libya, data collection was restricted only to Eastern Libya. In Algeria, only the city of Annaba was included and the respondents were alumni of Annaba University.

Dentists were invited to participate if they 1) had a bachelor of dentistry or equivalent degree and 2) were practicing in one of the eight Arab countries. In the beginning, dentists were included only if they were nationals of the country. Later on, this criterion was dropped due to the presence of a considerable percentage of expats in some countries so that the sample would reflect the profession profile in the participating countries.

Data was collected using a questionnaire that was developed based on previous studies [9, 10, 13] (supplementary file). It consisted of five sections including 20 close-ended questions. The first section sought information about personal background (age in years, gender (male or female) and having children (yes or no)). The 2nd section inquired about professional background including specialization (general practitioner or specialist/ consultant), type of practice (private, public or academic sectors), receiving training (yes or no) and perceived ability to identify victims of violence (yes or no). The 3rd section assessed perception of mandated reporting of suspected violence. Participants were asked to indicate how much they considered each of six statements was true of the place they worked on a scale from not true at all (1) to very true (10). The statements were all negatively phrased and indicated that reporting was not required by law, not enforced, not a rule of the place one worked, not the dentist's job to do, not culturally acceptable and that there was no specific authority to report to. The 4th section assessed respondents' attitude toward reporting violence

using 6 statements to which they were asked to indicate agreement on a scale from completely disagree (1) to completely agree (10). The statements indicated that reporting was the right thing to do, was the dentist's responsibility, that the dentist would always document the manifestations of suspected violence (positive) in addition to statements indicating that the dentist was too busy with patients to report, that the issue of violence was a family's business where nobody should interfere and that it was embarrassing to check about violence (negative). In the 5th section, respondents were asked whether they would report suspected violence to the police, social services agencies/ Ministry of Social Affairs, Ministry of Health, non- governmental organizations (NGOs) or others. The questionnaire was pilot tested and culturally adapted in each country.

The questionnaire was preceded by a brief explanation of the study purpose and explained that by responding, the dentist indicated consent to join the study. It took about ten minutes to complete and was self-administered, in Arabic and English, as printed and electronic versions. A respondent received the questionnaire by hand or a link to the electronic version was sent to an email list or by WhatsApp message. The investigator issued three reminders over a period of three months in case of non-response.

Analysis

The internal consistency of the statements of perception and attitude was assessed using Cronbach alpha. Overall scores of the two constructs were developed by averaging the items' scores after reverse coding negative attitude statements. Higher perception score thus indicated less (negative) perception so that dentists considered themselves not mandated to report and higher attitude score indicated more positive professional attitude. Separate logistic regression models were developed to assess the association between intention to report suspected violence (dichotomous outcome: yes vs no) and each of (a) perception of mandated reporting (norms) (measured on a scale from 1 to 10), (b) professional attitude toward

reporting (measured on a scale from 1 to 10) and (c) perceived ability to identify victims of violence (control) (yes vs no) in addition to personal and professional factors (all were categorical variables except age). Countries were considered to have protective services for children or adults based on the WHO report whether these services were limited, partial or full [1]. All factors were included in a multivariable model where they were simultaneously adjusted after removing the factors whose estimates showed correlation. All models were adjusted for country of practice. Odds ratios, 95% confidence intervals and p values were calculated for all models and so was the percentage of correctly classified cases for the model including all variables.

Results

The overall response rate was 65.2% ranging from 51% in Palestine to 78% in Yemen (Table 1). Some nationalities practiced in their own countries and in other countries included in the study (Egyptians 28.1% vs 29.9%, Jordanians 11.8% vs 12.6% and Yemenis 9.9% vs 10.4%). The majority of expats were from Asian (5.4%) or other Arab countries not included in the study (3.1%). Protective services for victims of violence were not documented in Kuwait, Libya and Palestine.

Table 1: Response rate, presence of protective services and intention to report by country

Country	Response rate	Documented presence of protective services	Intention to report N (%)
Algeria	110/ 175= 62.9%	Yes	88 (80%)
Egypt	826/ 1271= 65%	Yes	505 (61.1%)
Jordan	347/ 475= 73.1%	Yes	271 (78.1%)
Kuwait	449/ 632= 71%	No	305 (67.9%)

Libya	225/389= 57.8%	No	159 (70.7%)
Palestine	380/ 745= 51%	No	326 (85.8%)
Saudi Arabia	308/ 446= 69.1%	Yes	190 (61.7%)
Yemen	291/ 373= 78%	Yes	175 (60.1%)
Total	2936/ 4506= 65.2%		2019 (68.8%)

The mean (SD) age in years was 31.0 (9.2), 56.7% were females and 53.7% had no children (Table 2). Most respondents were general practitioners (70.9%) working in the public (43.9%) or private sectors (34.2%). Only 19.3% reported receiving training to manage victims of violence and 52.2% claimed that they can identify them. Protective services for victims of violence were present in the countries of practice of 64.1% of the respondents.

Table 2: Personal and professional background of participants

Factor		N (%)
Age	Mean (SD)	31.0 (9.2)
Gender	Male	1268 (43.3%)
	Female	1659 (56.7%)
Has no children		1571 (53.7%)
Specialization	General practitioner	2047 (70.9%)
	Specialist/ Consultant	839 (29.1%)
Type of practice	Private sector	976 (34.2%)
	Public sector	1257 (43.9%)
	Academic sector	623 (21.9%)
Received training		565 (19.3%)
Perceived ability to identify victims of violence		1445 (52.2%)

Presence of protective services for children or adults in country of practice	1882 (64.1%)

The majority of respondents indicated their intention to report suspected violence (2019, 68.8%); mainly to the police (933, 31.8%), or social affairs agencies (842, 28.7%) followed by the Ministry of Health (303, 10.3%) and NGOs (132, 4.5%). There was a significant difference among countries in the percentage of dentists indicating intention to report ranging from 60.1% in Yemen to 85.8% in Palestine (P< 0.0001, Table 1).

Figure 1 shows that the highest mean negative perception item score was for perceiving that reporting was not enforced (6.5) followed by perceiving that there was no authority to report to (6.2). The internal consistency of perception statements was acceptable (Cronbach alpha = 0.68, 95% CI= 0.66, 0.70, P<0.0001) and the mean (SD) equals 5.3 (2.1). The highest mean score for statements of attitude toward reporting (Figure 2) was for indicating that it was the right thing to do (8.7) and the lowest was for the negative statement indicating that the respondent was too busy treating patients to report (mean= 3.2). The internal consistency of the statements was good (Cronbach alpha = 0.72, 95% CI= 0.70, 0.74, P<0.0001) and the mean (SD) equals 7.5 (1.9).

Dentists who practiced in countries where there were protective services for violence victims had significantly higher negative perception and lower attitude scores than those without such services (P< 0.0001 and 0.02). Dentists who reported being able to identify violence victims had significantly lower negative perception and higher attitude scores than those who did not (P< 0.0001, Table 3). There was a significant moderate negative correlation between perception and professional attitude (Pearson r= -0.32, P< 0.0001).

Table 3: Association of perception and attitude with presence of protective services and ability to identify victims of violence

	Score: mean (SD)		P value
	Protective services in country of practice	No protective services in country of practice	
Negative perception	5.50 (2.13)	4.87 (2.11)	<0.0001*
Positive professional attitude	7.41 (1.94)	7.59 (1.87)	0.02*
	Able to identify victims of violence	Not able to identify victims of violence	
Negative perception	4.98 (2.17)	5.56 (2.06)	<0.0001*
Positive professional attitude	7.72 (1.85)	7.25 (1.99)	<0.0001*

*: statistically significant at P< 0.05

Table 4 shows that attitude, perception and reported ability to identify violence victims were significantly associated (P< 0.0001) with intention to report in the separate models (model 1) in addition to gender (P< 0.0001), age (P= 0.004) and presence of protective services (P< 0.0001). In the multivariable model 2, higher odds of intention to report were significantly associated with higher professional attitude score (OR= 1.08, 95% CI= 1.03, 1.14) and reported ability to identify victims of violence (OR= 1.76, 95% CI= 1.45, 2.12). Lower odds of intended reporting were significantly associated with higher score of negative perception (OR= 0.89, 95% CI= 0.85, 0.94). In addition, the presence of protective services was associated with significantly lower odds of intention to report (OR= 0.34, 95% CI= 0.22, 0.50). The multivariable model 2 correctly classified 71.6% of dentists based on intention to report suspected violence.

Table 4: Factors associated with intention to report suspected violence

Factors	Model 1		Model 2	
	OR (95% CI)	P value	OR (95% CI)	P value
Higher attitude score by one point	1.10 (1.06, 1.15)	<0.0001*	1.08 (1.03, 1.14)	0.002*
Higher negative perception score by one point	0.88 (0.84, 0.92)	<0.0001*	0.89 (0.85, 0.94)	<0.0001*
Ability to identify victims of violence vs not	1.80 (1.52, 2.14)	<0.0001*	1.76 (1.45, 2.12)	<0.0001*
Male vs female	1.74 (1.47, 2.06)*	<0.0001*	1.85 (1.52, 2.25)	<0.0001*
Older dentist by one year	1.01 (1.004, 1.02)	0.004*	1.01 (0.99, 1.02)	0.36
Has children vs does not have children	1.14 (0.97, 1.35)	0.12	-	-
General practitioner vs specialist/ consultant	0.99 (0.83, 1.19)	0.93	-	-
Working in public vs private sector	0.95 (0.77, 1.18)	0.66	1.11 (0.87, 1.42)	0.40
Working in academic vs private sector	0.83 (0.66, 1.05)	0.11	0.88 (0.68, 1.15)	0.37
Presence of protective services in country of practice vs not	0.25 (0.17, 0.36)	<0.0001*	0.34 (0.22, 0.50)	<0.0001*

Model 1: includes individual factors adjusted for country of practice

Model 2: includes all factors adjusted for country of practice

OR: odds ratio, CI: confidence interval, *: statistically significant at $P < 0.05$. Percent correctly classified by multivariable model: 71.6%.

Discussion

Our results indicated a moderate level of dentists' intention to report suspected violence with significant difference among the eight Arab countries. The findings supported the hypothesis and showed that the theory of planned behavior [11] correctly classified most dentists regarding their intention to report suspected violence. A combination of dentist's professional attitude, perceived ability to identify victims of violence and perception of mandatory rules and regulation were associated with intention to report. The presence of protective services in the country of practice was associated with less intention to report.

Most dentists in the present study (68.8%) indicated they intended to report violence. This finding is similar to those of previous studies in Arab countries such as Jordan [6] and Saudi Arabia [8,9] and western countries such as Scotland [14] and Brazil [15]. However, less intention to report was shown in some studies from Italy [16], Brazil [17] and France [5].

Even with the most favorable intentions, dentists will not report violence if they cannot identify its signs. In the present study, 52.2% of the respondents reported being able to identify victims of violence. Previous studies showed differences in dentists' perceived ability to identify victims of violence across countries [5,6, 8, 16-18] which might be attributed to variations in training requirements and opportunities across countries.

Our definition of subjective norms was based on dentists' perception of mandated reporting in the workplace. We used this definition instead of focusing on significant others since the mobility of dentists across countries meant that the values shared by these others may differ from those prevailing in country of practice. The approach we followed was similar to the definition of Ben Natan et al [19] where they focused on those who educated

nursing students. In the present study, the mean score of negative perception was 5.3/ 10 indicating that, on average, no clear message was received by dentists from their work place whether or not to report suspected violence. This was more because dentists felt the law was not enforced than their perception that reporting was not mandated (mean = 6.5 and 3.8). This agrees with Adair et al [20] who concluded that the likelihood of intending to report suspected violence was greater if dentists recognized that they were legally mandated to report. Negative perception in the current study was also related to perceiving that there was no authority to report to and the absence of clear rules. Similar perceptions were reported in previous studies addressing child abuse in Arab countries such as Saudi Arabia [8,9] and in other countries including India [13], United States [21], Brazil [15] and Northern Ireland [22]. This inadequate knowledge of how or who to report to might be due to the presence of several potential recipients of violence reports [10] or recent enactment of laws [9].

In the present study, the presence of protective services was associated with lower odds of intention to report (OR= 0.34), greater negative perception and less positive professional attitude. This might be attributed to dentists not perceiving these services as indicative of real change in social and cultural norms or health care system perspective regarding reporting. Alternatively, they might have considered that care of violence victims was shifted to these services so that they would be ethically justified not to report violence. However, studies using qualitative research techniques are needed for further investigation.

In our study, respondents had positive professional attitude toward reporting violence (mean= 7.5/ 10) which agrees with previous studies from Saudi Arabia concerning reporting suspected child abuse [9] and domestic violence [23]. It also agrees with the positive attitude expressed by dentists toward their role in managing child abuse in India [24], Scotland [14], Jordan [6], Brazil [18] and Greece [25] as well as domestic violence reporting in Brazil [15], India [26] and France [5]. Such positive professional attitude - similar to dentists' attitude in

other countries- might differ from some negative attitudes and practices in Arab societies that are seen in violence statistics [1]. The predominance of professional attitude over societal practices agrees with a study showing that cultural differences between Arab and Jewish nursing students in Israel did not affect the intention to screen for domestic violence due to the similarity of their education [19]. It also agrees with a study from Taiwan, a country with eastern cultural values, which showed that nurses did not accept the cultural belief that parents can physically discipline their children because these nurses were exposed to mixed cultural influences from the east and west [27]. The young age of nurses in that study was similar to that of our participants and might explain the similarity between the two studies. However, the professional attitude in our study disagrees with Usta et al [28] who reported that Lebanese physicians considered domestic violence a social problem not a medical one and were ready to intervene only when there was actual physical injury. The difference between that study and ours might be because most of the physicians were in private practice and more likely to be worried about the implications on practice income if their local community resented their intervention. Most of the participants in our study, on the other hand, were in the public or academic sectors.

Female dentists in our study were less likely to intend reporting suspected violence. The impact of dentist gender in the issue of suspected violence varied among studies. At the level of knowledge of rules and regulation, female dentists in Saudi Arabia were better than males [9]. However, actual reporting of suspected violence was more likely among male dentists in Jordan [7]. Similarly, among Brazilian nurses, of whom 86% were female, under-reporting of violence was noticed and was attributed to conforming to cultural norms [29]. Future studies using qualitative research techniques may help elucidate this gender difference and whether it is due to cultural expectations of how females- including dentists- should act or because they are less involved with victims of violence.

In our study, the theory of planned behavior correctly classified most dentists based on intention to report violence. Previously, the theory predicted the intention of 28% of Israeli nurses to report child abuse [30, 31] and 32% of their intention to screen for domestic violence where attitudes and subjective norms were significant predictors (regression coefficients= 0.15 and 0.05) [19]. Similarly, Feng and Wu [32] explained Taiwanese nurses' intention to report child abuse using the same theory. Greater association with the outcome was attributed to professional attitude than subjective norms. The least impact was for perceived control which was attributed to the inadequate instructions of how to report.

There are some limitations to this study that should be considered. We assessed the intention to report which might differ from actual reporting [5] and future studies are needed to assess these differences. Self-reporting and social desirability could have affected our estimates of intention to report. We also assessed the intention to report regardless of the type of violence (physical, verbal or otherwise) or victim background (age or gender) and there is a need to investigate how these factors might affect the intention to report. In addition, our estimate of intention to report might have been affected by the under representation of dentists in private practice compared to those in the public and academic sectors. Our results need to be interpreted with caution due to the convenience sample we used.

Conclusions

Our study included about 3,000 dentists out of 59.5 thousand dentists [12] (5%) caring for 213 million in eight Arab countries [33]. Their intention to report violence was associated with professional attitudes, perceptions and perceived abilities which were similar to those of dentists in other countries [34, 35] but never the less, showed differences by country of practice. Our findings have implications for training to improve the reporting of suspected violence by developing dentists' abilities to identify diagnostic signs, fostering favorable

attitude and increasing awareness of already existing rules and regulations. There is a need to develop shared training resources, policies and clear guidelines that allow consistent professional practices and at the same time acknowledge cultural diversity across countries.

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Authors' contribution

- Maha El Tantawi, Maha Abdelsalam and Balgis Gaffar developed the study idea and questionnaire.
- Maha El Tantawi developed the study methods.
- Arheiam Arheiam, Wafaa AbdelAziz, Ola B. Al-Batayneh, Mansor Alhowiti, Sadeq Al-Maweri, Mai A. Dama, Mounir Zaghez, Khalid Saddiq Hassan, Mona Al-Sane, Fatma Abdelgawad, Thiyezen Abdullah Aldhelai, Omar Abd El Sadek El Meligy, Jehan AlHumaid and Fahad Al-Harbi collected data.
- Maha El Tantawi, Arheiam Arheiam and Wael Sabbah analyzed and interpreted the results.
- Maha El Tantawi, Arheiam Arheiam, Wael Sabbah, Arwa I. Owais, Omar Abd El Sadek El Meligy, Sadeq Al-Maweri and Wafaa AbdelAziz drafted the manuscripts.
- All authors read and approved the final manuscript.

Figure legends

Figure 1: Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10

Figure 2: Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10 (*: negatively phrased statement)

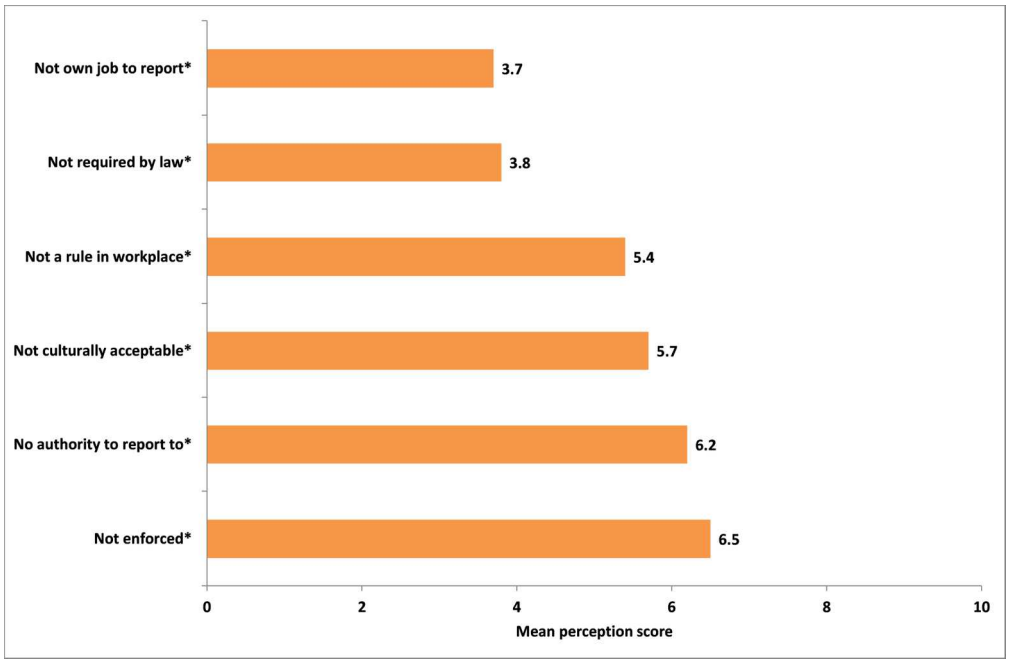

Figure 1: Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10

168x110mm (300 x 300 DPI)

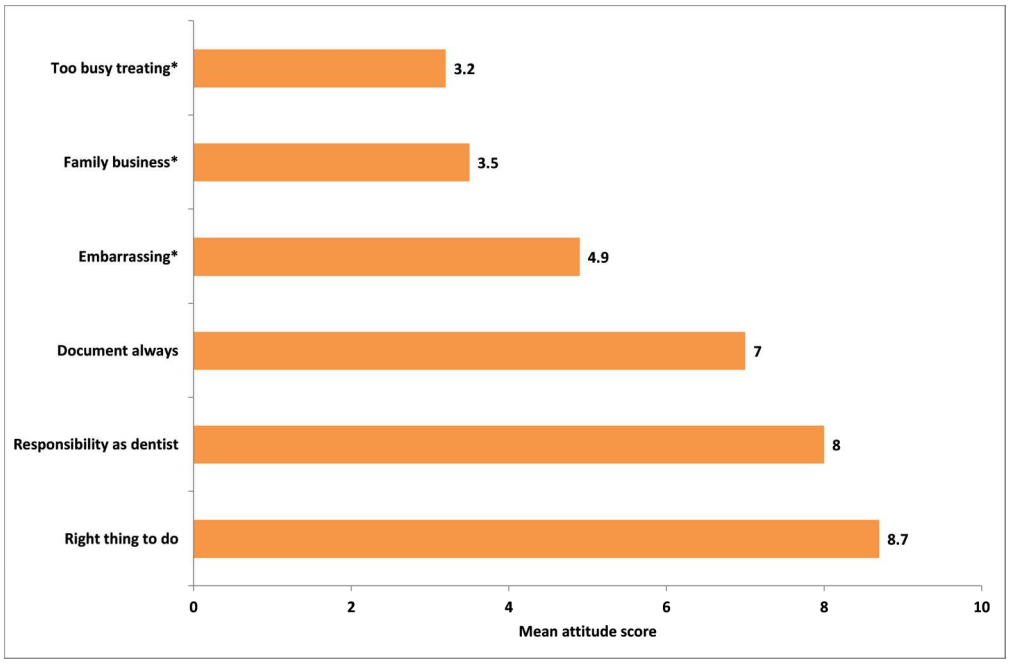

Figure 2: Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10 (*: negatively phrased statement)

168x110mm (300 x 300 DPI)

ABUSE MANAGEMENT IN DENTAL PRACTICE

This study is conducted to investigate the role of dentists in abuse management. The questionnaire takes 10 minutes. Kindly answer all questions. All information you provide is confidential and will only be used for research purposes.

I- Personal Information

1. Gender	☐ Male	☐ Female
2. Age	……	
3. Has children	☐ Yes	☐ No
Nationality	……	
Country where you are currently practicing	……	

II- Professional background

4. Specialization	☐ General Practitioner	☐ Specialist/ Consultant	
5. Type of practice	☐ Private sector	☐ Public sector	☐ University clinic/ hospital
6. Did you have any training in abuse management?	☐ Yes	☐ No	
7. Do you think you can identify signs of abuse in your patients?	☐ Yes	☐ No	

III- Perception of abuse reporting in clinical practice

How much, on a scale of **1** (not true at all) to **10** (very true), in your opinion is the following true about abuse reporting where you practice?

8. Reporting abuse is not required by law.	
9. Reporting abuse is not enforced.	
10. Reporting abuse is not a rule of the place where I work.	
11. There is no specific authority to report to.	
12. It is not my job to report abuse.	
13. Reporting abuse is not culturally accepted	

IV- Attitudes towards abuse reporting

Select the response that represents your attitude on a scale from **1** (completely disagree) to **10** (completely agree) for each of the following

14. Reporting abuse is the right thing to do	
15. It is my responsibility as a dentist to report abuse	
16. I am too busy treating patients to report abuse	
17. I would document abuse manifestations even if not relevant to treatment	
18. If abuse is suspected within a family, it is their business; no one should interfere	
19. It is embarrassing to interfere with others to check about suspected abuse	

20. Which of the following would be your first choice to report abuse to?

☐ Police ☐ Social Service Agencies / Ministry of Social Affairs ☐ Ministry of Health
☐ Non-governmental Organizations ☐ Others (specify…….) ☐ I do not know

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5& 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7& 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7& 8
Bias	9	Describe any efforts to address potential sources of bias	-
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	8
		(*b*) Describe any methods used to examine subgroups and interactions	-
		(*c*) Explain how missing data were addressed	-
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	-
		(*e*) Describe any sensitivity analyses	-
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed	9

		eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	-
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9& 10
		(b) Indicate number of participants with missing data for each variable of interest	-
Outcome data	15*	Report numbers of outcome events or summary measures	11&12
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12& 13
		(*b*) Report category boundaries when continuous variables were categorized	-
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	-
Discussion			
Key results	18	Summarise key results with reference to study objectives	14
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	17
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	14-17
Generalisability	21	Discuss the generalisability (external validity) of the study results	17
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	4

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

Dentists' intention to report suspected violence: a cross-sectional study in eight Arab countries

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Abstract

Objectives

This study assessed dentists' ~~the~~ intention ~~of dentists~~ in eight Arab countries to report suspected exposure to violence among ~~their~~ patients and factors associated with this intention based on the theory of planned behavior.

Methods

A cross-sectional study was conducted in 2016 including a convenience sample of dentists practicing in public, private and academic sectors in Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. ~~Respondents were selected using a convenience sample. They~~ Respondents answered a self-administered questionnaire ~~that~~ collect~~inged~~ information about personal and professional background and perceived ability to identify victims of violence. The questionnaire ~~also~~ assessed (on a scale from 1 to 10 using 6 negative statements) dentists' perception of healthcare system mandated reporting of suspected violence. Six ~~other~~ statements were used to assess professional attitude toward reporting suspected violence. Logistic regression ~~analysis~~ was used to assess the association between intention to report suspected violence and perceived ability, perception and attitude adjusting for confounders.

Results

The response rate was 65.2% (n= 2,936/ 4506) from general practitioners (70.9%) of mean age= 31 years with 56.7% females. Of those, ~~with~~ 68.8% intend~~ed~~ing to report and 52.2% consider~~ed~~ing themselves able to identify violence victims ~~of violence~~. The mean (SD) negative perception score= 5.3/10 (2.1) and the mean (SD) professional attitude score= 7.5/10 (1.9). In multivariate regression, intention to report was associated with professional attitude (OR= 1.08, 95%CI= 1.03, 1.14), ability to identify violence victims (OR= 1.76, 95%CI=1.45,

2.12) and negative perception that reporting is not mandated (OR= 0.89, 95%CI=0.85, 0.94). Significant differences existed ~~between~~ among countries in intention to report.

Conclusion

Most dentists intended to report suspected violence and their intention could be explained by the theory of planned behavior which offers a framework for professional development ~~so that dentists can~~ to support violence victims ~~of violence~~. Sharing of training resources, policies and guidelines is needed to ensure that practices similar to international guidelines are consistently adopted by dentists across Arab countries.

Strengths and limitations

- We included dentists from eight Arab countries which increases the geographic representativeness of our findings and fills a knowledge gap about the intended practices of dentists in this region.
- The theory of planned behavior provides a framework to explain the intention to report and helps in planning professional development activities to better prepare dentists to help their patients.
- Social desirability might have affected our estimates of dentists' intention to report suspected violence.
- Dentists in private practice were under represented compared to dentists from the public and academic sectors.

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Competing interest statement

None declared.

Data sharing statement

The dataset will be made available from the corresponding author.

Introduction

In 2014, the World Health Organization (WHO) issued the first report on the global status of violence prevention [1]. The report defined interpersonal violence as violence that occurs between family members, intimate partners, friends, acquaintances and strangers and includes child maltreatment, intimate partner violence and elder abuse in addition to some other forms of violence. The report showed that although the problem is preventable and efforts were already under way to reduce it, much remained to be done. Global statistics [1] indicate that most cases of violence against children, women and elderly are not reported to authorities or service providers. This emphasizes the need of the health sector to have a more active role in documenting and reporting cases of violence.

The Eastern Mediterranean Region which includes Arab countries has one of the highest prevalence of intimate partner violence, the most extensively surveyed of all types of violence, among the six WHO regions (37%). Comprehensive information about violence against children and the elderly is not available [1]. Arab countries are more defined by their shared culture than by being a specific race [2]. Given that what constitutes violence depends on contextual and cultural norms, what would be labelled as violence against women or children in western countries, may be culturally acceptable or may be considered a private matter in Arab countries [3]. Because of this, studies related to violence management that were conducted in western countries may not apply in Arab countries.

Dental care settings are often the primary contact point for violence victims since head and face injuries are sites with common manifestation of physical violence [4]. Like all health care professionals, dentists' main goal is to protect human life and the wellbeing of their patients [5] and therefore, they can play an important role in identifying and reporting victims of violence. However, we know little about Arab dentists' willingness to report cases of violence. A review of literature showed that there were few studies that were conducted

among dentists in Arab countries and that they focused on children abuse; in Jordan [6,7], Saudi Arabia [8, 9] and the United Arab Emirates [10]. However, none of these studies investigated dentists' intention to report suspicion of violence among adults.

Based on the limited number of studies addressing the issue, there is a need to assess the willingness of dentists in Arab countries to report suspected violence. Such information helps inform public health policy, laws and future intervention programs targeting prevention and management of violence. The hypothesis of the study was that dentists' intention to report violence can be explained by the theory of planned behavior [11] where dentists would be more willing to report if they perceive that the health care system requires them to report (normative beliefs), if they have favorable professional attitude toward reporting (behavioral beliefs) and if they think they are able to identify victims of violence (control beliefs). The aims of this study were to 1) assess the intention of dentists in eight Arab countries to report cases of suspected violence and to 2) identify factors associated with this intention.

Methods

Data for this cross-sectional study was collected from April to December 2016 after obtaining the approval of the research ethics committee; the Research Unit in the ~~,~~ College of Dentistry, University of Dammam, Saudi Arabia (EA216008) and in accordance with the guidelines of the Helsinki Declaration. Dentists were targeted in eight Arab countries; Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. To assess the prevalence of intention to report, sample size was calculated (http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator) using the following assumptions: confidence level= 95%, confidence interval= 5%, total number of dentists in each country [12] with an estimated percentage of reporting suspected violence= 32% [10].

The number was increased by 25% to allow for non-response. The minimum required sample size per country ranged from 300 to 470 dentists.

Participants were selected using convenience sampling including dentists affiliated with professional groups, or from regions where they would be clustered such as capitals and big cities and from different areas in each country to ensure geographic coverage. Because of the war situation in Libya, data collection was restricted only to Eastern Libya. In Algeria, only the city of Annaba was included and the respondents were alumni of Annaba University.

Dentists were invited to participate if they 1) had a bachelor of dentistry or equivalent degree and 2) were practicing in one of the eight Arab countries. In the beginning, dentists were included only if they were nationals of the country. Later on, this criterion was dropped due to the presence of a considerable percentage of expats in some countries so that the sample would reflect the profession profile in the participating countries.

Data was collected using a questionnaire that was developed based on previous studies [9, 10, 13] (supplementary file). It consisted of five sections including 20 close-ended questions. The first section sought information about personal background (age in years, gender (male or female) and having children (yes or no)). The 2nd section inquired about professional background including specialization (general practitioner or specialist/ consultant), type of practice (private, public or academic sectors), receiving training (yes or no) and perceived ability to identify victims of violence (yes or no). The 3rd section assessed perception of mandated reporting of suspected violence. Participants were asked to indicate how much they considered each of six statements was true of the place they worked on a scale from not true at all (1) to very true (10). The statements were all negatively phrased and indicated that reporting was not required by law, not enforced, not a rule of the place one worked, not the dentist's job to do, not culturally acceptable and that there was no specific authority to report to. The 4th section assessed respondents' attitude toward reporting violence

using 6 statements to which they were asked to indicate agreement on a scale from completely disagree (1) to completely agree (10). The statements indicated that reporting was the right thing to do, was the dentist's responsibility, that the dentist would always document the manifestations of suspected violence (positive) in addition to statements indicating that the dentist was too busy with patients to report, that the issue of violence was a family's business where nobody should interfere and that it was embarrassing to check about violence (negative). In the 5th section, respondents were asked whether they would report suspected violence to the police, social services agencies/ Ministry of Social Affairs, Ministry of Health, non- governmental organizations (NGOs) or others. The questionnaire was pilot tested and culturally adapted in each country.

The questionnaire was preceded by a brief explanation of the study purpose and explained that by responding, the dentist indicated consent to join the study. It took about ten minutes to complete and was self-administered, in Arabic and English, as printed and electronic versions. A respondent received the questionnaire by hand or a link to the electronic version was sent to an email list or by WhatsApp message. The investigator issued three reminders over a period of three months in case of non-response.

Analysis

The internal consistency of the statements of perception and attitude was assessed using Cronbach alpha. Overall scores of the two constructs were developed by averaging the items' scores after reverse coding negative attitude statements. Higher perception score thus indicated less (negative) perception so that dentists considered themselves ~~were~~ not mandated to report and higher attitude score indicated more positive professional attitude. Separate logistic regression models were developed to assess the association between intention to report suspected violence (dichotomous outcome: yes vs no) and each of (a) perception of mandated reporting (norms) (measured on a scale from 1 to 10), (b) professional attitude

toward reporting (measured on a scale from 1 to 10) and (c) perceived ability to identify victims of violence (control) (yes vs no) in addition to personal and professional factors (all were categorical variables except age). Countries were considered to have protective services for children or adults based on the WHO report whether these services were limited, partial or full [1]. All factors were included in a multivariable model where they were simultaneously adjusted after removing the factors whose estimates showed correlation. All models were adjusted for country of practice. Odds ratios, 95% confidence intervals and p values were calculated for all models and so was the percentage of correctly classified cases for the model including all variables.

Results

The overall response rate was 65.2% ranging from 51% in Palestine to 78% in Yemen (Table 1). Some nationalities practiced in their own countries and in other countries included in the study (Egyptians 28.1% vs 29.9%, Jordanians 11.8% vs 12.6% and Yemenis 9.9% vs 10.4%). The majority of expats were from Asian (5.4%) or other Arab countries not included in the study (3.1%). Protective services for victims of violence were not documented in Kuwait, Libya and Palestine.

Table 1: Response rate, presence of protective services and intention to report by country

Country	Response rate	Documented presence of protective services	Intention to report N (%)
Algeria	110/ 175= 62.9%	Yes	88 (80%)
Egypt	826/ 1271= 65%	Yes	505 (61.1%)
Jordan	347/ 475= 73.1%	Yes	271 (78.1%)
Kuwait	449/ 632= 71%	No	305 (67.9%)

Libya	225/389= 57.8%	No	159 (70.7%)
Palestine	380/ 745= 51%	No	326 (85.8%)
Saudi Arabia	308/ 446= 69.1%	Yes	190 (61.7%)
Yemen	291/ 373= 78%	Yes	175 (60.1%)
Total	2936/ 4506= 65.2%		2019 (68.8%)

The mean (SD) age in years was 31.0 (9.2), 56.7% were females and 53.7% had no children (Table 2). Most respondents were general practitioners (70.9%) working in the public (43.9%) or private sectors (34.2%). Only 19.3% reported receiving training to manage victims of violence and 52.2% claimed that they can identify them. Protective services for victims of violence were present in the countries of practice of 64.1% of the respondents.

Table 2: Personal and professional background of participants

Factor		N (%)
Age	Mean (SD)	31.0 (9.2)
Gender	Male	1268 (43.3%)
	Female	1659 (56.7%)
Has no children		1571 (53.7%)
Specialization	General practitioner	2047 (70.9%)
	Specialist/ Consultant	839 (29.1%)
Type of practice	Private sector	976 (34.2%)
	Public sector	1257 (43.9%)
	Academic sector	623 (21.9%)
Received training		565 (19.3%)
Perceived ability to identify victims of violence		1445 (52.2%)

Presence of protective services for children or adults in country of practice	1882 (64.1%)

The majority of respondents indicated their intention to report suspected violence (2019, 68.8%); mainly to the police (933, 31.8%), or social affairs agencies (842, 28.7%) followed by the Ministry of Health (303, 10.3%) and NGOs (132, 4.5%). There was a significant difference among countries in the percentage of dentists indicating intention to report ranging from 60.1% in Yemen to 85.8% in Palestine (P< 0.0001, Table 1).

Figure 1 shows that the highest mean negative perception item score was for perceiving that reporting was not enforced (6.5) followed by perceiving that there was no authority to report to (6.2). The internal consistency of perception statements was acceptable (Cronbach alpha = 0.68, 95% CI= 0.66, 0.70, P<0.0001) and the mean (SD) equals 5.3 (2.1). The highest mean score for statements of attitude toward reporting (Figure 2) was for indicating that it was the right thing to do (8.7) and the lowest was for the negative statement indicating that the respondent was too busy treating patients to report (mean= 3.2). The internal consistency of the statements was good (Cronbach alpha = 0.72, 95% CI= 0.70, 0.74, P<0.0001) and the mean (SD) equals 7.5 (1.9).

Dentists who practiced in countries where there were protective services for violence victims had significantly higher negative perception and lower attitude scores than those without such services (P< 0.0001 and 0.02). Dentists who reported being able to identify violence victims had significantly lower negative perception and higher attitude scores than those who did not (P< 0.0001, Table 3). There was a significant moderate negative correlation between perception and professional attitude (Pearson r= -0.32, P< 0.0001).

Table 3: Association of perception and attitude with presence of protective services and ability to identify victims of violence

	Score: mean (SD)		P value
	Protective services in country of practice	No protective services in country of practice	
Negative perception	5.50 (2.13)	4.87 (2.11)	<0.0001*
Positive professional attitude	7.41 (1.94)	7.59 (1.87)	0.02*
	Able to identify victims of violence	Not able to identify victims of violence	
Negative perception	4.98 (2.17)	5.56 (2.06)	<0.0001*
Positive professional attitude	7.72 (1.85)	7.25 (1.99)	<0.0001*

*: statistically significant at P< 0.05

Table 4 shows that attitude, perception and reported ability to identify violence victims were significantly associated (P< 0.0001) with intention to report in the separate models (model 1) in addition to gender (P< 0.0001), age (P= 0.004) and presence of protective services (P< 0.0001). In the multivariable model 2, higher odds of intention to report were significantly associated with higher professional attitude score (OR= 1.08, 95% CI= 1.03, 1.14) and reported ability to identify victims of violence (OR= 1.76, 95% CI= 1.45, 2.12). Lower odds of intended reporting were significantly associated with higher score of negative perception (OR= 0.89, 95% CI= 0.85, 0.94). In addition, the presence of protective services was associated with significantly lower odds of intention to report (OR= 0.34, 95% CI= 0.22, 0.50). The multivariable model 2 correctly classified 71.6% of dentists based on intention to report suspected violence.

Table 4: Factors associated with intention to report suspected violence

Factors	Model 1		Model 2	
	OR (95% CI)	P value	OR (95% CI)	P value
Higher attitude score by one point	1.10 (1.06, 1.15)	<0.0001*	1.08 (1.03, 1.14)	0.002*
Higher negative perception score by one point	0.88 (0.84, 0.92)	<0.0001*	0.89 (0.85, 0.94)	<0.0001*
Ability to identify victims of violence vs not	1.80 (1.52, 2.14)	<0.0001*	1.76 (1.45, 2.12)	<0.0001*
Male vs female	1.74 (1.47, 2.06)*	<0.0001*	1.85 (1.52, 2.25)	<0.0001*
Older dentist by one year	1.01 (1.004, 1.02)	0.004*	1.01 (0.99, 1.02)	0.36
Has children vs does not have children	1.14 (0.97, 1.35)	0.12	-	-
General practitioner vs specialist/ consultant	0.99 (0.83, 1.19)	0.93	-	-
Working in public vs private sector	0.95 (0.77, 1.18)	0.66	1.11 (0.87, 1.42)	0.40
Working in academic vs private sector	0.83 (0.66, 1.05)	0.11	0.88 (0.68, 1.15)	0.37
Presence of protective services in country of practice vs not	0.25 (0.17, 0.36)	<0.0001*	0.34 (0.22, 0.50)	<0.0001*

Model 1: includes individual factors adjusted for country of practice

Model 2: includes all factors adjusted for country of practice

OR: odds ratio, CI: confidence interval, *: statistically significant at $P < 0.05$. Percent correctly classified by multivariable model: 71.6%.

Discussion

Our results indicated a moderate level of dentists' intention to report suspected violence with significant difference among the eight Arab countries. The findings supported the hypothesis and showed that the theory of planned behavior [11] correctly classified most dentists regarding their intention to report suspected violence. A combination of dentist's professional attitude, perceived ability to identify victims of violence and perception of mandatory rules and regulation were associated with intention to report. The presence of protective services in the country of practice was associated with less intention to report.

Most dentists in the present study (68.8%) indicated they intended to report violence. This finding is similar to those of previous studies in Arab countries such as Jordan [6] and Saudi Arabia [8,9] and western countries such as Scotland [14] and Brazil [15]. However, less intention to report was shown in some studies from Italy [16], Brazil [17] and France [5].

Even with the most favorable intentions, dentists will not report violence if they cannot identify its signs. In the present study, 52.2% of the respondents reported being able to identify victims of violence. Previous studies showed differences in dentists' perceived ability to identify victims of violence across countries [5,6, 8, 16-18] which might be attributed to variations in training requirements and opportunities across countries.

Our definition of subjective norms was based on dentists' perception of mandated reporting in the workplace. We used this definition instead of focusing on significant others since the mobility of dentists across countries meant that the values shared by these others may differ from those prevailing in country of practice. The approach we followed was similar to the definition of Ben Natan et al [19] where they focused on those who educated

nursing students. In the present study, the mean score of negative perception was 5.3/ 10 indicating that, on average, no clear message was received by dentists from their work place whether or not to report suspected violence. This was more because dentists felt the law was not enforced than their perception that reporting was not mandated (mean = 6.5 and 3.8). This agrees with Adair et al [20] who concluded that the likelihood of intending to report suspected violence was greater if dentists recognized that they were legally mandated to report. Negative perception in the current study was also related to perceiving that there was no authority to report to and the absence of clear rules. Similar perceptions were reported in previous studies addressing child abuse in Arab countries such as Saudi Arabia [8,9] and in other countries including India [13], United States [21], Brazil [15] and Northern Ireland [22]. This inadequate knowledge of how or who to report to might be due to the presence of several potential recipients of violence reports [10] or recent enactment of laws [9].

In the present study, the presence of protective services was associated with lower odds of intention to report (OR= 0.34), greater negative perception and less positive professional attitude. This might be attributed to dentists not perceiving these services as indicative of real change in social and cultural norms or health care system perspective regarding reporting. Alternatively, they might have considered that care of violence victims was shifted to these services so that they would be ethically justified not to report violence. However, studies using qualitative research techniques are needed for further investigation.

In our study, respondents had positive professional attitude toward reporting violence (mean= 7.5/ 10) which agrees with previous studies from Saudi Arabia concerning reporting suspected child abuse [9] and domestic violence [23]. It also agrees with the positive attitude expressed by dentists toward their role in managing child abuse in India [24], Scotland [14], Jordan [6], Brazil [18] and Greece [25] as well as domestic violence reporting in Brazil [15], India [26] and France [5]. Such positive professional attitude - similar to dentists' attitude in

other countries- might differ from some negative attitudes and practices in Arab societies that are seen in violence statistics [1]. The predominance of professional attitude over societal practices agrees with a study showing that cultural differences between Arab and Jewish nursing students in Israel did not affect the intention to screen for domestic violence due to the similarity of their education [19]. It also agrees with a study from Taiwan, a country with eastern cultural values, which showed that nurses did not accept the cultural belief that parents can physically discipline their children because these nurses were exposed to mixed cultural influences from the east and west [27]. The young age of nurses in that study was similar to that of our participants and might explain the similarity between the two studies. However, the professional attitude in our study disagrees with Usta et al [28] who reported that Lebanese physicians considered domestic violence a social problem not a medical one and were ready to intervene only when there was actual physical injury. The difference between that study and ours might be because most of the physicians were in private practice and more likely to be worried about the implications on practice income if their local community resented their intervention. Most of the participants in our study, on the other hand, were in the public or academic sectors.

Female dentists in our study were less likely to intend reporting suspected violence. The impact of dentist gender in the issue of suspected violence varied among studies. At the level of knowledge of rules and regulation, female dentists in Saudi Arabia were better than males [9]. However, actual reporting of suspected violence was more likely among male dentists in Jordan [7]. Similarly, among Brazilian nurses, of whom 86% were female, under-reporting of violence was noticed and was attributed to conforming to cultural norms [29]. Future studies using qualitative research techniques may help elucidate this gender difference and whether it is due to cultural expectations of how females- including dentists- should act or because they are less involved with victims of violence.

In our study, the theory of planned behavior correctly classified most dentists based on intention to report violence. Previously, the theory predicted the intention of 28% of Israeli nurses to report child abuse [30, 31] and 32% of their intention to screen for domestic violence where attitudes and subjective norms were significant predictors (regression coefficients= 0.15 and 0.05) [19]. Similarly, Feng and Wu [32] explained Taiwanese nurses' intention to report child abuse using the same theory. Greater association with the outcome was attributed to professional attitude than subjective norms. The least impact was for perceived control which was attributed to the inadequate instructions of how to report.

There are some limitations to this study that should be considered. We assessed the intention to report which might differ from actual reporting [5] and future studies are needed to assess these differences. Self-reporting and social desirability could have affected our estimates of intention to report. We also assessed the intention to report regardless of the type of violence (physical, verbal or otherwise) or victim background (age or gender) and there is a need to investigate how these factors might affect the intention to report. In addition, our estimate of intention to report might have been affected by the under representation of dentists in private practice compared to those in the public and academic sectors. Our results need to be interpreted with caution due to the convenience sample we used.

Conclusions

Our study included about 3,000 dentists out of 59.5 thousand dentists [12] (5%) caring for 213 million in eight Arab countries [33]. Their intention to report violence was associated with professional attitudes, perceptions and perceived abilities which were similar to those of dentists in other countries [34, 35] but never the less, showed differences by country of practice. Our findings have implications for training to improve the reporting of suspected violence by developing dentists' abilities to identify diagnostic signs, fostering favorable

attitude and increasing awareness of already existing rules and regulations. There is a need to develop shared training resources, policies and clear guidelines that allow consistent professional practices and at the same time acknowledge cultural diversity across countries.

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Authors' contribution

- Maha El Tantawi, Maha Abdelsalam and Balgis Gaffar developed the study idea and questionnaire.
- Maha El Tantawi developed the study methods.
- Arheiam Arheiam, Wafaa AbdelAziz, Ola B. Al-Batayneh, Mansor Alhowiti, Sadeq Al-Maweri, Mai A. Dama, Mounir Zaghez, Khalid Saddiq Hassan, Mona Al-Sane, Fatma Abdelgawad, Thiyezen Abdullah Aldhelai, Omar Abd El Sadek El Meligy, Jehan AlHumaid and Fahad Al-Harbi collected data.
- Maha El Tantawi, Arheiam Arheiam and Wael Sabbah analyzed and interpreted the results.
- Maha El Tantawi, Arheiam Arheiam, Wael Sabbah, Arwa I. Owais, Omar Abd El Sadek El Meligy, Sadeq Al-Maweri and Wafaa AbdelAziz drafted the manuscripts.
- All authors read and approved the final manuscript.

Figure legends

Figure 1: Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10

Figure 2: Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10 (*: negatively phrased statement)

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Dentists' intention to report suspected violence: a cross-sectional study in eight Arab countries

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Dentists' intention to report suspected violence: a cross-sectional study in eight Arab countries

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Abstract

Objectives

This study assessed dentists' intention in eight Arab countries to report suspected exposure to violence among patients and factors associated with this intention based on the theory of planned behavior.

Methods

A cross-sectional study was conducted in 2016 including a convenience sample of dentists practicing in public, private and academic sectors in Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. Respondents answered a self-administered questionnaire collecting information about personal and professional background and perceived ability to identify victims of violence. The questionnaire assessed (on a scale from 1 to 10 using 6 negative statements) dentists' perception of healthcare system mandated reporting of suspected violence. Six statements were used to assess professional attitude toward reporting suspected violence. Logistic regression was used to assess the association between intention to report suspected violence and perceived ability, perception and attitude adjusting for confounders.

Results

The response rate was 65.2% (n= 2,936/ 4506) from general practitioners (70.9%) of mean age= 31 years with 56.7% females. Of those, 68.8% intended to report and 52.2% considered themselves able to identify violence victims. The mean (SD) negative perception score= 5.3/10 (2.1) and the mean (SD) professional attitude score= 7.5/10 (1.9). In multivariate regression, intention to report was associated with professional attitude (OR= 1.08, 95%CI= 1.03, 1.14), ability to identify violence victims (OR= 1.76, 95%CI=1.45, 2.12) and negative perception that reporting is not mandated (OR= 0.89, 95%CI=0.85, 0.94). Significant differences existed among countries in intention to report.

Conclusion

Most dentists intended to report suspected violence and their intention could be explained by the theory of planned behavior which offers a framework for professional development to support violence victims. Sharing of training resources, policies and guidelines is needed to ensure that practices similar to international guidelines are consistently adopted by dentists across Arab countries.

Strengths and limitations

- We included dentists from eight Arab countries which increases the geographic representativeness of our findings and fills a knowledge gap about the intended practices of dentists in this region.
- The theory of planned behavior provides a framework to explain the intention to report and helps in planning professional development activities to better prepare dentists to help their patients.
- Social desirability might have affected our estimates of dentists' intention to report suspected violence.
- Dentists in private practice were under represented compared to dentists from the public and academic sectors.

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Competing interest statement

None declared.

Data sharing statement

The dataset will be made available from the corresponding author.

Introduction

In 2014, the World Health Organization (WHO) issued the first report on the global status of violence prevention [1]. The report defined interpersonal violence as violence that occurs between family members, intimate partners, friends, acquaintances and strangers and includes child maltreatment, intimate partner violence and elder abuse in addition to some other forms of violence. The report showed that although the problem is preventable and efforts were already under way to reduce it, much remained to be done. Global statistics [1] indicate that most cases of violence against children, women and elderly are not reported to authorities or service providers. This emphasizes the need of the health sector to have a more active role in documenting and reporting cases of violence.

The Eastern Mediterranean Region which includes Arab countries has one of the highest prevalence of intimate partner violence, the most extensively surveyed of all types of violence, among the six WHO regions (37%). Comprehensive information about violence against children and the elderly is not available [1]. Arab countries are more defined by their shared culture than by being a specific race [2]. Given that what constitutes violence depends on contextual and cultural norms, what would be labelled as violence against women or children in western countries, may be culturally acceptable or may be considered a private matter in Arab countries [3]. Because of this, studies related to violence management that were conducted in western countries may not apply in Arab countries.

Dental care settings are often the primary contact point for violence victims since head and face injuries are sites with common manifestation of physical violence [4]. Like all health care professionals, dentists' main goal is to protect human life and the wellbeing of their patients [5] and therefore, they can play an important role in identifying and reporting victims of violence. However, we know little about Arab dentists' willingness to report cases of violence. A review of literature showed that there were few studies that were conducted

among dentists in Arab countries and that they focused on children abuse; in Jordan [6,7], Saudi Arabia [8, 9] and the United Arab Emirates [10]. However, none of these studies investigated dentists' intention to report suspicion of violence among adults.

Scientific evidences [11, 12] show the importance of studying this topic for the dental community, but there is still the need to assess the willingness of dentists in Arab countries to report suspected violence, considering there are only a few studies performed in this region. Such information helps inform public health policy, laws and future intervention programs targeting prevention and management of violence. The hypothesis of the study was that dentists' intention to report violence can be explained by the theory of planned behavior [13] where dentists would be more willing to report if they perceive that the health care system requires them to report (normative beliefs), if they have favorable professional attitude toward reporting (behavioral beliefs) and if they think they are able to identify victims of violence (control beliefs). The aims of this study were to 1) assess the intention of dentists in eight Arab countries to report cases of suspected violence and to 2) identify factors associated with this intention.

Methods

Data for this cross-sectional study was collected from April to December 2016 after obtaining the approval of the research ethics committee; the Research Unit in the College of Dentistry, University of Dammam, Saudi Arabia (EA216008) and in accordance with the guidelines of the Helsinki Declaration. Dentists were targeted in eight Arab countries; Algeria, Egypt, Jordan, Kuwait, Libya, Palestine, Saudi Arabia and Yemen. To assess the prevalence of intention to report, sample size was calculated (http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator) using the following assumptions: confidence level= 95%, confidence interval= 5%, total number of dentists in

each country [14] with an estimated percentage of reporting suspected violence= 32% [10]. The number was increased by 25% to allow for non-response. The minimum required sample size per country ranged from 300 to 470 dentists.

Participants were selected using convenience sampling including dentists affiliated with professional groups, or from regions where they would be clustered such as capitals and big cities and from different areas in each country to ensure geographic coverage. Because of the war situation in Libya, data collection was restricted only to Eastern Libya. In Algeria, only the city of Annaba was included and the respondents were alumni of Annaba University.

Dentists were invited to participate if they 1) had a bachelor of dentistry or equivalent degree and 2) were practicing in one of the eight Arab countries. In the beginning, dentists were included only if they were nationals of the country. Later on, this criterion was dropped due to the presence of a considerable percentage of expats in some countries so that the sample would reflect the profession profile in the participating countries.

Data was collected using a questionnaire that was developed based on previous studies [9, 10, 15] (supplementary file). It consisted of five sections including 20 close-ended questions. The first section sought information about personal background (age in years, gender (male or female) and having children (yes or no)). The 2nd section inquired about professional background including specialization (general practitioner or specialist/ consultant), type of practice (private, public or academic sectors), receiving training (yes or no) and perceived ability to identify victims of violence (yes or no). The 3rd section assessed perception of mandated reporting of suspected violence. Participants were asked to indicate how much they considered each of six statements was true of the place they worked on a scale from not true at all (1) to very true (10). The statements were all negatively phrased and indicated that reporting was not required by law, not enforced, not a rule of the place one worked, not the dentist's job to do, not culturally acceptable and that there was no specific

authority to report to. The 4th section assessed respondents' attitude toward reporting violence using 6 statements to which they were asked to indicate agreement on a scale from completely disagree (1) to completely agree (10). The statements indicated that reporting was the right thing to do, was the dentist's responsibility, that the dentist would always document the manifestations of suspected violence (positive) in addition to statements indicating that the dentist was too busy with patients to report, that the issue of violence was a family's business where nobody should interfere and that it was embarrassing to check about violence (negative). In the 5th section, respondents were asked whether they would report suspected violence to the police, social services agencies/ Ministry of Social Affairs, Ministry of Health, non- governmental organizations (NGOs) or others. The questionnaire was pilot tested and culturally adapted in each country.

The questionnaire was preceded by a brief explanation of the study purpose and explained that by responding, the dentist indicated consent to join the study. It took about ten minutes to complete and was self-administered, in Arabic and English, as printed and electronic versions. A respondent received the questionnaire by hand or a link to the electronic version was sent to an email list or by WhatsApp message. The investigator issued three reminders over a period of three months in case of non-response.

Analysis

The internal consistency of the statements of perception and attitude was assessed using Cronbach alpha. Overall scores of the two constructs were developed by averaging the items' scores after reverse coding negative attitude statements. Higher perception score thus indicated less (negative) perception so that dentists considered themselves not mandated to report and higher attitude score indicated more positive professional attitude. Separate logistic regression models were developed to assess the association between intention to report suspected violence (dichotomous outcome: yes vs no) and each of (a) perception of mandated

reporting (norms) (measured on a scale from 1 to 10), (b) professional attitude toward reporting (measured on a scale from 1 to 10) and (c) perceived ability to identify victims of violence (control) (yes vs no) in addition to personal and professional factors (all were categorical variables except age). Countries were considered to have protective services for children or adults based on the WHO report whether these services were limited, partial or full [1]. All factors were included in a multivariable model where they were simultaneously adjusted after removing the factors whose estimates showed correlation. All models were adjusted for country of practice. Odds ratios, 95% confidence intervals and p values were calculated for all models and so was the percentage of correctly classified cases for the model including all variables.

Results

The overall response rate was 65.2% ranging from 51% in Palestine to 78% in Yemen (Table 1). Some nationalities practiced in their own countries and in other countries included in the study (Egyptians 28.1% vs 29.9%, Jordanians 11.8% vs 12.6% and Yemenis 9.9% vs 10.4%). The majority of expats were from Asian (5.4%) or other Arab countries not included in the study (3.1%). Protective services for victims of violence were not documented in Kuwait, Libya and Palestine.

Table 1: Response rate, presence of protective services and intention to report by country

Country	Response rate	Documented presence of protective services	Intention to report N (%)
Algeria	110/ 175= 62.9%	Yes	88 (80%)
Egypt	826/ 1271= 65%	Yes	505 (61.1%)
Jordan	347/ 475= 73.1%	Yes	271 (78.1%)

Kuwait	449/ 632= 71%	No	305 (67.9%)
Libya	225/389= 57.8%	No	159 (70.7%)
Palestine	380/ 745= 51%	No	326 (85.8%)
Saudi Arabia	308/ 446= 69.1%	Yes	190 (61.7%)
Yemen	291/ 373= 78%	Yes	175 (60.1%)
Total	2936/ 4506= 65.2%		2019 (68.8%)

The mean (SD) age in years was 31.0 (9.2), 56.7% were females and 53.7% had no children (Table 2). Most respondents were general practitioners (70.9%) working in the public (43.9%) or private sectors (34.2%). Only 19.3% reported receiving training to manage victims of violence and 52.2% claimed that they can identify them. Protective services for victims of violence were present in the countries of practice of 64.1% of the respondents.

Table 2: Personal and professional background of participants

Factor		N (%)
Age	Mean (SD)	31.0 (9.2)
Gender	Male	1268 (43.3%)
	Female	1659 (56.7%)
Has no children		1571 (53.7%)
Specialization	General practitioner	2047 (70.9%)
	Specialist/ Consultant	839 (29.1%)
Type of practice	Private sector	976 (34.2%)
	Public sector	1257 (43.9%)
	Academic sector	623 (21.9%)
Received training		565 (19.3%)

Perceived ability to identify victims of violence	1445 (52.2%)
Presence of protective services for children or adults in country of practice	1882 (64.1%)

The majority of respondents indicated their intention to report suspected violence (2019, 68.8%); mainly to the police (933, 31.8%), or social affairs agencies (842, 28.7%) followed by the Ministry of Health (303, 10.3%) and NGOs (132, 4.5%). There was a significant difference among countries in the percentage of dentists indicating intention to report ranging from 60.1% in Yemen to 85.8% in Palestine (P< 0.0001, Table 1).

Figure 1 shows that the highest mean negative perception item score was for perceiving that reporting was not enforced (6.5) followed by perceiving that there was no authority to report to (6.2). The internal consistency of perception statements was acceptable (Cronbach alpha = 0.68, 95% CI= 0.66, 0.70, P<0.0001) and the mean (SD) equals 5.3 (2.1). The highest mean score for statements of attitude toward reporting (Figure 2) was for indicating that it was the right thing to do (8.7) and the lowest was for the negative statement indicating that the respondent was too busy treating patients to report (mean= 3.2). The internal consistency of the statements was good (Cronbach alpha = 0.72, 95% CI= 0.70, 0.74, P<0.0001) and the mean (SD) equals 7.5 (1.9).

Dentists who practiced in countries where there were protective services for violence victims had significantly higher negative perception and lower attitude scores than those without such services (P< 0.0001 and 0.02). Dentists who reported being able to identify violence victims had significantly lower negative perception and higher attitude scores than those who did not (P< 0.0001, Table 3). There was a significant moderate negative correlation between perception and professional attitude (Pearson r= -0.32, P< 0.0001).

Table 3: Association of perception and attitude with presence of protective services and ability to identify victims of violence

	Score: mean (SD)		P value
	Protective services in country of practice	No protective services in country of practice	
Negative perception	5.50 (2.13)	4.87 (2.11)	<0.0001*
Positive professional attitude	7.41 (1.94)	7.59 (1.87)	0.02*
	Able to identify victims of violence	Not able to identify victims of violence	
Negative perception	4.98 (2.17)	5.56 (2.06)	<0.0001*
Positive professional attitude	7.72 (1.85)	7.25 (1.99)	<0.0001*

*: statistically significant at P< 0.05

Table 4 shows that attitude, perception and reported ability to identify violence victims were significantly associated (P< 0.0001) with intention to report in the separate models (model 1) in addition to gender (P< 0.0001), age (P= 0.004) and presence of protective services (P< 0.0001). In the multivariable model 2, higher odds of intention to report were significantly associated with higher professional attitude score (OR= 1.08, 95% CI= 1.03, 1.14) and reported ability to identify victims of violence (OR= 1.76, 95% CI= 1.45, 2.12). Lower odds of intended reporting were significantly associated with higher score of negative perception (OR= 0.89, 95% CI= 0.85, 0.94). In addition, the presence of protective services was associated with significantly lower odds of intention to report (OR= 0.34, 95% CI= 0.22, 0.50). The multivariable model 2 correctly classified 71.6% of dentists based on intention to report suspected violence.

Table 4: Factors associated with intention to report suspected violence

Factors	Model 1		Model 2	
	OR (95% CI)	P value	OR (95% CI)	P value
Higher attitude score by one point	1.10 (1.06, 1.15)	<0.0001*	1.08 (1.03, 1.14)	0.002*
Higher negative perception score by one point	0.88 (0.84, 0.92)	<0.0001*	0.89 (0.85, 0.94)	<0.0001*
Ability to identify victims of violence vs not	1.80 (1.52, 2.14)	<0.0001*	1.76 (1.45, 2.12)	<0.0001*
Male vs female	1.74 (1.47, 2.06)*	<0.0001*	1.85 (1.52, 2.25)	<0.0001*
Older dentist by one year	1.01 (1.004, 1.02)	0.004*	1.01 (0.99, 1.02)	0.36
Has children vs does not have children	1.14 (0.97, 1.35)	0.12	-	-
General practitioner vs specialist/ consultant	0.99 (0.83, 1.19)	0.93	-	-
Working in public vs private sector	0.95 (0.77, 1.18)	0.66	1.11 (0.87, 1.42)	0.40
Working in academic vs private sector	0.83 (0.66, 1.05)	0.11	0.88 (0.68, 1.15)	0.37
Presence of protective services in country of practice vs not	0.25 (0.17, 0.36)	<0.0001*	0.34 (0.22, 0.50)	<0.0001*

Model 1: includes individual factors adjusted for country of practice

Model 2: includes all factors adjusted for country of practice

OR: odds ratio, CI: confidence interval, *: statistically significant at $P < 0.05$. Percent correctly classified by multivariable model: 71.6%.

Discussion

Our results indicated a moderate level of dentists' intention to report suspected violence with significant difference among the eight Arab countries. The findings supported the hypothesis and showed that the theory of planned behavior [13] correctly classified most dentists regarding their intention to report suspected violence. A combination of dentist's professional attitude, perceived ability to identify victims of violence and perception of mandatory rules and regulation were associated with intention to report. The presence of protective services in the country of practice was associated with less intention to report.

Most dentists in the present study (68.8%) indicated they intended to report violence. This finding is similar to those of previous studies in Arab countries such as Jordan [6] and Saudi Arabia [8,9] and western countries such as Scotland [16] and Brazil [17]. However, less intention to report was shown in some studies from Italy [18], Brazil [19] and France [5].

Even with the most favorable intentions, dentists will not report violence if they cannot identify its signs. In the present study, 52.2% of the respondents reported being able to identify victims of violence. Previous studies showed differences in dentists' perceived ability to identify victims of violence across countries [5,6, 8, 18-20] which might be attributed to variations in training requirements and opportunities across countries.

Our definition of subjective norms was based on dentists' perception of mandated reporting in the workplace. We used this definition instead of focusing on significant others since the mobility of dentists across countries meant that the values shared by these others may differ from those prevailing in country of practice. The approach we followed was similar to the definition of Ben Natan et al [21] where they focused on those who educated

nursing students. In the present study, the mean score of negative perception was 5.3/ 10 indicating that, on average, no clear message was received by dentists from their work place whether or not to report suspected violence. This was more because dentists felt the law was not enforced than their perception that reporting was not mandated (mean = 6.5 and 3.8). This agrees with Adair et al [22] who concluded that the likelihood of intending to report suspected violence was greater if dentists recognized that they were legally mandated to report. Our finding agrees with previous studies concluding that the presence of laws per se does not necessarily improve the awareness of mandated reporting. For example, Katner and Brown [23] reported that all 50 American states require dentists to report suspected violence among their patients. Nevertheless, surveys assessing US dentists' knowledge of mandated reporting showed that respondents were not aware of this legal obligation [24]. The same situation was also reported among Brazilian dentists [19, 20]. Negative perception in the current study was also related to perceiving that there was no authority to report to and the absence of clear rules. Similar perceptions were reported in previous studies addressing child abuse in Arab countries such as Saudi Arabia [8,9] and in other countries including India [15], United States [25], Brazil [17] and Northern Ireland [26]. This inadequate knowledge of how or who to report to might be due to the presence of several potential recipients of violence reports [10] or recent enactment of laws [9].

In the present study, the presence of protective services was associated with lower odds of intention to report (OR= 0.34), greater negative perception and less positive professional attitude. This might be attributed to dentists not perceiving these services as indicative of real change in social and cultural norms or health care system perspective regarding reporting. Alternatively, they might have considered that care of violence victims was shifted to these services so that they would be ethically justified not to report violence. However, studies using qualitative research techniques are needed for further investigation.

In our study, respondents had positive professional attitude toward reporting violence (mean= 7.5/ 10) which agrees with previous studies from Saudi Arabia concerning reporting suspected child abuse [9] and domestic violence [27]. It also agrees with the positive attitude expressed by dentists toward their role in managing child abuse in India [28], Scotland [16], Jordan [6], Brazil [20] and Greece [29] as well as domestic violence reporting in Brazil [17], India [30] and France [5]. Such positive professional attitude - similar to dentists' attitude in other countries- might differ from some negative attitudes and practices in Arab societies that are seen in violence statistics [1]. The predominance of professional attitude over societal practices agrees with a study showing that cultural differences between Arab and Jewish nursing students in Israel did not affect the intention to screen for domestic violence due to the similarity of their education [21]. It also agrees with a study from Taiwan, a country with eastern cultural values, which showed that nurses did not accept the cultural belief that parents can physically discipline their children because these nurses were exposed to mixed cultural influences from the east and west [31]. The young age of nurses in that study was similar to that of our participants and might explain the similarity between the two studies. However, the professional attitude in our study disagrees with Usta et al [32] who reported that Lebanese physicians considered domestic violence a social problem not a medical one and were ready to intervene only when there was actual physical injury. The difference between that study and ours might be because most of the physicians were in private practice and more likely to be worried about the implications on practice income if their local community resented their intervention. Most of the participants in our study, on the other hand, were in the public or academic sectors. Some negative attitudes reported in our study - such as dentists' embarrassment to intervene or considering violence as a family matter- were also reported by 51% of American dentists in one study [33], and cited by 75% of another

group of American dentists as a barrier to reporting [34]. This shows the global prevalence of the problem that may transcend geographical barriers and cultural backgrounds.

Female dentists in our study were less likely to intend reporting suspected violence. The impact of dentist gender in the issue of suspected violence varied among studies. At the level of knowledge of rules and regulation, female dentists in Saudi Arabia were better than males [9]. However, actual reporting of suspected violence was more likely among male dentists in Jordan [7]. Similarly, among Brazilian nurses, of whom 86% were female, under-reporting of violence was noticed and was attributed to conforming to cultural norms [35]. Future studies using qualitative research techniques may help elucidate this gender difference and whether it is due to cultural expectations of how females- including dentists- should act or because they are less involved with victims of violence.

In our study, the theory of planned behavior correctly classified most dentists based on intention to report violence. Previously, the theory predicted the intention of 28% of Israeli nurses to report child abuse [36, 37] and 32% of their intention to screen for domestic violence where attitudes and subjective norms were significant predictors (regression coefficients= 0.15 and 0.05) [21]. Similarly, Feng and Wu [38] explained Taiwanese nurses' intention to report child abuse using the same theory. Greater association with the outcome was attributed to professional attitude than subjective norms. The least impact was for perceived control which was attributed to the inadequate instructions of how to report.

There are some limitations to this study that should be considered. We assessed the intention to report which might differ from actual reporting [5] and future studies are needed to assess these differences. Self-reporting and social desirability could have affected our estimates of intention to report. We also assessed the intention to report regardless of the type of violence (physical, verbal or otherwise) or victim background (age or gender) and there is a need to investigate how these factors might affect the intention to report. In addition, our

estimate of intention to report might have been affected by the under representation of dentists in private practice compared to those in the public and academic sectors. Our results need to be interpreted with caution due to the convenience sample we used. One of the strengths of our study is the large sample size of 3,000 dentists which helps in extrapolating the findings to 59.5 thousand dentists [14] caring for 213 million individuals in eight Arab countries [39]. Additionally, the diversity of nationalities and locations helps in reporting on a group of professionals with shared background and allows for wider generalizability.

Conclusions

In the present study, dentists' intention to report violence was associated with professional attitudes, perceptions and perceived abilities which were similar to those of dentists in other countries but never the less, showed differences by country of practice. Our findings have implications for training to improve the reporting of suspected violence by developing dentists' abilities to identify diagnostic signs, fostering favorable attitude and increasing awareness of already existing rules and regulations. There is a need to develop shared training resources, policies and clear guidelines that allow consistent professional practices and at the same time acknowledge cultural diversity across countries.

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Authors' contribution

- Maha El Tantawi, Maha Abdelsalam and Balgis Gaffar developed the study idea and questionnaire.
- Maha El Tantawi developed the study methods.
- Arheiam Arheiam, Wafaa AbdelAziz, Ola B. Al-Batayneh, Mansur Alhoti, Sadeq Al-Maweri, Mai A. Dama, Mounir Zaghez, Khalid Saddiq Hassan, Mona Al-Sane, Fatma Abdelgawad, Thiyezen Abdullah Aldhelai, Omar Abd El Sadek El Meligy, Jehan AlHumaid and Fahad Al-Harbi collected data.
- Maha El Tantawi, Arheiam Arheiam and Wael Sabbah analyzed and interpreted the results.
- Maha El Tantawi, Arheiam Arheiam, Wael Sabbah, Arwa I. Owais, Omar Abd El Sadek El Meligy, Sadeq Al-Maweri and Wafaa AbdelAziz drafted the manuscripts.
- All authors read and approved the final manuscript.

Figure legends

Figure 1: Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10

Figure 2: Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10 (*: negatively phrased statement)

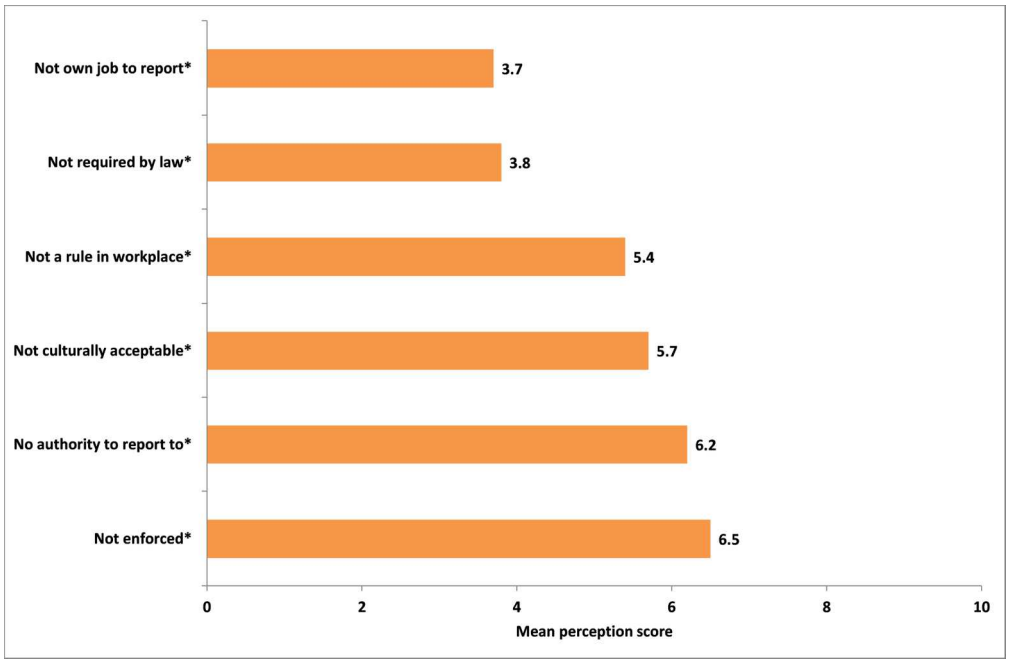

Figure 1: Negative perception of mandated reporting, mean (SD)= 5.3 (2.1), range= 1-10

168x110mm (300 x 300 DPI)

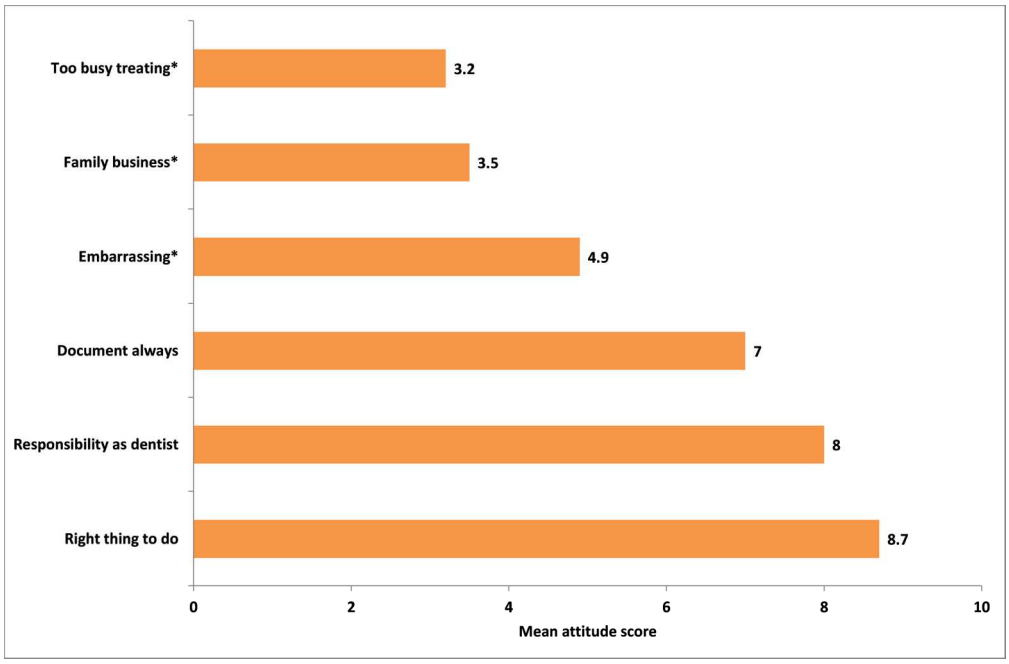

Figure 2: Professional attitude toward reporting, mean (SD)= 7.5 (1.9), range= 1-10 (*: negatively phrased statement)

168x110mm (300 x 300 DPI)

ABUSE MANAGEMENT IN DENTAL PRACTICE

This study is conducted to investigate the role of dentists in abuse management. The questionnaire takes 10 minutes. Kindly answer all questions. All information you provide is confidential and will only be used for research purposes.

I- Personal Information

1. Gender	☐ Male	☐ Female
2. Age	……	
3. Has children	☐ Yes	☐ No
Nationality	……	
Country where you are currently practicing	……	

II- Professional background

4. Specialization	☐ General Practitioner	☐ Specialist/ Consultant	
5. Type of practice	☐ Private sector	☐ Public sector	☐ University clinic/ hospital
6. Did you have any training in abuse management?	☐ Yes	☐ No	
7. Do you think you can identify signs of abuse in your patients?	☐ Yes	☐ No	

III- Perception of abuse reporting in clinical practice

How much, on a scale of **1** (not true at all) to **10** (very true), in your opinion is the following true about abuse reporting where you practice?

8. Reporting abuse is not required by law.	
9. Reporting abuse is not enforced.	
10. Reporting abuse is not a rule of the place where I work.	
11. There is no specific authority to report to.	
12. It is not my job to report abuse.	
13. Reporting abuse is not culturally accepted	

IV- Attitudes towards abuse reporting

Select the response that represents your attitude on a scale from **1** (completely disagree) to **10** (completely agree) for each of the following

14. Reporting abuse is the right thing to do	
15. It is my responsibility as a dentist to report abuse	
16. I am too busy treating patients to report abuse	
17. I would document abuse manifestations even if not relevant to treatment	
18. If abuse is suspected within a family, it is their business; no one should interfere	
19. It is embarrassing to interfere with others to check about suspected abuse	

20. Which of the following would be your first choice to report abuse to?

☐ Police ☐ Social Service Agencies / Ministry of Social Affairs ☐ Ministry of Health
☐ Non-governmental Organizations ☐ Others (specify…….) ☐ I do not know

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5& 6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7& 8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7& 8
Bias	9	Describe any efforts to address potential sources of bias	-
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	8
		(*b*) Describe any methods used to examine subgroups and interactions	-
		(*c*) Explain how missing data were addressed	-
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	-
		(*e*) Describe any sensitivity analyses	-
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed	9

		eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	-
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9& 10
		(b) Indicate number of participants with missing data for each variable of interest	-
Outcome data	15*	Report numbers of outcome events or summary measures	11&12
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12& 13
		(*b*) Report category boundaries when continuous variables were categorized	-
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	-
Discussion			
Key results	18	Summarise key results with reference to study objectives	14
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	17
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	14-17
Generalisability	21	Discuss the generalisability (external validity) of the study results	17
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	4

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.