

ORIGINAL ARTICLE

Investigation of mothers' knowledge of dental trauma management in United Arab Emirates.

Raghad Hashim

Ajman University of Science and Technology,
Emirate of Ajman, United Arab Emirates*

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***Corresponding Author:** Dr. Raghad Hashim
Assistant Professor,
Head of Growth and Development Department

Ajman University of Science & Technology, PO. Box 346 Ajman, UAE

Phone: +9716 705 6394

Fax: +9714 367 8034

Email: raghad69@yahoo.co.nz

Abstract

Aim: The purpose of this study was to assess, by means of structured questionnaire, the mothers' level of knowledge with regards to dental trauma immediate emergency management in Ajman, United Arab Emirates (UAE).

Material and methods: Cross-sectional study, with anonymous structured questionnaires was used, 700 mothers were chosen at random from attendants of all mothers and child care centers in the Emirate of Ajman, UAE. The questionnaire surveyed mothers' background, knowledge and management of tooth fracture, avulsion, and also investigated mothers' self-assessed knowledge of the availability and priority of emergency services of trauma in UAE.

Results: The sample consisted of 676 mothers (response rate 96.6%) who attended mother and child care centers in Ajman over a period of two months (January- February 2011). More than half of the mothers participated in this study were in their thirties and 61.5% had university qualification. Around 61.5% of the mothers had previous direct or indirect experience of dental trauma cases. Mother's knowledge on the dental trauma seemed to be inadequate. Chi-square test indicated that there was no significant difference in the number of correct responses in relation to age, level of education, or number of observed trauma cases. Most mothers were unaware of the availabilities of after working-hours emergency services. They were unsatisfied with their dental trauma level of knowledge and the majority were interested in having further education on the topic.

Conclusions: the findings revealed that the dental trauma management knowledge level (especially tooth avulsion) among mothers in Ajman is inadequate and education campaigns are necessary to improve their emergency management of dental injuries. Therefore, it is important to educate the public of the availability of after hour dental emergency services to overcome any delay in seeking professional help in cases of dental trauma.

Introduction

It is well recognized today that, for long-term success, the management or treatment of traumatized teeth optimally should be carried out as soon as possible [Andreasen and Andreason, 2007]. The attitudes and knowledge of patients and parents of the injured children about dental trauma would thus be critical to the ultimate prognosis of traumatised teeth [Sae-Lim and Yuen, 1997; Andreasen and Andreason, 2007]. Several studies showed that the population at large, as well as many professionals involved in the treatment of dentoalveolar injuries, has little knowledge concerning this subject [Raphael and Gregory, 1990; Hamilton et al., 1997; Caglar et al., 2005; Kostopoulou and Duggal, 2005; Hu et al., 2006]. These studies have encouraged the initiation of educational campaigns meant to inform the public regarding the importance of initial dental trauma management as well as the specific steps that can be taken in the case of traumatic event. As 41% of dental injuries occur at home [Al-Jundi, 2002], mothers are frequently required to provide prompt and proper action. The aim of this study is to assess, by use of the questionnaire, the general knowledge and attitudes of mothers with regards to emergency management of dental trauma and to investigate the effect of some variables on the responses. The results of this study might provide information that can help in design of simple instructions to mothers who attend mother and child care centers in Ajman. The provision of this information could be part of the services provided by these centers, which cover large sectors of the society.

Methods

In United Arab Emirates, all mothers are required to attend to the child and mother care centers to receive their follow-up checking during pregnancy, and also to receive a medical check-ups and vaccination for their new-born infants till they reach the school age. The importance of these centers in providing advice to a large sector of mothers made them the target of the current study. The study objective was to (i) assess the general knowledge of mothers with regards to the immediate dental trauma management,

and their attitude to public education on this topic, as well as knowledge of availability and priority of emergency services for dental trauma, and to (ii) assess the influence of mother's education and other related variables on their responses.

In this cross-sectional survey, structured questionnaires were used. Seven hundred mothers were chosen at random through computer-generated program from attendants of all (five) mother and child health care centers in the Emirates of Ajman in UAE. The questionnaire was modified from those used in similar studies in the literature [Raphael and Gregory, 1990; Sae-Lim and Yuen, 1997; Hashim, 2011], and was divided into three parts. Part one consisted of three questions on personal and educational background in addition to number of trauma cases encountered previously (Table 1), while part two consisted of four questions based on three imaginary cases of dental trauma (Table 2). The third part consisted of five questions investigating self assessed knowledge, attitude to public education program on dental trauma emergency management, and the knowledge of availability and priority of emergency services of dental trauma (Table 4).

Informed verbal consent from all mothers and the directors of the health centers were obtained prior to participation. The study was approved by the ethical committee in Ajman University of Science & Technology. All women entered the study voluntarily, following an explanation of its purpose and objectives. A research assistant has interviewed participated mothers and filled the questionnaires. The participants were assured of the strict confidentiality of the data. All questionnaires were coded and analyzed using SPSS version 13.0 (Chicago, IL). Results were expressed as a number and percentage of respondents for each question. Chi-square test was used to evaluate the differences between the different variables such as age, mother's level of education on knowledge and attitudes of the mothers, and the level of significance was set at $P < 0.05$.

Results

In the current study, 676 of the 700 approached mothers who attended all mother and child care centers in Ajman over a period of two months (January- February 2011) agreed to participate in the study, and therefore the sample considered consisting 676 mother (response rate 96.6%).

The result of part I of the questionnaires is shown in (Table 1). The majority 440 (65.1%) of the mothers were aged 20-29 years. Four hundred and sixty nine (69.4%) of the mothers were university educated. Three hundred (44.4%) recalled having had previous experience of dental trauma.

The responses to part II of the questionnaire which dealt with the case studies were as described in (Table 3). Mother's knowledge on the broken incisor of a 9-year-old girl seemed to be inadequate. Two hundreds and forty one mothers (35.7%) knew that the fractured tooth is most likely to be permanent incisor. Chi-square test indicated that there was no significant difference in the number of correct responses in relation to age, level of education, or number of observed trauma cases (*P*-values : 0.18, 0.12 and 0.11 respectively) With regards to the immediate emergency management of the case, 56.5% gave the wrong answer.

For the management of avulsed permanent tooth in a 12-year-old girl, 83.4% of the mothers gave wrong response which was to concentrate on stopping oral bleeding. Chi-square test indicated that there was no significant difference in the number or correct responses among the participants according to age, level of education, or number of observed trauma cases. (*P*- values: 0.16, 0.11 and 0.07 respectively). More than three quarter (76.4%) of the respondents were either "not sure" or gave "incorrect answer" to the management of loss consciousness associated with a fall.

The responses to part III of the questionnaire is presented in (Table 4). Whilst four hundred and eighteen (61.8%) of the mothers admitted to having poor knowledge on the

management of traumatized teeth , most of them (86.2%) were enthusiastic about being educated further. When the mothers were asked how urgently professional help was needed for dental injury, three hundred and forty nine mothers (51.6%) responded correctly by seeking professional care immediately. Sixty six percent of the participated mothers had correct knowledge on the availability of the emergency services during working hours. The knowledge on the after working-hours services seemed to be inadequate.

Discussion

To our knowledge, this is the first published study conducted in the UAE assessing the level of awareness among mothers on dental trauma management. The questionnaire used in the current study was short with simple, direct and closed-end questions. Similar studies in the literature have surveyed the knowledge of mothers and teachers concerning the management of dental trauma [Stokes et al., 1992; Hamilton et al., 1997; Hedge et al., 2010; Skeie et al., 2010]. The study included all mother and child care centers in the Emirate of Ajman and the response rate was very high (96.6%). These centers considered an excellent source of information about a large segment in the Emirate. The majority of the mothers 65.1% were aged 20-29 years. Interestingly 69.4% of the mothers were university graduates. Around 61.5% of the mothers had previous direct or indirect experience of dental trauma cases. This was much higher than what was reported in studies performed in England [Hamilton et al., 1997] and in Singapore [Sae-Lim et al., 1999].

The three imaginary cases in Part II of the questionnaire were designed to test the respondents' general knowledge of the two different types of dental injuries and emergency management of lost consciousness as a result of dental trauma. The ages of the injured children in the cases were intentionally selected between 9 to 12, because children between these ages carry the greatest risk of dental injuries [Hayrinen-Immonen et al., 1990]. In case I, only (35.7%) of the respondents recognized that the maxillary

incisor is a member of the permanent dentition in a 9-year-old girl. This response is lower than that reported by school teacher in Ajman [Hashim, 2011] this indicates that the general dental knowledge of the mothers was inadequate. However, only 40.4% of the mothers in the current study responded correctly by choosing to take the child to the dentist to treat broken incisor. Similar finding had been reported by Al-Jundi (2006) in Jordan.

Considering that a favorable progress or avulsed teeth significantly depends on the minimal time outside the socket, adequate storage and transportation median and minimal aggression to the root surface and periodontal ligament, knowledge concerning the management of this situation was assessed in a lay population [Boyd et al., 2000; Panzarini et al., 2005; Pohl et al., 2005] with regard to the emergency management of avulsed permanent tooth in a 12-year-old girl, five hundred sixty four mothers (83.4%) responded incorrectly and only 11.7 % gave right response by replanting the tooth, or putting it in a solution and going immediately to the dentist. Similarly, Al-Jundi (2006) reported that 89% of the mothers answered they would not replant the tooth. However, in the current study, the percentage of mothers responded appropriately was less when compared with other studies where it was 39% [Oliveria et al., 2007] and in an Australian survey by Raphael and Gregory (1990) reported that two-thirds of the parents would attempt replantation. If the tooth is not replanted, it should be stored in milk, saline solution or saliva, and a dentist should then be seen as soon as possible. In the current study, the educational background of the respondents did not reflect or correlate with other aspect of dental trauma knowledge. It is therefore recommended that the educational programs on dental trauma be directed at the public at all educational levels.

The response to part III (self-assessed knowledge and attitudes) was the most encouraging aspect of this study because the majority of mothers were not satisfied with their level of knowledge, and they were interested in getting further information to handle dental trauma cases. It would be alarming if, on the contrary, the respondents were content with their lack of knowledge and expressed no enthusiasm to be educated. Similar finding reported by school teachers in Ajman [Hashim, 2011] reflecting the

general need of Ajman society to population-based preventive program to ensure uniform knowledge about dental trauma. It was less than desirable that only 51.6% of the mothers indicated priority for the urgency in seeking dental trauma management. It should hence be reasonable to assume that, while the educational programs on dental trauma should be directed at the public at all educational levels, those with lower educational background may need further reinforcement.

With regards to the knowledge of dental emergency services availability, most of the respondents were aware of the “during working hours” services, however after-hour services were only known by the minority. The basic knowledge on where to seek emergency services is crucial for timely dental trauma management, especially for avulsed teeth where prolonged extra- alveolar duration would be detrimental to the long term success rate [Andreasen and Andreason, 2007]. Hence, this information needs to be more broadly publicized in UAE.

Conclusion

The general knowledge of mothers in Ajman with regard to emergency management of dental trauma is lacking regardless of their age, education level, or previous encountered dental trauma cases. The lack of experience and knowledge expressed by the mothers answered the questionnaire concerning dental trauma reflects the need of more effective communication between dental professionals and mothers in order to enable them to act correctly when facing a case of dental trauma.

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Table 1. Responses to part I: characteristics of the participants.

Characteristics	n (%)
Age	
< 20 yrs	28 (4.1)
20-29 yrs	440 (65.1)
30-39 yrs	137 (20.3)
40-49 yrs	56 (8.3)
≥ 50 yrs	15 (2.2)
Mother's education	
high-school	116 (17.2)
diploma	80 (11.8)
university	469 (69.4)
higher education	11 (1.6)
Number of previous trauma encounters	
zero cases	260 (38.5)
1-2 cases	300 (44.4)
3-4 cases	104 (15.4)
5 or more cases	12 (1.8)

Table 2. Part II: knowledge questionnaire (case scenario).

Case I: a 9-year-old girl fell and broke her upper front tooth

Q1: the broken tooth is likely to be

- a: permanent tooth*
- b: baby tooth
- c: do not know

Q2: your immediate emergency management of the case is

- a: send child to the dentist immediately*
- b: reassure the child and put her to rest
- c: not sure what to do

Case II: a 12-year-old girl was hit on the face & her upper front tooth fell out of her mouth

Q1: the immediate emergency action you would take is

- a: put the tooth back in its place in the mouth, or in a solution and send the girl to the dentist immediately*
- b: stop oral bleeding then put the child to rest
- c: put the tooth in a solution and send the child to the dentist immediately*
- d: not sure what to do

Case III: a 10-year-old child fell down while playing and lost consciousness

Q1: the immediate emergency action you would take is

- a: awake the child and put him to rest
- b: send the child to hospital immediately*
- c: not sure what to do

* Correct responses.

Table 3. Results of Part-II

Case	Incorrect <i>n</i> (%)	Correct <i>n</i> (%)	Not sure <i>n</i> (%)
Broken tooth			
type of tooth	368 (57.1)	241 (35.7)	49 (7.2)
management	382 (56.5)	273 (40.4)	21 (3.1)
Avulsed tooth			
management	564 (83.4)	79 (11.7)	33 (4.9)
Loss of consciousness			
management	172 (25.4)	194 (28.7)	310 (51.0)

Table 4. Responses to part III: self assessed knowledge, attitudes and emergency services for dental trauma in UAE.

	n (%)
Self assessed knowledge	
Enough	258 (38.2)
Not enough	418 (61.8)
Need for further education	
Yes	583 (86.2)
No	93 (13.8)
Priority for the urgency of dental trauma management	
Yes	349 (51.6)
No	327 (48.4)
Availability of emergency services during working hours	
Correct	446 (66.0)
Incorrect	230 (34.0)
Availability of emergency services after working hours	
Correct	208 (30.8)
Incorrect	468 (69.2)