Nigerian dentists' knowledge and attitudes towards mouthguard protection

Onyeaso CO, Arowojolu MO, Okoje VN. Nigerian dentists' knowledge and attitudes towards mouthguard protection. Dent Traumatol 2004; 20: 187–191. © Blackwell Munksgaard, 2004.

Abstract – The objective of this study was to assess the knowledge and attitudes of Nigerian dentists towards mouthguard protection. A pre-tested 15-item, one-page questionnaire was distributed to 185 dentists practising in different parts of the country with government hospitals or private establishments, by 'hand-delivery' system. Filled and returned forms were 170 (response rate of 92%). The period of the survey was between April and August 2003. Dental graduates from the different dental schools in the country responded to this survey. About 49% of the respondents indicated having only classroom lectures on mouthguards during their undergraduate trainings, 11% said they had some laboratory sessions in addition while no form of education on mouthguards was received by 40%. About 82% had never recommended mouthguard protection for athletic patients, and the major reason was no formal training in the subject. Only 58.5% were familiar with the different types of mouthguards, 75.9% would not be able to supervise or fabricate mouthguards and 50.6% would prefer custom-made mouthguard for their athletic patients. About 84% felt the current training on mouthguards in Nigerian dental schools is inadequate. Over 98% agreed that mouthquard usage in contact sports should be encouraged with the involvement of the dentists. The knowledge and attitudes of the respondents towards mouthguard protection did not vary significantly across years of postqualification from dental schools as well as the professional status of the dentists (P > 0.05). Although Nigerian dentists support mouthguard protection in contact sports and want to be involved in the provision of mouthquards for athletes, their knowledge of the protective device is inadequate. There is need for attention to be given to this subject in the undergraduate curricula of our dental schools.

The need and scientific evidence supporting the usefulness of mouthguards for contact sports abound globally (1-13). With the increasing popularity of sports generally and more participation by the adolescents and young adults, the chances of dental trauma are likely to increase equally if these athletes are not protected.

In addition to the financial burden that oral or dental injuries and their possible sequelae make on patients in developing countries like Nigeria, their

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Key words: mouthguards; Nigerian dentists; knowledge and attitudes

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demand on the time of active athletes could be considerable. Also, repair of a traumatized dentition is complex and expensive. Hence, there is a need for preventive measures.

Many soccer athletes were reported to have insufficient knowledge about mouthguards and were not concerned about preventing oral injury, although it was, in fact, a common problem in their sport (7). Education on the effectiveness of properly fitted mouthguards for injury prevention, information on

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the risk for injury, availability of more comfortable and appealing mouthguards and development of an approach for expanding regulations are all tools that can lead to the development of more positive attitudes and increased usage (14). According to Kvittem et al. (8), dentists should ask their adolescent patients routinely about sports participation.

Although protection is no longer in doubt when a mouthguard is worn, there are still many mouthguards used that are not acceptable to the athletes in terms of comfort, durability and speech (15). In fact, the Federation Dentaire Internationale (FDI) in 1990 listed some criteria for constructing an effective mouthguard (16). The FDI also recommended that dentists should preferably make mouthguards from an impression of the athletes' teeth (custommade mouthguards). The custom-made mouthguards are the most satisfactory mouthguards in terms of acceptability and comfort to the athlete compared to the other types (stock and mouthformed mouthguards) (17, 18).

Mouth protection for athletes has been and continues to be dentistry's contribution to sports (15), and dental health professionals are still being called upon to develop effective sports dentistry programmes in schools and colleges (19). Earlier reports in Nigeria on mouthguards showed that the awareness and usage of the protective device for contact sports are still very poor (20, 21).

Therefore, the aim of this study was to assess the knowledge and attitudes of Nigerian dentists towards mouthguard protection for contact sports as well as their level of professional training in the provision of mouthguard services.

Materials and methods

A 15-item, one-page questionnaire was distributed by 'hand-delivery' system to 185 dental practitioners practising in Nigeria and registered with the Nigerian Medical/Dental Council. One hundred and seventy of them filled and returned the forms, giving a response rate of 92%.

The questionnaire was distributed to the various parts of the country where the dental practitioners practise including those with the government hospitals and private dental clinics. Also, the revision course sessions of the West African College of Surgeons and the National Postgraduate Medical College served as very useful opportunities to survey the postgraduate dental surgeons, and some of them helped in distributing the questionnaires in their various centres. The survey period was between April and August 2003.

Outside the demographic features, the questionnaire sought information generally on the knowledge and attitudes of the Nigerian dentists concerning mouthguard protection (see Appendix).

Statistical analysis

In addition to descriptive statistics employed to analyse the data, the relationships between variables, as well as the observed differences using Chisquare statistic, were evaluated statistically, accepting P < 0.05 as significant.

Results

Table 1 shows the age and gender distribution of the respondents, with majority within the 31–35 age bracket, followed by the age group 26–30.

The level of formal training received by the respondents on mouthguards is presented in Fig. 1. Lectures with laboratory teachings accounted for the least -19 (11.2%). The distribution of the dentists according to the types of mouthguards they would prefer for their athletically active patients is shown in Fig. 2. Only 86 (50.6%) indicated custom-made type while 62 (36.5%) preferred the stock type.

Over half of the respondents -100 (58.8%) were not familiar with the different types of mouthguard and the majority -129 (75.9%) indicated not being able to fabricate or supervise the fabrication of mouthguards. One hundred and forty-three (84.1%) respondents felt the current formal training on mouthguards in Nigerian dental schools was not adequate. One hundred and sixtyone (94.7%) believed that more emphasis should be

Table 1. Age and gender distribution of the dentists

Age interval (years)	Gender						
	Male		Female		Total		
	п	%	п	%	n	%	
20-25	8	88.9	1	11.1	9	5.3	
26-30	20	51.3	19	48.7	39	22.9	
31–35	31	59.6	21	40.4	52	30.6	
36-40	11	44.0	14	56.0	25	14.7	
41–45	20	76.9	6	23.1	26	15.3	
46-50	8	57.1	6	42.9	14	8.2	
51 and above	2	40.0	3	60.0	5	2.9	
Totai	100	58.8	70	41.2	170	100.0	

 $\chi^2 = 10.82018$; df = 6; P = 0.09410.



Fig. 1. The level of formal training received by the dentists on mouthguard fabrication.





Fig. 2. Distribution of the dentists according to their primary choices of mouthguard for athletically active patients.

given on this subject in Nigerian dental schools' undergraduate curricula.

One hundred and sixty-seven (98.2%) of the dentists agreed that mouthguard usage in contact sports should be encouraged for sports men and women, especially the adolescents and young adults. The same percentage accepted that Nigerian dentists should be involved in providing mouthguard services to sportsmen and women.

Only 31 (18.2%) of the respondents claimed to be recommending mouthguard protection for some of their athletically active patients while 139 (81.8%) were not. Reasons given by the dentists for not recommending mouthguards for patients in need of such services included: no formal training (132, 77.6%); patients' complaints about the cost of the protective device (5, 2.9%); and doubt whether mouthguard services were part of their duties accounted for 9 (5.3%), while other varied reasons such as not seeing athletically active patients in need of mouthguards were responsible for 24 (14.1%).

One hundred and sixty-four (96.5%) of the respondents wanted at least a dentist employed in the Ministry of Sports to advise them on dental services.

Table 2 shows the relationship between the various professional categories of dentists and the types of mouthguard they would prefer for their athletically active patients, which was not statistically significant (P > 0.05).

The relationship between the various professional categories of dentists and reasons for not prescribing mouthguards for athletically active patients was statistically significant (P < 0.05), as shown in Table 3.

Generally, the knowledge and attitudes towards mouthguard protection did not vary across years of postqualification (P > 0.05).

Discussion

It is the responsibility of the dental profession to develop, encourage and dispense the best mouthguards available as recent reports show increasing incidence of oro-facial injuries resulting from sports

Table 2. The relationship between the various professional categories of dentists and the type of mouthguard they would prefer for their athletically active patients

Category of dentists	Types of mouthguard						
	Stock type	Mouth formed	Custom-made	Total			
General practitioner	17 (28.8)	8 (13.6)	34 (57.6)	59 (34,7)			
Resident dentists (postgraduate dentists)	25 (36.8)	7 (10.3)	36 (52.9)	68 (40.0)			
Specialists (consultants)	20 (46.5)	7 (16.3)	16 (37.2)	43 (25.3)			
Total	62 (36.5)	22 (12.9)	86 (50.6)	170 (11.0)			

Percentages are given in parentheses.

 $\chi^2 = 5.06836$; df = 4; P = 0.28036 (statistically significant).

Table 3. The relationship between the various professional categories of dentists and the reasons for not prescribing mouthguards for athletically active patients

Category of dentist	Reasons for not prescribing mouthguards						
	a	b	C	d	Total		
General practitioners (dentists without postgraduate training including house officers)	52 (88.1)	1 (1.7)	2 (3.4)	4 (6.8)	59 (34.7)		
Residents (postgraduate dentists) Specialists (consultants)	54 (79.4) 26 (60.5)	1 (1.5) 3 (7.0)	5 (7.4) 2 (4.7)	8 (11.8) 12 (27.9)	68 (40.0) 43 (25.3)		
Total	132 (77.6)	5 (2.9)	9 (5.3)	24 (14.1)	170 (100.0)		

Percentages are given in parentheses.

 $\chi^2 = 14.98127$; df = 6; P = 0.02040 (statistically significant).

a = No formal training on mouthguard fabrication.

b = Complaints about cost of mouthguard by patients.

c = In doubt whether it is part of the dentists' duty.

d = 0 ther reasons.

activities (7, 8, 11, 18, 19, 21–27). The increasing popularity of all sporting events results in increased potential for injury (28).

The present study has revealed a poor professional training and corresponding poor knowledge concerning mouthguards among Nigerian dentists. The implications of this is that, presently, Nigerian dentists cannot meet up with the recommendations of the Federation Dentaire Internationale (FDI) on the criteria for mouthguard construction (2, 16). This present level of formal training and knowledge concerning mouthguard protection obviously need to be improved upon if the dentists in Nigeria are to contribute significantly to the advocacy for increased usage of mouthguards for contact sports in Nigeria. Previous reports (20, 21) in Nigeria show that both coaches and the athletes are in need of the help of the dental profession so that the athletes can benefit from effective mouthguard services.

The present level of formal training and knowledge of Nigerian dentists concerning mouthguards can be considered to be similar to the one mentioned in the report of Maestrello et al. (29) on American dentists. One of the main reasons why American dentists could not recommend mouthguards for athletically active patients was the lack of formal training on mouthguards, which is similar to the reason described in this Nigerian study. However, an important difference in the two reports in that recent dental graduates were more likely to have been taught about mouthguard use and fabrication during their dental training while in this Nigerian report no statistically significant differences in knowledge or attitudes were observed in relation to professional status as well as years of postqualification from dental schools.

It should also be noted that reasonable percentages of both dentists in USA and Nigeria are yet to appreciate the benefits of custom-made mouthguard, which is reflected in their primary choices of mouthguard for athletically active patients. It must be emphasized that some of the major reasons why many athletes have not accepted the use of mouthguards are the lack of comfort, durability and speech disturbance (15), which properly constructed custom-made mouthguard will eliminate or minimize.

In this Nigerian report, many dentists agreed that athletically active patients require mouthguard protection. Again, this is similar to the findings of American study (29). However, unlike this Nigerian study, many American dentists were not sure whether they were the ones responsible for distributing and fabricating the mouthguards.

Conclusion and recommendation

Nigerian dentists support the use of mouthguard for contact sports and are very willing to be involved in the provision of this athletic protective equipment to athletically active patients, but many had inadequate formal training in this regard and, consequently, have poor knowledge of mouthguard services.

We recommend that more attention should be paid to this subject in the Nigerian dental schools' undergraduate curricula.

More reports on this subject concerning dentists in other parts of the world might be worthwhile for the purposes of comparison and further sensitization of the dental profession to the important role of mouthguards in sports.

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Appendix

- 1. Your age range (please tick): (a) 20-25 years (b) 26-30 years (c) 31-35 years (d) 36-40 years (e) 41-45 years (f) 46-50 years (g) 51 years and above
- 2. Gender: (a) male (b) female
- Please indicate as appropriate: (a) house officer
 (b) general dental practitioner (c) resident doctors (d) specialist (please indicate specialty)

- 4. How many years of postqualification? (please indicate)
- 5. Graduate of which dental school? (please indicate)
- 6. Do you agree that mouthguard use should be encouraged among athletes especially adolescents/young adults involved in contact sports?(a) yes (b) no
- How much of formal training did you receive on mouthguard fabrication and use in your undergraduate programme? (a) classroom lectures only (b) lectures and laboratory teaching (c) none at all
- 8. Can you fabricate or supervise mouthguard fabrication? (a) yes (b) no
- 9. Are you familiar with the different types of mouthguards? (a) yes (b) no
- 10. Which of these will you prefer for your patient involved in contact sports: (a) stock type (b) mouth formed (c) custom-fabricated type
- 11. Do you think the current formal training in mouthguard fabrication and use in our dental schools is adequate? (a) yes (b) no
- 12. Do you agree that more emphasis should be given to this important dental service? (a) yes (b) no
- 13. Should Nigerian dentists be involved in providing mouthguard services to athletes? (a) yes (b) no
- 14a. Have you been recommending mouthguard use for your patients involved in contact sports? (a) yes (b) no
- 14b. If no, which of these could explain why? (a) I have not received formal training on this subject (b) the patients complain of the cost (c) I doubt if that is part of my duties (d) others (indicate)
- 15. Do you suggest that at least a dentist should be employed in the Ministry of Sports to advise them on dental services? (a) yes (b) no

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