PROBLEMS PRESENTED BY CHILDREN ATTENDING EMERGENCY ROOMS OF THE DENTAL CLINICS IN RIYADH*

Lanre L. Bello, BDS, MS; Fares S. Al-Sehaibany, BDS;
Joseph O. Adenubi, BDS, MSc, MPH, FMCDS

هذه الدراسة شملت (١٢٠٣) أطفال سعوديين بعمر من ٢ ـ ١٤ سنة والذين حضروا للعلاج في الطوارىء في مستشفيات قوى الأمن، والعسكري، والملك فهد للحرس الوطني، ومركز طب الأسنان في الرياض، وثلاث مراكز رعاية صحية أولية في الرياض، وكلية طب الأسنان بجامعة الملك سعود لعام (١٤١٣ ـ ١٤١٤هـ) الموافق ١٩٩٣م.

وإن الهدف الرئيسي للدراسة الحالية هو معرفة سبب الحضور لعيادة الأسنان ونوعية المشكلات من الأسنان وطبيعة العلاج المقدم للأطفال. تم أخذ معلومات كاملة عن تاريخ الحالة الصحية للمرضى وعن صحة الفم. بعد ذلك تم الفحص الأولي وأخذ الأشعة اللازمة.

التشخيص أوضح النسب الآتية: تسوس الأسنان (٨٨,٧٪)، خراج سني مزمن (١٧,١٪)، خراج سني حاد (٨٪)، التهاب اللثة (١٩,٢٪)، رضوض (٣,٨٪)، تراكب الأسنان (٥,٧٪).

كما أوضحت الدراسة أن القرحات الفمية وتلون الأسنان وعدم ظهور الأسنان في الفك ظهرت في الأعداد المتبقية. كما أن طريقة العلاج كانت على النحو الآتي:

علاج تحفظ للأسنان (٨٣,٧٪)، قلع الأسنان (٣٩,١٪)، علاج اللثة (١٨,٢٪)، تقويم الأسنان (١٤,٧٪)، وتعويضات صناعية (٢,٩٪) وتثبيت الأسنان نتيجة الكسور ٣ أطفال.

وهذه النتيجة توضح أن العلاج تركز على الزيارة المبكرة للطفل لعيادة الأسنان لعمل علاج وقائي متكامل للأسنان إذا كان العلاج يتطلب ذلك.

كما أن وزارة الصحة لها دور في تثقيف المرضى وكذلك الأمهات قبل الولادة في التركيز وحثهم على الحضور لزيارة طبيب الأسنان من عمر (١٢) شهراً، للتثقيف والنصح في العناية بصحة الفم واستخدام الفلورايد والغذاء المناسب وكذلك زيارة طبيب الأسنان لعمل الفحص اللازم.

This is a study of 1,203 Saudi children aged 2-14 years who presented for treatment at the emergency clinics of four of the main hospitals and three polyclinics in Riyadh during the year 1993 (1413-1414H). The main purpose of the study was to determine the pattern of the dental problems in these Saudi children. Diagnosis showed that 88.7% of the children had dental caries. Chronic dental abscess was found in 17.1 %, while acute periapical infections occurred

Received 26/02/94; revised 23/04/94; accepted 28/06/94

* Lecturer, Division of Pedodontics, Department of Preventive Dental Sciences
** Demonstrator, Division of Pedodontics, Department of Preventive Dental Sciences
*** Professor of Pedodontics, Department of Preentive Dental Sciences, King Saud University, College of Dentistry, P.O. Box 60169, Riyadh 11545, Kingdom of Saudi Arabia.
Address reprint requests to Dr. L.L. Bello.

$ This paper was presented at the 8th Saudi International Dental Conference, Riyadh, 17-20 January 1994.

in 8.0%. Gingivitis and trauma were found in 19.2% and 3.8%, respectively. Crowding occurred in 5.7% while ulcers, discoloured teeth, supernumeraries and hypodontia accounted
for the rest. The pattern of treatment required was: restorative (83.7%), extractions (39.1 %), periodontal (18.2%); orthodontics (14.7%) and prosthetics (2.9%). Splinting due to trauma was needed in three of the children. The treatment needs highlight the importance of the need
for an early attendance of a child at the dentist for appropriate preventive measures and early
treatment when necessary. It is important for the Saudi Ministry of Health to step up the campaign for oral health education to the community, particularly for the expectant and young
mothers. The emphasis should be on early visit of a child to the dentist (not later than 12 months), dietary counselling, oral hygiene instructions, the use of fluorides and regular dental
check-up.

Introduction

As part of a nation-wide study in Saudi Arabia, Shammery *etaP* reported on the prevalence of the three most common dental diseases in Saudi children. Amongst the 6-year-old children in Riyadh, only 22.3% were caries free in the primary dentition but 88.6% had no caries in their permanent teeth. The 9-year-old and the 12-year-old children, respectively were 58% and 41.8% free of caries in their permanent teeth.

The same workers found that in Saudi children in Riyadh, 60% of the 6-year-olds, 43% of the 9-year-olds, and 32% of the 12-year-olds had healthy gingiva, thus suggesting an increase in periodontal disease amongst the children with age. Shammery ef a/[1] also reported a dramatic increase in the calculus rate of the same children in Riyadh from 1 % in the 6-year-olds to 9% in the 9-year-olds and 15% in the 12-year-olds. Of the 2,238 children examined in Riyadh, aged 6, 9 and 12 years, findings indicated that malocclusion was absent in 64.43%, while there was a presence of slight malocclusion in 16.98% and severe malocclusion in 18.59%.

These national studies showed that there are problems of dental caries, periodontal disease and malocclusion among Saudi children. A little earlier, Al-Seikat and Nasser[2] reported that 68% of the children in Riyadh, aged 6-15 years, had dental caries. Then Farsi[3] found that extractions in 62.7% of the children throughout the Kingdom were due to dental caries; furthermore, the study also showed that 80% of the extractions performed in the age group 6-12 years was due to caries itself.

Do these epidemiological findings reflect in the nature of complaints or the type of treatment required by the children in Riyadh who present at various hospitals and polyclinics in the city? It might, therefore, be interesting to actually study the types of dental problems presented by children who seek dental treatment in the City of Riyadh. Perhaps, this could be followed by the development of strategies for prevention of these oral diseases.

The purpose of this study was to determine the pattern of dental problems in Saudi children who presented for treatment at the emergency clinics of various health institutions in Riyadh.

Materials and Methods

The study was carried out on children who presented for treatment at the emergency clinics of various health institutions in the City of Riyadh, Kingdom of Saudi Arabia during the year 1993G (1413-1414H). These institutions were Security Forces Hospital, Riyadh Armed Forces Hospital, King Fahad National Guard Hospital, Riyadh Dental Center, three Polyclinics and the King Saud University College of Dentistry - Darraiyah and Malaz campuses.

For each child, aged between 1 year and 14 years, the management procedure performed by the dentist included recording of a comprehensive medical history, dental history, clinical and radiographic examinations, diagnosis and treatment plan. These were followed by actual treatment of each child and all informations were recorded in the patient's clinical records. Later on, all of these informations were transferred to or recorded in the forms specifically prepared for this study. The data recorded in the special forms included reason for attendance, diagnosis, past medical history and the treatment required. Before the commencement of the study, the dentists and/

or pediatric dentists in various health institutions concerned were adequately briefed on how to correctly fill the special forms.

Results

At the end of the study, 1,203 Saudi children had been treated at the various clinics for pediatric dental emergencies. There were 642 boys and 561 girls between the age of one and 14 years (Table 1). All results from the different hospitals were pooled together for computerized data analysis.

Table 1. *Frequency distribution of the children seen at pediatric dental emergency clinics in Riyadh according to age-group and sex.*

Age Group	M	F	Total	Percent
1 -2 yrs	12	15	27	2.24
3-5 yrs	162	160	322	26.77
6-9 yrs	297	254	551	45.80
10-14 yrs	171	132	303	25.19
Total	642	561	1203	100.00

Reasons for Attendance:

As much as 37.4% of the children seen at the clinics attended because of pain, 29.4% because of the presence of "hole in their teeth" while 10.2% reported due to swelling. Only 13.9% attended in order to have a dental check-up while 5.9% and 4.2% respectively reported due to irregularly arranged teeth and bleeding gum (Table 2).

Mobile teeth (5%), lost filling (3.7%) trauma (3.6%) tooth discoloration (3.6%) and the need for cleaning (3.1 %) were some of the other reasons for attendance. Retained primary teeth, missing teeth, delayed eruption, ulcerated gingiva, halitosis and need for a denture accounted for the rest.

Diagnosis of dental problems:

Caries was found in the primary teeth of 74% of the children and 36.4% of the children presented with caries of the permanent teeth (Table 3). Of all the 1,203 children seen in various hospitals and polyclinics, 1067 (88.7%) had dental caries (Table 4). Gingivitis was found in 19.2%, chronic dental abscess in 17.1%, acute periapical infections in 8%, malocclusion in 5.7% and traumatized teeth in 3.8% of the children.

Table 2. *Reasons for attendance given by the patients.*

Reason	No. of children	Percent
Pain	451	37.4
Hole in tooth	354	29.4
Check-up	168	13.9
Swelling	123	10.2
Irregularly arranged teeth	71	5.9
Mobile tooth	24	5.0
Bleeding gum	51	4.2
Lost filling	45	3.7
Trauma	43	3.6
Tooth discolorations	43	3.6
Need for cleaning of teeth	37	3.1
Retained primary teeth and newly erupting teeth	32	2.7
Missing tooth/Delayed eruption	24	2.0
Ulcerated gingiva/Mucosa	20	1.7
Bad breath (Halitosis)	8	0.7
Denture required	8	0.7

Accumulated percentage is more than 100% because some patients gave more than one reason.

Table 3. *Dental caries found in the children according to type of dentition and age-group.*

Age-group	Primary teeth only	Primary and permanent teeth	All caries
1 - 2 years	19 (3.0%)	0 (0%)	19 (1.8%)
3-5 years	293 (46.8%)	0 (0%)	296 (27.8)
6- 9 years	286 (45.7%)	23 (13.3%)	484 (45.5%)
10- 14 years	28 (4.5%)	150 (86.7%)	265 (24.9%)
Total	626 (100.0%)	173 (100.0%)	1067 (100%)

Table 4. *Frequency distribution of pathological conditions presented by the children.*

Diagnosis	No. of children	Percent
Dental caries	1067	88.7
Gingivitis	232	19.2
Chronic dental abscess	206	17.1
Acute periapical infections	96	8.0
Malocclusion/crowding/irregular teeth	69	5.7
Traumatized anterior teeth		
* primary teeth	23	1.9
* permanent teeth	23	1.9
Delayed eruption	18	1.5

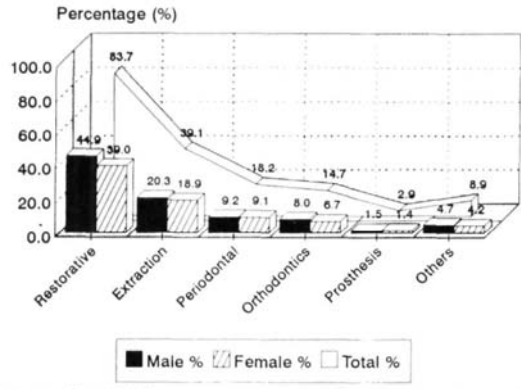
Table 4. *Continued*

Diagnosis	No. of children	Percent
Hypoplasia	13	1.1
Discolored teeth	12	1.0
Ulcers	10	0.8
Pericoronitis	7	0.6
Supernumerary teeth (all permanent)	5	0.4
Acute herpetic gingivostomatitis	4	0.3
Eruption Cyst	4	0.3
Hypodontia		
* primary teeth	4	0.3
* permanent teeth	3	0.2
Acute ulcero-membranous gingivitis	3	0.2
Acute pseudo-membranous candidiasis	3	0.2
Teething	3	0.2

Accumulated percentage is more than 100% because some children presented more than one condition.

Types of treatment required:

Figure 1 shows that as much as 83.7% of the children required restorative treatment. Extractions occurred in 39.1% while periodontal treatment was needed in 18.2%. As many as 1 *77* children or 14.7% required orthodontic treatment. Only 2.9% required prosthesis while other treatments, such as medications, incision and drainage, accounted for 8.9%. The pattern of treatment required is about equal in both sexes [Fig. 1].



* Totals are more than 100% because same patient may require more than 1 treatment.

Figure 1. Types of treatment required (n = 1203)

Medical History:

Most of the children (87.8%) were in good health with occasional medical defect occurring in 11.2% of all the children seen. These defects include asthma, heart disease, cerebral palsy, rheumatic fever, clefts sickle cell anemia, bleeding disorders and hepatitis (Table 5).

Table 5. *Medical history.*

Medical Defect	No. of children affected	Percent
None	1059	87.8
Asthma	34	2.8
Allergy	16	1.3
Handicapped	13	1.1
Heart disease	13	1.1
G-6-P-D	7	0.6
Rheumatic fever	6	0.5
Epilepsy	5	0.4
Iron deficiency anemia	5	0.4
Sickle cell anemia	4	0.3
Clefts	4	0.3
Hepatitis	1	0.1
Bleedingdisorders	1	0.1
Thalassemia	1	0.1

Discussion

As many as 451 children or 37.4% attended the clinic because they were in pain and 123 of them had swelling. These figures are slightly lower than the study performed at the Royal Belfast Hospital for sick children in which 49% of the children attending its emergency clinic had toothache with or without abscess[4]. The study by Henry[5] in the USA also showed that the most common type of pediatric dental emergencies is the odontogenic infection. Studies in Glasgow Dental Hospital also reported 55% of the Glasgow schoolchildren seen had toothache.[6] It is, however, surprising that the symptoms due to caries among the Saudi children seeking treatment is almost as high as those in the advanced countries. This shows dental caries as the main culprit for children's attendance at emergency dental clinics. The amount of discomfort the children suffer suggests urgent needs for oral health education in Riyadh. The population must learn to seek dental treatment even before there is pain.

One thousand and sixty-seven children or 88.7% had dental caries and some of these cases are even complicated by chronic or acute periapical infections. This trend in the prevalence

of dental caries in children is supported by earlier studies of Seikat and Nasser[2] as well as Shammery *et aP* who had reported an increase in the dental caries in Riyadh and in the Kingdom of Saudi Arabia in general.

Malocclusions including crowding and irregularly arranged teeth were diagnosed in 10.1% of the children. Also 168 or 13% of the children came for check-up and, of this number, only 17 required no treatment other than prophylaxis. This shows that not every child who attended the emergency room had true emergency problem. This is expected, however, because of the availability of dental care to citizens at no cost.

The types of treatment required highlight the significance of early attendance of a child at the dentist for appropriate preventive measures and early treatment as necessary. It would seem important to step up the campaign for oral health education to the expectant and young mothers who should be encouraged to take their children to the dentist at the early age, 12 months at the latest. This will give the dentist or pediatric dentist the opportunity to examine the child early, advise on and commence preventive measures as necessary. The emphasis to the young mothers should be on dietary counselling, oral hygiene instructions, the use of fluorides and the cultivation of the habit of regular dental check-up for the child. In addition, early attendance of the child at the dentist will enable the pediatric dentist to commence supervision of the dentition from the primary through mixed to permanent dentition. There is also a need for the Ministry of Health in Saudi Arabia to step up the campaign for oral health education to the community.

The treatment required for periodontal disease (18.2%) and orthodontics (14.7%) is becoming significant, while the major problem is still dental caries. Oral health education to both parent and child will help improve the periodontal health of the developing child. The number of children who require orthodontic treatment suggests that orthodontic treatment should be more readily available than at present. The medical history reassures that most of the children (87.8%) are in good health.

Conclusions

The findings in this study permit us to conclude that eight (8) in every 10 Saudi children seen require restorations; four (4) out of 10 children seen in the clinics require extractions; one (1) in 5 requires periodontal treatment; one (1) in 6 needs orthodontic treatment and one (1) in 30 requires prosthesis.

Acknowledgement

We are grateful to the Directors and general pediatric dentists of various hospitals for their cooperation in this study. We also wish to thank Dr. Nazeer Khan, Biostatistician, College of Dentistry Research Center, King Saud University who helped in data analysis and to Ms. Gina C. Palaganas for typing the manuscript.

References

1. Shammery AR, Guile EE, Backly M, Lamborne A. An oral health survey of Saudi Arabia: Phase I (Riyadh), KACST, 1991.
2. Al-Sekait MA, Nasser AN. Dental caries prevalence in primary Saudi schoolchildren in Riyadh district. Saudi Med J 1988;9:606-09.
3. Farsi JM. Common causes of extraction of teeth in Saudi Arabia. Saudi Dent J 1992;4:101-05.
4. Fleming P, Gregg TA, Saunders ID. Analysis of an emergency dental service provided at a children's hospital. IntJ Pediatr Dent 1991; 1:25-30.
5. Henry RJ. Pediatric dental emergencies. Pediatr Nurs 1991;17:162-67.
6. Blinkhorn AS, Attwood D, Kippen AM. A report on the feasibility of establishing a pediatric emergency dental service at Glasgow Dental Hospital. Community Dent Health 1991;8:257-62.