Age at referral for first orthodontic consultation in a Nigerian Hospital

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Abstract

Objective: To determine the age at referral for first orthodontic consultation at the University College Hospital Ibadan, Nigeria.
Method: A retrospective audit study carried out between January 01 and December 30, 2009 at the Orthodontic Unit of the University College Hospital Ibadan, Nigeria.
Data for patients diagnosed with at least one form of malocclusion were retrieved from the patients record held by the unit. Patients whose initial orthodontic consultation was between January 01, 2009 and December 30, 2009 were included. The age of each patient at referral was calculated using the patient's date of birth.
Result: A total of 103 patients attended the clinic during the period of study. The patients' age ranged from 6 to 44 years. The mean age at referral was 13.3±1.2 years. Only 4.0% of the patients were referred in the early mixed dentition stage between 7 and 9 years, 96.0% of patients were referred at either the primary or early permanent dentition stage.
Conclusion: Majority of patients seen at the orthodontic clinic of the University College Hospital Ibadan, were not referred at the appropriate age for their first orthodontic consultation.

Key words: Age, orthodontic consultation, Nigeria

Introduction

Malocclusion like other forms of oral diseases can be prevented or its severity reduced if adequate preventive measures are taken[1]. Early consultation and treatment can help prevent a more severe malocclusion from arising. Therefore, referral of children at an early age to the orthodontist may be highly beneficial[2].

Most orthodontic societies recommend that the appropriate age for first orthodontic consultation should be between 7 and 9 years[3]. This age group represents the early mixed dentition when observation of any developing malocclusion can be done by either the parents or the child. Simple interceptive orthodontic procedures such as serial extraction can be done at this stage to correct the developing malocclusion and prevent the development of a more severe handicapping malocclusion.

The concept of interceptive orthodontics is based on the fact that some form of malocclusion and growth abnormalities can be treated successfully at an early age. In addition, certain oral habits can also be broken. Therefore early referral for orthodontic consultation can help in preventing or reducing severity of malocclusion later on in life[4].

The advantages of early consultation far outweighs that of late consultation because conditions such as developmental discrepancies in growth, oral habits and mal functional oral tissue can be diagnosed early and treated to prevent complications in adult hood[4,5].

In Nigeria, the pattern of attendance and referral of orthodontic patients have been reported where, 80% of the patients referred were below 20 years of age when dentists were more likely to refer patients for orthodontic treatment[6,7]. There is however scarscity of literature on first orthodontic consultation.

The aim of this study therefore is to determine the age at which children are referred for their first orthodontic consultation .

Materials and method

This is a retrospective study where data for patients diagnosed with at least one form of malocclusion were retrieved from the patients' in the Orthodontic Unit of University College Hospital, Ibadan, Nigeria.

The University College Hospital is a tertiary care centre with specialists in all fields of medicine and dentistry. There is one Orthodontic clinic that attends to patients who are referred from all the six geo political zones of the country. Records of patients whose initial orthodontic consultation was between 1st January 2009 and 30th December 2009 were retrieved. The data retrieved had been previously collected on a data extraction form and included all necessary information, such as date of birth, gender, occupation, and history of the patients including the diagnosis of the malocclusion and the treatment received. The age of each patient at referral was calculated from the

date of birth as recorded on the patient's case file. Social class was calculated using the British Socioeconomic Class Classification[8].

Data obtained was analysed using a computer software package SPSS 11.0 version. Frequencies were generated and association between variables were determined using chi square tests at 5% level of significance.

Result

A total of 103 patients presented during the period of study .There were 41 males and 62 females. The age range was from 6 years to 44 years, mean (3.3±1.2) years.

The age distribution is shown in **(Table 1).** Eighteen patients(17.5%) were referred at ages 1-6 years , 4 (3.9%) patients were referred at ages 7-9 years , while majority were referred between 11-15 years representing about 41% of the total number that were referred for treatment.

The social class of the patients as represented in **(Figure 2)** showed that 50% of the patients were from Social class 1, 37% from Social class II and 13% from Social class III.

Thirty-two percent had a positive family history of malocclusion while 68% had no positive history. Concerning the molar relationship .88.3% of the patients presented with Angles class I malocclusion, 8.7% with Angles class II and 3% with Angles class III. Seventy percent of the patients had competent lips, 18(17.4%) had incompetent lips and 14(12.6%) had potentially incompetent lips. Eighty one patients (78 .6%) presented with no oral habits, 21.4% presented with oral habits, comprising 10(9.7%) patients with tongue thrusting habit, 6(5.8%) with Finger sucking habit, 2(1.9%) with nail biting habit and 3(2.9%) with lip sucking habit.

Table 1. Age and gender representation of subjects in the study

Age Group (years)	Sex M	F	Total (%)
<6	8	10	18 (17.5)
7-9	2	2	4 (3.9)
10-12	10	13	23 (22.3)
13-15	8	12	20 (19.4)
16-18	6	9	15 (14.6)
>18	10	13	23 (22.3)
Total	**44**	**59**	**103 (100)**

Mean age = 13.3±1.2 years

Figure 2. Distribution of socio-economic status of subjects

- Social class 1
- Social class 2
- Social class 3

Table 2. Distribution of anterio-posterior molar relationship

Angles classification	Male%	Female%	Total
Class I	41(45.0)	50(55.0)	91(88.3)
Class II	4(44.4)	5(55.6)	9(8.7)
Class III	0()	3(10.00)	3(3.0)
Total	**45(43.7)**	**58(56.3)**	**103(100.0)**

Table 3. Distribution of oral habits observed in the study

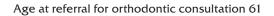| Oral Habits	Male	Female	Total (%)
Tongue thrust	3(30.0)	7(70.0)	10(9.7)
Finger sucking	2(33.4)	4(66.6)	6(5.8)
Lip sucking	1(33.4)	2(66.6)	3 (2.9)
Nail biting	1(33.4)	2(66.6)	3 (2.9)
No Oral Habits	51(63)	30(37)	81(78.7)
Total	**58(56)**	**45(43.7)**	**103(100.0)**

Discussion

Generally speaking, measures to prevent malocclusion should be based on providing good incentives to promote normal growth and development of the face and the elimination of potential interferences that may harm these processes. Recognised oral health habits should be discouraged early to allow for ideal craniofacial development that is why early referral to the orthodontist may be necessary[9]. Disorders such as sucking habits persisting beyond 3 years of age, mouth breathing and significant deviations from established teeth eruption norms require early referral to a paediatric dentist or orthodontist[6,7].

There has been much debate with respect to the ideal time to initiate orthodontic treatment. Most orthodontists would most likely treat children in the early mixed dentition, especially those with anterior crossbite[6,7,10]. Findings of some studies suggest that early orthodontic intervention is the norm, but different practice characteristics affect treatment timing[3,4]. Furthermore the earlier the patient is seen, the better and more beneficial. It is easier to treat patients with crowded arches in the early mixed dentition stage, extract retained primary teeth which will produce spontaneous alignment of the permanent teeth without orthodontic treatment[11].

In this study 4(4%) patients were referred between 7-9 years of age, while majority of the patients were referred between 11-15 years. The findings of this study is in agreement with previous studies which reported that most orthodontic patients seen were between 12-17 years age group[6,7]. The implication is that very few patients are referred for orthodontic consultation in the early mixed dentition stage while most patients are referred for orthodontic consultation in the permanent dentition.

However early referral can be beneficial in many ways as the patient is likely to benefit from interceptive orthodontics. Interceptive orthodontic procedures include extraction, space regaining procedures, habit breakers and other simple appliances that can be readily carried out in the dental clinic .It is also cheaper to undergo interceptive orthodontic procedures than advanced orthodontic treatment, such as removable or fixed orthodontic treatment.

In this study the average age of referral for first orthodontic consultation was 13.3years, Previous studies reported mean age at referral as 16.21 ± 7.24 [6,7]. Patients seen at this age would present with the permanent dentition and are likely to receive comprehensive orthodontic treatment. Comprehensive orthodontic treatment has been known to be more expensive when compared to interceptive orthodontic treatment [9].

Majority of the patients were referred by general dental practitioners (60%) and paediatricians (25%) while others were self-referred (15%).This is in agreement with a previous study in the University College Hospital, Ibadan that reported a similar high referral of orthodontic patients by dentists [7].

Delay in referral of patients for first orthodontic consultation may be due to ignorance by health professionals who are more likely to consult with these patients at an early age. Paediatricians are usually the first contact with most children after birth until adolescence [10]. It is important that they are well informed and educated about oro-facial functions. They should be able to examine the mouth and identify any anomaly and dysfunction that may require immediate referral to the dentist. The general dental practitioner on the other hand should be able to examine and identify arch and occlusal discrepancies, functional disability, eruption problems and deleterious oral habits. Once these occlusal anomalies are detected such patients should be referred early where they can benefit maximally from treatment.

The female preponderance in this study confirms the gender predilection in seeking orthodontic treatment [5-7]. This is because females are more critical about their dental appearance and are more likely to be dissatisfied with their appearance when compared to males [5].

Majority of the patients that presented had Angles class1 malocclusion which is consistent with other studies(11-13), where Angles class I malocclusion has been reported to be the most common anterior-posterior occlusal discrepancy. There were less number of patients (21.4%) presenting with oral habits when compared with a previous study in Nigeria (61.8%) [6].

Thirty two present of the study population had a positive family history of malocclusion which signifies a hereditary pattern of malocclusion. Early referral is very important in this group of patients so that growth modification can be carried out successfully.

Majority of the patients seen were from social class1. This is in agreement with other studies which reported that most patients seeking orthodontic treatment were form high socio economic background [14,15]. Patients from social class1 represent the upper class of the society with an income above average [8]. They are more likely to afford the cost of orthodontic treatment. They were however not referred early for consultation.

Conclusion

The findings of this study indicate that less than 4% of patients attending the University College Hospital, Ibadan, Nigeria, were referred for their first orthodontic consultation at the appropriate age. It is recommended that paediatricians as well as general dental practitioners are well informed and educated on the benefits of early referral for orthodontic treatment.

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