Pattern of Orthodontic Referrals at a Tertiary Hospital in South-South Nigeria

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ABSTRACT

Background: *The growth and survival of an orthodontic practice is determined by various factors; prominent among which is an increasing and sustained patients patronage. Such patronage is facilitated through public awareness particularly referrals from dental generalists and specialists, patients' recommendations as well as print and electronic media.*

Aim: *To determine the pattern of patients' referrals to the Orthodontic Unit of the Department of Child Dental Health, University of Port Harcourt Teaching Hospital, Port-Harcourt, Nigeria.*

Materials and Methods: *A 5-year retrospective study of patients that presented at the orthodontic clinic of the hospital.*

Results: *A total of 248 patients comprising 142 females (57.3%) and 106 males (42.7%) with a mean age of 12.9±7.3 years presented at the orthodontic clinic between January 2012 and December 2016. Majority of these patients were under 18 years old (199, 80.2%). More than half of the patients (143, 57.7%) were referred from the Oral Diagnosis Department of the hospital. Twenty-four patients (9.7%) were referred by dental specialists (consultants). Twenty-two (8.9%) of the patients were self referred, while out of 31(12.5%) patients referred by general dental practitioners only 5 (16.1%) were referred from outside of Rivers State. The most prevalent presenting complaints were badly arranged teeth (144,58.1%) and increased over jet (42,16.9%).*

Conclusion: *Majority of the patients seen were females referred from the Oral Diagnosis Department in the Dental Centre of the hospital for badly arranged teeth. Dental health professionals were the major referrers.*

Key words: *Referral pattern, Orthodontic patients, University of Port-Harcourt Teaching Hospital*

INTRODUCTION

"The face is heralded by poets and artists as a symbol of beauty, wisdom and character. It is the canvas on which expressions are painted"[1] and many times serves as a standard for acceptance by society and even selection of a partner.[2,3] Dento-facial aesthetics play a key role in the assessment of not only an individual's beauty but also personality, social class, intellect as well as credibility.[4-7] As the awareness of the role of dental aesthetics in general facial beauty increases in any given society, the demand for orthodontic treatment may also increase.[7,8] The increase in demand however, depends to a large extent on referral patterns.[8,9]

The desire to improve dento-facial aesthetics is many times the main factor that influences the demand and acceptance of orthodontic treatment. However referral patterns, social class, parents' perception of malocclusion, general trust in health services, peer pressure, age and awareness of the general dental practitioners have also been seen to influence patients' decisions to undergo treatment.[8,9] Patients are referred to the orthodontist for various reasons which include not only treatment but also counseling, request for a second opinion and/or a desire for better quality of care, increased patient satisfaction, family influence, proximity of the clinic/hospital to the patient and medico-legal reasons.[10-13]

Referrals are extremely important for the growth of any orthodontic practice, particularly in our environment where awareness is extremely low.[10,14-16] Different techniques including social media, mails and internet, patients' recommendations, external and internal marketing strategies have been employed by orthodontists worldwide to ensure a constant flow of new patients.[17-19] In some societies, studies have revealed that referral by general dental practitioners is perhaps the most important source of new patients.[20-23] Patient care and satisfaction, treatment fees, communication skills, quality of the finished dentition, orthodontists treatment philosophies, oral hygiene regimens and ambience of the dental clinic are factors that have been shown to influence the referral process.[11,12] Some orthodontists may even provide forms of entertainment as well as gifts in order to influence and increase referral decisions.[10]

Port Harcourt is the capital; the largest and the only major city of Rivers state, Nigeria. It is one of the largest cosmopolitan areas in Nigeria and is highly populated.[24] The city hosts the University of Port Harcourt Teaching Hospital (UPTH) which receives the vast majority of referrals from primary and secondary health centres within Rivers state as well as the adjoining states which include Bayelsa, Abia, Imo, Cross River and Akwa-Ibom States. Although the hospital provides dental treatment for patients of different social classes the awareness and demand for orthodontic treatment in Rivers State and its environs is still very low.[7]

The purpose of this study was to determine the referral pattern of patients presenting to the Orthodontic unit of the Hospital. This study will yield important baseline data which will be useful for the practice and teaching of orthodontics in this region of Nigeria. The acquired data will enable the few orthodontists in Rivers State to identify gaps and make informed efforts to increase referrals from the appropriate sources thus

improving awareness of and increasing demand for orthodontic treatment.

METHODOLOGY

Ethical approval was obtained from the Research and Ethics Committee of the hospital prior to commencing this retrospective cross-sectional study. The study population consisted of all patients that presented to the orthodontic clinic over a period of 5 years (January 2012 to December 2016). Socio-demographic information as well as source of referral and presenting complaints were extracted from the files of the patients and recorded on a standard proforma. Patients with incomplete records were excluded from the study.

The data was analyzed statistically using IBM Statistical Package for Social Sciences (SPSS) Statistics for Windows version 20.0. (IBM Corp., Armonk, NY). The results were presented using frequencies, percentages and proportions for categorical variables. Associations between variables were tested using Chi Square. Significance was determined at 95% confidence interval and statistical significance set at $p \leqslant 0.05$.

RESULTS

A total of 248 patients comprising 106 males (42.7%) and 142 females (57.3%) with a mean age of 12.9±7.3years were included in this study. Majority of the patients were children (<18years) (199, 80.2%). Adult patients constituted 19.8% of the total patient population. Table 1 shows the age and gender distribution of the participants.

Table 1. Age and gender distribution of patients

Age (years)	Male N (%)	Female N (%)	Total N (%)
0-9	40 (37.7)	60 (42.3)	100 (40.3)
10-19	55 (51.9)	55 (38.7)	110 (44.4)
20-29	9 (8.5)	20 (14.1)	29 (11.7)
30-39	2 (1.9)	7 (4.9)	9 (3.6)
Total	106 (100)	142 (100)	248 (100)

Sources of referral

Table 2 displays the sources of referral to the orthodontist (specialist). Most of the patient referrals (202, 81.5%) were obtained from dental (188, 75.8%) and medical (14, 5.6%) practitioners within Rivers State. Majority of these patients (143, 57.7%) were referred from the Oral Diagnosis Department in the Dental Centre of UPTH. General dental practitioners referred 31 (12.5%) out of which 5 (16.1%) were referred from outside of Rivers State. Only 22 (8.9%) of the patients recognized their own need for orthodontic treatment.

Twenty-four (9.7%) of the patients were referred by dental specialists (consultants). Five (20.8%) patients were referred by Orthodontists outside of Rivers State, while the majority of referrals (13, 54.2%) were from paedodontists. Two patients (8.3%) each were referred by Oral and Maxillofacial surgeons and Community dentists and one (4.2%) each from a Restorative dentist and a

Prosthodontist (Table 2).

Table 2. Sources of referral to the orthodontic clinic

Referral source	Frequency N (%)
Oral diagnosis department	143 (57.7)
General dentists	31 (12.5)
Dental specialists	24 (9.7)
Self	22 (8.9)
Medical doctors	14 (5.6)
Relatives	14 (5.6)
Total	**248 (100)**

Sources of information

Table 3 indicates how patients became aware of their need for orthodontic treatment. Dental practitioners were the major source of information (100, 40.3%). Followed by relatives (88, 35.5%) particularly mothers (64, 72.7%). A small minority acquired information from the World Wide Web (4, 1.6%).

Table 3. Patients' source of information about need for orthodontic therapy

Source	Frequency N (%)
Dental health professionals	100 (40.3)
Relatives	88 (35.5)
Self-consciousness	27 (10.9)
Medical health professionals	17 (6.9)
Friends	12 (4.8)
World wide web	4 (1.6)
Total	**248 (100.0)**

Presenting complaints

As shown in Table 4, the vast majority of the patients wanted to "straighten" their teeth (144, 58.1%) while others sought to "push in" their protruding teeth (42, 16.9%). Three (1.2%) patients presented due to incompetent lips.

Table 4. Presenting complaints of referred patients

Presenting complaints	Frequency N (%)
Badly arranged teeth	144 (58.1%)
Increased overjet	42 (16.9)
Prolonged retention of primary teeth	25 (10.1)
Supernumerary	11 (4.4)
Oral habits	11 (4.4)
Anterior open bite	7 (2.8)
Missing teeth	5 (2.0)
Incompetent lips	3 (1.2)
Total	**248 (100.0)**

DISCUSSION

The growth and survival of an orthodontic practice is determined by various factors; prominent among which is increasing and sustained patients patronage. This patronage is aided by referrals emanating from several sources including general and specialist dentists, patients' recommendations, media and self.[8,17-19]

It is routine in our hospital for every patient that presents at the Dental Centre to be initially clerked in the Oral Diagnosis unit and then referred to the appropriate unit. More than half of our patients were referred from this unit whilst a much smaller percentage were referred by general dental practitioners. This is in agreement with a study carried out in South Western Nigeria [25] as against the finding of most other studies in America and Jordan which demonstrated that majority of referrals were from general dental practioners [20-23] and another displaying self referral to be the highest.[8] This may indicate a general lack of awareness, a reluctance to provide referrals among the

general practitioners in our environment or differences in health care setting.[7,16] It is customary for children to undergo regular dental checks in the Western world with resulting needful referrals to the orthodontist.[10] This practice is yet to be fully embraced in our environment.

This study shows that adults also sought orthodontic treatment at the clinic. This finding corresponded with other Nigerian studies indicating that the adults in our society are becoming increasingly aware of their need for orthodontic treatment.[8,23] However the mean age of referral was lower than studies conducted in South West Nigeria [8,23] but higher than a study carried out in Ireland.[26] This difference can be attributed to the fact that although some adults presented for treatment, the vast majority of our patients were below eighteen years old. Many individuals in our environment are still unaware that adults can also benefit from orthodontic treatment. This also buttresses the role of parental influence especially of mothers, on the uptake of treatment in our clinic [27] due to which orthodontic treatment is more sought after during childhood and adolescence.[28] We are therefore recommending that orthodontic awareness campaigns be carried out not only in primary and secondary schools but also in Universities and Parent Teacher Association meetings.

Young adults (18-25years) constituted about half of the adults that presented in our clinic, giving an indication that dento-facial aesthetics are important to this section of our community. This is particularly of note because a pleasing appearance is important at this age as they enter into the labour market and select their life partners. This was also the case in a Nigerian study where almost three quarters of the adult population seeking treatment were young adults [8] There was no significant gender difference among these patients which contrasted with studies in South-West Nigeria and North America in which there were female preponderance.[8,29] On the whole, majority of patients referred to the clinic were females, which may be because parents are generally more particular about their appearance (aesthetics) of female children than males [30,31] and older females will most probably seek treatment when made aware of their malocclusions. Also in our society marriage prospects for female children is a major concern for parents.[32] This finding is consistent with other studies both within and outside of Nigeria.[8,22,23] In our study, there was no gender difference among the adolescents seeking treatment indicating that both male and female adolescents in our environs are equally conscious of their appearance which contrasts with a study in a teaching hospital in Ibadan, Nigeria which showed more female [23], and another in Lagos, Nigeria which showed higher proportion of male patients.[8] About a tenth of our patients were self referred unlike a study in South West, Nigeria which showed almost two thirds of their patients to be self referred.[8] This could be because the teaching hospital in South West Nigeria has been offering orthodontic services for about four decades now which probably has caused an increased awareness among residents compared to our environment in which orthodontic services started only few years ago.[33]

Most of our patients became aware of their need for orthodontic therapy through dental

and not medical professionals which further corroborates the fact that it seems that medical practitioners may not be in the habit of referring patients to orthodontists due to limited knowledge about dentistry and its specialties as well as lack of recognition of malocclusion as a problem.[34,35] This may also be because dentistry is not part of the curriculum in most Nigerian medical schools and in few places where it is included, it is not a major course. It may be helpful to include an introduction to dental specialties in the medical curriculum with a compulsory assessment at the end of the course. Also, in our environment, it is common for patients with dental needs to present to medical doctors first due to low and unequal distribution of dental practioners.[34,36] Therefore all health workers should be enlightened about dentistry and the potential psycho-social impact malocclusion can have on an individual.[16,26,37]

Mothers' observation of malocclusion accounted for more than two thirds of patients that became aware of their need for orthodontic therapy via their relations. This may be due to the fact that mothers are more observant and tend to pay more attention to their children than fathers or any other relations will do. Only very few of the studied population received such knowledge from the World Wide Web due to the fact that Nigeria is a developing country where access to internet is still very poor. This finding is comparable to a study by Haeger [17] where internet accounted for only 2.3% of the sources of information.

Majority of the patients presented from within Port Harcourt and its environs because of badly arranged teeth or protruding teeth. It is not a common practice in our environment for individuals to travel far distances to seek treatment for cases that are not considered life threatening. Orthodontic treatment in our society is paid for "out of pocket" and with the high level of poverty many times is considered a luxury and not a necessity.

This study showed that few patients presented due to incompetent lips. Although some of our patients did have incompetent lips [38] the general populace do not seem to be aware of its consequences or the fact that it can be managed by an orthodontist.

CONCLUSION

Majority of the patients were referred from the Oral Diagnosis Department of the hospital to the Orthodontic unit because of badly arranged teeth. There were more females presenting for treatment than males. Most of the patients became aware of the need for orthodontic therapy through dental health professionals. Very few patients were self referred or referred by medical practitioners. We therefore recommend that orthodontists should collaborate with medical practitioners and other health workers to improve awareness of the need for orthodontic treatment as well as the availability of such treatment in South-South Nigeria. This will increase the ability of individuals to recognize malocclusions and seek treatment from the appropriate clinic and personnel.

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