

# A Cross-Sectional Assessment of Knowledge, Social Perceptions and Willingness to undergo Orthodontic Treatment amongst Adults

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## Abstract

**Background:** Orthodontic challenges are an important consideration in a person's total well-being. Fortunately, there has been an increase in the number of orthodontists and hospitals attending to orthodontic problems across Nigeria. This may be expected to translate to an increase in awareness. The present study, therefore, assessed the knowledge, social perceptions and the willingness of adults to undergo orthodontic treatment.

**Methods:** One hundred and ninety-seven adults were evaluated in this cross-sectional self-administered questionnaire based study. A questionnaire with 12 close ended questions was adopted from a previous study

**Results:** The majority (149, 75.6%) of respondents were female with a mean age of 23.86 years (SD = 3.36592). About half of the respondents (97, 49.2%) had knowledge of orthodontic treatment. Of these, a greater percentage (74, 88.3%) have not previously had orthodontic treatment. Only 23 respondents reported having had orthodontic treatment in the past. Most of the respondents (152, 77.2%) did not believe that they required orthodontic treatment. Amongst the 22.8% that believed they needed orthodontic treatment, majority were females. Of those who felt they needed treatment, poor awareness (30.5%) and cost factor (17.8%) accounted for the reason they had not as yet sought treatment.

**Conclusion:** There is an increase in awareness and knowledge of orthodontics among adults. This reflects in their increased demand for treatment. However, cost was shown to be a major limitation. The inclusion of orthodontic treatment as part of the health insurance policy of the Nigerian government is recommended.

**Keywords:** Adult Orthodontics, Orthodontic awareness, Orthodontic treatment.

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## Introduction

Adult orthodontics is defined as “the branch of orthodontics concerned with striking a balance between achieving optimal proximal and occlusal contact of the teeth, acceptable dentofacial esthetics, normal function and reasonable stability”.<sup>1</sup>

Adult orthodontics was not originally given a

chance as a branch of orthodontics because historically during the period of the total banding technique, aesthetic concerns was a major challenge for adults.<sup>2,3</sup>

When in later years, the acid etch technique became useful for bonding orthodontic brackets, there was still a challenge with the treatment of adult patients because many had veneers and crowns of various materials, which at that time presented a challenge with bracket bonding.<sup>3</sup>

There was therefore, a skewed nature of patients originally designed to benefit from orthodontic treatment as evidenced by units in health institutions offering orthodontic treatment domiciled in departments known as Child Dental Health as is commonly the case in countries like Nigeria.

The situation is further worsened by a lack of awareness of orthodontic treatment among the populace. Today, however, Adult orthodontics is becoming a larger proportion of many dental practices.<sup>4</sup>

With increasing awareness via access to the internet, and organization of awareness programmes by local Associations like the Nigerian Association of

Orthodontists, changing lifestyle, increased aesthetic demands and an improved multidisciplinary approach (which allow for better management of the more complicated adult patient population with associated dental/medical issues) adult orthodontics is gaining more ground.<sup>4</sup>

Researchers, have, therefore, reported a rising influx in the number of adults seeking orthodontic treatment in the last 20 years.<sup>5</sup> These adults, fall into two groups of younger adults (under 35 years) who desired, but could not receive orthodontic treatment during adolescent period and an older group, typically in their 40's or 50's who have other dental problems and need orthodontic treatment as part of larger treatment plans.<sup>6</sup>

Adult orthodontic therapy should be encouraged because of its ability to improve function, occlusion, aesthetics as well as the psychological aspects.<sup>4</sup> Thus the aim of the present study was therefore, to assess the knowledge, social perceptions and the willingness of adults to undergo orthodontic treatment.

## Material and Methods

This cross sectional questionnaire based survey was conducted among 197 adults who were randomly selected from tertiary institutions in Enugu metropolis after duly obtaining clearance from the University of Teaching Hospital, Enugu's ethical clearance committee. Written informed consent was also obtained from the participants.

Enugu metropolis has 13 tertiary institutions out of which 6 are government owned. A Multi-staged sampling technique was used. The respondents were drawn from 4 out of the 6 government owned tertiary institutions by simple random sampling using balloting technique. Fifty students were sampled from each of the schools; however, one of the schools had 3 copies of questionnaire invalidated due to improper filling of questionnaire. From the 4 tertiary institutions selected, 5 departments were randomly selected from each, making a total of 20 departments. The departments were sampled using the snowballing technique. From the initial department the succeeding department was selected by suggestions. The first department was selected in each institution by willingness and availability to respond. From each department, 10 students were randomly selected using a systematic approach whereby the class representative was approached as first respondent, then every other systematic number was selected based on the size of the class to ensure the target sampled size was obtained.

A questionnaire with 12 close ended questions adapted from a previous study<sup>7</sup> was used for this study. The responses required simple yes or no choices, or multiple tick boxes. The questionnaire was explained to each respondent before administration. Two trained research assistants administered the questionnaire forms. The collected data was entered into a computer subjected to statistical analysis using the Epi info. Descriptive statistics was used which entailed frequency, percentage, mean and standard deviation. Test of significance were done at 0.05 level of significance.

## Results

This is based on responses from 197 adults. The majority (149, 75.6%) of respondents were females while only 28 (24.4%) were males. The mean age of respondents was 23.86 years (SD = 3.37) (Table 1).

About one-half of the respondents (97, 49.2%) had knowledge of orthodontic treatment, majority (81, 83.5%) of who defined it as correction of irregularly arranged teeth while 13.4% defined it as correction of gum problems (Table 2). Of those who have knowledge about orthodontic treatment, a greater percentage of respondents (74, 88.3%) have not previously had orthodontic treatment. 23 respondents reported haven had orthodontic treatment in the past, which they had at mean age of 19.35 (SD 4.88) years (Table 3).

Most of the respondents (152, 77.2%) did not believe that they required orthodontic treatment. Amongst the 22.8% that believed they needed orthodontic treatment, majority were females. (Table 4)

The major reason for their believing that they needed orthodontic treatment was to correct their smile and badly arranged and irregular teeth. Others included correction of pushed out teeth and difficulty while speaking.

Poor awareness was expressed by 30.5% of respondents and cost factor accounted for 17.8% of the reasons for not going for treatment so far of those who felt they needed treatment.

Table 1: Demographic characteristics of respondents

Variables	Frequency	Percentages	Mean (S.D)
Age (Years)			
16-20	36	18.3	23.87 (3.37)
21-25	123	62.4	
26-30	29	4.9	
31-35	9	4.6	

Table 2: Knowledge of Orthodontic Treatment

Variables	Frequency
<b>Whether respondents knew about orthodontic treatment</b>	
Yes	97(49.2)
No	100(50.8)
<b>Meaning of orthodontic treatment</b>	
Correction of Irregularly arranged teeth	81(83.5)
Replacement of missing teeth	3(3.1)
Gum problems	13(13.4)

Table 3: Utilization of orthodontic services

Variable	Frequency
<b>Whether respondent has had orthodontic treatment</b>	
Yes	23(11.7)
No	74(88.3)
	<b>Mean (S.D)</b>
<b>Age at which respondents had orthodontic treatment</b>	19.35(4.88)

## Discussion

The assessment of the knowledge, social perceptions and the willingness of adults to undergo orthodontic treatment had respondents with an average age of 23.86 years, indicating that they are adults. These adults indicated that they were really knowledgeable about what orthodontic treatment and had a good idea of what it means, this compares well with other studies worldwide.<sup>7</sup> This knowledge could be responsible for the fact that many adults in Nigeria are demanding orthodontic treatment more than in the past. Orthodontic treatment was largely earlier viewed as being offered in a childhood dental practice but great proportions of adults are now embracing Orthodontic treatment. In a study conducted at the Lagos University Teaching Hospital, Nigeria, the mean age of patients seeking treatment was 15.2years,<sup>8</sup>

Table 4: Whether respondent requires orthodontic treatment

Variable	Frequency
<b>Whether respondent thinks he/she requires orthodontic treatment</b>	
Yes	45(22.8)
No	152(77.2)
<b>Number of respondents that said YES</b>	
Male	4(8.9)
Female	41 (91.1)
<b>Number of respondents that said NO</b>	
Male	85(55.9)
Female	67(44.1)
<b>Reasons why respondents required orthodontic treatment</b>	
Irregular/badly arranged teeth	16(8.1)
“Pushed out teeth”	11(5.6)
Correct smile	18(9.1)
Difficulty while speaking	2(1.0)
Pain/clicking around the ear	8(4.1)
<b>Reasons for not haven gone for orthodontic treatment</b>	
Awareness	60(30.5)
Social acceptance	15(7.6)
Difficulty to manage time for visits	8(4.1)
Cost factor	35(17.8)

which is comparable to the finding from another study conducted in Enugu.<sup>9</sup> The increase in adult demand may be as a result of greater awareness and availability of orthodontic treatment centres particularly in urban areas and in the few ones that are located in semi urban areas.

The fact that these respondents showed good knowledge about orthodontic treatments could be responsible for having up to 23 of the respondents who felt they needed the treatment, actually having it in the past. This number (23) accounted for 51% of those

who felt they needed the treatment. Also, the mean age at which the orthodontic treatments were done (19.35; S.D. 4.83 years), implies that they were already adults as at when the treatment was done. This is further buttressed by the mean age in this study population, being 23.86 (SD =3.36) years, which is attributable to the fact that the study was tertiary institutions based. This compares well with other studies<sup>10,11</sup>. Adult patients seeking orthodontic treatment have been reported to account for 20 to 37% of the total patients.<sup>8,12</sup>

The female preponderance among those who felt that they had need for orthodontic treatment in our study is in agreement with other studies.<sup>13,14</sup> This is understandable since females have been reported to show more concern about their appearance and self-esteem than the males.<sup>15</sup>

Similar to a study<sup>16</sup>, the reasons for not availing themselves of orthodontic treatment in the past were mainly due to poor awareness and cost. The issue of cost is a major factor affecting the demand for orthodontic treatment in our environment. A reasonable number of the populace may be aware that they need orthodontic treatment but cannot afford the cost of proposed treatment.

The average cost of orthodontic treatment in Nigeria is not affordable for the generality of the people who are in the majority and are of low socioeconomic status and even for individuals in the middle echelon of society. Thus, orthodontic treatment seems to have become the reserve of mainly the elite and those in the upper class; and has fast become a social symbol of having 'arrived' especially among teenagers.<sup>17,18</sup>

However, another study<sup>7</sup> reported time and social acceptance as an important factor. The increasing emphasis on facial beauty, being promoted by social media has further affected the young adult's drive for improved facial aesthetics and therefore the need to seek orthodontic treatment to correct their smile. The major reason why respondents of this study required orthodontic treatment was to correct their smile. This is in agreement with a previous study.<sup>7</sup> The drive for improved facial aesthetics could therefore, be another reason why orthodontic treatments are now being demanded more by adults as seen in this study, which is largely a social perception factor.

## Conclusion

This study shows an increase in awareness and knowledge of orthodontics among adults as against the past impression that treatment was only meant for

children. This increased adult demand seemed to be linked to social perception among the adults. However, cost was shown to be a major limitation. This study, therefore, recommends the inclusion of orthodontic treatment as part of the health insurance policy of the Nigerian government.

## Contributors

Folaranmi, N was responsible for concept, design, data acquisition, drafting of article and data analysis. Ndu, A was responsible for concept, design and data analysis. Akaji, E was responsible for concept and design. Okeke, A was responsible for drafting of article and literature review

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## Conflict of Interests

Nil

## References

1. Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics. 4th edition, Mosby: St Louis;
2. Bas aran G, Veli I. Modern Etching and Bonding Materials in Orthodontics. Principles in Contemporary Orthodontics 2011;181-212.
3. Zachrisson BU. Orthodontic bonding to artificial tooth surfaces: Clinical versus laboratory findings. Am J Orthod Dentofacial Orthop. 2007; 117:592-594.
4. Anita G, Asiya B. Adult Orthodontics. Indian J Dent Adv. 2010; 2: 96-99.
5. Nazeer AM, Madhuri MF, Jaseema P. The scope and limitations of adult orthodontics. Indian J Multidiscip Dent. 2011; 2:383-387.
6. Gazit-Rappaport T, Haisraeli-Shalish M, Gazit E. Psychosocial reward of orthodontic treatment in adult patients. Eur J Orthod 2010; 32:441-446.
7. Rastogi S, Jatti RS, Keluskar KM. Assessment of Awareness and Social Perceptions of Orthodontic Treatment Needs in Adult Age Group: A Questionnaire Study. J Oral Health Comm Dent. 2014; 8:95-100.
8. daCosta OO, Utomi IL. Referral mode and pattern of malocclusion among patients attending the Lagos University Teaching Hospital, Lagos, Nigeria. Trop Dent J 2009; 32:17-23.
9. Folaranmi N, Okeke A. A Retrospective Evaluation of the Class of Malocclusion amongst Orthodontic Patients at the University of Nigeria Teaching Hospital (UNTH), Enugu, Nigeria. Ann Med Health Sci Res 2011; 1: 103-106.
10. Adegbite KO, Ogunbanjo BO, Ajisafe OA, Adeniyi AA. Knowledge of orthodontics as a dental specialty: A preliminary survey among LASUCOM students. Ann Med Health Sci Res 2012; 2:14-8.

11. Shekar S, Chandrashekar B R, Bhagyalakshmi A, Avinash B S, Girish M S. Knowledge, attitude, and practices related to orthodontic treatment among college students in rural and urban areas of Mysore, India: A cross-sectional questionnaire study. *Indian J Oral Health Res* 2017; 3:9-14
12. Bagga DK. Adult Orthodontics versus Adolescent orthodontics: An overview. *J Oral Health Comm Dent* 2010; 4:42-47.
13. Onyeaso CO. Orthodontic treatment need of Nigerian outpatients assessed with the Dental Aesthetic Index. *Australian Orthodontic Journal*. 2004; 20:19-23
14. Rafighi A, Foroughi MS, Alizadeh M, Sharifzadeh H. Awareness of orthodontic treatments among school teachers of two cities in Iran. *J Dent Res Dent Clin Dent Prospects* 2012; 6:25-28.
15. Brennan MA, Lalonde CE, Bain JL: Body image Perceptions: Do Gender Differences Exist?. *Psi Chi J Undergrad Res*. 2010, 15: 1089-4136
16. Marielle BM, Thérèse G.. Rationale for retention following Orthodontic treatment. *J Can Dent Assoc*. 1998; 64: 640-643.
17. Fonseca ML, Araujo TM, Santos AR, et al. Impact of metal and ceramic fixed orthodontic appliances on judgments of beauty and other face-related attributes. *Am J Orthod Dentofacial Orthop*. 2014; 145:203-206
18. Jeremiah HG, Bister D, Newton JT. Social perceptions of adults wearing orthodontic appliances: a cross-sectional study. *Eur J Orthod*. 2010; 33:476-482