Patient's Expectation of Orthodontic Treatment at a Tertiary Health Facility in Lagos, Nigeria

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ABSTRACT

Introduction: An understanding of the expectations and attitude of patients is a prerequisite for appropriate behavioural and clinical management.

Objective: To assess patients' expectations of orthodontic treatment and relationship of gender to this expectation among Nigerian patients.

Materials & Method: The descriptive study comprised of patients attending the orthodontic clinic at Lagos State University Teaching Hospital (LASUTH), Nigeria for the first time. A structured questionnaire was used to obtain the socio-demographic information and responses to questions on their expectation of orthodontic treatment.

Result: Majority of the respondents had higher expectations on aesthetic outcome of orthodontic treatment than the functional outcomes. They expected to have better smile, teeth straightened and have confidence socially. The lowest mean scores were obtained in the domains of improvement in career and making speech easier. Females had significant higher scores than male participants in all domains explored with the mean highest score in the domain of better smiles; while the highest male mean score was in the domain of straightened teeth.

Conclusion: Orthodontics relies heavily on patient cooperation for a successful end result. It is recommended that the orthodontist agrees with the patient on realistic expected treatment outcomes before the treatment commences so that they are not disappointed with the final appearance.

Keywords: malocclusion, orthodontic treatment, patient expectation

INTRODUCTION

Orthodontics is the area of dentistry concerned with the supervision, guidance and correction of the growing dentofacial structures by the application of forces and/or the stimulation and redirection of the functional forces within the craniofacial complex. Orthodontic treatment also has a significant impact on psychosocial aspect of the patients.[1] It has been estimated that about 80% of orthodontic patients seek treatment out of aesthetic concern rather than the health and function.[2] Patients and their parents expect orthodontic treatment to result in well-aligned teeth and improvement in overall facial appearance.[3] They also expect the treatment to improve their dental, and facial aesthetics[4] and consequently their popularity and social acceptance.[5] In orthodontic treatment planning, a strong focus on normative assessments and an objective evaluation of the patients' treatment needs by established metric standards could lead to an inadvertent overlooking of the patient's expectations concerning the treatment. Quality of life and patient-oriented outcomes have thus become an accepted endpoint in clinical practice in recent years, as the patient's experience and preference has grown.

An understanding of patients' expectations and attitude is a prerequisite for appropriate behavioural and clinical management. Increasingly, patient-centred measures are used to assess these subjective attributes in assessing orthodontic need and in determining the outcomes of orthodontic care.[6-7] Assessment of patients' expectations is central to understanding the oral health needs, patient satisfaction with treatment, and ultimately the perceived overall quality of health systems.[8] To a large extent, patients' expectation of orthodontic treatment depends on the perception of their own dentofacial aesthetics[9] and on the continuous feedback they receive from their peers. Hence, their decision to seek orthodontic treatment appears to be motivated by social norms and culture in their reference group and the society. Societal standards on facial beauty/ appearance and expectations are thus intrinsically linked

to the quest for orthodontic treatment and are important parameters that can determine the success of orthodontic treatment.[10]

The successful outcome of orthodontic treatment requires not only knowledge and technical competence on the part of the treating orthodontist but also considerable effort on the part of the patient.[11] The behaviours expected of a patient such as keeping appointments, maintaining oral hygiene, adhering to dietary recommendations and wearing appliances may disturb established routine or interfere with social activities.[12] Understanding the patient's expectation can play a key role in treatment planning by aiding the dentist to determine how realistic the patient's expectations are and also prepares the patients for the intricate aspects of the treatment that will require their full cooperation.[13-14] Mismatch between the patient's desire and the service received is connected to decreased satisfaction with treatment outcome. Patients with inappropriately high expectations may be dissatisfied with the optimal care while those with inappropriately low expectations may be satisfied with deficient care.[15]

Exploration of the expectation of patients about orthodontic treatment has been reported by some authors but there is paucity of data about orthodontic patients in Nigeria. The objective of the study was to assess patients' expectations of orthodontic treatment and the relationship of gender to this expectation among Nigerian patients.

MATERIALS AND METHOD

A cross-sectional study was conducted at the Orthodontic Clinic of Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos; a tertiary care health facility in Nigeria. The study population consisted of new patients registered at the Orthodontic clinic of LASUTH. A simple random sampling technique using the balloting method was used to determine the study subjects using the attendance register for each clinic day as the sampling frame. Selected subjects were screened for eligibility by set inclusion and exclusion criteria and those who met these criteria and were willing to give their informed consent were included in the study.

The sample size was calculated using the formula for cross sectional studies: $N=Zpq/d^2$. Using the prevalence of 88% for expectation improved appearance from orthodontic treatment from a reference study;[16] a sample size of 82 was determined. One hundred and four participants were however recruited for this study. Subjects who were ≥16 years of age and were attending the orthodontic clinic for the first time were included in the study. Patients who had commenced orthodontic treatment and those who refused to give their informed consent were excluded.

A structured interviewer-administered questionnaire was used for data collection. The first part of the questionnaire obtained information on socio-demographic items including gender, age, level of education, as well as dental history. The second part obtained data on patients' expectations of orthodontic treatment. A visual analogue scale (VAS) marked at 10-mm intervals was used as the Likert response format for all questions except questions assessing the expected duration of orthodontic treatment and the frequency of follow-up visits. The maximum obtainable score for questions with Likert responses was 10 indicating a high expectation while the lowest score was 1 indicating a low expectation.

Data was analyzed using SPSS version 18 software. Frequency distribution tables were generated for all variables and measures of central tendency and dispersion were computed for numerical variables. Differences and associations were considered statistically significant where the associated *p*-values were ≤0.05.

RESULT

A total of 104 respondents completed the questionnaire. Majority of the respondents were female and from the Yoruba tribe. Table 1 describes the ethnic group and gender of the respondents.

Expectations of the respondents at their initial orthodontic appointment

At the initial appointment, respondents expected following commonest procedures: having a check-up and

Table 1: Characteristics of the study sample

Ethnic Group	Male		Female		Total	
	N	%	N	%	N	%
Yoruba	30	28.8	45	42.3	75	72.1
Igbo	14	13.4	11	10.6	25	24.0
Hausa	1	0.9	1	0.9	2	1.9
Others	2	1.9	0	0	2	1.9
Total	47	45.2	57	54.8	104	100

Table 2: Expectation of the respondents at their initial orthodontic appointment

	Mean values			*p*-Value
	Male	Female	Total	
Expectation at initial appointment				
Have braces fitted	6.11	5.40	5.72	0.375
Have check-up and diagnosis	8.23	8.39	8.32	0.776
Have a discussion about treatment	7.89	8.33	8.13	0.438
Have X-rays	6.51	5.16	5.77	0.066
Have impressions	5.38	5.33	5.36	0.946
Have oral hygiene checked	7.23	7.54	7.40	0.626
Type of orthodontic treatment expected				
Braces, don't know what type	6.34	5.88	6.04	0.541
Train track braces	4.45	3.54	3.95	0.187
Teeth extracted	3.91	3.44	3.65	0.515
Jaw surgery	1.68	2.30	2.02	0.201
Perception about orthodontic treatment giving problem/pain.	4.43	2.49	3.37	0.001*
Opinion about wearing braces giving problems	5.00	4.89	4.94	0.882
Problem with orthodontic treatment when eating	5.60	4.56	5.03	0.140
Orthodontic treatment to restrict what you can eat or drink	6.91	5.58	6.18	0.059
Opinion about how people will react to wearing brace	5.40	6.04	5.75	0.341

* Significant at $p<0.05$

diagnosis (8.32); having a discussion about their treatment (8.13) and having oral hygiene checked (7.40). Many of the respondents did not expect any problem or discomfort with the wearing of braces and this domain was associated with a low mean score (3.37). The least expected procedures were having teeth extracted (3.65) and having jaw surgery (2.02). There was no significant difference between the mean scores of male and female respondents in almost all domains explored even though male respondents had higher mean scores in most of the domains (Table 2).

Expectations on the duration of orthodontic treatment

Majority of the respondents (34.6%) did not know the duration of orthodontic treatment while 15.4% expected the treatment to take less than one year. Only 24% respondents felt that the treatment will take about 2 years (Figure 1).

Figure 1: Expectation on the duration of orthodontic treatment

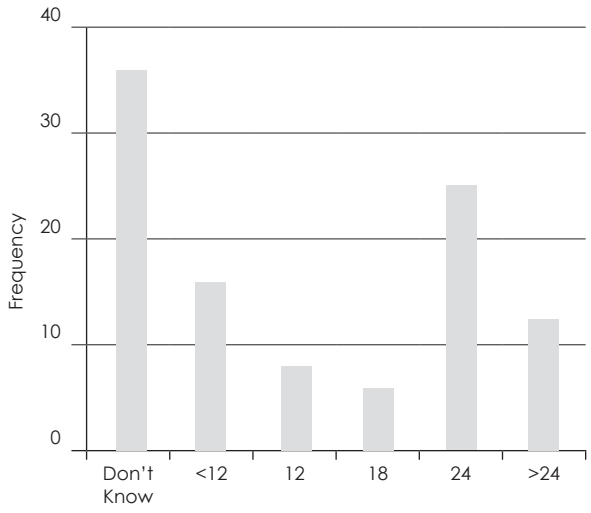

Figure 2: Expected frequency of Orthodontic review appointment

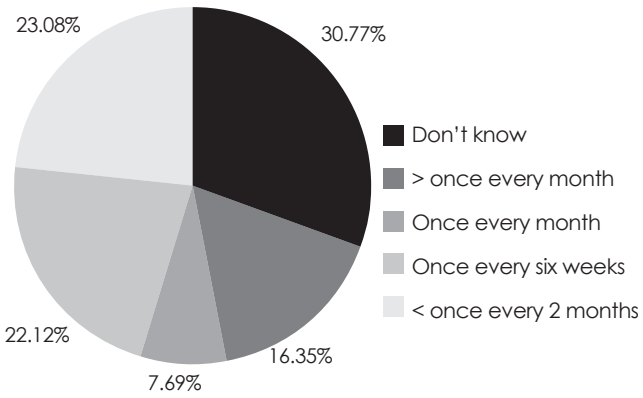

Table 3: Expectations on outcome of orthodontic treatment

	Mean values			*p*-Value
	Male	Female	Total	
Straighten teeth	7.66	9.11	8.48	0.002*
Create better smile	7.51	9.32	8.50	0.000*
Make it easier to eat	5.87	8.00	7.04	0.001*
Make it easier to speak	5.51	7.91	6.83	0.000*
Make it easier to keep my teeth clean	6.23	7.77	7.08	0.012*
Improve my chance of good career	6.04	7.44	6.81	0.038*
Give confidence socially	6.06	9.19	7.77	0.000*

* * Significant at *p<0.05*

Expected frequency of orthodontic appointments

Over 30% of the respondents did not know the frequency of their review appointment once the orthodontic treatment commenced, while 23% expected it to be every 2 months. Only 22% correctly estimated their review to be once every six weeks (Figure 2).

Expectations on outcome of orthodontic treatment

Majority of the respondents had higher expectations on aesthetic outcome of orthodontic treatment than on the functional outcomes. They expected to have a better smile (8.50), have their teeth straightened (8.40) and have confidence socially (7.77). The lowest mean scores were obtained in the domains of improvement in career (6.81) and making speech easier (6.83).

Females had significant higher scores than male participants in all domains explored with the highest female mean score obtained in the domain of better smiles (9.32); however the highest male score was in the domain of straightened teeth (7.66) (Table 3).

Association between gender and frequency/duration of orthodontic treatment

There was no significant difference between the responses of male and female respondents on the expected duration of Orthodontic treatment and also on the frequency of review appointments. However, a greater percentage of the male respondents did not know the expected duration of the treatment (Table 4).

Table 4: Association between gender and frequency/duration of orthodontic treatment

		Male	Female	Total	*Significance*
How long orthodontic treatment take	Don't know	20(19.2%)	16(15.4%)	36(34.6%)	X^2=8.026 p-Value=0.155
	< 1 year	3(2.8%)	13(12.6%)	16(15.4%)	
	1 year	3(2.8%)	5(4.8%)	8(7.7%)	
	1.5 years	2(1.9%)	4(3.9%)	6(5.8%)	
	2 years	14(13.5%)	11(10.5%)	25(24.0%)	
	> 2 years	5(4.9%)	8(17.6%)	13(12.5%)	
How often to attend follow-up	Don't know	15(14.4%)	17(16.4%)	32(30.8%)	X^2=6.695 p-Value=0.153
	>once monthly	12(11.5%)	5(4.8%)	17(16.3%)	
	Once monthly	2(1.9%)	6(5.8%)	8(7.7%)	
	Once every six weeks	9(8.7%)	14(13.4%)	23(22.1%)	
	≤ Once every two months	9(8.7%)	15(14.4%)	24(23.1%)	
Total		47(45.2%)	57(54.8%)	104(100%)	

DISCUSSION

Malocclusion and dentofacial anomalies can produce immense physical, social, and psychological distress.[17] Appreciation of patients' expectations of the orthodontic treatment and its effect in quality of life is important. Unrealistic expectations about the orthodontic treatment process can influence treatment compliance.[18] Majority of the respondents in this study were female. Some studies have observed that female adolescents are more critical and anxious about their appearance than males.[19-20] The societal emphasis on the physical appearance of females may be responsible for their higher demand for orthodontic treatment.

The respondents in this study had realistic expectations about most of the procedures they are expected to have at their initial appointment. Most of them expected to have check-up and diagnosis, discussion about their treatment and oral hygiene check at their initial appointment. Most of them did not expect to have an extraction or surgical procedures.

Similarly, many respondents did not expect any problem or discomfort with the wearing of braces. In previous studies; orthodontic patients expressed discomfort as the worst aspect of orthodontic treatment, even though they categorized the discomfort as mild and of short duration. Orientation on the controlled use of painkillers and restriction in the ingestion of hard food on the days following the activations were enough to minimize the aforementioned discomfort.[21] Patients who are given adequate information regularly utilise dental services, and have more reasonable expectations of treatment outcomes[22] and greater satisfaction with the treatment. There is a need to educate patients before they commence the treatment with the appliances on the discomfort they will likely encounter.

Only 24% of the respondents had the right expectation about the duration of orthodontic treatment and the frequency of review appointment. Orthodontic treatment relies heavily on patient cooperation for a successful outcome. The duration of treatment which includes the period of retention may thus affect the compliance of the patient if he/she is not adequately counselled. British Orthodontic Society recommends that patients should obtain adequate information about their proposed treatment, with a truthful estimate of the period involved and the retention phase of the treatment.[23]

Majority of the respondents had higher expectations on the aesthetic outcome of orthodontic treatment than on the functional outcomes. Most of the participants indicated that they expected orthodontic treatment to produce straighter teeth, a better smile and a more pleasing social appearance. This data was in agreement with previous studies that observed that majority of patients seek treatment to improve their smile and their facial esthetics.[24] People learn the concepts of facial attractiveness early in life and facial attractiveness is seen as a social asset while lack of appeal is deemed a social liability.[25-26] Furthermore, even though epidemiological studies[27] have demonstrated that at least 70-75% of the population could benefit from orthodontic treatment for occlusal malrelations, such functional considerations are not necessarily linked to the need for treatment as it is perceived by patients. Rather, most people view orthodontics as a means for improving dental-facial appearance.

It has been projected that 80% of orthodontic patients seek care for aesthetic, rather than for health or functional reasons. Similarly, psychological factors, rather than the severity of malocclusion, decide demand for orthodontic treatment.[28] Functional aspects of malocclusion such as inability to chew were not significantly associated with the desire for orthodontic treatment.[29] It is recommended that the orthodontist agrees with that patient on realistic expected treatment outcomes before the management commences so that they are not disappointed with the final appearance.

Dental aesthetics was also found to be more important among women than men; and females had significant higher scores than male participants in all the domains explored with the highest female mean score obtained in the domain of better smiles. This observation has been found to be responsible for lower discontinuation rates of treatment for girls.[30] The respondents did not have a high expectation that orthodontic treatment will contribute to an improvement in their chance of a good career. This was in agreement with a previous study[31] and this observation is not surprising since most of the respondents were adolescents and were not in the employment age bracket.

CONCLUSION

Majority of the respondents in this study did not know the duration of orthodontic treatment nor the frequency of their review appointments. They however had higher expectations on the aesthetic outcome of orthodontic treatment than on the functional outcomes. The duration of treatment which includes the period of retention may affect the compliance of the patient if he/she is not adequately prepared. It is thus imperative that the patient receives adequate information on these critical aspects of their treatment. It is also recommended that the orthodontist agrees with the patients on realistic expected treatment outcomes before the treatment commences so that they are not disappointed with the final appearance.

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