



Evaluation of patient satisfaction with orthodontic treatment in Qassim region

¹ Norah Saleh Alnasyan, ² Norah Abdulrahman Alfayez

¹ Graduate, Qassim University, College of Dentistry, Saudi Arabia

² Resident in King Fahd Specialist Hospital, Graduate from Qassim University, College of Dentistry, Saudi Arabia

Abstract

Objectives: this study aimed to investigate the rate of satisfaction among patients following orthodontic treatment in Qassim region and to determine the factors that affected their satisfaction levels.

Materials and Methods: A cross-sectional study was conducted among secondary school and university students in qassim region. In which, anonymous questionnaires were distributed to former orthodontic students asking them about their orthodontic experiences. Statistical analysis including basic descriptive statistics and chi-square test were done using SPSS software version 16.0.

Results: The final sample consisted of 200 subjects (response rate 76.05%) with mean treatment duration of 2.143 years. Most respondents (90%) were satisfied with the overall treatment results. Also, patient perceptions of psychological benefits of treatment were mainly positive (94%). Moreover, (91%) have noticed an improvement of their chewing ability. However they showed less satisfaction regarding other services, (34.5%) of respondents were dissatisfied with the waiting time before the appointment, and (24.5%) were dissatisfied about the treatment duration. Among the studied subjects, study revealed that (24%) of the subjects reported being unsatisfied with their orthodontist and a statistical significant difference was found between those who were satisfied with their orthodontists and those who weren't regarding the following factors: answering to patients' questions by the orthodontists ($P=0.001$), gentleness of the orthodontists ($P=0.001$), gentleness of the dental assistants ($P=0.014$) and orthodontists' honesty about treatment duration ($P=0.002$).

Conclusions: the majority of patients who had received orthodontic treatment were satisfied with the overall treatment outcomes. Orthodontists should be aware that a good relationship with the patient might be even more important for the patient than just a technical successful treatment alone.

Keywords: patient satisfaction; orthodontics; doctor-patient relationship

Introduction

Among the most important goals of dental care is helping patients in their attempts to reach an acceptable level of satisfaction with their oral cavity and dentition^[1]. Dentofacial problems have known definitive effects on patient satisfaction with their dentition because it affects esthetics and performance^[2, 3].

It is now recognized that, to be of value, a measure of satisfaction needs to be patient-centered. It is only relatively recently known that health service providers have developed a view that patients can provide reliable judgments of their experiences of health care^[2]. In the past, the majority of measures of patient satisfaction have been based on issues considered to be important by clinicians. This is now recognized as erroneous as it has been demonstrated³ that there is a clear mismatch between what general dental practitioners and patients consider important with regards to the delivery of treatment. Patient satisfaction with dental care has been explored and compared with other medical fields of care^[4]. High levels of general satisfaction are usually found, and greater dissatisfaction is usually expressed in response to questions of a more detailed and specific nature.

Orthodontic treatment, more than improving the quality of life, can bring physical, psychological and social changes^[5, 6].

Few studies explored such issues, as well, as the pain and discomfort that may occur during treatment, and how it may affect patients' quality of life.

O'Connor^[7] found that during treatment, patients' concerns centered on the appearance of their appliances and pain, together with diet restrictions and waiting room delays. At the end of treatment, patients recommended more accurate treatment-timing estimates and discussion throughout treatment. It has been stated that orthodontic patients expect that the doctor-patient relationship is comfortable and warm, with a doctor who is technically competent and provides adequate information about the orthodontic problem and the procedures he or she will perform. When these expectations are not met, patients may be dissatisfied. This dissatisfaction may reduce patient compliance and eventually lead to a less than optimal orthodontic result^[5].

For Sinha *et al.*,^[8] the lack of professional efficiency in exposing the problems inherent to the case could lead to a mismatch of information. Professionals should focus more on the quality of care, their personalities, their attitudes and professional competence, so that at the end of orthodontic treatment, the objectives achieved would be the patient's personal satisfaction and the orthodontist's professional satisfaction.

A review of the literature has revealed several studies that investigated the prevalence and severity of malocclusion for specific ethnic groups, age distributions and country specific populations including Saudi Arabia [9, 10]. However, no study has yet concentrated on assessing the degree of patient satisfaction after orthodontic treatment. Thus, in this study, using a questionnaire, level of patient satisfaction regarding orthodontic treatment, services and orthodontist were evaluated.

Materials and Methods

A cross-sectional study was conducted among secondary school and university students, in which 13 secondary schools (7 females and 6 males) and 12 colleges (6 females and 6 male) were randomly selected from AlQassim province. Anonymous questionnaires were distributed to former orthodontic students asking them about their orthodontic experiences. A total of 263 questionnaires were distributed, 243 were returned back. Among them 19 were incomplete & 24 subjects were still receiving treatment, so they were excluded, leaving a total of 200 complete and valid questionnaires (response rate =76.05%).

Parts of the questionnaire used in this study were based on questionnaires from previous studies [5, 11], while the other parts were constructed for the purpose of the study. Items included in the questionnaire : demographic information, length of treatment, reasons for seeking orthodontic treatment, questions pertaining to satisfaction with orthodontic treatment and services, doctor-patient relationship and pain experience during orthodontic treatment.

Statistical analysis was performed using the software SPSS, Version 16.0 for Windows. The distributions of response frequencies were calculated, and chi-squared tests were used to determine if there were any differences in responses in respect to gender, age, education, reasons for seeking orthodontic treatment and length of the treatment.

In addition, it was conducted to figure out which factors that have the main effect on the patients’ satisfaction with their orthodontist. A probability at the 5% level or less was considered statistically significant.

Table 1: Demographic characteristics of the respondents.

Characteristics		n	%
Gender	Female	135	67.5
	Male	65	32.5
Educational level	Secondary	46	23
	University	154	77
Age (y)	Mean	19.7	
	SD	2.17	
	Range	15-25	
Length of Treatment (y)	Mean	2.15	
	SD	1.1	
	Range	1-7	

Demographic characteristics of the groups surveyed are shown in Table 1. Out of the 200 subjects, 135 were females and 64 were males aged 15-25 years; the mean age was 19.68 years (SD ±2.17) with a history of orthodontic treatment lasting on average 2.143 years (SD ±1.11).

Results

Reasons for seeking orthodontic treatment

In the sample of 200 subjects, the most common reason for seeking orthodontic treatment was protruding teeth (32.4%). Another major reason was having teeth crowding (27.9%). While (19.8%) of the studied subjects complained of having spaces between teeth, and (8.5%) of a protruding jaw, only a few respondents had seek the treatment because of eating and chewing difficulties. Reasons for seeking orthodontic treatment are presented in Fig 1. More than one answer could be marked in this section.

The Majority of patients (45.7%) stated that they themselves were the first ones to notice their dental anomalies, followed by suggestions from their parents, referral pattern is shown in (Fig.2).

Orthodontic Treatment and Services

In Table 2, Responses to questionnaire regarding orthodontic treatment and services are presented. A high rate of satisfaction with teeth alignment (90.5%) was found, also Final result of treatment (88.5%), and Improvement of face appearance (96.5%) was observed.

It was also found that (91%) of the subjects were “satisfied” or “very satisfied” of the chewing ability following their orthodontic treatment, and (86.5%) with the improvement in cleaning of their teeth.

Regarding time, (24.5%) of subjects were “strongly unsatisfied” or “unsatisfied” with the total treatment duration, (14.5%) were “dissatisfied” with the number of visits per month, (17.5%) were “dissatisfied” with the duration of each appointment, and (34.5%) with the waiting time at each appointment.

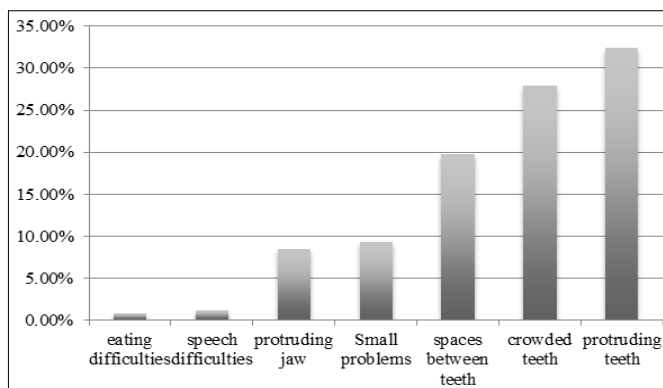


Fig 1: Reasons for seeking orthodontic treatment

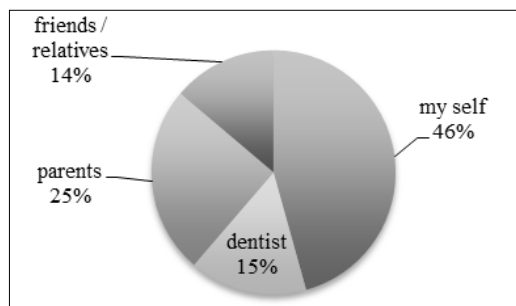


Fig 2: Who suggested orthodontic treatment for you?

Table 2: Responses to questionnaire regarding orthodontic treatment and services.

Items	Response to questionnaire					
	Very dissatisfied /dissatisfied		Neutral		Satisfied /very satisfied	
	n	%	n	%	n	%
Alignment of teeth	16	8%	3	1.50%	181	90.50%
Improvement general face appearance	7	3.50%	0	0%	192	96.50%
Improvement of mastication	17	8.50%	1	0.50%	182	91%
Improvement of teeth cleaning	26	13%	1	0.50%	173	86.50%
Total duration of treatment	49	24.50%	7	3.50%	144	72%
Number of appointments per month	29	14.50%	12	6%	159	79.50%
Duration of each appointment	35	17.50%	11	5.50%	154	77%
Waiting duration before each appointment	69	34.50%	8	4%	123	61.50%
Cost of Treatment	32	16%	3	1.50%	165	82.50%
Staff Service	30	15%	6	3%	164	82%
Increase self confidence	12	6%	0	0%	188	94%

Moreover, (16%) of the subjects were “strongly unsatisfied” or “unsatisfied” with cost of treatment, and only (15%) were “strongly unsatisfied” or “unsatisfied” with the services extended by the staff of the clinic.

Regarding self-esteem a total of (94%) of the subjects stated that orthodontic treatment had a positive influence on his\her self-confidence.

High proportion of subjects experienced oral pain after treatment (92.4%). In Fig 3, questions concerning how much pain the patient experienced during or following their appointments are presented. The majority of patients (46.8%) reported that pain lasts for a few days after appointment, and (23.7%) stated that they experienced pain during visits, while (12.7%) experience pain during mastication, and only (8.2%) stated that they faced difficulty on brushing their teeth because of braces. More than one answer could be marked in this section.

Orthodontist-Patient Relationship

As shown in **Table3**, greater level of dissatisfaction is found in response to questions Regarding doctor-patient relationship, the question“ Are you satisfied with the choice of your orthodontist“ revealed that (24%) of the subjects reported being “unsatisfied” with their orthodontist. Whereas, (75%) of the subjects stated that their orthodontist explained the treatment plan to them prior to the orthodontic treatment. A

significant percentage of the subjects (76.5%) stated that the questions they had during the appointments were answered promptly. While a total of (78.5%) of Individuals stated that the dentist was gentle while treating them. Also most of the respondents (82.5%) reported that dental assistants were gentle while treating them.

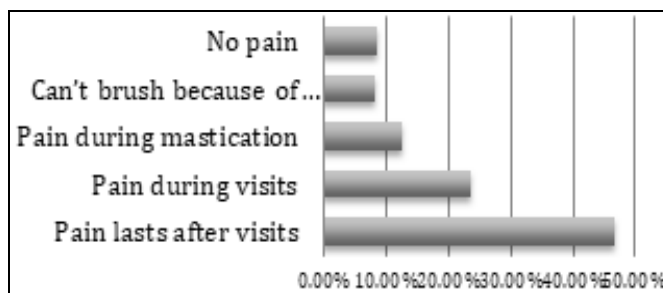


Fig 3: Percentage of patients' responses regarding pain experience

Questions concerning orthodontist honesty, (24.5%) of the respondents stated that their orthodontist weren't completely honest about total treatment duration, while (17.5%) answered “sometimes”. Also (75%) of the subjects answered “Yes” regarding their orthodontist honesty about treatment cost, while (17.5%) answered “sometimes”, and (7.5%) answered “No”.

Table 3: Responses to questionnaire regarding doctor-patient relationship.

Items	Response to questionnaire					
	Yes		No		Sometimes	
	n	%	n	%	n	%
Orthodontist explained the treatment plan to me prior to the orthodontic treatment	150	75%	38	19%	12	5.50%
Questions I had were answered promptly	153	76.50%	10	5%	37	18.50%
Orthodontist was gentle when treating me	157	78.50%	14	7%	29	14.50%
Dental assistant was gentle when treating me	165	82.50%	12	6%	23	11.50%
Orthodontist was honest in issues concerning treatment duration	116	58%	49	24.50%	35	17.50%
Orthodontist was honest in issues concerning treatment cost	150	75%	13	7.50%	35	17.50%
I will recommend my orthodontist to others	118	59%	50	25%	32	16%

Table 4: Comparison between satisfied and unsatisfied patients doctor-patient relationship

items	Group 1 (n=152) Satisfied with the orthodontist						Group 2 (n=48) Unsatisfied with the orthodontist						X ² (p)
	Yes		No		Sometimes		Yes		No		Sometimes		
	n	%	n	%	n	%	n	%	n	%	n	%	
Orthodontist explained the treatment plan to me prior to the orthodontic treatment	116	76.30%	27	17.80%	179	5.90%	34	72.30%	11	23.40%	2	4.30%	.854 (.653)
Questions I had were answered promptly	130	85.50%	5	3.30%	17	11.20%	23	47.90%	5	10.40%	20	41.70%	28.774 (.000)*
Orthodontist was gentle while treating me	127	83.60%	5	3.30%	20	13.20%	30	62.50%	9	18.80%	9	18.80%	15.303 (.000)*
Dental assistant was gentle while treating me	130	85.50%	5	3.30%	17	11.20%	35	72.90%	7	14.60%	6	12.50%	8.513 (.014)*
Orthodontist was honest about treatment duration	98	64.50%	29	19.10%	25	16.40%	18	37.50%	20	41.70%	10	20.80%	12.574 (.002)*
Orthodontist was honest about treatment cost	118	78.70%	11	7.30%	21	14.00%	32	66.70%	2	4.20%	14	29.20%	5.979 (.050)

*Significant at P < 0.05.

Also, (59%) of the subject answered “Yes” to the question “I will recommend my orthodontist to others” while (25%) answered “No” and (16%) answered “sometimes”

Chi-square test

Chi-square test indicated almost no variations in response by gender, age, education, reasons for seeking orthodontic treatment or length of the treatment in relation to patient satisfaction after orthodontic treatment.

Considering patients’ satisfaction with the orthodontist, respondents were divided into two groups (Table 4). Group I consisted of 42 patients that considered themselves unsatisfied with their orthodontist. Group II consisted of 152 patients that considered themselves satisfied. Comparing the two groups using chi-square test revealed that a statistical significant difference was found between the two groups regarding the prompt answering to their questions by the orthodontist (P=.001), gentleness of the orthodontist and the dental assistant while treating them (p=.001 and P=.014, respectively), and orthodontist's honesty about treatment duration (P=.002).

Discussion

In general, high levels of satisfaction with dentition following orthodontic treatment have been reported on the current study, which is similar to the results of previous studies [13, 14]. The present study found that 90.5% of subjects were ‘very satisfied’ or ‘satisfied’ with the alignment of their teeth after treatment. The results are to somewhat in accord with that of Larsson and Bergsröm [15] where they reported a satisfaction rate of 74%.

Consistent with the results of other studies [16, 17], the current study showed that esthetic considerations were the primary reason for orthodontic treatment, and that considerations about improved functioning were much less common. These findings are not surprising given that researches showed that the face is a crucial characteristic in the development of a person’s self-esteem and self-image [18, 19]. It seems understandable, therefore, that the patients were on average more energized by and focused on esthetics than functioning.

In addition, the current study results showed that gender, age, and duration of treatment were not related to patients’

satisfaction with their dentition after orthodontic treatment. These results are consistent with earlier studies [12, 14] where they found that the lack of a relationship between gender and patient satisfaction seems to be a common outcome for patients who have received orthodontic treatment. Furthermore, Al-Omiri and Alhajja [12] found that satisfaction with the dentition after orthodontic treatment showed no relationship to age.

Previous researches have shown that females are more dissatisfied with the appearance of their dentition than males and focus on improved appearance as a reward [20, 21]. The sample chosen in the current study followed the same trend, with a majority of females.

With regard to the improvement of the patients’ chewing ability after the orthodontic treatment, the majority of patients (91%) observed an improvement. This result is in agreement with earlier studies [22, 23] where reported results were above (50%).

The result of the present study revealed that waiting time during appointments constituted the highest factor of dissatisfaction (34%) for the studied group. These results are in accord with that of previous study [11] which found that it was probably due to the large number of patients seen per day.

In addition, the findings of the present study, as well as earlier studies [22, 23] supported the contention that orthodontic treatment not only results in improvement in dental aesthetics but also has a significant impact on the self-esteem of the patient. Furthermore, A previous study [23] reported that the aesthetic dental improvement after orthodontic treatment and the newly acquired level of confidence is probably reflected in more relaxed social behavior and smiling without hesitation.

Regarding pain experience, the majority of the studied subjects (92.4%) stated that they experienced pain during the process of orthodontic treatment. Among them (46.80%) registered that pain lasts for several days after the appointment. These results agreed with that of Lew (1993) where he found that pain at home did not exceed 7 days. Moreover, Kouguchi *et al.* (1990) [24] observed that (49%) of patients had thought of giving up treatment due to discomfort of appliances. Concerning gender, the present results demonstrated no difference in pain perception between both males and females. Earlier studies [25, 26] are in agreement with

the present study. On the other hand, findings of previous studies showed that females had more pain and discomfort during fixed appliance treatment than males^[27, 28].

A critical role in a patient's mental satisfaction, in addition to professional performance is the patient-orthodontist relationship. The results of the current study showed that the factors that affected the patients' satisfaction with their orthodontist were answering to patients' questions by the orthodontists, gentleness of the orthodontists /dental assistants while treating patients and orthodontists' honesty about treatment duration. Chakraborty *et al.*^[29] studied the preferences of patients and determined that preferred professionals responded to questions from patients, asking about uncertainty, helping to overcome them. Moreover, in O'Connor's^[7] study, the patients' recommendations at the end of treatment were for more discussions throughout treatment. Finally, some of the limitations of the present study were that the sample size for the study population was small, and that the respondents have evaluated their treatment many years after receiving it and the interval between the treatment and the completion of the questionnaire may have affected their answers. Therefore, it is recommended in future studies not only to train orthodontists in the evaluation of patient compliance, but also to measure patient satisfaction at different time intervals after treatment.

Conclusion

- Most respondents indicated that they were either "satisfied" or "very satisfied" with the esthetic and functioning of their teeth after treatment, however they showed greater dissatisfaction regarding treatment duration and waiting duration.
- Most of the patients experienced pain during or following their orthodontic treatment visits and this had a negative effect on their lives.
- Protruding and crowding teeth seemed to be the most common reasons for patients seeking orthodontic treatment in Qassim region.
- No variations in responses were found by gender, age, education, reasons for seeking orthodontic treatment or length of the treatment in relation to patient satisfaction after orthodontic treatment.
- The factors that affected the patients' satisfaction with their orthodontist, were: answering to patients' questions by the orthodontists, gentleness of the orthodontists /dental assistants while treating patients and orthodontists' honesty about treatment duration.
- Orthodontists should be aware that a good relationship with the patient may be even more important for the patient than just a technical successful treatment alone.

Acknowledgment

I would like to thank my supervisor Dr. Nabila Sedky for her continual support and advice throughout the study.

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