Patient's Satisfaction with Orthodontic Treatment in Sulaimani City

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Abstract

The aim of the study: The objective of this study is to evaluate the patient's satisfaction with orthodontic treatment for a sample of orthodontic patients treated in Sulaimani city and identify the possible factors that may affect the satisfaction with their dentition and profile after treatment.

Material and Methods: This is a retrospective study where 581 patients had consecutively completed active orthodontic treatment in Sulaimani Governorate, those patients were asked to complete self-administered questionnaires, only 500 patients were included (178 males and 322 females; mean age, 25.5; standard deviation [SD], 9.5. All the patients were treated with full fixed appliances, some in combination with removable and functional appliances. (57.2%) were very satisfied with the orthodontist, (33.8%) were very satisfied with improvement in the facial appearance, 80.8% were very satisfied with improvement in alignment of teeth, 24.8% were very satisfied with improvement in chewing, 43% were very satisfied with improvement in cleaning, 24 4.8% were very satisfied with the color of the teeth, 29% were very satisfied with the speech quality, 32.4% were very satisfied with the total treatment time, 39.8% were very satisfied with the number of visits per month, 8.4% were very satisfied with time that one appointment lasts, 1.4% were very satisfied with waiting time at each appointment, 21.8% were very satisfied with the service of orthodontic staff in clinic or hospital.

Conclusions: Personality and satisfaction were correlated, but no correlation was found between gender and patient satisfaction. Also, patients with high neuroticism scores who treated orthodontically were linked with lower levels of satisfaction with the dentition. Beside satisfaction with oral comfort, general performance, eating capacities, and pain dimensions during orthodontic treatment had definitive effects on total satisfaction. On the other side, most of them were unsatisfied with waiting for each appointment.

Keywords: *pateint's satisfaction, malocclusion, aesthetics*

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Introduction

Patients' perceptions of orthodontic treatment cannot be under assessed, as it is the patients who obtain treatment and need to gain satisfaction from improved aesthetics and function[(1)].

The face is the most important physical characteristic in the development of self-image and self-esteem[(2, 3)]. People who are dissatisfied with their facial appearance is not surprising that they view orthodontic treatment primarily as a way to improve dentofacial appearance[(4-6)]. The putative determinants of orthodontic treatment time can be divided into four broad categories:

sociodemographic characteristics, malocclusion characteristics, treatment method and patient's cooperation[(7)].

Orthodontists, like other health care professionals, rely on patient cooperation for successful treatment outcomes,

and an important factor in this success is patient satisfaction with the delivery of their care[(8)]. Satisfaction after orthodontic treatment is influenced by a number of factors. To illustrate, psychological traits of individual.

patients affecting their satisfaction with orthodontic treatment outcomes[(8-11)]. Factors like gender, age, duration of treatment, compliance, dentofacial improvement seem to contribute to the level of satisfaction[(9,12-14)], physical comfort, emotional support, patients' expectations, and respect for patient preference[(15-17)]. Although some studies examined satisfaction with both process and outcome[(18)], others have examined each separately[(19-21)]. The only qualitative study previously undertaken to examine satisfaction with treatment process showed that all patients expressed some dissatisfaction, even though they were satisfied with their outcomes[(8)], and those who

complete treatment on time might be more satisfied and more likely to refer additional patients.

Bos et al[12]used different factors to examine patient's satisfaction after orthodontic treatment. These are a doctor-patient relationship, situational aspects, dentofacial improvement, psychosocial improvement, and dental function, as well as a residual category. It was shown that the most important factor contributing to patient satisfaction was the patient's satisfaction with the doctor-patient relationship. Gender was shown to be a significant predictor of the patient's satisfaction with the doctor-patient relationship and the situational aspects of the treatment[12]. However, dental attitudes of patients have changed over time[20]. Over the past decade, the number of patients seeking orthodontic treatment has increased considerably with socioeconomic development and changing opinions on appearance[13, 20, 22, 23]. According to the Theory of Possible Selves of Markus and Nurius[24], patients will determine their satisfaction when the possible selves are realized in the future. Regardless of whether these possible selves are positive or negative, they affect a person's motivation in two ways[25]. First, they energize the person to work toward making positive possible selves become a reality or toward preventing negative possible selves from becoming a reality. Second, they focus a person on a specific goal and thus direct their motivation as well. This study suggests exploring whether patients' possible selves before their orthodontic treatment will also be related to their post-treatment satisfaction.

The possible determinant of patient satisfaction after treatment is the level of compliance shown by the patient with the treatment process and the treatment outcome[12]. Although in many patient-centered evaluations of the effectiveness of orthodontic treatment the term ''patient satisfaction'' is used, this concept is in itself ambiguous[26].

In the development of a questionnaire to measure patient perceptions and satisfaction with the process of care, there are three stages[27]. The items for investigation are first generated through qualitative research centered on focus groups. Second, a questionnaire is designed using these items and then evaluated to ensure it does not contain ambiguous or leading questions. Finally, the questionnaire is tested for readability, reliability, validity, and ease of administration[28]. Although Reliability refers to the reproducibility, consistency, and homogeneity and the degree to which it is free from random error[18, 28], validity refers to the degree that a measure is an accurate reflection of what it is designed to measure[29]. Patient satisfaction surveys are becoming a required component of a clinical governance worldwide[30]. Standards set for orthodontic patient satisfaction vary. According to an audit done by Balakrishnan and Clark (2005)[31], one practitioner proposed at 100% satisfaction standard, another an 80% standard.

Table 1: Age groups responding to the questionnaire

Gender	16-20 year	21-25 year	26-30 year	31-35 year	Total sample
Male	63	52	49	14	178
Female	103	99	94	26	322
Total	166	151	143	40	500

They agreed on a 90% standard for their survey, in accordance with another opinion. A survey did local did not set or recommended a satisfaction standard[32]. In orthodontics, only recently have studies been designed to measure satisfaction with care provided[33-36]. Most of the dimensions that are being measured are similar to those in general dental practice. The additional dimensions measured are the psychosocial effects of orthodontic treatment and outcomes of treatment[33-36].

Materials and Methods

Questionnaire

A questionnaire was designed in the English language with simple close-ended responses then translated to the Kurdish language (with some changing). The patients were free to comment in the section "Comments" after the questions. The only patient who was totally treated or completed active treatment were included. Information recorded included patient's age and gender, study level of patient and by whom they referred to orthodontic treatment. Twenty items were included, fall into three main categories: the first twelve items were about orthodontic treatment and service, second two items were about pain, and last six items were about patient self-esteem.

Sample: This is a retrospective study where 581 patients had consecutively completed active orthodontic treatment in any orthodontic clinic or Specialized Dental Hospital in Sulaimani Governorate, those patients were asked to complete self-administered questionnaires, only 500 patients were included (178 males and 322 females; mean age, 25.5; standard deviation [SD], 9.5), excluding 81 forms due to inadequate handling of the questions or failure to return the forms, it was explained to the patients before filling the questionnaire to raise any queries, some of them were filled in clinics when they followed-up, some by the researcher in universities and preparatory schools, and others were conducted by phone. All the patients were treated with full fixed appliances, some in combination with removable and functional appliances. Cases filled out the questionnaire incompletely, cases out of the age range of (16-35) and cases treated solely with removable or functional appliances were excluded, thus removing any bias due to the generally shorter treatment time with removable appliances and longer time with functional appliances, the nature of the malocclusion is generally less severe in

these cases and the quality of treatment outcome has been known to be different in these cases. There is no information about the type of fixed appliances, type of arch wires used, the post-treatment time range is unknown, and the sample size is randomly selected.

Statistical Analysis

Chi Square Statistics

Chi Square test and P-value are used to know the significance level between males and females in three categories (orthodontic treatment, pain, and patient self-esteem). In the contingency tables with Chi Square calculation, the default significance level is used which is 0.05 other than 0.01 or 0.1. The contingency table provides the following information: the observed cell totals, the expected cell totals and the X^2 statistic for each cell.

Pearson Correlation Coefficient Calculation

Pearson correlation coefficient (r) is a measure of the linear correlation (dependence) between two variables X and Y, giving a value between +1 and −1 inclusive, where 1 is a total positive correlation, 0 is no correlation, and −1 is a total negative correlation. It is widely used in the sciences as a measure of the degree of linear dependence between two variables.

Results

The total number of respondents was 500 patients; 178 males (36%) and 322 females (64%) with a mean age of 25.5 years (age range from 16-35 years), 166 (33.2%) of patients were at age of 16-20 years, 151 (30.2%) of them were at age of 21-25 years, 143 (28.6%) of them were 26-30 years, and 40 (8%) of them were 31-35 years old. Concerning the referral of the patients who sought orthodontic treatment; 218 (43.6%) patients by dentist/dental specialist, 193 (38.6%) patients by themselves/parents, 4 (0.8%) patients by television, 2 (0.4%) patients by Internet, 76 (15.2%) patients by friends/relatives, 7 (1.4%) patients by others. Regarding the satisfaction with the orthodontic treatment and service; 286 (57.2%) were very satisfied with the doctor (orthodontist), 169 (33.8%) were very satisfied with improvement in the facial appearance, 404 (80.8%) were very satisfied with improvement in alignment of teeth, 124 (24.8%) were very satisfied with improvement in chewing, 215 (43%) were very satisfied with improvement in cleaning, 24 (4.8%) were very satisfied with the color of the teeth, 145 (29%) were very satisfied with the speech quality, 162 (32.4%) were very satisfied with the total treatment time, 199 (39.8%) were very satisfied with the number of visits per month, 42 (8.4%) were very satisfied with time that one appointment lasts, 7 (1.4%) were very satisfied with waiting time at each appointment, 109 (21.8%) were very satisfied with the service of orthodontic staff in clinic or hospital.

Furthermore with the satisfaction with the orthodontic treatment and service; 182 (36.4%) were satisfied with the doctor (orthodontist), 328 (65.6%) were satisfied with the improvement in the facial appearance, 79 (15.8%) were satisfied with the alignment of teeth, 373 (74.6%) were satisfied with improvement in chewing, 218 (56.2%) were satisfied with the improvement in cleaning, 413 (82.6%) were satisfied with the color of the teeth, 354 (70.8%) were satisfied with speech quality, 211 (42.2%) were satisfied with the duration of the total treatment time, 276 (55.2%) were satisfied with the number of treatment per month, 342 (68.4%) were satisfied with the length of each appointment, 99 (19.8%) were satisfied with waiting for each appointment, 344 (68.8%) were satisfied with the services of orthodontic staff.

Lastly with the satisfaction with orthodontic treatment and services; 32 (6.4%) were unsatisfied with the doctor (orthodontist), 3 (0.6%) were unsatisfied with improvement in facial appearance, 17 (3.4%) were unsatisfied with improvement in alignment of teeth, 3 (0.6%) were unsatisfied with improvement in chewing, 4 (0.8%) were unsatisfied improvement in cleaning, 63 (12.6%) were unsatisfied with satisfaction with tooth color, 1 (0.2%) were unsatisfied with satisfaction with speech quality, 127 (25.4%) were unsatisfied with length of total treatment time, 25 (5%) were unsatisfied with number of visits per month, 116 (23.2%) were unsatisfied with length of each appointment, 394 (78.8%) were unsatisfied with waiting time at each appointment, 47 (9.4%) were unsatisfied with services of orthodontic staff.

Regarding the pain-discomfort in clinic; 310 (62%) were tolerable, 153 (30.6%) were minimal tolerable, 37 (7.4%) were intolerable, but about pain-discomfort at home, 193 (38.6%) were tolerable, 198 (39.6%) were minimal tolerable, 109 (21.8%) were intolerable.

Regarding the patient self-esteem; confidence of the patients with treatment, 401 (80.2%) were confident, 3 (0.6%) were unconfident, 96 (19.2%) did not know about confidence, smile by the patient; 435 (87%) smiled more readily, 4 (0.8%) did not smile more readily, 61 (12.2%) did not know, improvement of patient social life; 358 (71.6%) were improved, 16 (3.2%) unimproved, 126 (25.2%) did not know, recommendation of the patient's friend to orthodontic treatment; 321 (64.2%) said yes, 26 (5.2%) said no, 153 (30.6%) said don't know, the negative reaction by patient's relatives or friends; 183 (36.6%) said yes, 243 (48.6%) said no, 74 (14.8%) said don't know, other problems (e.g. TMJ clicking, hardly swallowing, changing, profile, mouth opening limitation, etc.); 21 (4.2%) said yes, 388 (77.6%) said no, 91 (18.2%) said don't know.

This study revealed a highly significant level of satisfaction concerning the following items (improvement facial appearance, improvement in the alignment of teeth, the number of visits per month, satisfaction with services of orthodontic staff, patients' tolerance with pain/discomfort at home, and negative reaction or teasing by patients' friends). There is also significance in these items (satisfaction with an orthodontist, the length of each appointment, and

patients' tolerance for pain/discomfort in the clinic). But there is no significance in these items (age groups, improvement in chewing, improvement in cleaning, satisfaction with tooth color, satisfaction with speech quality, satisfaction with length of total treatment time, satisfaction with waiting time at each appointment, patient self-esteem with confidence and smile and social life, recommendation patients' friend to orthodontic treatment, and other problems produced by orthodontic treatment)

Pearson Correlation Coefficient for very satisfied males and females in satisfaction with orthodontic treatment and service was *0.8974. This is a strong positive correlation, which means that high Very Satisfied Males scores go with high Very Satisfied Females scores (and vice versa). The value of* R^2*, the coefficient of determination, is 0.8053.*

Discussion

Females are seeking orthodontic treatment more than males (322 females to 178 males), and the majority are at the age of (16-30) years old. The most of the cases are agreed with the orthodontic treatment and services; this might be because orthodontic treatment can affect dental performance positively, which can lead to higher levels of satisfaction. But nearly 78.8% of the cases were unsatisfied with waiting at each appointment. In relation to the self-esteem items, 80.2% were confident, 87% smiles more readily, 71.6% have improved his/her social life, which these means they have got to benefit from the orthodontic treatment. There is no study about patients' satisfaction with orthodontic treatment in Kurdistan, so we compare it with other studies in other countries. The patients who are looking for orthodontic treatment and satisfaction with dental appearance has been correlated with age and gender in individuals who have not received orthodontic treatment. It has been reported that satisfaction with dentofacial appearance decreases with age[14, 37]. Therefore, adults are expected to be less satisfied with their dentofacial appearance than are adolescents. Females are more dissatisfied with the appearance of their dentition than are males[13, 38, 39]. Also, Females perceive more need for orthodontic treatment than males[13, 38]. Although some authors found no differences in satisfaction levels between age groups(40-42), So, to be able to explain better and guess patient satisfaction after orthodontic treatment, it is important to get a clear understanding of the motivations and expectations of patients before initiating any treatment.

Some limitations of the results must be noted. First, the findings reflect only the satisfaction of patients treated in Sulaimani. For that reason, the results cannot be generalized to orthodontic patients in general. I acknowledge that people from different socioeconomic backgrounds, nations, and civilizations may place different values on the results. This is an interesting area that requires further research. Second, the type of orthodontic treatment has not been taken into an explanation that may affect patient satisfaction. To analyze the experiences of orthodontic patients more specifically, the satisfaction levels of patients undergoing different types of treatment should be explained more in detail in future studies. Third, patient satisfaction is somewhat related to stability of the orthodontic treatment, regardless of the original occlusal condition or the final result of the orthodontic treatment[43].

Previous studies(44), however, have revealed correlations between personality traits and treatment satisfaction, such that higher neuroticism scores were associated with lower levels of satisfaction. According to several previous articles(32, 45, 46), satisfaction with treatment is related to the quality of care and attention (i.e., treating patients with respect and including them in treatment discussions). No correlations have been found between sex and satisfaction with treatment outcome. Correlations between treatment satisfaction and other background factors such as age, pretreatment need, the severity of malocclusion, and objective treatment outcome have also not been found(9, 24).

Conclusions

- Personality and satisfaction were correlated, and they affect each other, but no correlation was found between gender and patient satisfaction. Also, patients with high neuroticism scores who treated orthodontically were linked with lower levels of satisfaction with the dentition.
- Approximately half of the patients are referred by the dentist or other dental specialties who they didn't know that they have problems with their teeth.
- Satisfaction with oral comfort, general performance, eating capacities, and pain dimensions during orthodontic treatment had definitive effects on total satisfaction. Besides this treatment and high level of confidence of patients, most of them were unsatisfied with waiting for each appointment.

Table 2: Total sample respondents

	Who referred you or suggested orthodontic treatment?					**Males**	**Females**
		Dentist/Dental Specialist				81	137
		Self/Parents				58	135
		Television				1	3
		Internet				0	2
		Friends/Relatives				35	41
		Others				3	4
		Very satisfied		**Satisfied**		**Unsatisfied**	
		Males	**Females**	**Males**	**Females**	**Males**	**Females**
1	Satisfaction with doctor (orthodontist)	88	198	79	103	11	21
2	Improvement in facial appearance	78	91	99	229	1	2
3	Improvement in alignment of teeth	159	245	12	67	7	10
4	Improvement in chewing	43	81	133	240	2	1
5	Improvement in cleaning	88	127	89	192	1	3
6	Satisfaction with tooth color	9	15	146	267	23	40
7	Satisfaction with speech quality	61	84	116	238	1	0
8	Length of total treatment time	65	97	65	146	48	79
9	Number of visits per month	48	151	114	162	16	9
10	Length of each appointment	16	26	109	233	53	63
11	Waiting time at each appointment	4	3	34	65	140	254
12	Services of Orthodontic Staff	26	83	117	227	35	12
		Tolerable		**Minimal tolerable**		**Intolerable**	
		Males	**Females**	**Males**	**Females**	**Males**	**Females**
13	Pain - discomfort in clinic	101	209	68	85	9	28
14	Pain - discomfort at home	86	107	75	123	17	92
		Yes		**No**		**Don't know**	
		Males	**Females**	**Males**	**Females**	**Males**	**Females**
15	Are you more confident now?	148	253	1	2	29	67
16	Do you smile more readily now?	153	282	2	2	23	38
17	Has it improved your social life?	119	239	7	9	52	74
18	Would you recommend orthodontic treatment to your friends?	102	219	10	16	66	87
19	Did your friends or relatives react negatively or teased your treatment appliances?	79	104	68	175	31	43
20	Did you get other problems? (e.g. TMJ clicking, hardly swallowing, changing profile, mouth opening limitation, …, etc.)	7	14	132	256	39	52

Table 3: Calculating X^2 test, *P* value, and statement of significance level for all items

	Very satisfied		Satisfied		Unsatisfied		X2 test	P value
	Males	Females	Males	Females	Males	Females		
1	88 (101.82) [1.87]	198 (184.18) [1.04]	79 (64.79) [3.12]	103 (117.21) [1.72]	11 (11.39) [0.01]	21 (20.61) [0.01]	7.77	0.020548*
2	78 (60.16) [5.29]	91 (108.84) [2.92]	99 (116.77) [2.70]	229 (211.23) [1.49]	1 (1.07) [0.00]	2 (1.93) [0.00]	12.4155	0.002014*
3	159 (143.82) [1.60]	245 (260.18) [0.89]	12 (28.12) [9.24]	67 (50.88) [5.11]	7 (6.05) [0.15]	10 (10.95) [0.08]	17.0715	0.000196**
4	43 (44.14) [0.03]	81 (79.86) [0.02]	133 (132.79) [0.00]	240 (240.21) [0.00]	2 (1.07) [0.81]	1 (1.93) [0.45]	2.546	0.279995
5	88 (76.54) [1.72]	127 (138.46) [0.95]	89 (100.04) [1.22]	192 (180.96) [0.67]	1 (1.42) [0.13]	3 (2.58) [0.07]	4.7509	0.092971
6	9 (8.54) [0.02]	15 (15.46) [0.01]	146 (147.03) [0.01]	267 (265.97) [0.00]	23 (22.43) [0.01]	40 (40.57) [0.01]	0.0716	0.964831
7	61 (51.62) [1.70]	84 (93.38) [0.94]	116 (126.02) [0.80]	238 (227.98) [0.44]	1 (0.36) [1.16]	0 (0.64) [0.64]	5.6937	0.058026
8	65 (57.67) [0.93]	97 (104.33) [0.51]	65 (75.12) [1.36]	146 (135.88) [0.75]	48 (45.21) [0.17]	79 (81.79) [0.10]	3.8282	0.147472
9	48 (70.84) [7.37]	151 (128.16) [4.07]	114 (98.26) [2.52]	162 (177.74) [1.39]	16 (8.90) [5.66]	9 (16.10) [3.13]	24.1505	0.000001**
10	16 (14.95) [0.07]	26 (27.05) [0.04]	109 (121.75) [1.34]	233 (220.25) [0.74]	53 (41.30) [3.32]	63 (74.70) [1.83]	7.3388	0.025492*
11	4 (2.49) [0.91]	3 (4.51) [0.50]	34 (35.24) [0.04]	65 (63.76) [0.02]	140 (140.26) [0.00]	254 (253.74) [0.00]	1.486	0.475697
12	26 (38.80) [4.22]	83 (70.20) [2.34]	117 (122.46) [0.24]	227 (221.54) [0.13]	35 (16.73) [19.95]	12 (30.27) [11.03]	37.9094	0.000001**
	Tolerable		**Minimal tolerable**		**Intolerable**			
	Males	**Females**	**Males**	**Females**	**Males**	**Females**		
13	101 (110.36) [0.79]	209 (199.64) [0.44]	68 (54.47) [3.36]	85 (98.53) [1.86]	9 (13.17) [1.32]	28 (23.83) [0.73]	8.5049	0.014229*
14	86 (68.71) [4.35]	107 (124.29) [2.41]	75 (70.49) [0.29]	123 (127.51) [0.16]	17 (38.80) [12.25]	92 (70.20) [6.77]	26.2305	0.000001**
	Yes		**No**		**Don't know**			
	Males	**Females**	**Males**	**Females**	**Males**	**Females**		
15	148 (142.76) [0.19]	253 (258.24) [0.11]	1 (1.07) [0.00]	2 (1.93) [0.00]	29 (34.18) [0.78]	67 (61.82) [0.43]	1.5231	0.466943
16	153 (154.86) [0.02]	282 (280.14) [0.01]	2 (1.42) [0.23]	2 (2.58) [0.13]	23 (21.72) [0.08]	38 (39.28) [0.04]	0.5144	0.773229
17	119 (127.45) [0.56]	239 (230.55) [0.31]	7 (5.70) [0.30]	9 (10.30) [0.17]	52 (44.86) [1.14]	74 (81.14) [0.63]	3.0998	0.212264
18	102 (114.28) [1.32]	219 (206.72) [0.73]	10 (9.26) [0.06]	16 (16.74) [0.03]	66 (54.47) [2.44]	87 (98.53) [1.35]	5.9318	0.051513
19	79 (65.15) [2.95]	104 (117.85) [1.63]	68 (86.51) [3.96]	175 (156.49) [2.19]	31 (26.34) [0.82]	43 (47.66) [0.45]	11.9998	0.002479**
20	7 (7.48) [0.03]	14 (13.52) [0.02]	132 (138.13) [0.27]	256 (249.87) [0.15]	39 (32.40) [1.35]	52 (58.60) [0.74]	2.5596	0.278086

*significant, **very significant

Table 4: Calculating X^2 statistic, P-value, and statement of significance of age groups

	16-20	21-25	26-30	31-35	X2 test	P value
Male	63 (59.10) [0.26]	52 (53.76) [0.06]	49 (50.91) [0.07]	14 (14.24) [0.00]	0.6069	0.894858
Female	103 (106.90) [0.14]	99 (97.24) [0.03]	94 (92.09) [0.04]	26 (25.76) [0.00]		

Table 5: Overall Responses to the Questionnaire

	Who referred you or suggested orthodontic treatment?	**Dentist/dental specialist**		**218 (43.6%)**
		Self/parents		193 (38.6%)
		Television		4 (0.8%)
		Internet		2 (0.4%)
		Friends/relatives		76 (15.2%)
		Other		7 (1.4%)
		Very satisfied	**Satisfied**	**Unsatisfied**
1	Satisfaction with doctor (orthodontist)	286 (57.2%)	182 (36.4%)	32 (6.4%)
2	Improvement in facial appearance	169 (33.8%)	328 (65.6%)	3 (0.6%)
3	Improvement in alignment of teeth	404 (80.8%)	79 (15.8%)	17 (3.4%)
4	Improvement in chewing	124 (24.8%)	373 (74.6%)	3 (0.6%)
5	Improvement in cleaning	215 (43%)	218 (56.2%)	4 (0.8%)
6	Satisfaction with tooth color	24 (4.8%)	413 (82.6%)	63 (12.6%)
7	Satisfaction with speech quality	145 (29%)	354 (70.8%)	1 (0.2%)
8	Length of total treatment time	162 (32.4%)	211 (42.2%)	127 (25.4%)
9	Number of visits per month	199 (39.8%)	276 (55.2%)	25 (5%)
10	Length of each appointment	42 (8.4%)	342 (68.4%)	116 (23.2%)
11	Waiting time at each appointment	7 (1.4%)	99 (19.8%)	394 (78.8%)
12	Services of Orthodontic Staff	109 (21.8%)	344 (68.8%)	47 (9.4%)
		Tolerable	**Minimal tolerable**	**Intolerable**
13	Pain/discomfort in clinic	310 (62%)	153 (30.6%)	37 (7.4%)
14	Pain/discomfort at home	193 (38.6%)	198 (39.6%)	109 (21.8%)
		Yes	**No**	**Don't know**
15	Are you more confident now?	401 (80.2%)	3 (0.6%)	96 (19.2%)
16	Do you smile more readily now?	435 (87%)	4 (0.8%)	61 (12.2%)
17	Has it improved your social life?	358 (71.6%)	16 (3.2%)	126 (25.2%)
18	Would you recommend orthodontic treatment to your friends?	321 (64.2%)	26 (5.2%)	153 (30.6%)
19	Did your friends or relatives react negatively or teased your treatment appliances?	183 (36.6%)	243 (48.6%)	74 (14.8%)
20	Did you get other problems? (e.g. TMJ clicking, hardly swallowing, changing profile, mouth opening limitation, etc.)	21 (4.2%)	388 (77.6%)	91 (18.2%)

Table 6: Age groups responding to the questionnaire

	16-20	**21-25**	**26-30**	**31-35**	
Male	63 (12.6%)	52 (10.4%)	49 (9.8%)	14 (2.8%)	178
Female	103 (20.6%)	99 (19.8%)	94 (18.8%)	26 (5.2%)	322
	166 (33.2%)	151 (30.2%)	143 (28.6%)	40 (8%)	500

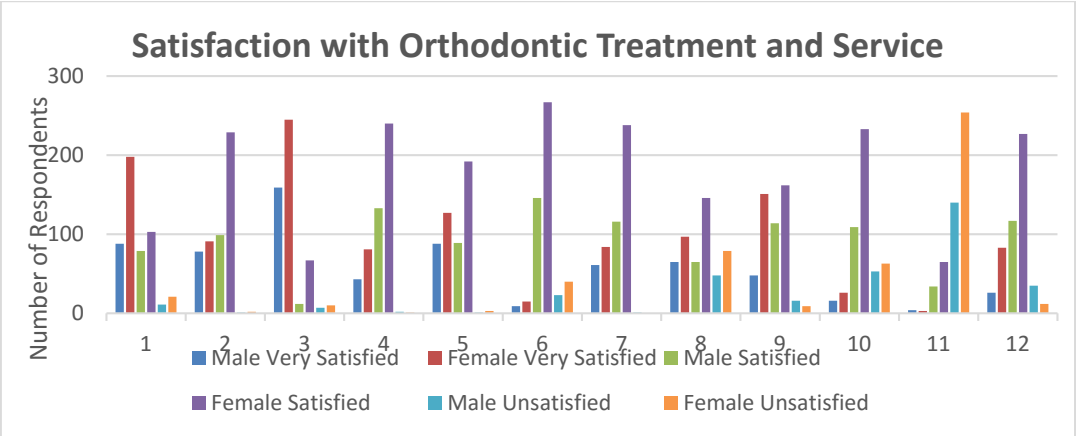

Chart 1: Satisfaction with Orthodontic Treatment and Service

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