

Original Article

Treatment Satisfaction and Its Influencing Factors Among Fixed Orthodontic Patients in UiTM

Shamsul Shamil Bin Shamsul Fadzil¹, Ahmad Izzuddin Bin Ahmad Khalil¹, Indah Yuri Noviaranny^{1,*}, Nagham Mohammed Abdullah Al-Jaf¹, Jamil Ahsan Kazi¹

¹*Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus, Jalan Hospital, 47000 Sungai Buloh, Selangor.*

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Abstract

Objectives: The aims of this study were to evaluate patient's satisfaction regarding the orthodontic treatment provided by the Faculty of Dentistry Universiti Teknologi MARA (UiTM) and to determine the factors that affected their satisfaction level.

Methods: : A cross-sectional study was conducted among the patients treated with full fixed appliances in the faculty's orthodontic clinic using a validated questionnaire.

Results: : The final sample consisted of 105 subjects (response rate 76%) which comprises of 26 males and 79 females were chose with 97% of the respondents are Malay. Most subjects had orthodontic treatment duration of more than 1.5 years (100%) and were still wearing fixed appliances (89%). Items included in the questionnaire: reasons for seeking orthodontic treatment, questions relevant to satisfaction with orthodontic treatment, doctor-patient relationship and pain experience during orthodontic treatment. Concerning the doctor patient relationship, 91% of the respondents were contented with their orthodontist. Respondents answered 'Yes' to the treatment plan explained prior to the procedure (91.4%), questions answered promptly (94.3%), gentleness of the orthodontist (91.4%) and dental assistant (88.6%), orthodontist honesty about treatment duration (90.5%) and cost (97.1%), and recommendation to others (90.5%).

Conclusion: Generally, patients who had received orthodontic treatment from the orthodontic clinic in Faculty of Dentistry UiTM were satisfied with the overall treatment outcomes. However, there were still some aspects of the service that can be improved in the future in order to provide a better healthcare services specifically in orthodontic treatment.

Keywords: : Treatment Satisfaction, Orthodontic Treatment, Malaysia, Questionnaire

Abbreviations: UiTM (Universiti Teknologi MARA)

Introduction

The Faculty of Dentistry, UiTM has started its dental services to the community in Shah Alam in 2008. In 2015, the faculty

has moved to Sg Buloh Campus which can be classified as an urban area with multiracial communities surrounding the vicinity. The new building and facilities offer a wide range of services, brand new laboratories and pre-clinical facilities with the latest technology equipment together with the state-of-the-art clinical facilities. The epoch of clinical governance and patient partnership in delivering high quality oral healthcare, it is necessary that

*Corresponding to: Indah Yuri Noviaranny, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus, Jalan Hospital, 47000 Sungai Buloh, Selangor.

Email: indahyuri@salam.uitm.edu.my

Tel: 603 6126 6459

Fax: 603 6126 6103

patients' concerns and opinions are dealt with applicably. Patient satisfaction is an individual's appraisal, of the extent to which the care provided has reached that individual's expectations and preferences ^[1]. One of the most important goals of delivering dental care is assisting patients in their attempts to have an acceptable level of satisfaction with their overall oral cavity and dentition ^[2].

Patient satisfaction is an important aspect in the assessment of the overall quality of life and providing quality dentistry ^[3]. Dento-facial problems which affect patients' function, performance, and aesthetics have known to shape patients' satisfaction with their dentition ^[4,5]. In the past, functional demands were the main attentiveness in dental treatment. Nowadays, the focus has shifted toward dental aesthetics. Among the treatment options offered for those who seek better aesthetics, orthodontic treatment together with crowns, bleaching and tooth-colored restorations are the most desired one ^[6].

Orthodontic, a specialty in dentistry that deals with the diagnosis, prevention, and correction of malpositioned teeth and jaws, can help in refining physical, psychological and social changes as well as improving the quality of life ^[7,8]. In a study, there has been reported high levels of patient satisfaction with dentition following orthodontic treatment ^[9]. Sinha et al. ^[10] stated that doctor-patient interaction is crucial in predicting patient satisfaction. Abrams and Ayers ^[11] also found that a good personal relationship between the operator, and the patient together with good quality of care towards the patient will avoid patient dissatisfaction. Burke and Croucher ^[12] stated that the most important factors in determining patient satisfaction are to explain well the procedure towards the patient, then

sterilization and sanitation, and the operator skills in third place.

Operator should explain using layman term that can be understood by the patients and their caregivers to keep motivate the patients and to avoid patient dissatisfaction. Hence, treatment goals can be achieved easier ^[13]. Patient satisfaction not only works as an indicator for the quality of dental services, it also is a part of the assessment of the total quality management policy of a dental center ^[14].

Thus, this research is important to assess the treatment satisfaction and its influencing factors among fixed orthodontic patients in UiTM. The future findings can be utilized for appropriate measures to improve the quality and patient satisfaction involving fixed orthodontic treatment in UiTM.

Methods and Materials

Instrument

We have selected a questionnaire for our study. Part of the questionnaire used in this study were based on questionnaires from previous studies ^[7,9,15]. Each of the domain in the questionnaire was proven to assess each area of concern. It consists of demographic information, length of treatment, reasons for seeking orthodontic treatment, question pertaining to satisfaction with orthodontic treatment and services, doctor-patient relationship and patient experience during orthodontic treatment. This questionnaire is using a three-point Likert scale ranging from one (satisfied) to three (dissatisfied). This unipolar scale used includes the following choices: completely satisfied (one), moderately satisfied (two) and dissatisfied (three).

For validation of the translation, from English to Malay language, A pilot study was carried out on 10 randomly selected patients to test on the newly modified and adapted questionnaire whether the translated instructions and questions are clear and easily understood to avoid doubts in the respondents. Amendments, enhancements and improvements were made according to the feedback collected. The linguistic validation of a questionnaire is not a direct nor medical/scientific translation of the original questionnaire, but the production of a translation, which is conceptually equivalent to the original and culturally acceptable in this study.

Adequacy of samples based on sample size calculator by Raosoft® Inc. (www.raosoft.com), minimum recommended sample size is 100 samples with 5% margin of error and 80% of confident level based on current 572 active orthodontic patients in Faculty of Dentistry of UiTM, Sg Buloh.

Study sample includes participants from 14 to 37 years age group and patients who had received oral health care provided by Faculty of Dentistry, UiTM. All the patients were treated with full fixed appliances with a minimum length of 18 months of treatment. Case treated solely with removable or functional appliances will be excluded. This is done to prevent any bias due to the generally shorter treatment duration with removable appliances and longer time with functional appliances.

Statistical Analysis

Quantitative variables were presented as mean \pm standard deviation, and qualitative data were presented as number and frequency. Data analysis was performed using mean and standard deviation and Chi-square test (IBM SPSS Statistics for

Windows, Version 26.0. Armonk, NY: IBM Corp).

Ethical Considerations

The Research Ethics Committee of the Universiti Teknologi MARA has approved this study (REC/248/19). The informed consent process was approved on the basis of the questionnaire is being anonymous and self-administered and containing no identifiers. A Patient Information Sheet was attached to the questionnaire to explain the purpose of the study and to ensure respondent confidentiality. Anyone who was also interested in learning about the result of this study was able to request a copy through the contact address provided in the questionnaire.

Results

The data obtained were entered into Microsoft Excel spreadsheet (2016) and Statistical Package for the Social Sciences software (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp). The data were processed and calculated for qualitative and quantitative data.

Demographic Characteristics of the Respondents

Demographic characteristics of the respondents surveyed are revealed in Table 1. A total of 105 respondents were divided into 24.8% males and 75.2% females. Most of the respondents are Malay (97.1%) with 98.1% of the respondents practice Islam. 90.5% of the respondents are single and the rest are married (9.5%).

Out of the 105 respondents, 21-25 years

Characteristics	n		Percentage (%)	
Gender				
Male	26		24.8	
Female	79		75.2	
Ethnicity				
Malay	102		97.1	
Chinese	-		-	
Indian	-		-	
Others	3		2.9	
Religion				
Islam	103		98.1	
Christian	2		1.9	
Marital status				
Single	95		90.5	
Married	10		9.5	
Age (y)				
14-15	1		1.0	
16-20	16		15.2	
21-25	75		71.4	
26-30	10		9.5	
31-35	2		1.9	
36-37	1		1.0	
Mean	22.8		-	
SD	3.188		-	
Range	14-37		-	
Duration of treatment (y)				
≥1.5-<2.0	46		43.8	
≥2.0-<2.5	28		26.7	
≥2.5-<3.0	11		10.5	
≥3.0-<3.5	11		10.5	
≥3.5-<4.0	1		1.0	
≥4.0-<4.5	2		1.9	
≥4.5-<5.0	1		1.0	
≥5.0	5		4.8	
Status of fixed appliance				
Still wearing	93		88.6	
Debonded for 0-1 year	7	12	6.7	11.4
Debonded for 1-2 years	5		4.8	

Table 1: Demographic characteristics of respondents.

age group was the most dominated group (71.4%) followed by 16-20 age group (15.2%). Mean age of the respondents was 22.8 years (SD ± 3.188). Most of the respondents (88.6%) are still wearing the fixed appliance. Most of the respondents were treated with more than 18 months and less than 24 months of duration (43.8%).

Reasons for Seeking Fixed Appliance in Orthodontic Treatment

As illustrated in Figure 1, the most common reason for seeking orthodontic treatment answered by the respondents was crowded teeth (73.3%), followed by protruding teeth (15.2%). 3.8% of the respondents claimed of having spaces between teeth, protruding jaws and other small problems as the reason for having orthodontic treatment. None of the respondents had seek for the treatment because of speech and eating difficulties.

Majority of the respondents had themselves recommended for the treatment by their own (69.5%), followed by suggestion by their friends and relatives (22.9%) and their parents (7.6%). None of the respondents answered recommendation for treatment by their dentist. Referral pattern is shown in Figure 2.

Orthodontic Treatment and Services

Table 2 exhibits responses by the respondents to questionnaire items pertaining to orthodontic treatment and services. From the total of 11 questions answered from this section, the highest satisfaction percentage was recorded on the staff service (95.2%). A high rate of patient satisfaction with cost of treatment (88.6%) was also recorded.

Regarding treatment outcomes, it was also found that 77.1% of the respondents were satisfied with the improvement in alignment of teeth, other than improvement in general face appearance (73.3%) and teeth cleaning (65.7%). The least treatment outcome satisfaction was recorded in the improvement of chewing (58.1%).

In pertaining to time, 65.7% of the respondents were satisfied with total duration of treatment, number of appointments per month and waiting duration of waiting time before each appointment. 77.1% of the respondents were satisfied with the duration of each appointment.

Concerning self-esteem, a total of 92 respondents (87.6%) were aware of the positive impact on their self-confidence from the orthodontic treatment.

Regarding experience of pain in the dental clinic, 18.1% of the respondents answered 'Yes' and 30.5% answered 'Sometimes'. While at home, 18.1% of the respondents experienced pain and 39.0% occasionally as shown in Figure 3.

Doctor-Patient Relationship

In a question asking about respondents' satisfaction towards their orthodontist, 91.4% of the respondents reported being satisfied with their orthodontist, while 8.6% answered "Sometimes".

In response to questions regarding doctor-patient relationship, 91.4% of the respondents stated that their orthodontist explained the treatment plan to them prior to the orthodontic treatment. Questions they had during the appointments were answered promptly (94.3%). Pertaining to gentleness during treatment, 91.4% of the respondents stated their orthodontist was gentle when treating them. Most of the

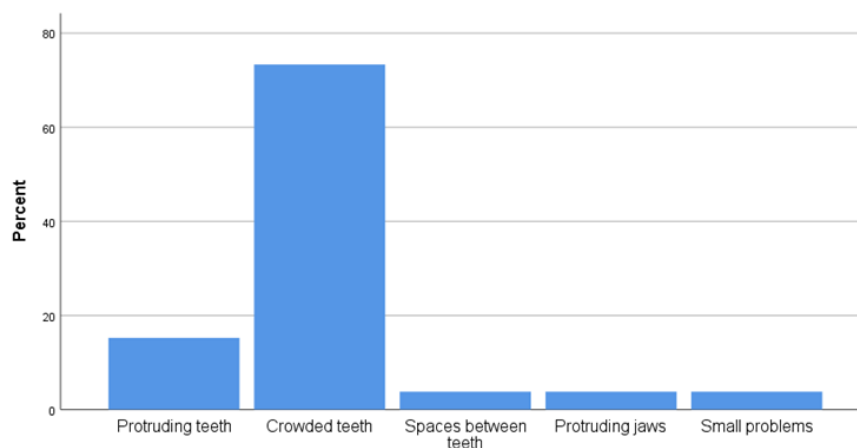


Figure 1: Reasons for seeking orthodontic treatment.

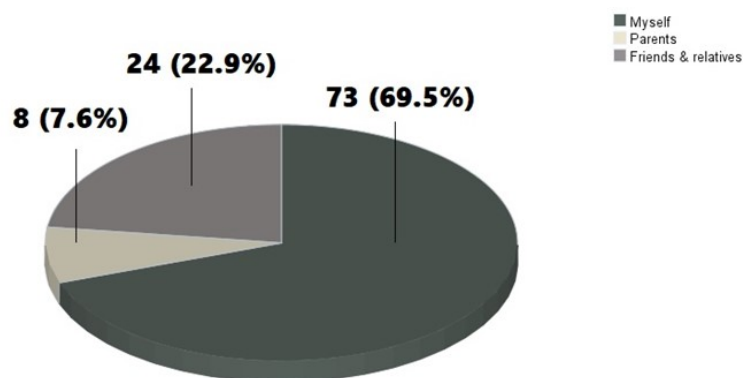


Figure 2: Who suggested orthodontic treatment for you?

Items	Response to questionnaire					
	Satisfied		Neutral		Dissatisfied	
	n	%	n	%	n	%
Improvement in alignment of teeth	81	77.1	24	22.9	-	-
Improvement in general face appearance	77	73.3	28	26.7	-	-
Improvement in chewing	61	58.1	40	38.1	4	3.8
Improvement in teeth cleaning	69	65.7	24	22.9	12	11.4
Total duration of treatment	69	65.7	24	22.9	12	11.4
Number of appointments per month	69	65.7	24	22.9	12	11.4
Duration of each appointment	81	77.1	24	22.9	-	-
Waiting duration before each appointment	69	65.7	24	22.9	12	11.4
Cost of treatment	93	88.6	12	11.4	-	-
Staff service	100	95.2	5	4.8	-	-
Increase on self confidence	92	87.6	13	12.4	-	-

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

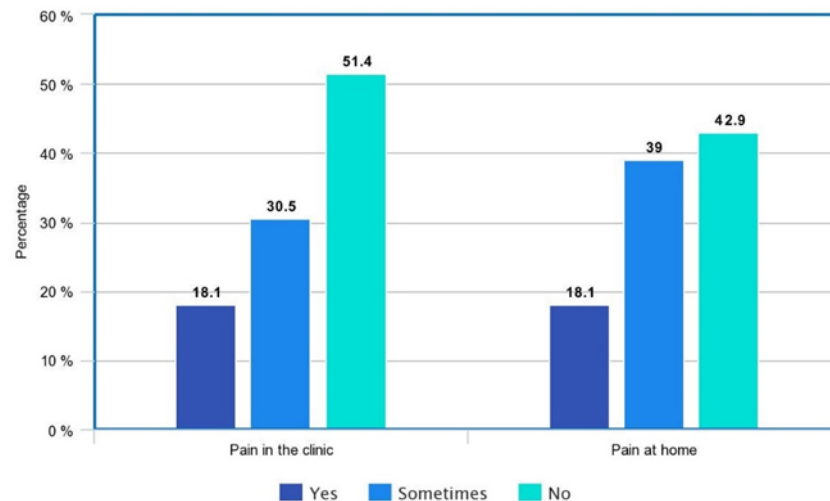


Figure 3: Percentages of responses regarding pain experience

respondents (88.6%) also reported that dental assistants were gentle while treating them.

Concerning orthodontist honesty in issues about treatment duration, 90.5% of the respondents answered “Yes”. 97.1% of the respondents also stated that their orthodontist were honest about treatment cost. 90.5% would recommend their orthodontist to others while 1.9% answered “No” and 7.6% answered “Sometimes” (Table 3).

Chi-square test

Chi-square test was used to determine whether there is significance difference in

responses in relation to patient satisfaction after orthodontic treatment. Chi-square test indicated no statistically significant between gender and reasons for seeking orthodontic treatment in relation to the treatment satisfaction. However, there is a statistically significant between the age of the respondents and treatment satisfaction.

All the respondents were divided into two groups (Table 4) considering patient’s satisfaction with his/her orthodontist in relation to their responses pertaining to the doctor-patient relationship. Group 1 which consisted of 96 respondents who considered themselves satisfied with their orthodontist, while Group 2 consisted of 9 respondents who considered themselves

Items	Response to questionnaire					
	Yes		Some-times		No	
	n	%	n	%	n	%
Orthodontist explained the treatment plan to me prior to the orthodontic treatment	96	91.4	8	7.6	1	1.0
Questions I had were answered promptly	99	94.3	5	4.8	1	1.0
Orthodontist was gentle when treating me	96	91.4	9	8.6	-	-
Dental assistant was gentle when treating me	93	88.6	12	11.4	-	-
Orthodontist was honest in issues concerning treatment duration	95	90.5	9	8.6	1	1.0
Orthodontist was honest in issues concerning treatment cost	102	97.1	3	2.9	-	-

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

	Group 1 (n=96) Satisfied with their orthodontist						Group 2 (n=9) Sometimes satisfied with their orthodontist						X ² (P)
Items	Yes		Some-times		No		Yes		Some-times		No		
	n	%	n	%	n	%	n	%	n	%	n	%	
Orthodontist explained the treatment plan to me prior to	90	93.8	6	6.3	-	-	6	66.7	2	22.2	1	11.1	14.082 (.001)
Questions I had were answered promptly	95	99.0	1	1.0	-	-	4	44.4	4	44.4	1	11.1	45.812
Orthodontist was gentle when treating me	96	100.0	-	-	-	-	-	-	9	100.0	-	-	105.000
Dental assistant was gentle when treating me	89	92.7	7	7.3	-	-	4	44.4	5	55.6	-	-	18.936
Orthodontist was honest in issues concerning treatment	91	94.8	5	5.2	-	-	4	44.4	4	44.4	1	11.1	27.751 (.000)
Orthodontist was honest in issues concerning treatment	94	97.9	2	2.1			8	88.9	1	11.1	-	-	2.416 (.120)

Table 4: Comparison between two groups of respondents regarding doctor-patient relationship.

occasionally satisfied with their orthodontist.

By comparing the two groups using chi-square test revealed that a statistically significant difference was found between the two groups regarding the treatment plan explained to them prior to the orthodontic treatment ($P=.001$), questions they had were promptly answered ($P<.001$), gentleness of the orthodontist and dental assistant when treating them ($P<.001$ and $P<.001$ respectively) and orthodontist's honesty pertaining to treatment duration ($P<.001$). Orthodontist's honesty about cost of treatment between the two groups revealed no statistically significant difference.

Discussions

Respondents involved in this study were mainly Malay (97.1%) and female (75.2%).

Most of our respondents are single (90.5%) and within the age group of 21-25 years old (71.4%). This shows that females are likely to seek for orthodontic treatment more than males.

Pertaining to orthodontic treatment outcomes, this study revealed high proportion of respondents who were satisfied with their teeth alignment (77.1%), general face appearance (73.3%), improvement in chewing and teeth cleaning capabilities (58.1% and 65.7% respectively) after the treatment. Least satisfaction from the chewing improvement might be contributed by the dentition condition of the patient and duration of treatment received. Crowded teeth topped the list of the reasons our respondents seek for fixed appliance (73.3%) and majority of our patients have a treatment duration of less than two years (43.8%).

Large distribution of respondents also claimed that orthodontic treatment has level up their self-esteem level (87.6%). Compared to other impacts from the treatment, it was the highest recorded by the respondents. These results are consistent with the results in other studies [16,17] which demonstrated esthetic consideration as the main deliberation for respondents to seek for orthodontic treatment over other considerations. Known for a crucial feature (face) in the development of one's self-esteem and self-image, researchers noticed that the patients were more focused on the esthetics than anything else such as functioning [18,19].

Regarding services offered by the orthodontic clinic, the highest satisfaction was recorded by the respondents on staff services (95.2%), followed by cost of treatment charged by the clinic (88.6%). Pertaining to time, 77.1% of the respondents were satisfied with the duration of each appointment. However, 11.4% of the respondents were dissatisfied with the total duration of treatment and waiting duration during each appointment. The same percentage were also dissatisfied with the number of appointments arranged during each month. These were probably due to the large number of patients seen per day.

This study also identified that 18.1% of the studied subjects experienced pain during the process of orthodontic treatment and the same proportion also experienced pain at home. Concerning gender, the present results revealed no difference in pain perception and experience in the clinic and at home between males and females.

Another important key in patient's satisfaction in addition to professional performance is the doctor-patient relationship [10]. Professional performance

or skills alone which will results in excellent treatment outcomes is not enough in determining patient satisfaction. As stated by Abrams and Ayers [11], they observed that a good personal relationship between the operator and the patient together with good quality of care towards the patient will avoid patient dissatisfaction. This study demonstrated a high number of patient satisfaction with their orthodontist (91.4%). This satisfaction was contributed by the procedure well explained to the patient by the orthodontist (91.4%), questions they had during the appointment were answered promptly (94.3%), gentleness of orthodontist and dental assistant while treating them (91.4% and 88.6% respectively) and orthodontist were honest in issues pertaining to treatment duration and cost (90.5% and 97.1% respectively).

Finally, some of the limitations identified in this study were that the sample size for the study population was small, respondents have receiving treatment of less than 18 months and those who have their fixed appliance removed for more than 2 years.

Conclusion

To conclude, generally the patients who received their fixed orthodontic treatment in Faculty of Dentistry Universiti Teknologi MARA (UiTM) were satisfied with their treatment. However, some aspects of the service need to be improved especially pertaining to doctor-patient relationship in determining patient satisfaction in the future.

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