



Perception and Satisfaction of Orthodontic patients towards Orthodontic treatment in KIST Medical College & Teaching Hospital

Authors

Rosha Shrestha¹, Gaurav Acharya², Suvit Maskey³

^{1,2}Department of Orthodontics, KIST Medical College and Teaching Hospital, Imadol, Kathmandu, Nepal

³Department of Prosthodontics, Institute of Medicine, TUTH, Kathmandu, Nepal

Abstract

Introduction: *This article is aimed to evaluate the perception and satisfactory level of orthodontic patients towards orthodontic treatment on the basis of a questionnaire survey in Kist Medical College and Teaching Hospital.*

Methods: *This study included 250 patients who had reported in department of Orthodontics from first June to first July 2022. Data was collected through cross-sectional survey where each patient was required to fill a questionnaire in person after the approval of consent. The data was entered in SPSS software 26 then statistical analysis was done and results were obtained.*

Results: *While comparing the gender, females wait for the next appointment more than males (female-45%, males-35.6%) whereas males respond to social media more than females (males- 31.3%, females-1.3%). This gender difference was found to be statistically significant with p value < 0.05. Also, majority of males (44.4%) had undergone orthodontic treatment for the correction of bite whereas majority of females (38.8%) had undergone treatment for the improvement in appearance which was found to be statistically significant (P value: 0.022) Regarding the perception towards orthodontic treatment, statistically significant gender difference was observed in response to orthodontic treatment as painful procedure and pricey treatment. Regarding the satisfaction with orthodontic treatment, majority of males (71.1%) were pleased with dentofacial improvement after having braces than females(36.3%) and this was found to be statistically significant at p value 0.027. Females are more ready to undergo orthodontic treatment (53.3%) than males (41.3%) if they had to do it again which was statistically significant (p value: 0.037). Also, majority of females were optimistic about the result of orthodontic treatment and they were much more satisfied with the staffs in the orthodontic department than males and this result was found to be statistically significant with p value <0.05.*

Conclusion: *This study concluded that patients preferred metallic braces over ceramic braces and aligners and the main reason patients want orthodontic treatment is bite correction firstly, secondly improvement in appearance, thirdly improvement in smile and lastly oral hygiene maintenance. Mostly orthodontic patients perceived orthodontic treatment as a painful procedure and the frequency of brushing has been increased after orthodontic treatment and the patients are pleased and satisfied with their treating orthodontist.*

Keywords: *Satisfaction, Orthodontic treatment, Perception.*

Introduction

Alignment of upper and lower teeth plays a vital role in overall health and functioning of teeth. Malalignment of teeth is the common dental condition which can affect not only the oral health but self-esteem and quality of life. It is possible to treat with an orthodontic treatment. Aesthetics is a major concern for all age groups these days. The main reason patients visit dental hospital is to make their smile look beautiful. There are many recent advancements and patients are getting better results.¹

The relationship between orthodontist and patients is the core element in overall treatment of the patient apart from treatment itself. The main objective of orthodontic treatment is to deliver the maximum result and fulfill the patients expectations.² Malocclusions which are left untreated result in an increased untoward effect on health and there are psychological problems.³ Dental Aesthetics can negatively affect the patients psychology and patients may feel shame due to poor dental appearance.⁴ That's why orthodontic treatment is helpful not only to treat malocclusion but to improve the smile hence contributing to build the personality and self-confidence of the patients. Previously clinical derived objectives were used to assess the treatment results but in recent years the patients based subjective factors has been given the utmost importance.^{5,6,7}

Satisfaction of patients is assessed as positive evaluation of distinct dimensions of healthcare yet multiple factors contribute to the satisfaction level of patients.^{8,9} Therefore the role of orthodontists is to look into all the possible factors to educate the patients to meet the patients expectations. However patients are unwilling to do orthodontic treatment as they are afraid of pain, discomfort, food restrictions, longer duration and expenses of treatment. One of the factors is the expensive treatment to not opt for the treatment.¹⁰ However pain due to temporomandibular joint, caries, traumatic occlusion, periodontal diseases which

are associated with malocclusion could be treated after orthodontic treatment.¹¹ Proper understanding of the nature of malocclusion as well as the urge for the orthodontic treatment helps in patients abidance.¹² Level of education, good financial status and orthodontic awareness leads to increased orthodontic demand.¹³

Though majority of orthodontic patients are satisfied with the treatment results, there are still rooms for improvements to address the minority of patients who were not satisfied with the treatment results.¹⁴

Thus this study was undertaken to evaluate the perception and satisfaction of patients about orthodontic treatment.

Methods

This was a cross-sectional study which was conducted from first June to first July 2022. This study was conducted after getting an ethical approval from institutional review committee (KIST-IRC Ref. No. 2078/79/67). Study site is department of Orthodontics and Dentofacial Orthopedics in KIST Medical College and Teaching Hospital.

The survey included patients who are undergoing fixed orthodontic treatment, age above 16 years and patients with any craniofacial deformities and cleft lip and palate patients and who refused to participate were not included in this study.

All the participants in department of Kist Medical College and Teaching Hospital signed the informed consent and confidentiality of the patients information was ensured. A questionnaire was then filled by the patients. Out of 256 samples, 6 were excluded from the study because they did not complete the data.

Sample size = Population size as conducting census method = Approximately 250

(Source: Hospital records, KISTMCTH, 2078)

The resulting data was entered in SPSS software version 26. Pearson chi square test was used to analyse the results. The level of significance was set at $p < 0.05$.

Result

Gender Distribution

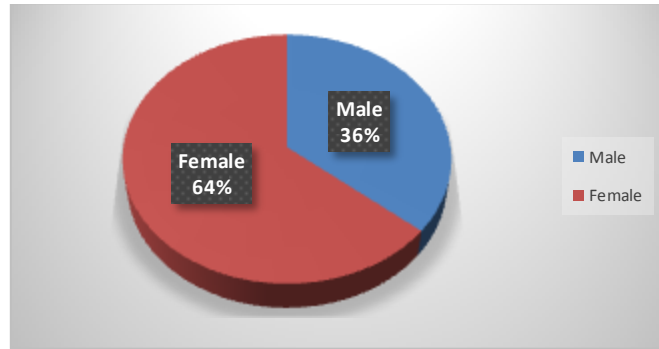


Figure 1: Gender distribution in the study

Total participants were 250 in this study out of which 90 were males (36%) and 160 (64%) were females. 48% participants were between age group 16-20, 45.2% were between 21 – 30, 5.6% were between 31-40 and only 5.6% were between age group 41 - 50.

Distribution of Orthodontic appliance worn by the patients:

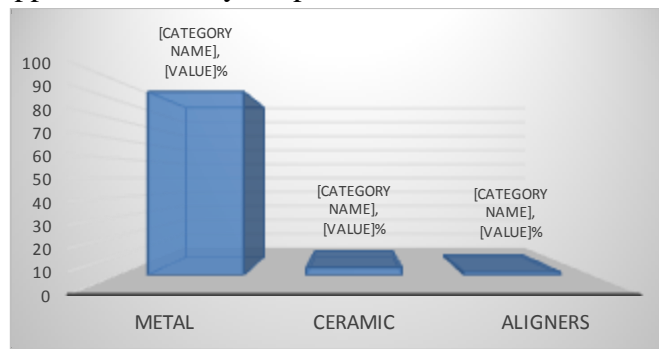


Figure 2: Percentage of patients wearing different types of braces

Most of the participants (94.4%) were having metallic braces, 4% were having ceramic braces and 1.6% were using clear aligners

Table 1: General questions related to orthodontic treatment

Questions	Options	Overall response % (n)	Response Male % (n)	Response Female % (n)	P value
1. Did you wear orthodontic devices when you were younger?	Yes	23.6%(59)	26.7%(24)	21.9%(35)	0.139
	No	74.8% (187)	71.1% (64)	76.9% (123)	
2. Why have you undergone an orthodontic treatment?	Bite Correction	37.6% (94)	44.4% (40)	33.8% (54)	0.022*
	Improvement in smile	22.4% (56)	17.8% (16)	25% (40)	
	Improvement in appearance	35.2% (88)	28.9% (26)	38.8% (62)	
	Oral hygiene maintenance	4.8% (12)	8.9% (8)	2.5% (4)	
3. How many times do you brush your teeth daily?	Once	14% (35)	20% (18)	10.6% (17)	0.13
	Twice	69.2% (173)	57.8% (52)	75.6% (121)	
	>2times	16.8% (42)	22.2% (20)	13.8% (22)	
4. How many times did you brush your teeth daily before you got an orthodontic device	Once	42% (105)	44.4% (40)	40.6% (65)	0.592
	Twice	51.6% (129)	51.1% (46)	51.9% (83)	
	>2times	6.4% (16)	4.4% (4)	7.5% (12)	
5. How many times do you floss daily?	Do not floss	36%(90)	37.8% (34)	35% (56)	0.685
	Rare	30.4% (76)	31.1% (28)	30% (48)	
	Once a day	20.8% (52)	20% (18)	21.3% (34)	
	Twice	4.8% (12)	2.2% (2)	6.3% (10)	
	>2times	8% (20)	8.9% (8)	7.5% (12)	
6. Would you suggest to your friends that they should undergo an orthodontic treatment?	Yes	88% (220)	93.3% (84)	85% (136)	0.013*
	No	10.4% (26)	6.7% (6)	12.5% (20)	
7. How long you have been undergoing orthodontic treatment in KISTMCTH?	Less than 1 year	46.8% (117)	44.4% (40)	48.1% (77)	0.017*
	1- 2 yrs.	20.8% (52)	31.1% (28)	15% (24)	
	2 – 3 yrs	14% (35)	11.1% (10)	15.6% (25)	
	3 years and above	18.4% (46)	13.3% (12)	21.3% (34)	
8. What is your favorite mean to communicate with your orthodontist to inform hi m/her about your breakage of appliance?	Call the dental hygienist	31.2% (78)	33.3% (30)	30% (48)	0.001*
	Social media	5.6% (14)	13.3% (12)	1.3% (2)	
	Call the orthodontist directly	21.6% (54)	17.8% (16)	23.8% (38)	
	Wait for my next appointment.	41.6% (104)	35.6% (32)	45% (72)	

Result shows majority of participants were undergoing orthodontic treatment for the correction of bite (37.6%). 35.2% wanted improvement in appearance and 22.4% wanted improvement in smile. 51.6% of participants used to brush their teeth twice a day before undergoing orthodontic treatment but now 69.2% were brushing their teeth twice a day. 88.2% would suggest to their friend that they should undergo orthodontic treatment. If any breakage of

orthodontic appliance majority (41.6%) would wait for another appointment. While comparing the gender, 35.6% males and 45% females would wait for another appointment if breakage of any appliance and this difference was found to be statistically significant. (p value <0.05). Statistically significant difference was observed between males and females with respect to question no.2,6, 7 and 8 (Table 1)

Table 2: Perceptions towards orthodontic treatment

	Options	Overall response % (n)	Response Male % (n)	Response Female % (n)	P value
1. Do you think orthodontic treatment is painful procedure?	Strongly Disagree	1.6% (4)	4.4% (4)	0% (0)	0.000*
	Disagree	16(4)	26.7%(24)	10%(16)	
	Neutral	48% (120)	37.8%(34)	53.8%(86)	
	Agree	29.6% (174)	24.4%(22)	32.5%(52)	
	Strongly Agree	4.8% (12)	6.7%(6)	3.8%(6)	
2. Do you think there is difficulty in eating with an orthodontic fixed appliance?	Strongly Disagree	0.8% (2)	0% (0)	1.3%(2)	0.808
	Disagree	14.4% (36)	13.3%(12)	15%(24)	
	Neutral	30.8% (77)	33.3%(130)	29.4%(47)	
	Agree	44.4% (111)	44.4%(40)	44.4%(71)	
	Strongly Agree	9.6% (24)	8.9%(8)	10%(16)	
3. Do you think orthodontic treatment is expensive?	Strongly Disagree	0.8% (2)	0% (0)	1.3%(2)	0.001*
	Disagree	7.2% (18)	11.1%(10)	5%(8)	
	Neutral	44.4% (111)	57.8%(52)	36.9%(59)	
	Agree	42% (105)	28.9%(26)	49.4%(79)	
	Strongly Agree	5.6% (14)	2.2(2)	7.5%(12)	
4. Do you like the idea of tele-dentistry in call of any queries provided by orthodontic department?	Strongly Disagree	1.6% (4)	0% (0)	2.5(4)	0.253
	Disagree		0% (0)	0% (0)	
	Neutral	34.8% (87)	35.6%(32)	34.4%(55)	
	Agree	56.4% (141)	60%(54)	54.4%(87)	
	Strongly Agree	7.2% (18)	4.4(4)	8.8%(14)	

Regarding the perception of orthodontic treatment, 34.4% agreed that orthodontic treatment as a painful procedure where as 1.6% strongly disagreed with this. 54% participants thought there was difficulty in eating with orthodontic fixed appliances. 8% of participants

did not think orthodontic treatment as expensive and 56.6% liked the idea of teledentistry for any queries in orthodontic treatment. Statistically significant difference was observed between males and females with respect to question no.1 and 3 (Table 2)

Table 3: Satisfaction with orthodontic treatment

Questions	Options	Overall response % (n)	Response Male % (n)	Response Female % (n)	P value
1. I am pleased with my dentofacial improvement after having braces on my teeth.	Strongly Disagree	0.8%(2)	2.2%(2)	0%(0)	0.027*
	Disagree	4.8%(12)	0%(0)	10%(12)	
	Neutral	27.2%(68)	26.7%(24)	53.8%(44)	
	Agree	60%(150)	62.2%(56)	32.5%(94)	
	Strongly Agree	7.2%(18)	8.9%(8)	3.8%(10)	
2. I am pleased with treating orthodontist regarding counseling and my treatment.	Strongly Disagree	0.8%(2)	0%(0)	1.3%(2)	0.297
	Disagree	4%(10)	2.2%(2)	15%(8)	
	Neutral	22%(55)	26.7%(24)	29.4%(31)	
	Agree	63.6%(159)	64.4%(58)	44.4%(101)	
	Strongly Agree	9.6%(24)	6.7%(6)	10%(18)	
3. I feel more confident after having orthodontic treatment.	Strongly Disagree	0.8% (2)	0% (0)	1.3% (2)	1.85
	Disagree	1.6% (4)	2.2% (2)	1.3% (2)	
	Neutral	25.6% (67)	26.7% (24)	25% (40)	
	Agree	56% (140)	48.9% (44)	60% (96)	
	Strongly Agree	16% (40)	22.2% (20)	12.5% (20)	
4. I think orthodontic treatment will give a promising result for my teeth	Strongly Disagree	0% (0)	0(0)	0(0)	0.014*
	Disagree	0.8%	0 (0)	1.3% (2)	
	Neutral	16.8%	15.6% (14)	17.5% (28)	
	Agree	60%	51.1% (46)	65% (104)	
	Strongly Agree	22.4%	33.3%(30)	16.3%(26)	

5. The orthodontic staff treated me with respect.	Strongly Disagree	0	0(0)	0(0)	0.032 *
	Disagree	0.8%	0(0)	1.3% (2)	
	Neutral	10.4%	11.1% (10)	10% (16)	
	Agree	63.2%	53.3% (48)	68.8% (110)	
6. The orthodontic care I received could have been better.	Strongly Agree	25.6%	35.6% (32)	20% (32)	0.396
	Disagree	0.8% (2)	2.2% (2)	0(0)	
	Neutral	12.8% (32)	11.1% (10)	13.8% (22)	
	Agree	31.6% (79)	33.3% (30)	30.6% (49)	
7. The orthodontic treatment fees were too pricey.	Strongly Agree	46% (115)	44.4% (40)	46.9% (75)	0.371
	Disagree	8.8% (22)	8.9% (8)	8.8% (14)	
	Neutral	1.6% (4)	0(0)	2.5% (4)	
	Agree	13.6% (34)	13.3% (12)	13.8% (22)	
8. The treatment took much too long.	Strongly Agree	51.2% (128)	55.6% (50)	48.8% (78)	0.269
	Disagree	26.4% (66)	26.7% (24)	26.3% (42)	
	Neutral	7.2% (18)	4.4% (4)	8.8% (14)	
	Agree	20.8% (52)	22.2% (20)	20% (32)	
9. I am satisfied with the results of my orthodontic treatment	Strongly Disagree	0(0)	0(0)	0(0)	0.574
	Disagree	10.4% (26)	2.2% (2)	2.5% (4)	
	Neutral	2.4% (6)	24.2% (22)	30.6% (93)	
	Agree	28.4% (71)	60% (54)	58.1% (14)	
10. If I had it to do it once again, I would still want orthodontic treatment	Strongly Agree	58.8% (147)	13.3% (12)	8.8% (14)	0.037*
	Disagree	8% (20)	2.2% (2)	11.3% (18)	
	Neutral	17.2% (43)	13.3% (12)	19.4% (31)	
	Agree	29.2% (73)	31.1% (28)	28.1% (45)	
11. My braces gave me a lot of discomfort	Strongly Agree	42.4% (106)	51.1% (46)	37.5% (60)	0.060
	Disagree	3.2% (2)	2.2% (2)	3.8% (6)	
	Neutral	0.8% (2)	0(0)	1.3% (2)	
	Agree	24.2% (60)	20% (18)	26.3% (42)	
	Strongly Disagree	36.8% (92)	46.7% (42)	31.3% (50)	
	Disagree	27.2% (68)	20% (18)	31.3% (50)	
	Neutral	11.2% (28)	13.3% (2)	10% (16)	
	Agree				

Regarding the satisfaction of orthodontic treatment, majority of participants (67.2%) were pleased with the dentofacial improvement after braces. 73.2 % were pleased with the treating orthodontist regarding the counseling of the treatment. Confidence has been increased for 72% participants. 54.8% thought that orthodontic treatment they received could have been better. 16% disagreed that treatment time was too long. 69.2% were satisfied with the result of orthodontic treatment. For 60.8% braces gave lot of discomfort. Statistically significant difference was observed between males and females with respect to question no.1,4,5 and 10 (Table 3)

Discussion

Orthodontic treatment ensures proper functioning of teeth and create beautiful smiles. Mostly people think that orthodontic treatment is only for cosmetic purpose and are not so much aware of the benefits they can get. There is much more to orthodontic treatment like improving the health of your teeth, jaws, physical and mental well-being. Smile does not only enhance physical appeal but the patients confidence level can be increased and an attractive smile can usually improve the quality

of life in many ways. There are many researches which concluded that patients satisfaction is one of the major factor in dental treatment. The level of patients satisfaction may vary according to dental procedures carried out.¹⁵ Health care professionals accepted that maintaining cooperation with the patients for successful treatment is significant.¹⁶ Patients may be disappointed when their expectations are not fulfilled.¹⁷

The present study was done to assess patient satisfaction level towards orthodontic treatment. In this study we included 250 patients in which males were 90 and females were 160. In our study majority of males (44.4%) had undergone orthodontic treatment for the correction of bite whereas majority of females (38.8%) had undergone treatment for the improvement in appearance. This difference was found to be statistically significant (P value:0.022). According to Amado et al. there was no difference in gender in respect towards orthodontic treatment.¹⁸ However the research done by Bos et al. found the contrast in satisfaction level according to gender.¹⁹ Girls generally seek orthodontic treatment and they are more concerned with their

aesthetics than boys.²⁰The rate of orthodontic treatment was more among female patients because female gives more importance to facial and physical attractiveness.

Regarding the satisfaction with orthodontic treatment, majority of males (71.1%) were pleased with dentofacial improvement after having braces than females(36.3%) and was found to be statistically significant at p value 0.027.Females were more ready to undergo orthodontic treatment (53.3%) than males (41.3%) if they had to do it again which was statistically significant (p value: 0.037). Also, majority of females were optimistic about the result of orthodontic treatment and they were much more satisfied with the staffs in the orthodontic department than males and this result was found to be statistically significant with p value <0.05.Our present study was not in favour with the research done by Eberting et al. where no correlations were found between sex and satisfaction level of the treatment.²¹

With regard to the question of orthodontic treatment, 34.4% patients perceived orthodontic treatment as painful procedure, 48% patients couldnot judge whereas 32% disagreed orthodontic treatment as painful procedure. Statistically significant gender difference was observed in response to orthodontic treatment as painful procedure and pricey treatment. The study done by Keles found that patients being well informed about treatment and being respectful added quality care in treatment of the patients.²² However Birkeland et al found no definite outcome between orthodontic treatment and patient satisfaction.²³ In our study 69.2% of the patients were satisfied with their treatment, neutral was 28.4% and 2.4% were not satisfied.

In this study41.6% of the patients would wait for the next appointment if there is any breakage of appliance, 31.2% of the patients would call the dental hygienists directly, 21.6% would call the orthodontists directly and only 5.6% would use social media. While comparing the gender, females would wait for the next appointment more than males (female- 45%, males-35.6%). Also

males would respond to social media more than females (males- 31.3%, females- 1.3%). This gender difference was found to be statistically significant with p value < 0.05.

Majority of orthodontic patients (94.4%) preferred metal braces, 4 % preferred ceramic braces and only 1.6% preferred aligners. It may be because of the cost factor that patients chose metal braces over ceramic braces and aligners.

Other factors that were considered in this study were flossing, difficulty in eating, discomfort, counseling, recommendation of orthodontic treatment with their friends, which were found to be not significant while comparing the gender.

Conclusion

Most of the patients were satisfied with orthodontic treatment and behavior of orthodontist and staffs in orthodontic department. Effective communication is an important component between orthodontist and patients that has been shown to positively influence treatment outcome leading to greater understanding of treatment planning with increasing patient satisfaction. In near future, more researches should be conducted for better understanding of satisfaction of orthodontic patients.

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