

# Research Paper: Tendency, motivation, and barriers of orthodontic treatment in orthodontic patients in Rasht in 2018



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## ABSTRACT

**Introduction:** The number of people demanding orthodontic treatment for their psychosocial problems related to facial aesthetics is growing. The aim of this study was to evaluate tendency, motivation, and barriers of orthodontic treatment in patients were referred to orthodontic offices in Rasht in 2018.

**Materials and Methods:** This descriptive cross-sectional study was conducted on 171 adults over 20 years of age who were referred to orthodontic clinics in Rasht in 2018. The data collection tool was a questionnaire designed based on other studies. The questionnaire consisted of 16 questions and three parts: personal characteristics, motivation for using orthodontics treatments, and questions about motivations, main obstacles, and the main causes of using orthodontic treatments.

**Results:** The level of motivation and tendency for orthodontic treatment was high. There was a direct and significant relationship between motivation and tendency to orthodontic treatment ( $p < 0.001$ ). Encouraging one to decide about orthodontic treatment was the first priority. Regarding common problems, the first problem was about the appearance after the treatment, and the second problem was the problems of chewing and eating which takes longer in these patients.

**Conclusion:** The motivation toward orthodontic treatment was high. The first motivation for seeking treatment was dissatisfaction with one's appearance and demanding a better appearance. The main orthodontic obstacles were high costs and visible orthodontic appliances.

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## Introduction

Physical attractiveness has a great effect on human life in various ways. Studies have shown that the face has a great impact on overall attractiveness.(1) Physically attractive people are considered more friendly, smarter, interesting, sociable, and with much more positive characteristics.(2, 3) Irregularities in teeth positions and jaws have a significant impact on smile aesthetics and attractiveness which can disrupt relationships, mental health, and social interactions and lead to negative feelings about oneself.(4). Orthodontists believe that straight teeth improve individuals' self-esteem and career opportunities.(5) Aging and its complications also affect facial attractiveness and because of change in facial muscles, cosmetic concerns with teeth irregularities in adults increases with the aging process. With the increasing awareness about oral health and developments in armamentarium and biometrics in orthodontics, not only children but also young adults have developed interest in performing orthodontics treatments .(6,7,8) This trend is growing due to innovative cosmetics solutions in orthodontics appliances and brackets.(8, 9) Orthodontics appliances evolve based on public demand and technology aiming to improve patients' appearance.(8, 10)When planning an orthodontic treatment for adult patients, it should be considered that this population has a different experience with pathologies, psychological limitations and greater awareness of malocclusions.(11, 12) Orthodontics need to understand the expectations and difficulties and inform their clients.

Studies since 1980 have shown an increasing demand in 18+ individuals for orthodontics treatments. In 1988, between 60-70% of adults in the US and European countries sought these kinds of treatments.(12, 13) In the 90s, according to official data released by NHANES 3[1], only 41.1% of American adults had optimal overjet and deep bite and open bite were 49% and 3.3% respectively. In addition, upper and lower misalignments were 56% and 62.9% respectively. Similarly, 40 and 76% of adults in

Germany and Sweden had malocclusion.(10, 14)Most of the demand for orthodontics treatments comes from females who are referred by their family dentists.(15) Like every treatment, adult orthodontics has its indications and contraindications which must be carefully assessed. Indications are more stable and harmonious occlusive pattern, improvement of occlusal condition, improvement of teeth implantation in periodontal tissue, and satisfaction of the patients' esthetical needs. Contraindications for orthodontic treatments are severe skeletal discrepancies, systemic or local diseases, alveolar bone loss when the treatment might not fulfill expectations of orthodontics specialists, and lack of interest or motivation in the patient. According to literature, adults' dissatisfaction with their dental or facial appearance is the main reason to seek orthodontics treatments by them .(16)This population has higher demands based on the aesthetics aspects and are more concerned about the results.(11, 13) It seems many of these patients suffer from neurotic or unstable psychological profiles along with problems in self-esteem which cause greater expectations that some of them are not realistic. This suggests that tangible and clear results should be clarified to avoid future disappointment.(11, 14)

## Materials and Methods

This descriptive cross-sectional study was performed in Rasht City, Iran in patients who were referred to orthodontics offices in 2018. The participants were selected through convenience sampling. The data gathering tool was Islamipour's Questioner, which measures motivation and willingness of patients towards orthodontics treatment. To examine the questionnaire reliability, a pilot study was conducted among 50 patients and Cronbach's alpha was calculated. Demographic data such as gender, age, education, parents' education, marital status, and motivational factors were collected. Encouraging and supporting people, the main problems in using orthodontics appliances, and the main purpose of doing orthodontics treatment were also gathered as data. The inclusion

criterion was patients over 20 years old; and syndromic patients and patients with a history of depression or using antidepressant drugs were excluded. Data analyses were done in SPSS (v.19) (P-value<5%).

## Results

One hundred and ninety patients participated in this study with a mean age of 28.56±7.86 (20-60); 42.1% of the participants were men. (Table1)

Table1- Demographic information of the patients

	No.	Frequency
Age(year)	20-30	77.4
	30-40	13.7
	40-50	5.8
	50-60	3.2
Gender	Male	42.1
	Female	57.9
Education	Undergraduate	4.7
	Graduate	19.5
	Bachelor	57.9
	More	17.9
Marital status	Single	56.8
	Married	43.2
Father' education	Undergraduate	12.6
	Graduate	28.4
	Bachelor	41.6
	Higher	17.4
Mother' education	Undergraduate	14.4
	Graduate	44.1
	Bachelor	33
	Higher	8.5

The mean motivational score was estimated high based on the questions No1-8 (19.5±3.58). The mean willingness was also estimated high by the questions No.9 -12 (8.81±2.4).

There was not any correlation between age and motivation and willingness (P<0.05). There was a significant correlation between motivation and willingness toward orthodontics treatment (p<0.0001, r=0.5).

There was not any relationship between motivation mean score (p=0.347) and

willingness (p=0.354) with gender. The mean motivational score had a significant relationship with the educational level (p=0.040) but not with willingness (p=0.109).

Participants with a bachelors' degree or higher had a significantly higher motivation than other groups (p=0.045). (Table2)

Table 2. problems with orthodontics appliance

	Problems	number	frequency	
Priority no.1	It makes me ugly	50	26.3	
	It is annoying	38	20	
	It causes damage and discomfort to the mouth and teeth	28	14.7	
	It makes brushing difficult so that it takes longer	25	13.2	
	It makes eating difficult so that it takes longer	20	10	
	All the above	20	10.5	
	It does not cause any problem	10	5.3	
	Total	190	100	
	Priority no.2	It makes me ugly and funny	9	5.5
		It is annoying	38	23
It causes damage and discomfort in the mouth and teeth		24	14.5	
It makes brushing difficult and long		34	20.6	
It makes eating difficult and long		40	24.2	
All the above		17	10.3	
It does not cause any problem		3	1.8	
Total	165	100		

Table3: Main reasons for performing orthodontics treatments

	Reasons	Number	Frequency
Priority no.1	Dental protrusion	37	19.5
	Irregular teeth	90	47.4
	prognathism	11	5.8
	Dental and face asymmetry	7	3.7
	Dental crowding	7	3.7
	Aesthetics	1	0.5
	Spacing	4	2.1
	Mutilation	4	2.1
	Increased self esteem	17	8.9

	Reasons	Number	Frequency
Priority no.1	Dentists' recommendation	4	2.1
	Friends or family recommendation	4	2.1
	Chewing problems	4	2.1
	Total	190	100
Priority no.2	Dental protrusion	10	5.3
	Irregular teeth	34	18
	prognathism	23	12.2
	Dental and face asymmetry	13	6.9
	Dental crowding	11	5.8
	Aesthetics	8	4.2
	Spacing	9	4.8
	Improvement of self-esteem	53	28.
	Dentist recommendation	16	8.5
	Friends or family recommendation	3	1.6
	Chewing problems	6	3.2
	TMJ joint problems	3	1.6
		Total	189

In the case of male participants, the main obstacles were “becoming ugly” or “it is annoying” and for the female participants, the main obstacles were “becoming ugly” and “damage and dental discomfort.” There was a significant difference between men and women in terms of the main obstacles ( $p=0.0003$ ).

The second priorities for the male participants were “it makes brushing harder and longer,” and “it is annoying.” For the women, “it makes eating harder and longer,” and “it is annoying” were the second priorities. There was not any significant difference between male and female participants in terms of the demographics ( $P=0.278$ ).

The top incentive for orthodontic treatment in men and women was “myself and parents” which had a significant relationship ( $p=0.011$ ).

The main obstacles towards orthodontics treatment according to the men were “it makes me ugly” and “it is annoying;” for women “it makes me funny,” “annoying,” or “it causes damage and dental discomfort” were the main obstacles. There was not any significant difference between men and women in this

regard  $P=0.417$ .

The second obstacles were orthodontic appliances visibility and long duration of treatment and there were not any relationships between the groups ( $P=0.815$ ).

For men and women, dental protrusions and irregular teeth were the main reasons towards orthodontic treatment. There was not any significant relationship between men and women ( $P=0.247$ ). Improvement in self-esteem and irregular teeth were the second reasons for treatment in men and women. There was not any significant relationship between men and women in this regard ( $P=0.912$ ).

Analysis showed that there were not any differences between the participants in terms of the first and second priorities ( $p=0.9$  &  $p=0.6$ ) in terms of education level.

As for the two main orthodontic obstacles, there was no significant difference between the participants in terms of education level.

## Discussion

The results showed the motivation for orthodontic treatment. The first motivation for seeking treatment was dissatisfaction with one's appearance and preferring a more attractive appearance.(17)

There was not any significant relationship between age and motivation ( $p>0.05$ ). Kim et al. compared adults in their 20s with individuals in their 40s and 50s and showed that the first group had a lower motivation for orthodontics treatment ( $p<0.05$ ). The different results can be explained by the larger sample size and more patients above 40s. In Kim et al., all patients referred to dental clinics were included regardless of their need for orthodontic treatment, which explains the low motivation for treatment.(18)

There was not any significant relationship between the mean motivation score ( $p=0.347$ ) and willingness score ( $p=0.347$ ) in men and women. These findings are consistent with Eslamipour et al. and Moeni et al. who studied the effects of awareness about the impact



of teeth in facial beauty on girls' willingness towards orthodontics treatment.(17) On the other hand and unlike women, men had less willingness toward orthodontics treatment.(19)

There was a significant relationship between motivation and willingness to have orthodontic treatment so that the higher the motivation, the stronger the willingness ( $P < 0.001$   $r = 0.529$ ).

In this study, the willingness towards orthodontics was high; however, Eslamipour et al., Pabari et al., and McKiernan et al. estimated a moderate willingness.(15,17,20) This difference can be explained based on different sample sizes and patient selection.

The most important incentives toward treatment were "myself (53.7%) and my parents (24.2%)," which is consistent with Eslamipour et al. and Amnaei et al.(17,21)

Simis et al. showed that social group pressure and parents had the most important role towards orthodontic treatment in the Netherlands.(22) Fayyazmonfared et al. showed that parents and dentists; recommendations were more important than friends.(23)

The main orthodontics obstacles in this study were high costs (65.3%) and visible orthodontics appliances (26.6%). Consistent with our findings, Kim et al. and Loathing et al. reported high costs and long duration of treatment as the major obstacles towards treatment.(24)

## Conclusion

The demand for oral and dental health services is growing and orthodontic treatments have growing popularity in the world. Patients' motivation and experts' opinions are two important elements in using such treatments. The motivation toward orthodontic treatment was high. The top motivation for seeking treatment was dissatisfaction with the face and desiring a better look. The main orthodontics were high costs and visible orthodontic appliances.

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None

### Authors' contributions

**Ayda Almasi:** Conceptualization, Methodology, Writing - Review & Editing **Erfaneh Afsari:** Resources, Investigation, Visualization **Faegheh Gholinia:** Methodology, Visualization **Fatemeh Alirezaei:** Writing - Original Draft, Data Curation **Hosein Abdolhoseini:** Funding acquisition, Project administration, Supervision

### Conflict of Interests

The authors declare no conflict of interest.

### Ethical declarations

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None

### Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

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