



# Patients and Carers Expectations of Orthodontic Treatment: Findings from a Questionnaire Survey

## Hastaların ve Velilerinin Ortodontik Tedaviden Beklentileri: Bir Anket Araştırmasından Elde Edilen Bulgular

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**ABSTRACT Objective:** The study is conducted to explore various expectations of patients and their parents from orthodontic treatment. At the same time, the socio-demographic structure of the patient population of the region will be tried to be revealed with questions to be asked to the parents and the relationship between demographic data and expectations of patients from orthodontic treatment will be questioned. **Material and Methods:** Patients and their accompanying primary carers who applied to the Orthodontics Clinic of Gaziantep University Dentistry Faculty and had not received orthodontic treatment yet were included in this study. To evaluate the expectancies from the treatment outcome, knowledge of the treatment process and general information about possible side effects of the treatment a questionnaire consist of ten questions was conducted on 120 patients (mean age 13.9±0.8 years) and their 120 parents. Moreover, educational status, the profession of the parents and monthly income of the family were asked extra to the parents to form the socio-demographic data. The results were explained with descriptive statistics, and while Wilcoxon Signed Ranks test was used to compare the expectation difference between patient and parents, Chi-square test was used for understanding the relationship between socio-demographic data and patient expectations. **Results:** A large group of patients and their parents hoped to wear braces at the first appointment and thought that they are going to have fixed orthodontic treatment. It was seen patients did not have much information about the possible side effects of treatment while those with knowledge seems to have not too much concern in this regard. The popular reasons for seeking orthodontic treatment were to have well-aligned teeth and have a nice smile for both patients and their parents. The patient portfolio addressed in this survey is a group of patients who are below the country average socio-demographic structure. **Conclusion:** Patients and their parents seem to have similar expectations for orthodontic treatment. The low socio-demographic structure of the patient portfolio of university hospitals necessitates more detailed patient information with a simpler language. If this questionnaire is applicable in the whole country; the results will be far from being regional.

**Keywords:** Survey; orthodontics

**ÖZET Amaç:** Bu çalışma, hastaların ve ebeveynlerinin ortodontik tedaviden beklentilerini araştırmak amacıyla yapılmıştır. Aynı zamanda velilere sorulacak sorular ile bölge hasta popülasyonunun sosyo-demografik yapısı ortaya konmaya çalışılarak demografik veriler ile hastaların ortodontik tedaviden beklentileri arasındaki ilişki sorgulanacaktır. **Gereç ve Yöntemler:** Çalışmaya Gaziantep Üniversitesi Diş Hekimliği Fakültesi Ortodonti Kliniği'ne başvuran ve henüz ortodontik tedavisine başlanmayan hastalar ve hasta velileri dahil edilmiştir. Tedavi sonucundan beklentileri, tedavi süreci hakkındaki bilgi düzeyini ve tedavinin olası yan etkileri hakkında genel bilgilerin sorgulanabilmesi amacıyla 120 hasta (ortalama yaş 13,9±0,8 yıl) ve 120 ebeveynine 10 sorudan oluşan bir anket yöneltilmiştir. Ayrıca, ailelerin eğitim durumu, anne-baba mesleği ve aylık geliri, sosyo-demografik verileri oluşturmak için ebeveynlere fazladan sorulmuştur. Sonuçlar tanımlayıcı istatistikler ile açıklanmış ve hasta ve ebeveynler arasındaki beklenti farklılığını karşılaştırmak için Wilcoxon Signed Ranks testi, sosyo-demografik veriler ile hasta beklentileri ilişkilendirilirken ise Ki-kare testi kullanılmıştır. **Bulgular:** Büyük bir grup hasta ilk randevuda diş tellerinin takılmasını beklemekte ve sabit ortodontik tedavi göreceğini düşünmektedir. Hastaların tedavinin olası yan etkileri hakkında fazla bilgi sahibi olmadığı, bilgi sahibi olanların ise bu konuda fazla kaygı duymadığı görülmüştür. İyi hizalanmış dişlere ve hoş bir gülümsemeye sahip olmak ortodontik tedavi görmek için popüler nedenler arasındadır. Bu ankette ele alınan hasta portföyünün, ülke ortalama sosyo-demografik yapısının altında olan bir grup hasta olduğu saptanmıştır. **Sonuç:** Hastalar ve ebeveynleri ortodontik tedaviden benzer beklentilere sahiptirler. Üniversite hastanelerinin hasta portföyünün düşük sosyo-demografik yapısı, daha detaylı hasta bilgilendirmesi ve daha basit bir dil kullanımını gerektirmektedir. Bu anket tüm ülkede uygulanabilir ise; sonuçların bölgesel olmaktan uzaklaşacağı düşünülmektedir.

**Anahtar Kelimeler:** Anket; ortodonti

The most significant impact of many patients seeking treatment is the positive changes in dento-facial aesthetics after orthodontic treatment. With the dental aesthetics in the center, facial appearance is seen as a very important physical feature that is considered to be an important determinant of self-esteem and social perceptions.<sup>1</sup> Not only providing information about age, gender, health or emotional state, it also has effects on judgments about characteristics as intelligence and personality. But expectations from orthodontic treatment can vary widely. According to clinicians, restoration of normal function is at least as important as aesthetics but for patients, aesthetics may be more front-panel. The knowledge of malocclusion-bearing individuals may cause them to notice the dental disorders more clearly, thus perception of malocclusion may be independent of the severity of malocclusion. It is becoming more and more important now that the patient's requests are pre-screened to ensure full patient satisfaction with orthodontic treatment. This is necessary in order to maintain the motivation of the patients during the long treatment procedures.

In the literature, there are studies who analyzed the patient expectations from orthodontic treatment. Some of these studies.<sup>2-5</sup> investigated the patient's expectations of orthodontic treatment at first visit. Besides the studies evaluating the satisfaction of the patient during the treatment process, there are studies evaluating the impact of doctor-patient and doctor-parent relationship that predict patient satisfaction.<sup>6-8</sup> Finally, studies comparing patient and parent expectations from orthodontic treatment have also been included in the literature.<sup>9-11</sup> Because a large majority of patients seeking orthodontic treatment are at a younger age and are still under the protection of their parents, the difference between patients' and parents' expectancies is gaining importance.

In Turkey, if the patients are under the age of 18 and choose dental faculty hospitals for being treated, orthodontic treatment is provided free of charge under universal health insurance. Relatively higher orthodontic treatment prices in private clinics lead to a considerable increase in the waiting

times for treatment in these hospitals. The level of knowledge of the patients who are going to wait for treatment for many years about orthodontic treatment is unknown. Although patient and parent expectations from orthodontic treatment have been reported by some authors there is a paucity of data about patients in Turkey, especially in dental faculty hospitals. The aim of this cross-sectional study was to compare the orthodontic treatment expectations between the patients and their parents who applied to the Orthodontics Clinic of Gaziantep University Dentistry Faculty as the expectation difference between children and parents is a factor that can challenge the orthodontic treatment process. At the same time, the demographic structure of the patient population of the region will be tried to be revealed with questions asked to the parents and the relationship between demographic data and expectations of patients/parents from orthodontic treatment will be questioned.

## MATERIAL AND METHODS

This study was approved by the Ethics Committee of Sanko University (2018/02-16). To evaluate the expectancies from the treatment outcome (one question), from the treatment process (five questions) and general information about possible side effects of the treatment (four questions) a questionnaire consist of ten questions was conducted on 120 patients (mean age 13.9± 0.8 years) and their 120 parents. The questionnaire, developed by Sayers and Newton, was translated into Turkish by the author AG.<sup>11</sup> Moreover, educational status, the profession of the parents and monthly income of the family were asked extra to the parents to form the socio-demographic data. [Appendix 1](#) shows the common questions directed to the patients and parents, while [Appendix 2](#) shows the socio-demographic questions directed only to the parents (in eng). The questionnaire was filled out before the clinical examination. The children were instructed to answer the questions without any support from their parents and their parents answered the questions without any communication with their children. However, all children and the parents had the opportunity to ask questions about the ques-

APPENDIX 1: Questionnaire.
1) At your initial appointment what do you expect to?
2) What type of orthodontic treatment do you expect to wear?
3) Do you expect orthodontic treatment will give you any problem?
4) Do you think wearing a brace will be painful?
5) Do you think orthodontic treatment will produce problems with eating?
6) Do you expect orthodontic treatment to restrict what you eat or drink?
7) Will people react to wearing a brace
8) How long do you expect orthodontic treatment to take?
9) How often do you think you will need to come for check-up
10) What do you expect orthodontic treatment to?

APPENDIX 2: Demographic data.
Education level of the father
Education level of the mother
Profession of the father
Profession of the mother
Family monthly income

tionnaires and get support from the clinical staff. The time taken for completion of the questionnaire was 8-10 minutes. For the first three questions and for question ten there were sub-questions (six, two, four and seven respectively). There were yes, no and do not know answers in every question except questions eight and nine. For question eight the responder had do not know option with six more options and for question nine the responder had do not know options with four more. Patients who wanted orthodontic treatment and who have not received any orthodontic treatment before and willing to participate in the study were included with their parents. Patients below 12 years of age and above 18 years were excluded. A written consent form was taken from both child and parent.

### STATISTICAL ANALYSIS

Statistical analysis was performed using SPSS Version 24 for Windows and a p-value <0.05 was accepted as statistically significant. The normality of the distribution of continuous variables was tested using the Shapiro Wilk Test. The results are described by descriptive statistics. Wilcoxon Signed Ranks test was used to compare the expectation dif-

ference between patients and parents. Like Sayers and Newtons the “Don’t know” responses were excluded from the analysis.<sup>11</sup> Chi-square test was used for understanding the relationship between socio-demographic data and patient expectations.

### RESULTS

120 patients (mean age 13.9±0.8 years) and 120 parents completed the questionnaire, maximum participation in the survey was reached. Table 1 shows the distribution of the study population regarding the expectation of orthodontic treatment to do (child&parents). A large majority of the participants were expecting properly aligned teeth from orthodontic treatment. This expectation was followed by the desire to have a more beautiful smile, the desire to provide better oral hygiene and the desire to have an easier eating and speaking. These expectations were common for both parents and children. Answers given to the questions of increased self-confidence of the patient and an increased chance of a good career after treatment were significantly different between patients and their parents (p=0.009, p=0.035 respectively). Figure 1 and Figure 2 shows the expectations as to the duration of orthodontic treatment and the frequency of appointments. It was seen that the patients and the parents do not have sufficient knowledge about the treatment duration or the possible number of appointments.

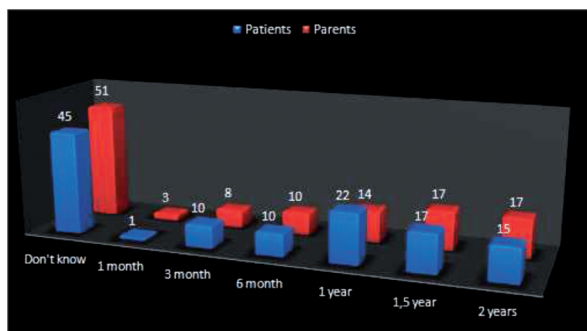
Table 2 shows the distribution of the study population regarding knowledge of the treatment process. The majority of the patients and the parents were expected to have braces fitted at the first appointment. This expectation of the patients was found statistically significantly higher than that of their parents (p=0.027).

Table 3 shows the distribution of the study population regarding general information about possible side effects of the treatment. A statistically significant difference between patients and parents was only found about the pain after bracket placement. The patients thought that they will have pain more (p=0.027).

Figure 3, Figure 4 and Figure 5 show the distribution of the parents regarding education level,

**TABLE 1:** Distribution of the study population regarding expectation of orthodontic treatment to (child&parents, question 10).

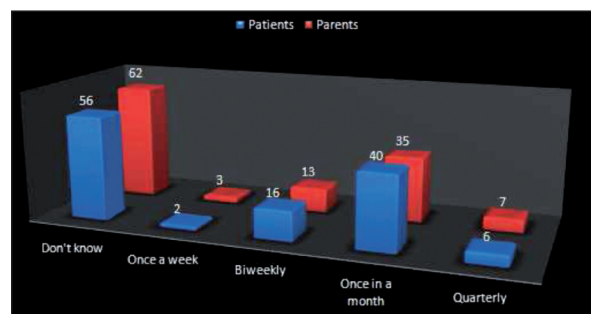
	Child (n=120)	%	Parents (n=120)	%	p
<b>10) What do you expect orthodontic treatment to?</b>					
<b>a. straighten your teeth</b>					
yes	111	92.5	116	96.7	NS
no	1	0.8	0	0.0	
don't know	8	6.7	4	3.3	
<b>b. produce a better smile</b>					
yes	90	75	93	77.5	NS
no	4	3.3	0	0.0	
don't know	26	21.7	27	22.5	
<b>c. gives you confidence socially</b>					
yes	69	57.5	83	69.2	0.009
no	9	7.5	5	4.2	
don't know	42	35	32	26.7	
<b>d. improve your chances of a good career</b>					
yes	40	33.3	49	40.8	0.035
no	20	16.7	21	17.5	
don't know	60	50	50	41.7	
<b>e. make it easier to eat</b>					
yes	70	58.3	79	65.8	NS
no	9	7.5	5	4.2	
don't know	41	34.2	36	30.0	
<b>f. make it easier to speak</b>					
yes	69	57.5	78	65.0	NS
no	11	9.2	8	6.7	
don't know	40	33.3	34	28.3	
<b>g. make it easier to keep teeth clean</b>					
yes	78	65	86	71.7	NS
no	4	3.3	2	1.7	
don't know	38	31.7	32	26.7	



**FIGURE 1:** Expectations as to the duration of orthodontic treatment (child&parents, question 8).

professions, and monthly income. The graphics demonstrate that a large majority of parents (both father and mother) are primary school graduates, housewives are the majority among the mothers

while private sector including laborer is the most common occupation of the fathers and the monthly incomes of families are very low.



**FIGURE 2:** Expectations as to the frequency of appointments (child&parents, question 9).

**TABLE 2:** Distribution of the study population regarding knowledge of the treatment process (child&parents, questions 1 and 2).

	Child (n=120)	%	Parents (n=120)	%	p
<b>1) At your initial appointment what do you expect to?</b>					
<b>a. have braces fitted</b>					
yes	98	81.7	87	72.5	0.027
no	10	8.3	11	9.2	
don't know	12	10	22	18.3	
<b>b. have check-up and diagnosis</b>					
yes	74	61.7	75	62.5	NS
no	8	6.7	5	4.2	
don't know	38	31.7	40	33.3	
<b>c. have discussion about the treatment plan</b>					
yes	72	60	73	60.8	NS
no	4	3.3	2	1.7	
don't know	44	36.7	45	37.5	
<b>d. have x-ray</b>					
yes	52	43.3	52	43.3	NS
no	8	6.7	12	10.0	
don't know	60	50	56	46.7	
<b>e. have impression</b>					
yes	45	37.5	40	33.3	NS
no	14	11.7	16	13.3	
don't know	61	50.8	64	53.3	
<b>f. Have oral hygiene checked</b>					
yes	70	58.3	68	56.7	NS
no	6	5	6	5.0	
don't know	44	36.7	46	38.3	
<b>2) What type of orthodontic treatment do you expect to wear?</b>					
<b>a. Fixed</b>					
yes	74	61.7	64	53.3	NS
no	4	3.3	7	5.8	
don't know	42	35	49	40.8	
<b>b. Removable</b>					
yes	15	12.5	18	15.0	NS
no	52	43.3	40	33.3	
don't know	53	44.2	62	51.7	

Table 4 shows the relation between the answers given by patients to the questions and the socio-demographic data of the family. There found to be a relation between the level of education of the mother and the answers given by patients to questions 1b, 8, 9, 10e, 10f and 10g. Also for the answers to questions 3b, 3d, 10d there found to be a relation between the levels of education of the father. It was seen that the mothers' occupation had

an effect on the answers to questions 1e, 2b, 4, 6, 8, 10b, 10e and 10f whereas the father's profession did not affect any answers. Total monthly income affected the answers to questions 1b, 6 and 10b.

## DISCUSSION

Effective delivery of orthodontic services depends on the clinician's skill and the patient's knowledge and attitude towards orthodontic treatment. With

**TABLE 3:** Distribution of the study population regarding general information about possible side effects of the treatment (child&parents, questions 3, 4, 5, 6 and 7).

	Child (n=120)	%	Parents (n=120)	%	p
<b>3) Do you expect orthodontic treatment will give you any problem?</b>					
<b>a. Speech</b>					
yes	38	31.7	37	30.8	NS
no	47	39.2	39	32.5	
don't know	35	29.2	44	36.7	
<b>b. Salivation</b>					
yes	34	28.3	32	26.7	NS
no	37	30.8	28	23.3	
don't know	49	40.8	60	50.0	
<b>c. Ulceration</b>					
yes	30	25.0	30	25.0	NS
no	45	37.5	36	30.0	
don't know	45	37.5	54	45.0	
<b>d. Restricted jaw movement</b>					
yes	31	25.8	31	25.8	NS
no	29	24.2	26	21.7	
don't know	60	50.0	63	52.5	
<b>4) Do you think wearing a brace will be painful?</b>					
yes	41	34.2	35	29.2	0.027
no	39	32.5	28	23.3	
don't know	40	33.3	57	47.5	
<b>5) Do you think orthodontic treatment will produce problems with eating?</b>					
yes	40	33.3	45	37.5	NS
no	32	26.7	30	25.0	
don't know	48	40.0	45	37.5	
<b>6) Do you expect orthodontic treatment to restrict what you eat or drink?</b>					
yes	64	53.3	55	45.8	NS
no	25	20.8	26	21.7	
don't know	31	25.8	39	32.5	
<b>7) Will people react to wearing a brace?</b>					
positive	76	63.3	72	60.0	NS
negative	12	10.0	9	7.5	
don't know	32	26.7	39	32.5	

it, the opinion of the parents is important when the younger patients are the subject. In the continuity of the orthodontic treatment, as well as patients, the role of parents is great. Because the orthodontic treatment did not end in the clinic and was inward to normal life, patients should be closely supervised by the parents. Thus the parent's knowledge and attitude towards orthodontic treatment are as important as patients. There have been numerous studies published regarding expectations of patients

and parents from orthodontic treatment but there are no studies comparing these expectations with socio-demographic data. We think that the results of this study are valuable to understand the differences in the treatment expectations in this context.

In this study, mainly three groups of questions were asked to find answers to expectancies: from the treatment outcome, from the treatment process and general information about possible side effects of the treatment. At their first appointment, to-



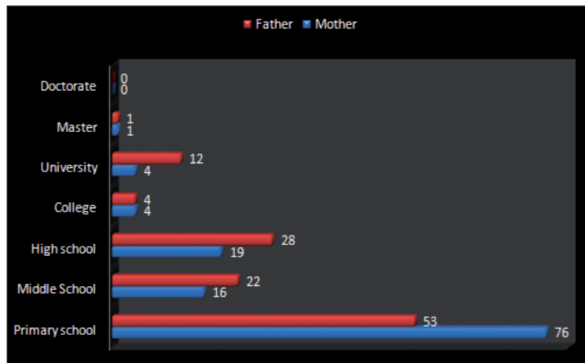


FIGURE 3: Distribution of the parents regarding education level (Father&Mother).

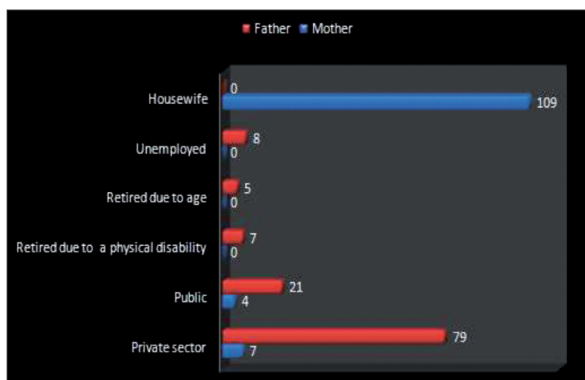


FIGURE 4: Distribution of the parents regarding professions (Father&Mother).

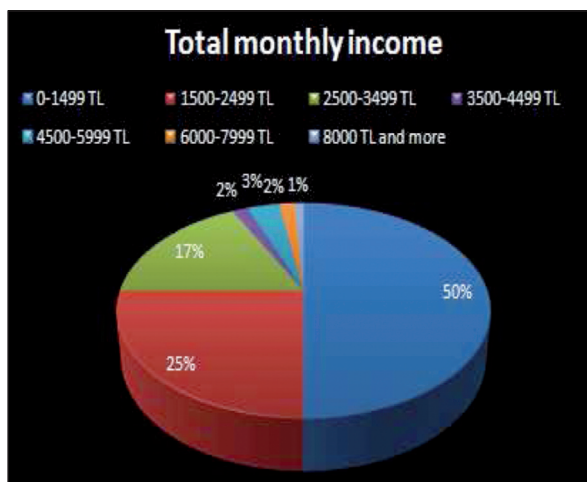


FIGURE 5: Distribution of the families regarding monthly income.

gether with the wishes of having a checkup and diagnosis, discussing the treatment plan and having oral hygiene checked in a lesser intensity, patients hoped to have braces immediately. The expectation of an orthodontic appliance being fitted at the ini-

tial visit was significantly lower in parent participants than in patients. Although the further finding is in accordance with the previous studies, a very high level of having braces at the first appointment desire was only compatible with Soni et al. work, which can be a sign that the patient population in our survey is impatient.<sup>2,5,9-11</sup> A large group of patients thought that they are going to have fixed orthodontic treatment which is consistent with the age groups we addressed in this survey.

It was seen patients did not have much information about possible side effects of treatment while those with knowledge seems to have not too much concern in this regard. Our study population agreed with the finding that orthodontic treatment rarely causes pain or discomfort, but not agree with a study reported that most of the participants expected pain with orthodontic treatment.<sup>12,13</sup> According to the results, nearly %34 of the patients expected pain which was found to be really low. Rather than their parents, the patients seemed to be more concerned about this issue. When considering the number of patients who are not aware of the answer to the question, it may be said that the patients do not have enough knowledge about the pain.

With no difference between them, the patients and their parents both thought that far from producing a problem with eating, orthodontic treatment will cause a restriction about what the child eat or drink as previously reported.<sup>3,9,10</sup> Neither parents nor patients have concerns about the unfavorable social responses which wearing braces may awake. This probably reflects the normalization of orthodontic treatment in the region of interest.

The popular reasons for seeking orthodontic treatment were to have well-aligned teeth and have a nice smile as reported before.<sup>14</sup> This data is valid for both parents and patients. Majority of the respondents had higher expectations of the aesthetic outcome of orthodontic treatment than on the functional outcomes. It was reported before that psychological factors, rather than the severity of malocclusion, decide demand for orthodontic

**TABLE 4:** Relationship between the answers given by patients to the questions and the socio-demographic data of the family.

*p<0.05 Patient answers to Questions	Level of Education		Profession		Total Monthly Income
	Mother	Father	Mother	Father	
1b	0.036*	-	-	-	0.046*
1c	-	-	-	-	-
1e	-	-	0.024*	-	-
2b	-	-	0.023*	-	-
3b	-	0.003*	-	-	-
3d	-	0.049*	-	-	-
4	-	-	0.047*	-	-
6	-	-	0.035*	-	0.047*
8	0.001*	-	0.018*	-	-
9	0.048*	-	-	-	-
10b	-	-	0.035*	-	0.007*
10c	-	-	-	-	-
10d	-	0.021*	-	-	-
10e	0.039*	-	0.028*	-	-
10f	0.025*	-	0.001*	-	-
10g	0.032*	-	-	-	-

treatment.<sup>15</sup> People learn the concepts of facial attractiveness early in life and facial attractiveness is seen as a social asset while lack of appeal is deemed a social liability. At the same time, a considerable number of patients and parents believe that oral hygiene will be facilitated as a result of orthodontic treatment, as previously reported.<sup>16</sup>

Unlike the reported results before, most of the patients think their self-confidence will increase as a result of orthodontic treatment.<sup>2</sup> But the belief in the parents seemed to be much more than the belief of the patients themselves. This finding is compatible with Tung and Kiyak who had reported that parents expected the orthodontic treatment will help in increasing the social acceptance and confidence.<sup>17</sup>

It is noteworthy that the number of patients and parents who answered the question about the duration of orthodontic treatment and the frequency of appointment as “don’t know” was remarkable. Orthodontic treatment needs a good patient cooperation for a better outcome. The duration of treatment which includes the period of retention may thus affect the compliance of the pa-

tient if he/she is not adequately counseled. We think that it will be useful to transfer intensive information about the duration of treatment and the frequency of the appointments in our population.

Based on our socio-demographic results it could be said that the education level of the parents (regardless of being father or mother) was too low. Accordingly, most of the mothers are defined themselves as house-wife and 8% of the fathers are unemployed. 50% of the families’ monthly total income is similar to the minimum wage. These results indicate that the patient portfolio addressed in this survey is group patients who are below the country average socio-cultural structure. The state provision of health-care services for patients under the age of 18 who constitute our working group is the main reason for the non-homogenous patient portfolio. On the other hand, these findings indicate that today more patients have a chance to access orthodontic treatment independently of their economic status.

When we look at the relationship between socio-demographic data and survey questions, we see that largely out of fathers there is a direct rela-



relationship between mothers' education level and occupation and patients' expectation from orthodontic treatment. Moreover, as the monthly family income of patients' increases, we saw that patients had more realistic expectations on the first appointment, had more knowledge about the side effects of the treatment and had increased expectation from the orthodontic treatment.

Some limitations of this study must be noted. First of all, it describes the responses of subjects applying to the Gaziantep University Dentistry Faculty for orthodontic treatment so that the patients who wish to have treatment in private clinics are not included in this group. Therefore, our results cannot be used for orthodontic patients in the whole region. Secondly, the fact that the current malocclusions of the patients were not identified during the survey prevented the determination of the relationship between the urgency of the malocclusion and the reason for the treatment seeking.

## CONCLUSION

Within the limitations of this questionnaire survey, except expectations from the first appointment, pain side effect of wearing braces and the reason for wishing to have orthodontic treatment, patients and their parents have similar expectations from orthodontic treatment. Indeed, the low socio-cultural structure of the patient portfolio of university hospitals necessitates more detailed

patient information with a simpler language. Moreover if this questionnaire is applicable in the whole country; the results will be far from being regional.

### Informed Consent

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

### Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

### Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

### Authorship Contributions

**Idea/Concept:** Ayşegül Güleç, Merve Göymen; **Design:** Ayşegül Güleç, Merve Göymen; **Supervision/Consultancy:** Ayşegül Güleç; **Data Collection and/or Processing:** Ayşegül Güleç; **Analysis and / or Interpretation:** Ayşegül Güleç, Merve Göymen; **Source Search:** Ayşegül Güleç, Merve Göymen; **Article Writing:** Ayşegül Güleç; **Critical Review:** Merve Göymen; **Resources and Funding:** Ayşegül Güleç, Merve Göymen; **Ingredients:** Ayşegül Güleç.

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