

# Evaluation of Public Awareness about Orthodontic Treatments in Two Cities of Iran

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## Abstract

**Objective:** Most orthodontic patients are children or adolescents. In recent years, orthodontic treatment in adults, also has gained social and professional acceptance. Adults have undoubtable effect on overall treatment demand. Parents are the most powerful single factor in children motivation for treatment. Therefore, parents and other members of the society are expected to have proper knowledge about orthodontic problems. The purpose of this study was to determine and compare public awareness about orthodontic treatment in two cities of Iran.

**Materials and Methods:** A questionnaire consisting of 17 questions, including general information, suitable age, and costs of orthodontic treatment, was given to 384 subjects. The questionnaire was given to healthcare centers in different districts of both cities in order to justify a homogeneous study sample. The public awareness in two cities was analyzed and compared with independent t-test.

**Results:** There was no significant difference between the two cities in general information and their opinion about the costs of the orthodontic treatment. The difference in public awareness about the proper age for orthodontic treatment was statistically significant between the two cities ( $p= 0.002$ ).

**Conclusion:** General awareness of people about orthodontic treatment in both cities was not adequate, and in the two cities, high costs of orthodontic treatment were the main problems causing treatment demand reduction. Knowledge of people in Tabriz about proper age of orthodontic treatment was higher.

**Key words:** Health Care Costs; Health Knowledge; Health Service Needs and Demands; Orthodontics

## Introduction

Tooth misalignment and malocclusion may cause social and psychological impact due to different facial appearance, and may give rise to some oral function problems such as difficulties in jaw movements, temporomandibular joint disorders, problems

with mastication, swallowing or speech and greater susceptibility to trauma, periodontal disease or caries (6, 9).

Orthodontists and orthodontic science with clinical procedures can alter and hopefully improve a patient's facial appearance and

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psycho-social status. Orthodontic treatment can be useful in treatment and improvement of developmental, functional and oral health problems (6, 9).

Demand for orthodontic treatment is influenced by various factors such as malocclusion prevalence and severity, sex, socio-economic status, ethnic origin, availability and funding of orthodontic services. (11, 13) For example both the perceived need and demand vary with social and cultural conditions. More children in urban areas are thought (by parents and peers) to demand treatment than children in rural areas. Family income is a major determinant of how many children receive treatment (14). Also some studies showed that different cultural and socioeconomic conditions do not necessarily resulted in significant differences in awareness about orthodontics and subsequent treatment demand (10).

On the other hand the tests of psychological reaction of individuals to various dental conditions show that cultural differences are smaller than what might have been anticipated (2).

Most orthodontic patients are children or adolescents. Furthermore, orthodontic treatment in adults has gained social and professional acceptance in recent years. (4) Parents are found to have noticed occlusal defects in their children almost as frequently as dentists, and are the most powerful single factor in the motivation for treatment. (5) Oral health knowledge and similarly awareness about orthodontic treatment are considered to be an essential prerequisite for health related behavior and orthodontic treatment demand. Studies have shown that there is an association between increased knowledge and better oral health (3).

The purpose of this study was to evaluate and compare public awareness about

orthodontic treatment in two cities (Tabriz & Bukan) in Iran.

## Materials and Methods

Two cities (Tabriz and Bukan) were selected as survey sites. The selection was based on apparent differences in cultural, social, economic, population and availability of orthodontic services such as presence of orthodontists and university with associated dental school and postgraduate department of orthodontics.

In two cities, some healthcare centers were chosen according to type of services dispersion and city texture in order to justify a homogeneous sample, that is, some centers were selected and in those centers some samples were selected to ask take part in this survey. Ultimately, a total of 384 participants (204 in Tabriz, 180 in Bukan) were selected.

A questionnaire consisting of 17 questions in 3 sections, including general information, proper age, and costs of orthodontic treatment was prepared and the participants were given 15 minutes to fill it, which was a short time to gather information from other sources.

Face and content validity of the questionnaire, confirmed by the specialists, was based on the articles especially the article by Rafighi et al. (10) on social awareness of the orthodontic treatment. Each wrong answer was given 0 point and 1 point was given for each correct answer. Mean scores about general information, proper age, and costs of treatment were assessed separately by descriptive statistical analysis. Kolmogorov-Smirnov test was used to check normality of data distribution. Independent t-test was used to compare the awareness between the two cities.

## Results

The questionnaire had proper reliability according to the Cronbach's Alpha coefficient

(0.62). In Tabriz 188, 197 and 148 participants out of 204 answered all the questions of general information, proper age and treatment costs, respectively: 155, 155, and 144 out of 180 did the same in Bukan.

Mean scores for general information were  $51.84 \pm 22.84$  in Tabriz and  $48.49 \pm 25.41$  in Bukan, with no statistically significant difference ( $p=0.173$ ).

Mean scores for knowledge about proper age of orthodontic treatment were 51.38 and

41.66 in Tabriz and Bukan respectively, with statistically significant difference ( $p=0.002$ ).

Of all the subjects, 64.3% stated that orthodontic treatment is too expensive. However, 13.4% and 1.6% of participants thought that the costs are reasonable and low, respectively.

The answers to some important parts of questionnaire are summarized in Table 1.

Table 1: Percent (%) of some answers to some important parts of questionnaire

Provider's answer	Tabriz	Bukan	Mean
Have heard about orthodontics	82.9	69.3	76.6
Knew that orthodontics is aligning teeth by braces	88.9	85.6	87.4
Orthodontics is only for esthetical purposes	34.3	36.5	35.6
Teeth could be moved in the gum	57.3	51.3	55.5
Slow movement of teeth in the bone has no side effect on teeth	42	38	40.8
Backward and forward position of the jaws cannot be treated at any age by orthodontic treatment	30.2	37.1	33.9
Treatment duration is about 1 to 2 years	51.2	48.9	50.1
We can extract permanent teeth for orthodontic purposes	48.3	22.6	36.4
Orthodontic treatment can be rendered at any age	26	32.1	29.3
Age is important factor in beginning and duration of orthodontic treatment	56	64	59.9
Orthodontic treatment should begin in young ages	20.1	32.6	25.9
After 20 years old tooth movement is not possible	22	15	18.8
Orthodontic treatment is expensive	72	54	64.3
Had a relative under orthodontic treatment	64	32	48
Would have orthodontic treatment if needed without considering its costs	28.2	29	29.1
Having braces in mouth is the major drawback of orthodontic treatment	23	31	28
High cost is the major drawback of orthodontic treatment	49	45	48.9

## DISCUSSION

The purpose of this study was to determine the public awareness about orthodontic treatment in Tabriz and Bukan. A questionnaire was given to 384 participants in both cities to gather required information.

A little difference existed between two cities in general information, considering answers to each question, but the difference was not statistically significant.

A large percent of participants in both cities (76.6%) had heard about orthodontics, which was higher in Tabriz.

Attention and gravity to the cosmetic aspect of orthodontic treatment in Tabriz was higher, while in Bukan, therapeutic aspect was more important.

Attractiveness and beautifulness may have greater degree of importance in different economic status. A major part of the participants in Tabriz had more correct answers to the possibility of tooth movement in the bone. Tabriz's participants observed more relative and family members under orthodontic treatment (64% in Tabriz, 32% in Bukan) and this factor may cause differences in understanding of tooth movement possibility.

In general, awareness and knowledge about orthodontic treatment adverse effects was low. Similarly, Pratelli et al. (8) concluded that knowledge of parents about orthodontic implications is not sufficient.

Thirty percent of all participants had correct answers about possibility of jaw movement by orthodontic treatment. This may be attributed to this believe that orthodontics is only tooth movement and not jaw movement.

Availability of orthodontic services and presence of dentistry faculty in Tabriz may be a factor for higher awareness in Tabriz about

possibility of permanent tooth extraction during orthodontic treatments.

There was statistically significant difference in awareness about proper age of orthodontic treatments in two cities and people of Tabriz had higher awareness. Sixty percent of subjects believed that age is an important factor in orthodontic treatment, although 30.9% of participates did not know about proper age of treatment beginning; in general, awareness was inadequate.

In both cities, media do not provide enough information about orthodontics, despite other differences such as cultural, societal, economic, population and availability of orthodontic services. Lack of information in media may be contributed to the lack of knowledge among people.

The results of this study were partially similar to the study performed by Rafighi et al. which also concluded that differences in socioeconomic conditions and availability of orthodontic services cause no differences in general information about orthodontics, proper age of treatment, and costs of treatment. (10) Pratelli et al. concluded that parents who desire orthodontic treatment for themselves, or have had former orthodontic treatment are more likely to perceive a need for it in their children (8).

Importance of an orthodontic information package was emphasized by Anderson et al. (1) Oshagh et al. (7) who showed that parents' awareness of children's orthodontic problems can be increased by means of information leaflets.

Main problem causing reduction in orthodontic treatment demand in both cities was costs of treatment. In addition to the costs, limitation of time was the other factor in making decision to carry out orthodontic treatment.



Maybe if people had knowledge about the installment of orthodontic treatment costs, or if the insurance companies paid some part of it, the cost would no longer be the greatest factor precluding treatment. Engagement of insurance companies could play the role of information media as well.

We recommend that studies be carried out on the influence of any type of information media on orthodontic treatment awareness to find the appropriate methods of informing people of the subject.

## Conclusion

There were no differences in general information and costs of orthodontic treatment in both cities. Maybe lack of information by any type of media contributed to inadequate awareness about orthodontics in both cities. Knowledge about proper age of orthodontic treatments was higher in Tabriz. Availability of orthodontic services such as specialists and presence of dentistry faculty may contribute to this difference.

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