

Affordability of orthodontic treatment: a step towards the economic evaluation

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Abstract

Background: Improvements in dental health, function, beauty, and self-esteem are widely acknowledged advantages of orthodontic treatment. An economic evaluation of orthodontic treatment forms the basis for decision-making planning and management of dental care. **Aim:** This study aims to estimate the perception of patients seeking orthodontic treatment categorized according to age, education, and family income and to identify barriers that prevent them from considering treatment. **Methodology:** Proforma was sent to dental colleges and specific clinics from metro, urban and rural areas across India. 500 patients seeking orthodontic treatment took part in the survey. Data was collected and analyzed statistically. **Results:** Cost was the main factor, which patients felt was responsible for not completing treatment or preventing them to consider the treatment. All patients felt that a good smile should be included in the Right to Health by Government and steps should be taken to make this treatment accessible for all.

Keywords: cost, orthodontist, smile.

INTRODUCTION

Dental aesthetics is a key factor in overall physical attractiveness, but it also contributes to self-confidence and self-esteem.¹ The main aim of orthodontic treatment is to correct malocclusion, in order, whenever possible, to achieve functionally appropriate occlusion and optimum dental and facial aesthetics. Dental malocclusion, if left untreated, cause problems in function - eating, speaking, maintaining oral hygiene, and may compromise the quality of life. However, Orthodontic treatment needs and desires are determined by Knowledge, socioeconomic considerations, the accessibility of specialists, ethnic trends, and cultural norms.²

Economic evaluation and affordability of treatment are increasingly becoming an important component of dental services in recent years.² It assures the efficient use of healthcare resources, involves techniques to support decision-making, and provides policymakers with information to facilitate efficient resource allocation. Thus, failure to analyze the economic aspects of orthodontic services may gradually result in the withdrawal or reduction of services or resources.^{3,4}

This study aims to estimate the overall frequencies of positive perception toward orthodontic treatment according to age, sex, and area of living, and to identify barriers and reasons preventing them from getting orthodontic care.

MATERIALS AND METHODS

A random sample size of 500 orthodontic patients (1.96 at a 5% level of significance, with 85% prevalence of malocclusion in the Indian population, 1% absolute error) were collected from various dental colleges and clinics in the metro, urban and rural areas across India.

Inclusion criteria:

- Patients who were ready to provide informed consent for the study,
- Fulfilled the survey-based criteria,
- Patients of the age groups 06-35 years,
- Willing to go for Orthodontic treatment
- Both males and females include,
- Patients suffering from any orthodontic problems.

Exclusion criteria:

- Patients who did not participate in the survey.
- Age more than 35 years and below 6 years.
- Pregnant women.

A proforma was mailed to the colleges and specific clinics. The questionnaire was distributed to the patients meeting the inclusion criteria. The collected data was entered into the excel sheet. The study variables were described using simple descriptive statistics.

RESULTS

Table 1 showed that in the survey between the age group 6-35 years. These groups were divided into 4 groups - A (6-17yrs), B(18-24yrs), C(25-28yrs), and D (Above 28 years). It was found that in A group 92(18.4%), B 175(35%), C 106(18.4%), and D 127(25.4%) participated in the survey. Among those seeking to participate, 289 (57.8%) were undergraduates and 211(42.2%) were above graduation. (Table 2)

“Table 1: Number of patients of different age groups seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (6-7 years)	92	18.4	18.4	18.4
B (18-24 years)	175	35.0	35.0	53.4
C (25-28 years)	106	21.2	21.2	74.6
D (above 28 years)	127	25.4	25.4	100.0
Total	500	100.0	100.0	

“Table 2: Education of patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (Undergraduate)	289	57.8	57.8	57.8
B (Postgraduate)	211	42.2	42.2	100.0
Total	500	100.0	100.0	

“Table 3: Occupation of patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (unemployed)	86	17.2	17.2	17.2
B (self-employed)	194	38.8	38.8	56.0
C (private sector)	140	28.0	28.0	84.0
D (government sector)	80	16.0	16.0	100.0
Total	500	100.0	100.0	

“Table 4: Family income of patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (<10,000 pm)	137	27.4	27.4	28.2
B (10,000-20,000 pm)	136	27.2	27.2	55.4
C (>20,000 pm)	223	44.6	44.6	100.0
Total	500	100.0	100.0	

“Table 5: Family Type of patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (Nuclear)	216	43.2	43.2	43.2
B (joint)	235	47.0	47.0	90.2
C (separated)	38	7.6	7.6	97.8
D (extended)	11	2.2	2.2	100.0
Total	500	100.0	100.0	

Patient or Family of 38.8% of the patient was self-employed while 28% were in the private sector. (Table 3) 44.6% of patients' family income was above 20000 pm. (Table 4) 43.2% of participants had a nuclear family, while 47% belonged to a joint family. (Table 5)

“Table 6: Importance of pleasing smile for patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (important)	488	97.6	97.6	97.6
B (not important)	12	2.4	2.4	100.0
Total	500	100.0	100.0	

“Table 7: Knowledge of Orthodontic treatment in patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (yes)	470	94.0	94.0	94.0
B (no)	30	6.0	6.0	100.0
Total	500	100.0	100.0	

“Table 8: Patients keen to take orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (yes)	371	74.2	74.2	74.2
B (no)	129	25.8	25.8	100.0
Total	500	100.0	100.0	

“Table 9: Family or friend undergoing orthodontic treatment of patients seeking orthodontic treatment”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (yes)	49	9.8	9.8	9.8
B (no)	451	90.2	90.2	100.0
Total	500	100.0	100.0	

“Table 10. Is orthodontics treatment expensive in India”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (yes)	370	74.0	74.0	74.0
B (no)	130	26.0	26.0	100.0
Total	500	100.0	100.0	

“Table 11. Steps required to make treatment more affordable”

	Frequency	Percent	Valid Percent	Cumulative Percent
A (More Dental facilities by Government)	234	46.8	46.8	46.8
B (NGOs should come forward)	174	34.8	34.8	81.6
C (Payment in installments)	48	9.6	9.6	91.2
D (Dental insurance)	44	8.8	8.8	100.0
Total	500	100.0	100.0	

On asking about the importance of a pleasing smile, 97.6% of participants agreed that a pleasing smile is important, whereas 12(2.4%) disagreed with that. (Table 6) Almost 94% of participants were aware of Orthodontic treatment (Table 7) and 74.2% were keen to take orthodontic treatment (Table 8), whereas 25.8% denied it. 90.2% of participants denied that none of their family members and friends had undergone orthodontic treatment. (Table 9) 74% think Orthodontic Treatment is expensive in India whereas 26% think it is not. (Table 10) 49 (9.8%) family members agreed that Orthodontic treatment was not affordable. All 49 patients took support from other sources.

234 (46.8%) of participants were in favour of the Government should provide more Dental facilities, 174(34.8) said NGOs should come forward, 48(9.6%) said Payment for treatment should be given in installments and 44(8.8%) said Dental insurance should cover the expenses. (Table 11)

“Table 12. Shall a good smile should be included in the Right to Health by the Government”

Group	Frequency	Percent	Valid Percent	Cumulative Percent
A (yes)	494	98.8	98.8	98.8
B (maybe)	6	1.2	1.2	100
C (no)	0	0	0	
Total	500	100.0	100.0	

98.8% agreed that access to a good smile should be included in the Right to Health by Government while 6(1.2%) denied it. (Table 12)

DISCUSSION

People are becoming more aware of orthodontics as a dental specialty on a global scale.⁵ Numerous researches have shown that dental health knowledge, a healthy attitude toward dental health, and dental health behavior are interconnected and related to income and education levels.⁶⁻⁸ Different groups and people have different attitudes and perceptions about dental appearance.⁹⁻¹⁰

The study evaluated the growing esthetic concern among society, a great number of adolescents are seeking orthodontic treatment or are willing to go for the orthodontic treatment primarily for esthetic reasons. The majority of patients going through orthodontic treatment are undergraduates. Most of the patients, who were willing for orthodontic treatment were self-employed or were employed in the private sector and had family income above 20,000 pm.

All patients felt that orthodontic treatment is expensive. Many patients were willing to undergo orthodontic treatment, but due to the increased cost of the treatment, they were not able to afford it. Somehow few patients managed or borrowed money from somewhere to complete their treatment, but many of them have stopped the treatment in between due to financial problems.

Some patients are willing to get a beautiful smile with orthodontic treatment but they have delayed their plan or canceled going for orthodontic treatment because of cost factors only.

The majority of people want the government to step up and provide aid, not only to public institutions but also to private hospitals so that everyone can benefit and have a lovely smile. Others, however, urge that orthodontic care be covered by dental insurance.

97.6% of participants agreed that a pleasing smile is important and almost all believe that the government should extend the right to health to include a healthy smile.

Further studies are required on larger sample size, with more detailed questionnaires including the reason for orthodontic treatment, and more focus on cost and type of orthodontic treatment for the economic evaluation of orthodontic treatment.

CONCLUSION

Everyone aspires to have a beautiful, self-assured smile. Therefore, orthodontic treatment should be prioritized by the government as a basic need for the benefit of individuals as well as society so that they can have an attractive smile and a sense of inner confidence. Private hospitals and clinics should get funding, making orthodontic treatment more accessible and affordable.

REFERENCES

1. Kerosuo H, Hausen H, Laine T, Shaw WC. The influence of incisal malocclusion on the social attractiveness of young adults in Finland. *Eur J Orthod*. 1995;17:505-12.
2. Kumar S, Williams Ac and Sandy JR. How do we evaluate the economics of health care? *Eur J Orthod*. 2006;28:513-19.
3. Tickle M. Clinical effectiveness and primary dental care. 2. The influence of health economics. *Primary Dental Care*. 1997;4:85-87.
4. Buck D. Economic evaluation and dentistry. *Dental Update* 2002;27:66-73.
5. Dacosta ON. The prevalence of malocclusion among a population of northern Nigerian school children. *West African J Med* 1999;18:91-96.
6. Barrieshi-Nusair K, Alomari Q, Said K. Dental health attitudes and behavior among dental students in Jordan. *Community Dent Health* 2006;23:147-51.
7. Kawamura M, Iwamoto Y, Wright FA. A comparison of self-reported dental health attitudes and behavior between selected Japanese and Australian students. *J Dent Education* 1997;61:354-60.
8. Al-Wahadni AM, Al-Omiri MK, Kawamura M. Differences in self-reported oral health behavior between dental students and dental technology/dental hygiene students in Jordan. *J Oral Sciences*. 2004;46:191-7.
9. Nobile CG, Pavia M, Fortunato L, Angelillo IF. Prevalence and factors related to malocclusion and orthodontic treatment need in children and adolescents in Italy. *European Journal of Public Health*. 2007;17:637-641.
10. Vallittu PK, Vallittu AS, Lassila VP. Dental aesthetics--a survey of attitudes in different groups of patients. *J Dent*. 1996;24:335-338.