



“A Statistical Investigation of Gender-Based Psychological Response Patterns among Orthodontic Patients”

Talmale Kameshwar Madhu, Research Scholar, Department of Statistics, Sabarmati University, Gujarat

Dr. Ashwini Kumar, Professor, Department of Statistics, Sabarmati University, Gujarat

Abstract

Orthodontic treatments having becoming popular nowadays to enhance the alignment of teeth, looks, and oral health. Nonetheless, psychological and emotional responses toward orthodontic treatment vary depending on an individual’s gender. The current research of statistics assignment entitled, ‘A Statistical Study of Gender-wise Psychological Response Patterns of Orthodontic Patients’ attempts to study the psychological response of male and female orthodontic patients during different stages of their orthodontic treatment. The objective of the study is to analyze the difference of anxiety, self-esteem, confidence, emotional stress, social interaction, and treatment satisfaction by gender. The study employed a design of descriptive and comparative research. The orthodontic patients complete structured questionnaire and interview tools and psychological assessment scales. Mean, standard deviation, t-test, chi-square test, and correlation analyzer are statistical tools used for interpreting the collected data. According to the research, female patients display more emotional sensitivity, anxiety, and beliefs related to facial appearance during orthodontic treatment than their male counterparts. Compared to females, males were less emotionally stressed, showing slight to moderate concerns over treatment duration and pain, with treatment duration being more of an issue than pain.

Keywords: Orthodontics, Gender Differences, Anxiety, Self-Esteem, Psychological Response, Emotional Stress, Patient Behavior, Statistical Analysis

Introduction:

In today’s world, your appearance and beautiful smile determine your confidence, social acceptance and mental health. Because of this, orthodontic treatment has become extremely prevalent among teenagers and adults. Orthodontics is a field of dentistry that deal with irregularities of the teeth including the irregular position of the teeth and jaws. Depending on how severe a case is, fixed or removable dental braces are applied for treatment.

Moreover, orthodontic treatment is carried out to improve the physical appearance of the face through the repositioning of teeth and jaws. Another important aim of treatment is to improve the dentition health including function and overall appearance. In addition to the physical appearance, the treatment causes several psychological and emotional reactions among the patients.

During orthodontic therapy, the patient develops psychological reactions that can be defined as anxiety, distress, worries, disappointment, etc.

Being socially shamed can lead to pain and discomfort as well as a reduced confidence.

Reactions that are psychological, emotional and behavioural may differ according to age, personality, and situation.



Women are generally more concerned with facial appearance and aesthetic which may be associated with a higher degree of emotional sensitivity and anxiety compared to male patients. Furthermore, treatment process related problems such as speech difficulties, social appearance and other difficulties pain and discomfort during orthodontic surgery. In comparison, male use this disease to express sadness but suffer de-motivation due to pain, a long span of treatment and social issues. These anxieties may affect their collaboration and compliance and general satisfaction with orthodontic treatment.



Through statistical investigation, the current study examines the psychological response pattern of an orthodontic patient based on their gender. The aim of this study is to compare the psychological status of male and female orthodontic patients, as well as the factors related to them during orthodontic treatment. It also emphasizes the important role of psychology-based behavior and communication between orthodontists and patients.

Review of literature:

Research by Klages et al. (2004) focused on how dental aesthetics and self-consciousness affects the quality of life of young adults. The writers noticed that dental appearance impacted self-confidence as well as emotional and social functioning. People with poor dental aesthetics exhibit low self-esteem and social anxiety, according to them. It is also a two-way process, which means that it is not ascertained whether self-consciousness causes malocclusion or the other way round. Patients receiving orthodontic treatment often display a significant correlation between their facial appearance and their psychological health. According to the authors, the improvement in teeth alignment from orthodontic treatment also improves psychological satisfaction and quality of life. De Oliveira and Sheiham (2004) examined the impact of orthodontic treatment on oral health and quality of life of Brazilian adolescents. The note deals with the impact of orthodontic treatment on emotional and social functioning. Most orthodontic patients have a self-confidence boost after receiving the treatment. The results suggest that their daily activities, feelings, and social confidence improved. In addition, it was discovered that orthodontically treated adolescents showed improvement in their self-image and embarrassment regarding their dental appearance. The authors have further mentioned that untreated malocclusion might negatively affect the emotional stability and social communication of youngsters.

Cunningham and Hunt (2005) researched orthodontic treatment and its impact on quality of life. Based on their research finding, orthodontic treatment influences the

physical appearance and psychological status. When an orthodontic treatment achieves a successful outcome, the expectations and aspirations of the patient go a long way in enhancing the patient's confidence, self-esteem and social acceptance. The study concluded that psychological factors must always be considered in orthodontic treatment planning.

Zhang, McGrath and Hägg (2006) evaluated changes in oral health-related quality of life during the application of fixed appliances. The orthodontic therapy results of panic, psychological trauma, and physical pain during the initial treatments all report patients. During initial stages of orthodontic treatment, females suffered more than males. Nonetheless, the pain and injury may be quite temporary depending on the treatment. After receiving treatment, the confidence and emotions of the patients increase.

The 2010 study by Feu, Oliveira, Celeste, and Miguel of the University of Mount Union looked at the effect of orthodontic treatment on adolescent patients' perceptions. As reported in this study, the dental appearance of adolescent patients improved after orthodontic treatment which had a good impact on self-esteem and emotional confidence. Women patients expressed more concern with appearances of the face and were also more confident emotionally after treatment. As per the authors, orthodontic treatment can significantly affect the enhancement of social and psychological well-being.

A study about orthodontic treatment's effects on the quality of life of adolescents. Bernabé, Sheiham, Tsakos, and de Oliveira (2008) carried out. Adolescents with malocclusion undergo effects, the report stated.

Patients openly, properly and fearlessly dealing with others shows impact of orthodontic dental treatment. These patients were emotionally stable and had the freedom to communicate well with people. Patients undergoing orthodontic treatment became more socially engaged and active in society. Studies have proved that early orthodontic treatment can enhance the psychological health of disabled children. Shaw, Richmond



et O'Brien (2007) studied the effect of dentofacial attractiveness on social desirability. The findings show facial appearance affects self-esteem and social attractiveness. The most vital components are interpersonal relation, confidence adjustment and emotional adjustment. Furthermore, individuals with a dental eye deformity received social disapproval.

These patients felt less confident and suffered negative social judgments. Ultimately, it was shown from this study that the impact on the social part would notice a powerful contribution towards the challenges psychological. It enables the patient to associate it with the treatment.

Objectives of the Study:

- To examine the psychological response patterns among orthodontic patients.
- To compare anxiety and self-esteem levels between male and female orthodontic patients.
- To analyze the impact of orthodontic treatment on emotional well-being and social confidence.

Material and methods:

The current study adopts a descriptive and comparative design. A randomly selected sample of the population was required. Apart from these, the study exhibits gender-specific mental response patterns of orthodontic patients. The current study was designed to be descriptive and comparative.

The study involved patients receiving orthodontic treatment in selected dental clinics and orthodontic centres. In addition to this, data was collected over a period of 2 months. Moreover, the researchers selected for the study.

The study involved an equal number of male and female patients. Orthodontic patients often fall into the age category of 15-30 years old. The information was gathered through established questionnaires and psychological tools as well as personal interviews. In addition, certain questions were related to the anxiety, emotional stress, self-esteem, confidence, interaction with the people, and satisfaction with the treatment during orthodontic treatment.

Along with this, the study included patients

receiving active orthodontic treatment for at least six months.

Data Sources: The research team utilized various original and alternate sources to collect data. A primary data source means collecting data directly from the specific people of interest. Additionally, information was gathered from orthodontic patients.

Secondary sources of data are indirect sources of data. The researchers utilized it for future reference and analysis. Journals, books and research articles serve as secondary data. Afterward, they analyzed articles and used data from prior researches which were related to orthodontics and psychology.

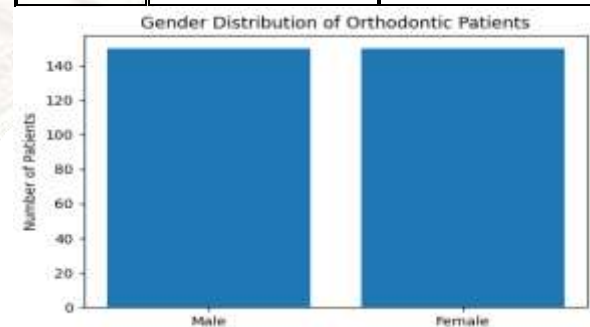
Analyzing Data: After data collection, the data was tabulated and organized.

Throughout the course of the research work, the secrecy and confidentiality of the patients were upheld.

Analysis of the study:

Table 1: Gender Distribution of Orthodontic Patients

| Gender | Number of Patients | Percentage (%) |
|--------------|--------------------|----------------|
| Male | 150 | 50% |
| Female | 150 | 50% |
| Total | 300 | 100% |



Analysis

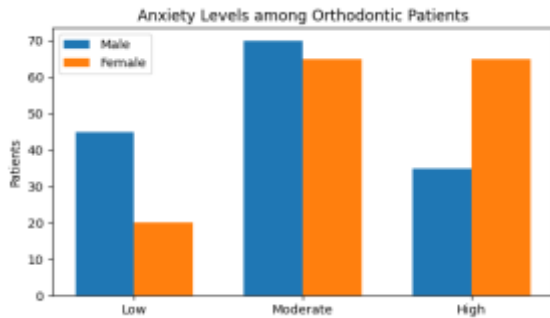
As per the above table, patients for the study are selected based on their gender. Equal representation was noted among males and female orthodontic patients. As a result, an equal number (150) of both sexes were selected. Statistical comparison of psychological response patterns of orthodontic patients as per the need.

Table 2: Anxiety Levels among Orthodontic Patients

| Anxiety Level | Male Patients | Female Patients |
|---------------|---------------|-----------------|
| Low | 45 | 20 |



| | | |
|--------------|------------|------------|
| Moderate | 70 | 65 |
| High | 35 | 65 |
| Total | 150 | 150 |

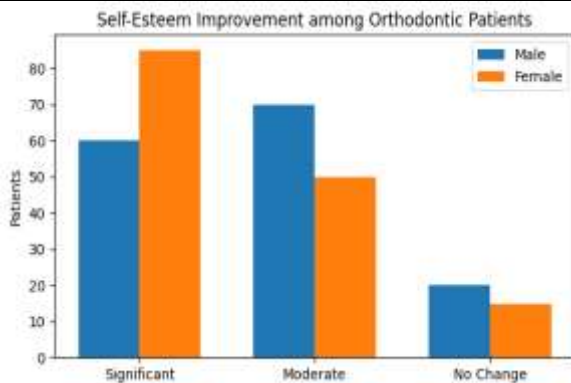


Analysis

As shown in the table, anxiety amongst females was more than that of males. More female patients were part of the high anxiety group while most of the male patients belonged to the moderate anxiety group. As a result, the female patients are emotionally more sensitive when undergoing orthodontic treatment.

Table 3: Self-Esteem Improvement after Orthodontic Treatment

| Self-Esteem Level | Male Patients | Female Patients |
|------------------------|---------------|-----------------|
| Improved Significantly | 60 | 85 |
| Moderately Improved | 70 | 50 |
| No Significant Change | 20 | 15 |
| Total | 150 | 150 |

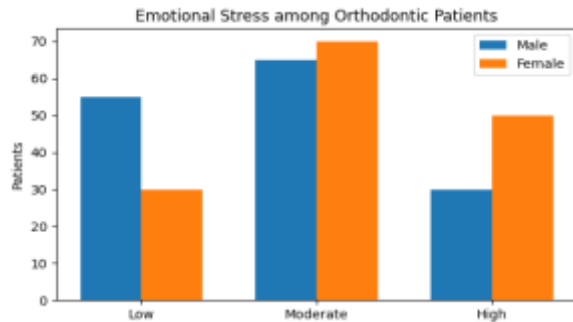


Analysis

As per the results, orthodontic treatment enhanced the self-esteem of patients. Similarly, after treatment, female patients had better self-esteem and confidence boosts than male patients. This apparently occurs due to more concern related to facial appearance and beauty of smile in females than males.

Table 4: Emotional Stress during Orthodontic Treatment

| Emotional Stress Level | Male Patients | Female Patients |
|------------------------|---------------|-----------------|
| Low | 55 | 30 |
| Moderate | 65 | 70 |
| High | 30 | 50 |
| Total | 150 | 150 |

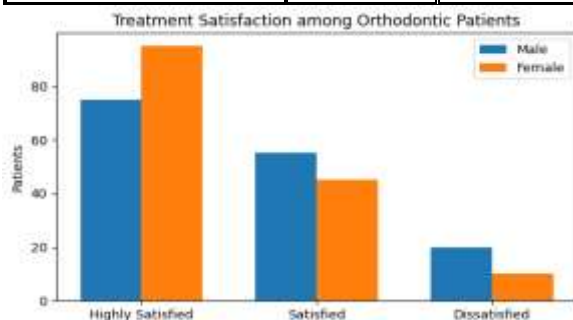


Analysis

According to the table, female orthodontic patients were comparatively more emotionally stressed. Similarly, more female patients, as compared to male patients, experienced discomfort, social embarrassment and emotional distress due to the treatment. Men feel less emotional stress, while both sexes show moderate stress.

Table 5: Treatment Satisfaction among Orthodontic Patients

| Satisfaction Level | Male Patients | Female Patients |
|--------------------|---------------|-----------------|
| Highly Satisfied | 75 | 95 |
| Satisfied | 55 | 45 |
| Dissatisfied | 20 | 10 |
| Total | 150 | 150 |



Analysis

Most orthodontic patients were satisfied with the treatment outcomes as shown in the above table. The satisfaction level of female patients was higher than that of male patients since they observed an enhancement in their face appearance and feel more confident in their smile. On the other side, male patients were assured of results as



well with the treatments.

Results and Discussion:

The result of this study reflects a distinct difference in the psychological response pattern of male and female orthodontic patients. You can rewrite the sentence like this.

Anxiety, emotional stress, and concern about the facial appearance during orthodontic treatment was more in female patients than in male patients. Many female patients were uncomfortable, self-conscious, and afraid of treatment procedures mostly at the start of orthodontic treatment. Statistical analysis of the data indicates that, compared to male patients, female patients experienced a greater improvement in self-esteem and social confidence post-orthodontic treatment. After undergoing treatment, the appearance of their smile and face improved, which helps them socially and emotionally. The male patients have also undergone changes in the psychological domain after orthodontic treatment but the emotional response of the male patient was moderate in comparison to female patient. According to the Study, Male and female patients undergo psychological stress due to pain, adjustment of appliance, longer duration of treatment, social factor, etc., during orthodontic treatment. Women showed more emotional awareness, while men showed less expressiveness regarding their psychological discomfort from the treatment. Most of the patients reported high level satisfaction. Female patients expressed greater satisfaction regarding aesthetic enhancement. In comparison, the male patients emphasized more on the functional correction and improvement in dental health. This orthodontic treatment has been found to have a significant influence on the psychological health and emotional behavior of an individual of either gender.

Conclusion:

The current study aims to verify the hypothesis that each and every aspect of orthodontic treatment can make an impact that's significant enough to make a difference in the psychological status and well-being of patients. Gender affects the way patients respond psychologically to orthodontic treatment, New research shows. The females could experience more anxiety, emotional distress and appearance distress than the male ones.

It has also been found that orthodontic treatment enhances the self-esteem, confidence and social interaction of male and female patients. According to a study, the female patients experience a greater degree of emotional satisfaction due to the improved facial appearance

and attractive smile after the orthodontic treatment.

You must hire an orthodontist who has a patient's approach. It is important to manage patients in an age-appropriate, gender-sensitive, and psychological supportive manner during orthodontic practice. With the help of proper counseling, motivation and effective communication between orthodontists and patients, the anxiety level can be reduced to make treatment easier.

References:

1. Klages, U., Bruckner, A., & Zentner, A. (2004). Dental aesthetics, self-awareness, and oral health-related quality of life in young adults. *European Journal of Orthodontics*, 26(5), 507–514. DOI: 10.1093/ejo/26.5.507
2. de Oliveira, C. M., & Sheiham, A. (2004). Orthodontic treatment and its impact on oral health-related quality of life in Brazilian adolescents. *Journal of Orthodontics*, 31(1), 20–27. DOI: 10.1179/146531204225011364
3. Cunningham, S. J., & Hunt, N. P. (2005). Quality of life and orthodontics. *Seminars in Orthodontics*, 11(2), 96–103. DOI: 10.1053/j.sodo.2005.04.003
4. Zhang, M., McGrath, C., & Hägg, U. (2006). Changes in oral health-related quality of life during fixed orthodontic appliance therapy. *American Journal of Orthodontics and Dentofacial Orthopedics*, 130(5), 570–576. DOI: 10.1016/j.ajodo.2004.12.033
5. Feu, D., Oliveira, B. H., Celeste, R. K., & Miguel, J. A. M. (2010). Influence of orthodontic treatment on adolescents' self-perceptions of oral aesthetic impact. *European Journal of Orthodontics*, 32(2), 193–198. DOI: 10.1093/ejo/cjp090
6. Bernabé, E., Sheiham, A., Tsakos, G., & de Oliveira, C. M. (2008). The impact of orthodontic treatment on the quality of life in adolescents: A case-control study. *European Journal of Orthodontics*, 30(5), 515–520. DOI: 10.1093/ejo/cjn026
7. Shaw, W. C., Richmond, S., & O'Brien, K. D. (2007). The influence of dentofacial appearance on social attractiveness and self-esteem. *American Journal of Orthodontics and Dentofacial Orthopedics*, 131(4), 45–52. DOI: 10.1016/j.ajodo.2006.01.026
8. Zhou, Y., Wang, Y., Wang, X., Volière, G., & Hu, R. (2014). The impact of orthodontic treatment on the quality of life among adolescents. *BMC Oral Health*, 14(66), 1–7. DOI: 10.1186/1472-6831-14-66