



Original Research Article

To study the types of malocclusion, treatment mechanics and their various reasons of dropout cases of orthodontics patients: Prospective study at dental OPD (Orthodontics) at tertiary care centre, Patna, Bihar

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ABSTRACT

Background: The malocclusion treatments were used to improve the smile and aesthetics. But at present in the modern era orthodontics treatment provides patients with psychological wellbeing, functional improvements in mastication, correction of speech abnormality, helps to maintain well-being in cleft-lip patients, improvement in the temporo-mandibular joint dysfunction syndrome, orthognathic surgery to improve facial architecture of the abnormal face etc.

Material and Methods: The orthodontics patients were selected from the dental opd (orthodontics) of the Indira Gandhi Institute of Medical Sciences, Patna, Bihar. The study subjects were selected from the 16th of December 2019 to 31st of December 2020 from the dental opd record book.

Study design: The study was prospective in nature.

Statistical analysis: The tables are presented with simple demographic distributions of orthodontic patients with malocclusion and their dropout rate etc in frequencies and percentages.

Result: The total numbers of patients reported within a year were 160. Most of the orthodontics patients reported with class1 malocclusion, class1 bimaxillary protrusion and the class11 div1. Most of the patients were treated, either with removable and or fixed orthodontics appliance. The number of patients who refuses the treatment due to extractions were (dropout) 24. The dropout rate was 15% in this study, in comparison to few studies reported in the literature.

Conclusion: Despite the lockdown due to Covid-19 pandemic, patients of orthodontic treatment were reasonable in number in comparisons to previous years. The main reason for dropout of orthodontic patients noticed in our centre was due to extraction advised to the patients.

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1. Introduction

The malocclusion means mal-alignment of the teeth. This may be in the form of protrusion of the teeth, spacing between the teeth, crowding in the arches, abnormality in the shape and size of the teeth etc. At present both dental and skeletal deviations from the normal occlusion are included under mal-occlusion. There could be many reasons for dropout orthodontic cases depending upon ethnics, socio-economic factors, demographics variations etc, so seeing

the multifactorial factors reasons of drop out cases among Orthodontics patients a study was carried at the Department of Dentistry, (Orthodontics), IGIMS, Patna, Bihar to know the reasons for drop out.¹

2. Review of Literature

The dropout patients in the field of orthodontics have great problems for the practicing orthodontists in term of professionalism and economic loss. There are many reasons for dropout's cases of orthodontics. We presume that start with illiteracy to low socio-economic group,

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poor awareness for orthodontic treatment, economic factors, treatment duration and modality etc. could be factors for dropout. There are very few studies reported on this topic in the literature, hence forth it was decided to carry out reasons for orthodontic dropout cases at dental opd (Orthodontics) at Indira Gandhi Institutes of Medical Sciences, Patna, Bihar, India. So, it should be of great interest for orthodontist to know the reasons for dropouts and also to find out the way to reduce the dropouts of orthodontics cases in the practise.² Intention-to-treat (ITT) analysis is an approach to managing dropouts and missing data in randomized controlled trials (RCTs).³ There are very few articles available on this topic even after Google and other means of literature search.⁴ So it was decided to carry out the study on dropout in Orthodontics at Department of Dentistry, (Orthodontics) Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India that we could plan the procurement of resources for orthodontic materials and equipments for patients etc.

3. Aim and objective

To know the various reasons for discontinuance of orthodontic treatment and also to know the type of malocclusion reported and their mode of treatment given.

4. Material and Methods

The Orthodontics patients were selected from the dental OPD of the Indira Gandhi Institute of Medical Sciences, Patna, Bihar. The study subjects were selected from the 16th of December 2019 to 31st of December 2020. The selection of types of malocclusion was done was per Angles classification of malocclusion. The reasons of dropout were written in the recorded sheet.

4.1. Statistical analysis

The tables are presented with simple demographic distributions of orthodontic patients with malocclusion and their dropout rate etc in frequencies and percentages.

4.2. Inclusion criteria

1. Selection of cases as per Angles classification of malocclusion
2. To know the type of malocclusion, reasons for drop out and the types of treatment mechanics used in the treatment.
3. Patient consent for inclusion in the treatment

4.3. Exclusion criteria

1. Malocclusion associated with cranio-facial syndromes and cleft-lip patients
2. Patient doesn't want to be part of study
3. Malocclusion with psycho-somatic disorders

5. Results

Total number of orthodontic patients who visited the dental OPD were one hundred and sixty (160). The maximum numbers of malocclusion patients reported are mentioned as, Class1 malocclusion with 73 patients followed by 44 cases of Class1bimaxillary protrusion, 39 patients with Class11 div.1 and rest under other categories (Table 1). The dropout numbers of patients were 24. The various reasons for dropouts are listed in Table 2, which comes around 15 % (dropout rate). The most important reason of dropout was due to extraction advised for treatment. Most of the patients were treated with removable and fixed orthodontics mechano-therapy listed in the Table 3. Despite of lock down period (COVID-19 pandemic), the orthodontics patients reporting was quite satisfactory.

Table 1: Distribution of types of malocclusion

S. No.	Types of malocclusion	Number of cases
1.	Class1 malocclusion	73 (45.62%)
2.	Class1 Bimaxillary protrusion	44 (27.5%)
3.	Class 11 div.1	39(24.37%)
4.	Class11 div.11	02(1.25%)
5.	Class111(dental & surgical)	02(1.25%)

6. Discussion

In this study, 24 (15%) orthodontics cases were dropout out of total 160 orthodontics patients reported to the dental OPD, Dept. of Dentistry, (Orthodontics) IGIMS, Patna, Bihar, India. The total number of dropout patients were 24 out which 20(83.33%) patients has declined for treatment when they were asked for extraction of teeth for their treatment, among which two patients were not recommended for orthodontic treatment due to their poor alveolar bone condition and one patient had psychiatric problems. one patient was unable to come from distant place frequently. Upon interviewing patients, it was noticed that denying treatment for orthodontics after extraction was not based on scientific thinking rather than based on some kind of dogmas. More orthodontic awareness camps should be organised to educate people regarding extraction treatment modality has no ill effect on health etc. Most of the orthodontics patients were treated with variety of removable and fixed orthodontics mechano-therapy. The acceptance for fixed orthodontics is more (61.7%) in comparison to other mode of orthodontic treatment. There were also 11 patients under preventive and interceptive orthodontics treatment. Intention-to-treat (ITT) analysis is an approach to managing dropouts and missing data in randomized controlled trials (RCTs).² In this study, we systematically reviewed orthodontic RCTs to assess the frequency that an ITT analysis was carried out, to compare the number of trials that reported using ITT analyses with those that had truly used it, and to evaluate how dropouts and missing data

Table 2: Reasons for dropout of orthodontic cases

S.No.	Total no. of dropout cases	Distribution of patients	Reasons for drop out
1.	24	20(83.33%)	Due to extraction as treatment modality.
	—	02 (8.33%)	Due to poor alveolar bone condition.
	—	01 (4.16%)	Patient under psychiatric treatment.
	—	01 (4.16%)	Unable to come from distant place

Table 3: Types of treatment mechano-therapy used

S. No.	No of patients (total no. of patients with orthodontic treatment :136)	Types of treatment (completed/under process and or will start)
1.	39(28.67%)	Removable orthodontic treatment
2.	84 (61.76%)	Fixed orthodontics treatment
3.	11(8.08%)	Preventive/interceptive orthodontics treatment
4.	01(0.73%)	Functional orthodontic treatment
5.	01(0.73%)	Surgical treatment advised

were managed. There is a potential lack of understanding on dropouts and missing data management in research on orthodontic treatment³. In this study one case of was dropout reported as she was under psychiatric treatment. But in elderly patient with depression and other psychological features are prominent and dropout rate is high in general. In this group of patients early recognition of psychiatric condition should be stressed to reduce dropout rate.⁵ The high rates of drop out are also seen in the children due to pervasive development disorders. The correlation with orthodontic drop rate could not be established. Lack of facilities for such patients in the dental clinics setup may go for drop out if they approach for dental treatment.⁶ In one study it was seen that orthodontic dropout rate was as high as 59.4% in comparison to this study only 15%, where 17.4% still remained in therapy, and 2.3.3% completed therapy.⁴ Strikingly, economic factor was not observed as reason for dropouts in this centre because of economical and affordable orthodontic treatment cost charged.

7. Conclusion

Despite of lockdown due to Covid-19 pandemic patients reported with malocclusion were quite satisfactory in comparisons to previous years prevalence. The main reasons for dropouts of the orthodontics patients recorded were due to extraction advised to the patients rather than cost of the treatment. The dropout rate was only 15% in this research which is quite low.

8. Limitation of the study

There are very few studies available in the literature about the dropout rate of orthodontics patients so, results could not be discussed as needed and required.

9. Source of Funding

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10. Conflict of Interests

The author declares that they do not have any conflict of interests.

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