

Posterior Cross bite Prevalence on Basis of Gender

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ABSTRACT

The aim of article was to evaluate the prevalence of posterior cross bite based on gender. A cross-sectional study was carried out on 100 patients out of which 50 were male patients and 50 were female patients in Orthodontics Department, Fatima Memorial Hospital College of Medicine and Dentistry, Lahore. Clinical examination of 100 patients and analysis of their diagnostic casts was also performed. SPSS version 21.0 was used for data analysis. The results concluded that 32% of the patients had posterior cross bite. Out of the 32% posterior cross bite patients 34.4 % were male patients while 65.6% were female patients. The study showed that prevalence of posterior cross bite was more in females than males.

Key Words: Prevalence; Posterior cross bite; Gender; Diagnostic casts; Clinical examination
Cast analysis

INTRODUCTION

Posterior cross bite is defined as transverse deviation i.e any abnormal buccal-lingual relationship between opposing posterior teeth in centric occlusion [4]. Orthodontic treatment success depends on the knowledge of etiology of malocclusion. Since elimination of the causes are essential for treatment. The etiology of posterior crossbite includes combination of dental, skeletal and neuromuscular functional components [1]. This may also include dental crowding, prolonged retention or premature loss

of deciduous teeth, genetic control, cleft palate, deficiency of arch, sequence of eruption, oral digit habits, mouth breathing during critical growth period, adenoids and tonsils hypertrophy, nutritive sucking habits and temporomandibular joint malfunctioning. [1, 2, 3, 5, 6].

The status of primary occlusion affects development of the permanent occlusion. Thus a posterior cross bite is believed to be transferred from deciduous to permanent dentition, and the posterior cross bite can have long term effects on growth and development of teeth and jaws [1, 2, 3]. In most cases cross bite is accompanied by shift of mandible, which causes midline deviation [1, 2, 3, 7, 8, 9]. This may cause pressure on orofacial structures, causing adverse effects on temporomandibular joint and the masticator muscles [2]. Precise information on prevalence of cross bite may be needed when planning of orthodontic services. Considering the significance of cross bite in orthodontic treatment planning, accurately determined cross bite status is important.

METHODOLOGY

The research study was conducted on 100 patients in Orthodontics Department of Fatima Memorial Hospital College of Medicine and Dentistry, Lahore. Out of 100 patients, 50 were male patients and 50 were female patients, who were clinically examined. Diagnostic impression of 100 patients was done and transformed to diagnostic cast. Cast analysis of diagnostic casts

of these 100 patients was done. The study was done with intact and acceptable quality casts. Cases having previous orthodontic treatment, cleft lip/ palate, anterior crossbite/ Angle class III or other craniofacial syndromes [2,3] and cases having peg shaped lateral incisors or supernumerary teeth were excluded from the study [10]. Cast analysis of 100 sets of casts in

which 50 casts were of males and 50 casts were of females was done to evaluate the prevalence of posterior crossbite based on gender. For intra-examiner reliability, 50 sets of casts were randomly selected from the main sample and were reassessed 25 days after the initial assessment. SPSS version 21.0 was used for analyzing data through statistical analysis.

RESULTS

The study includes patients with chronological age range from 5-23 years. Gender distribution of the sample is shown in Table 1.

Table 1: Gender distribution of the sample

Gender	Frequency	Percentage
Male	50	50
Female	50	50
Total	100	100

Distribution of the sample according to their chronological age, along with further division into male and female groups is shown in Table 2.

Table 2: Age distribution of the subjects

Age in groups	Gender		Total
	Male	Female	
5	3	2	5
6	3	3	6
7	3	2	5
8	2	1	3

9	6	3	9
10	4	3	7
11	2	4	6
12	3	4	7
13	3	3	6
14	3	5	8
15	3	2	5
16	6	3	9
17	2	4	6
18	3	3	6
19		1	1
20	1	2	3
21	2	3	5
22		2	2
23	1		1
Total	50	50	100

It is clear from Table 3 that 32% of the patients had posterior crossbite. It was further explained in Figure 1 which showed that presence of posterior crossbite in 32% of the patients while 62% of the patients showed absence of posterior cross bite. Table 3 and Figure 2 showed that out of 50 male patients 11 patients (34.4% of 32%) had posterior crossbite, and out of 50 female patients 21 patients (65.6% of 32%) showed posterior crossbite. This showed that posterior cross bite is more prevalent in females.

Table 3: Prevalence of posterior cross-bite

Gender	Total	Absence of posterior cross bite	Presence of posterior cross bite
Male	50	39	11
Female	50	29	21
Total	100	68	32

Figure 1: Posterior crossbite prevalence

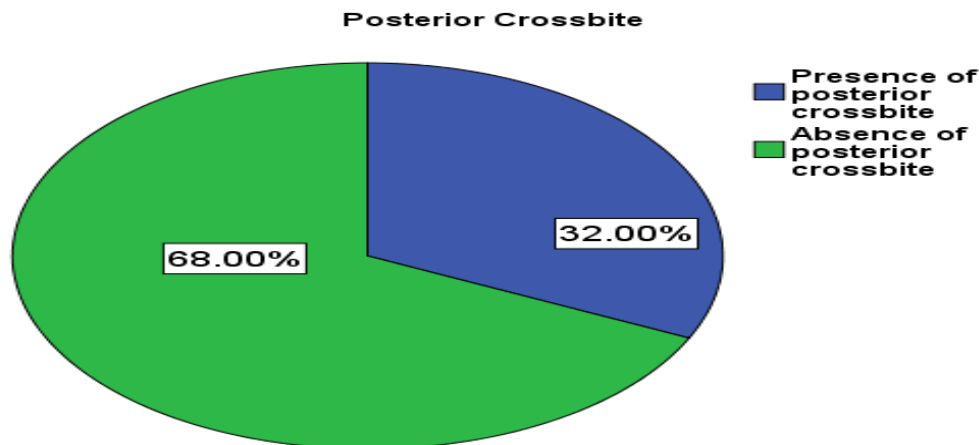
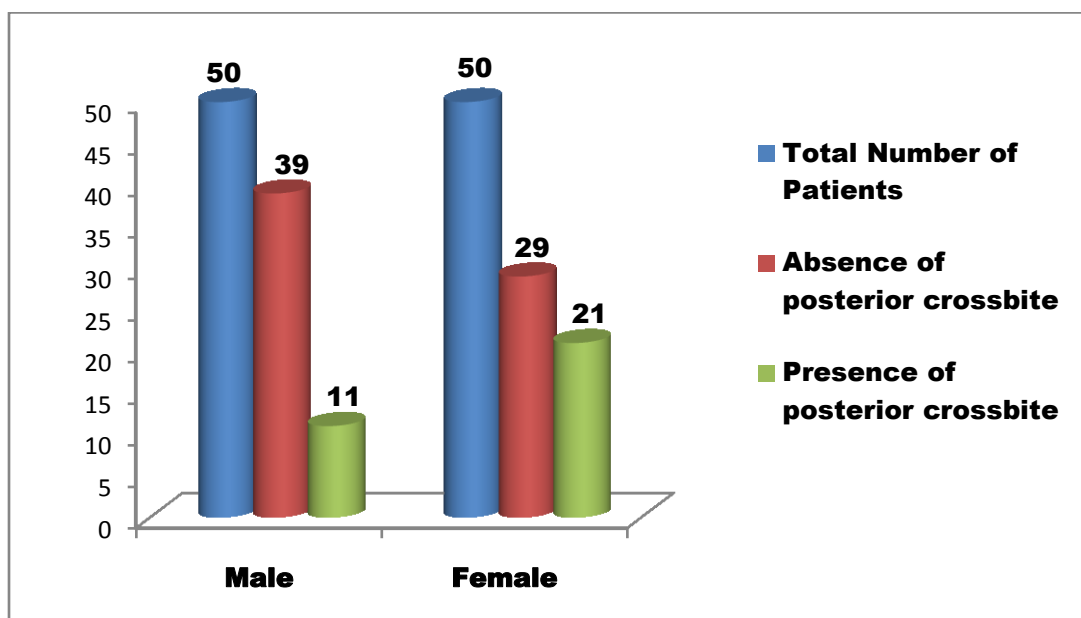


Figure 2 : Number of patients showing presence and absence of posterior crossbite



DISCUSSION

Keeping in view the impact of transverse dimensionson orthodontic treatment planning, this study wasconducted to determine the prevalence of posterior crossbite on basis of gender ina sample of orthodontic patients.The study was conducted at Orthodontics Department, Fatima Memorial Hospital College

of Medicine and Dentistry, Lahore under University of Health Sciences.The percentage of female patients was 50% and percentage ofmale patients was 50% in a sample. This issimilar to the trend found by other studies doneelsewhere [11].It is clear from Figure 1 that 32% patients had posterior crossbite. Of these 32%patients, 11(34.4%) were male

patients and 21 (65.6%) were female patients. This showed greater prevalence of posterior crossbite in female patients. Keeping in view the small sample size of study, its findings may serve as a reference for planning orthodontic services.

REFERENCES

- [1.] Andrade A da S, Gameiro GH, Derossi M, Gavião MB. Posterior crossbite and functional changes. A systematic review. *Angle Orthod* 2009; 79: 380-6
- [2.] Petren S, Bondermark L, Soderfeldt B. A systematic review concerning early orthodontic treatment of unilateral posterior crossbite. *Angle Orthod* 2003; 73: 588-96
- [3.] Allen D, Rebellato J, Sheats R, Ceron A M. Skeletal and dental contributions to posterior crossbites. *Angle Orthod* 2003; 73: 515-24
- [4.] Kutin G, Hawes RR. Posterior crossbites in the deciduous and mixed dentitions. *Am J Orthod* 1969; 56: 491-504
- [5.] Clinch L. Development of deciduous and mixed dentition. *Dent Pract Dent Rec* 1996; 17: 135-45
- [6.] Higley LB. Crossbite mandibular malposition. *J Dent Child* 1968; 35: 221-3
- [7.] Lima AL, Lima Filho RM, Bolognese AM. Long-term clinical outcome of rapid maxillary expansion as the only treatment performed in class I malocclusion. *Angle Orthod* 2005; 75: 372-76
- [8.] Thilander B, Myrberg N. The prevalence of malocclusion in Swedish schoolchildren. *Scan J dent Res* 1973; 81: 12-20
- [9.] Kurol J, Berglund L. Longitudinal study and cost-benefit analysis of the effect of early treatment of posterior crossbites in the primary dentition. *Eur J Orthod* 1986; 8: 127-30
- [10.] Nimkarn Y, Miles PG, O'Reilly MT, Weyant RJ. The validity of maxillary expansion indices. *Angle Orthod* 1995; 65: 321-26
- [11.] Hamdan AM. The relationship between patient, parent, and clinician perceived need and normative orthodontic treatment need. *Eur J Orthod* 2004; 26: 265-71