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Original Article

Socio-Demographic Characteristics of Malocclusion among School Children in Dhaka City, Bangladesh

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Abstract:

Background*:** Good dental appearance is an increased concern during adolescence and as because malocclusion comprises the health of oral tissues, it can lead to bad dental appearance with social and psychological problems. ***Objective: The purpose of the present study was to find out the clinico-demographic status of malocclusion among school children. ***Methodology:*** This was a cross-sectional study carried out in four high schools at Dhaka city, Bangladesh. The study was conducted from May, 2015 to November, 2015 for a period of 6 (six) months on 384 secondary school children aged between 11 to 16 years by systematic random sampling. The participants were included among those who had no preventive and interceptive orthodontic treatment previously and participants having late mixed or early permanent dentition. Data were collected using a data collection sheet after taking informed consent. The relevant socio-demographic data of the patients were also collected and recorded. ***Results:*** The frequency of malocclusion was more common in males (218, 60.1%). The participants were mostly from the middle-class families with monthly incomes of BDT 15,000 to 20,000/month. ***Conclusion:*** Malocclusion is found in young age with the middle-class socioeconomic condition.

Key Words: Malocclusion, Socio-demographic factors, School children, Dental appearance

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Introduction:

Normal occlusion, in dental context, is an occlusion within the accepted deviation of the ideal, which do not constitute aesthetic or functional problems.[1] Well-aligned teeth influence on the personality of an individual and the oral health. In addition, a good dental appearance is often equated with success in many social aspects causing an increased concern for dental appearance. It is especially problematic during the adolescence.[2]

Malocclusion is an irregularity of the teeth or a mal-relationship of the dental arches beyond the range of what is accepted as normal.[3] Although malocclusion does not hamper a life but it has a social impact.[4] It can be considered as a public health problem due to its high prevalence and demanding prevention and treatment.[5] Malocclusion is the result of various aetiological factors and it compromises the health of oral tissues. It features the third highest prevalence among oral pathologies and therefore, ranks third among world-wide dental public health priorities.[6] It causes different psychosocial problems related to impaired dentofacial aesthetics as well as disturbances of oral function like mastication, swallowing, and speech and leads to greater susceptibility to trauma and periodontal diseases.[3]

Different studies have stated its impact on quality of life for careers and confidence and sometimes inner peace as well.[5,7] Another significant impact of malocclusion is during school bullying. The adolescent period is very vulnerable to react to this problem and is the best time for

treatment too. A good dental appearance is related to even success in many pursuits and societal forces define the norms for acceptable, normal and attractive physical appearance. An individual with malocclusion might develop a feeling of shame for their dental appearance and may feel shy in social events.

The purpose of the study was to find out the clinico-demographic status of malocclusion among school children to ultimately develop the intervention strategies.

Methodology

This was designed as a descriptive cross-sectional study and carried out in four high schools in Dhaka city, Bangladesh. The study was conducted from May, 2015 to November, 2015 for a period of 06 (six) months on 384 secondary school children aged between 11 to 16 years selected by systematic random sampling. The participants were included among who had no preventive and interceptive orthodontic treatment previously and have late mixed or early permanent dentition. The participants were excluded by following criteria: (i) who had major local problems, such as trauma or any history of surgical approach which affects the growth and development of facial structures or body; (ii) students who were undergoing orthodontic treatment; or who had completed orthodontic treatment earlier, and (iii) students who were suffering from any systemic disease. This study was approved by the institutional review board (IRB).

Data, including socio-demographic characteristics, were collected using a preformed data collection sheet. The parents/ guardians of the selected students were provided with a description of the study, informed consent in Bengali and a family history/ lifestyle questionnaire (written in English) were collected by trained research assistants. Information was obtained from noninvasive physical examination and completion of the questionnaire. All data were recorded on specifically designed forms containing identification number age, sex, address and telephone number of the participant or guardians in addition to the occlusal features.

The quantitative data were expressed as mean and standard deviation and as frequency distribution and percentage. Statistical analysis was performed by using window-based computer software devised with Statistical Packages for Social Sciences (SPSS-17) (SPSS Inc, Chicago, IL, USA). In all analyses, a 95% confidence level was taken. Statistical significances between groups were evaluated by Chi square test and a significant difference was defined as 'p' value of < 0.05.

Results

Maximum (82, 21.4%) participants were of 12-years age, followed by 11-years (75, 19.5%), 13-years (68, 17.7%), 14-years (61, 15.9%) and 15-years (44, 11.5%). Male students were recruited a bit higher in number than the females. (Table 1)

Table 1: Comparison of Age and Gender of Study Population (n=384)

Age in years	Gender		Total
	Male	Female	
11	40 (20.2%)	35 (18.8%)	75 (19.5%)
12	44 (22.2%)	38 (20.4%)	82 (21.4%)
13	35 (17.7%)	33 (17.7%)	68 (17.7%)
14	29 (14.6%)	32 (17.2%)	61 (15.9%)
15	24 (12.1%)	20 (10.8%)	44 (11.5%)
16	26 (13.1%)	28 (15.1%)	54 (14.1%)
Total	**198(100.0%)**	**186(100.0%)**	**384 (100.0%)**
Mean± SD	13.28±1.74	13.11±1.60	13.21±1.68

The frequency of malocclusion in both males and females was 218(56.7%). In males, the malocclusion was found among 119(60.1%) cases and in females among 99(53.2%) cases. The differences between the presence of malocclusion in two sexes was not statistically significant (p=0.174). (Table 2)

Table 2: Association of Malocclusion and Gender (n=384)

Gender	Malocclusion		Total	P value*
	Present	Absent		
Male	119 (60.1%)	79 (39.9%)	198 (100.0%)	0.174
Female	99 (53.2%)	87 (46.8%)	186 (100.0%)	
Total	**218 (56.7%)**	**166 (43.3%)**	**384 (100.0%)**	

* Chi-square test was done to measure the level of significance

Regarding the monthly family incomes of the participants, it was found that the maximum (97, 25.3%) had 15,000-20,000 Taka income, followed by >25,000 Taka (94, 24.5%), 10,000-15,000 Taka (87, 22.7%), 20,000 – 25,000 Taka (68, 17.7%) and 5,000-10,000 Taka (38, 9.9%). The differences in monthly family income between cases with normal occlusion and malocclusion were statistically significant (p value=0.001). (Table 3)

Table 3: Association of malocclusion according to monthly family income of the participants

Monthly Income	Malocclusion		Total	P value *
	Present	Absent		
5,000 to 10,000 BDT	30 (18.1%)	8 (3.7%)	38 (9.9%)	
10,000 to 15,000 BDT	43 (25.9%)	44 (20.2%)	87 (22.7%)	
15,000 to 20,000 BDT	33 (19.9%)	64 (29.4%)	97 (25.3%)	0.001
20,000 to 25,000 BDT	39 (23.5%)	29 (13.3%)	68 (17.7%)	
>25,000 BDT	21 (12.7%)	73 (33.5%)	94 (24.5%)	
Total:	**166 (100.0%)**	**218 (100.0%)**	**384 (100.0%)**	

* Chi-square test was done to measure the level of significance

Discussion

In this study, females attending for the orthodontic treatment had a lower malocclusion severity than males. Maximum participants were in age of 12 years and mean age was 13.21±1.68 years with a male-female ratio of 1.06:1. Almost similar findings were found by Ajayi,[7] where the mean age was 13.52 ±1.83 years with a male female ratio of 1.08:1. Male and female ratio was 1:1.11 in the study of Reddy et al[8] Singh and Sharma[9] found that the mean age of the cases was 13.50±5.80 years and male female ratio was 1.26:1.

In this study, frequency of malocclusion was higher in the males (60.1%) than in the females (53.2%). Similarly, Assad et al found higher prevalence of malocclusion in males (55.7%) than in females (44.3%).[10] It has been observed that the uptake of orthodontic treatment is greater in girls because they (and their parents) seek treatment for even milder occlusal issues.[11] Clinical samples examining longitudinal changes with orthodontic treatment have frequently reflected this gender bias.[12]

There is a wide variation of malocclusion present among population of different financial abilities. Proffit et al[13] observed marked socio-economic differences in the uptake of treatment in US adolescents, as did Foster et al[14] in a population sample of Taranaki (New Zealand) adolescents. Contrasting with these findings are an earlier Australian study[15] which found that SES (Socio Economic Status) accounted for substantial variability in those seeking orthodontic treatment and the absence of SES differences in treatment uptake among those in a New Zealand city with a Dental School.

There are some limitations of this present study. This study was conducted in only Dhaka city; thus these results are not representing the country. The students are also urban dwellers, which will not reflect the proper economic groups of the society.

Conclusion

There was no significant association of malocclusion between ages of the patients. These findings will help in understanding the occlusion status and planning for prevention and treatment of malocclusion among children.

Conflict of Interest: None declared.

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