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IP Indian Journal of Orthodontics and Dentofacial Research

Journal homepage: https://www.ijodr.com/

Original Research Article

Comparative assessment of bullying and psychosocial trauma caused due to malocclusion in private and public high school students

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ARTICLE INFO

Article history:
Received 11-03-2022
Accepted 22-04-2022
Available online 30-05-2022

Keywords:
Malocclusion
Crosssectional studies
Adolescent
Bullying
Psychological trauma

ABSTRACT

Objective: To compare the incidence of bullying and psychological trauma caused due to it in relation with malocclusion in private and public school students of East Delhi.
Materials and Methods: A prospective cross-sectional and comparative study was conducted in two educational institutions, one public and one private; the sample consisted of 2037 schoolchildren between VIth grade and XIIth grade. To diagnose bullying, relevant questionnaires from previously validated questionnaire was chosen. The comparison between private and public school students with and without experience of bullying was evaluated with the Chi Square statistical test.
Results: Statistically significant differences in the amount of bullying ($p<0.05$) were found.
Conclusion: A higher incidence of bullying and psychological trauma in relation to malocclusion was seen in public school students when compared with private school students.

1. Introduction

Even though contemporary orthodontics has broadened the age span for orthodontic treatment in adults, teenagers will always constitute a major portion of our patients. After all, as it is well known, orthodontic treatment by itself can only provide dramatic dentofacial changes during pubertal growth spurt, which may benefit our patients both in function and esthetics, and in the so-called psychosocial aspect.[1] Similar to the paradigm shift in OHRQoL in recent years, orthodontic treatment outcomes have moved from being purely physical to also having a psycho-social focus. It must however be acknowledged that the quality of the evidence base in this area is not strong, partly due to the limitations in the types of studies which can be undertaken due to ethical reasons.[2]

Malocclusion has been included under the heading of a Handicapping Dentofacial Anomaly by WHO and defines it as "an anomaly which causes disfigurement or which impedes function, and requiring treatment if the disfigurement or functional defect is likely to be an obstacle to the patient's physical or emotional well-being".[3] Subsequently, in 1994 the Department of Health in England defined oral health as "the standard of oral and related tissue health which enables an individual to eat, speak and socialise without active disease, discomfort, or embarrassment and which contributes to general wellbeing".[4] Clearly, a good oral health is interlinked with a good quality of life.

Bullying is currently known as aggressive behavior or intentional harm carried out repeatedly in a relationship.[5] It can be direct intimidation, such as physical aggression, or indirect bullying, such as verbal aggression.[6] Bullying

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https://doi.org/10.18231/j.ijodr.2022.018

have been observed for a long time and its prevalence varies depending on location and age and may be as high as 88%, turning into a global concern. The frequency of general bullying is around 30%, and bullying because of dental appearance is estimated to be around 19%.[7] This denoted a significant co-relation between bullying and malocclusion.

The prevalence of malocclusion in India varies from 20% to 43%.[8] In a country of vast cultural diversity like India, significantly high prevalence of malocclusion exists in varying regions of our country. This can be due to variations in ethnicity, dietary habits and religious beliefs. It is difficult to estimate the incidence of bullying in relation of malocclusion among all parts of the country; hence, this study focused on Delhi based students. Prevalence of malocclusion in Delhi was observed as 45.7% and it comprised 18.3% as mild, 27.3% as moderate to severe and 0.1% as handicapping malocclusion.[9]

As more than half the population in the country seems to be suffering with some form of malocclusion and holds a high chance of getting their psychological health affected widely, it is mandatory to identify the prudent role of an orthodontist towards the management of the same. This study compared the incidence of bullying among students of public and private East Delhi schools and also assessed it's negative effects on oral health related quality of life.

2. Materials and Methods

A cross-sectional study was conducted in a sample of 2037 students studying from VIth grade to XIIth grade. One public school and one private school each was selected for the study from Mayur Vihar Phase- III, East Delhi. The location of both the institution chosen belonged to near proximity in order to avoid any variations such as major lifestyle differences.

The study comprised 47.5% students from public school and 50.4% students from private school. This study was approved by the Divya Jyoti Dental Institutional Ethics Committee under the proposal number DJD/IEC/2019/24. Consent letter was taken from both the institution and anonymity of the school's identity was assured.

Two psychometric tools were selected that is Olweus bully/victim questionnaire and Child perception questionnaire (CPQ 11-14). However, few questions from both the psychometric tool seemed to lack relevance among Indian population. Hence, suitable questions from both the psychometric tool were chosen and compiled. Few more questionnaires were added to understand psychology of Indian students more clearly. The compiled survey was sent to randomly selected hundred students to ensure the language clarity. The questionnaires were then finally distributed via Google survey form in the classroom's Whatsapp group by their respective class teachers. Students were given two contact number in order to solve any query that might arise while filling the survey.

2.1. Method error

The study was subjective and relied on the compliance of the respondents on how honestly they answered the questionnaires. Because of the ongoing pandemic circumstances, not many schools were interested to take part in the survey, hence only one private and one public school who agreed for the survey were taken as the representative for the East Delhi schools. Also, since the school were functioning online, an offline mode of conducting survey was not possible. This reduced the chance of students clarifying any doubt regarding the survey. Even though a WhatsApp number was shared to the participating students for any query, only 6 students responded back. The ratio of boys and girls who took part in the study was not similar, hence the study could not give a significant difference of bullying according to sex.

2.2. Statistical anaysis

The data for the present study was entered in the Microsoft Excel 2007 and analysed using the SPSS statistical software 23.0 Version. The descriptive statistics for the result was obtained from the Google survey. Chi square test was done to compare the differences between private and public school bullying in relation with malocclusion. A level of significance of 5% was considered ($p<0.05$).

3. Result

Expected students to take part in the survey were 2,240, out of which only 2,037 responses were received. The response rate was 90.93%. Figure 1a-11a shows descriptive statistic received from the result of Google survey form. Table 1-11 suggests comparison between private and public school survey results analyzed through chi square test and descriptive statistics. Figure A suggests the percentages of boys and girls who participated in the study and figure B suggests percentage of private and public school students who participated in the study.

The frequency and percentage of affirmative responses that we understand from table 1-11 suggests comparison of bullying due to malocclusion according to the type of educational institution. The current study indicated that public school students experience more bullying with verbal aggression and physical violence when compared with private school students.

4. Discussion

Malocclusion, bullying and psychologically trauma are intertwined and play a synergistic role to each other. Any individual who has been made to think that their teeth make them look unattractive by constant name-calling by maximum number of people around them in an often time period, that particular individual may tend to lack

Table 1: descriptive statistic, chi square test and inference of questionnaire 1.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.552[a]	2	.001
Likelihood Ratio	14.577	2	.001
Linear-by-Linear Association	.069	1	.793
N of Valid Cases	2037		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 205.28. **a.** Chi Square Test of significance

Table 2: descriptive statistic and chi square test of questionnaire 2.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	25.679[a]	1	.000		
Continuity Correction[b]	25.180	1	.000		
Likelihood Ratio	25.748	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	25.666	1	.000		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 276.81.
a. Computed only for a 2x2 table
a. chi square test of significance

Table 3: descriptive statistic and chi square testof questionnaire 3.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	25.679[a]	1	.000		
Continuity Correction[b]	25.180	1	.000		
Likelihood Ratio	25.748	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	25.666	1	.000		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 276.81.
a. Computed only for a 2x2 table
a. Chi Square Test of significance

Table 4: descriptive statistic and chi square test of questionnaire 4.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.170E2[a]	3	.000
Likelihood Ratio	118.598	3	.000
Linear-by-Linear Association	99.499	1	.000
N of Valid Cases	2037		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.32.
a. Chi Square Test of significance

Table 5: descriptive statistic and chi square test of questionnaire 5.

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1.345E2[a]	3	.000
Likelihood Ratio	136.169	3	.000
Linear-by-Linear Association	102.632	1	.000
N of Valid Cases	2037		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 45.56.
a. Chi Square Test of significance

Table 6: descriptive statistic and chi square test of questionnaire 6

	Value	**Df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	Exact Sig. (1-sided)
Pearson Chi-Square	5.925[a]	1	.015		
Continuity Correction[b]	5.691	1	.017		
Likelihood Ratio	5.926	1	.015		
Fisher's Exact Test				.015	.009
Linear-by-Linear Association	5.922	1	.015		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 294.94.
a. Computed only for a 2x2 table
a. Chi Square Test of significance

Table 7: descriptive statistic and chi square testof questionnaire 7

	Value	**Df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	2.087[a]	1	.149		
Continuity Correction[b]	1.949	1	.163		
Likelihood Ratio	2.089	1	.148		
Fisher's Exact Test				.160	.081
Linear-by-Linear Association	2.086	1	.149		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 296.90.
a. Chi Square Test of significance

Table 8: descriptive statistic and chi square testof questionnaire 8

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1.896E2[a]	4	.000
Likelihood Ratio	193.575	4	.000
Linear-by-Linear Association	45.268	1	.000
N of Valid Cases	2037		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 100.44.
a. Chi Square Test of significance

Table 9: descriptive statistic and chi square testof questionnaire 9

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1.490E2[a]	3	.000
Likelihood Ratio	151.734	3	.000
Linear-by-Linear Association	64.172	1	.000
N of Valid Cases	2037		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 166.09.
a. Chi Square Test of significance

Table 10: Descriptive statistic and chi square test of questionnaire 10

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.962[a]	1	.000		
Continuity Correction[b]	12.642	1	.000		
Likelihood Ratio	12.981	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	12.956	1	.000		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 428.20.
a. Chi Square Test of significance

Table 11: descriptive statistic, chi square test and inference of questionnaire 11.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.018[a]	1	.155		
Continuity Correction[b]	1.851	1	.174		
Likelihood Ratio	2.018	1	.155		
Fisher's Exact Test				.168	.087
Linear-by-Linear Association	2.017	1	.156		
N of Valid Cases[b]	2037				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 163.15.
a. Computed only for a 2x2 table
Table 11a . Chi Square Test of significance

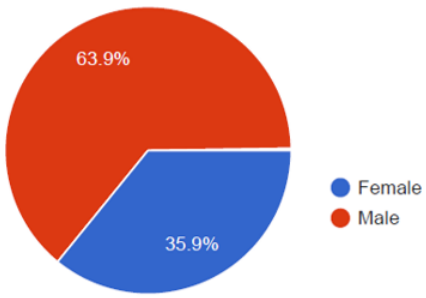

Chart 1: Pie chart showing percentages of boys and girls who participated in the study.

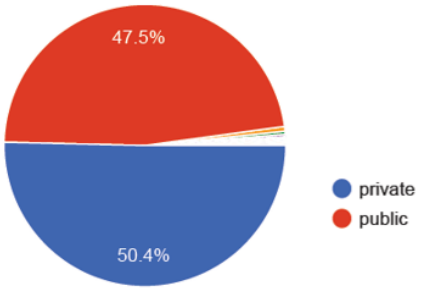

Chart 2: Pie chart showing percentages of private and public school students who participated in the study.

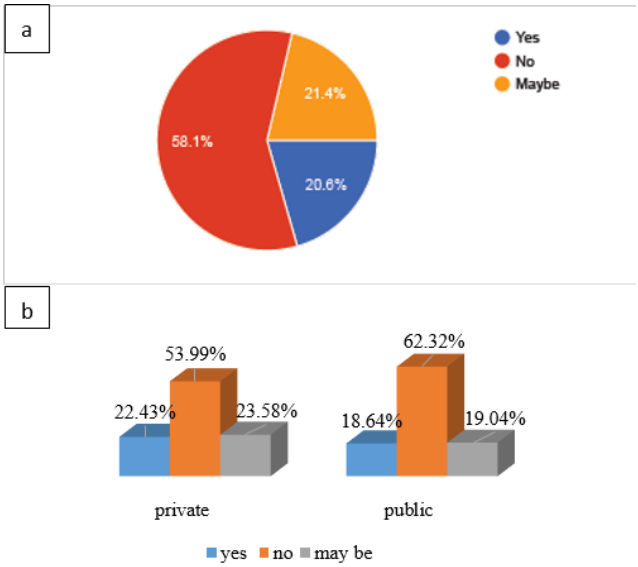

Fig. 1: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students

Questionnaire 1: Do you think your teeth make you look unattractive?

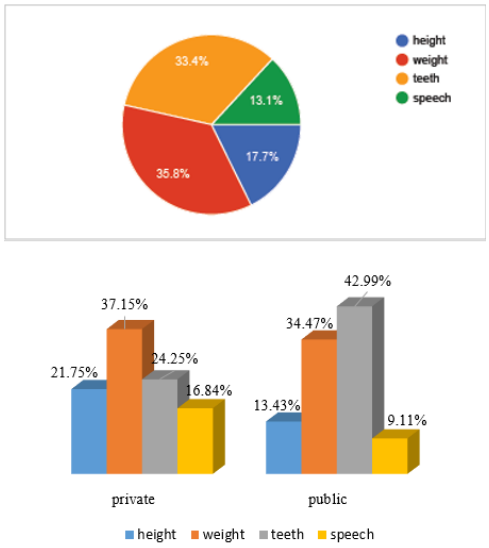

Fig. 2: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school student

Questionnaire 2: Have you been called mean names, made fun of, or teased in an hurtful way because of your?

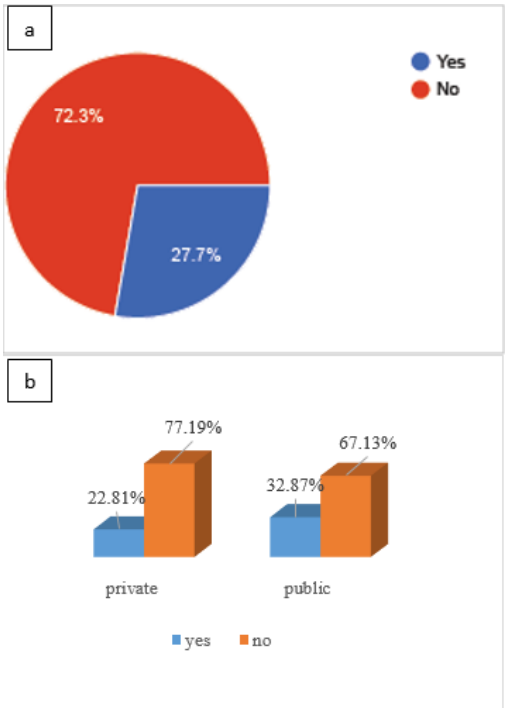

Fig. 3: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students

Questionnaire 3: Have you been kicked/ pushed/ ignored by others because you think you have unattractive teeth?

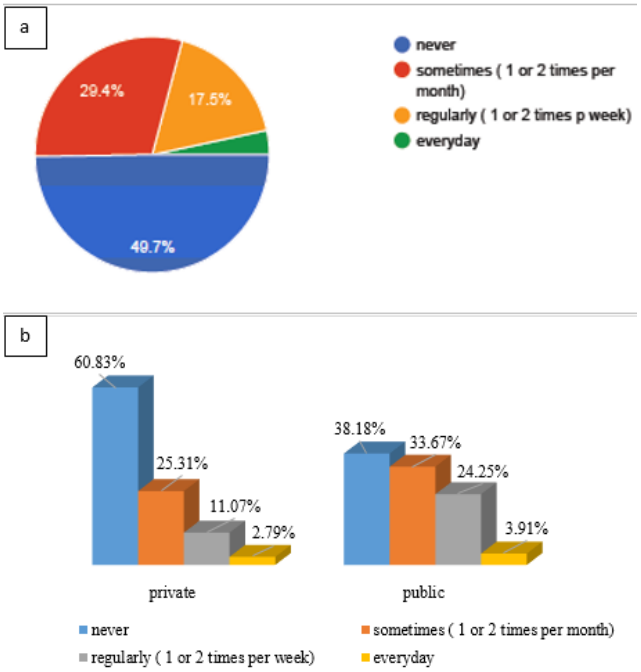

Fig. 4: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 4: How often have you been teased because of your unattractive teeth?

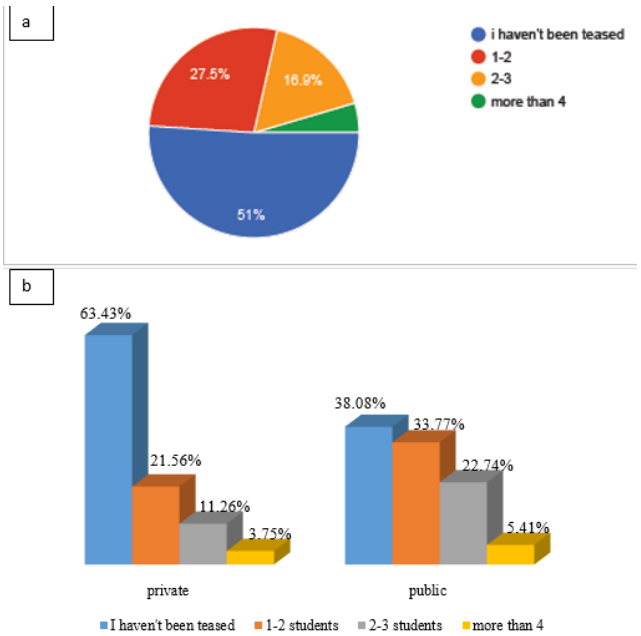

Fig. 5: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 5: How many children have teased you because of your unattractive teeth?

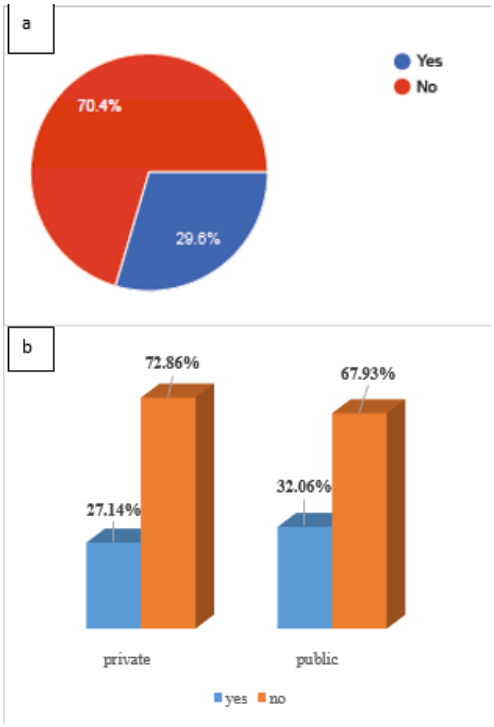

Fig. 6: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 6: Do you avoid smiling, laughing, talking around other people because of your unattractive teeth?

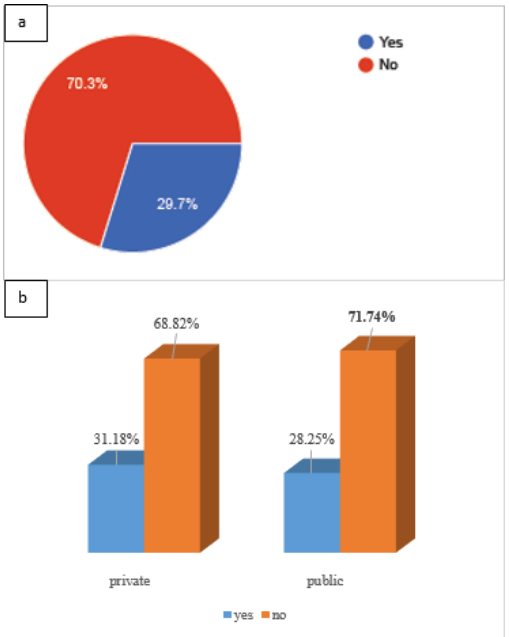

Fig. 7: a: Pie chart showing descriptive statistic; b: Bar chart comparing private and public school students.

Questionnaire 7: Do you want to get your treatment done from a dentist to straighten your teeth? Example braces

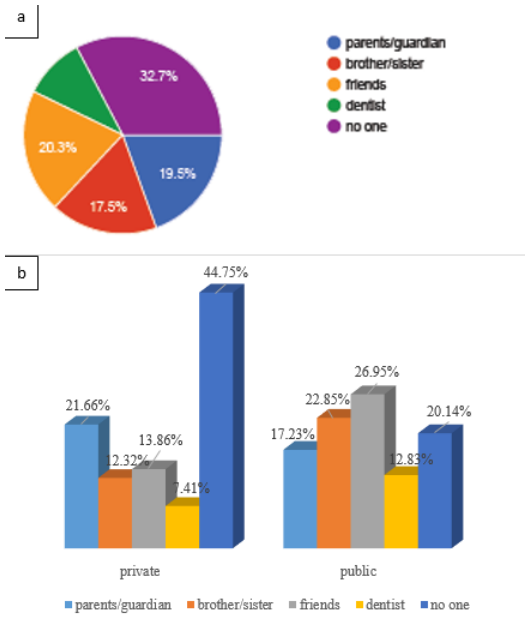

Fig. 8: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 8: Have you spoken to anyone about getting your teeth straighten?

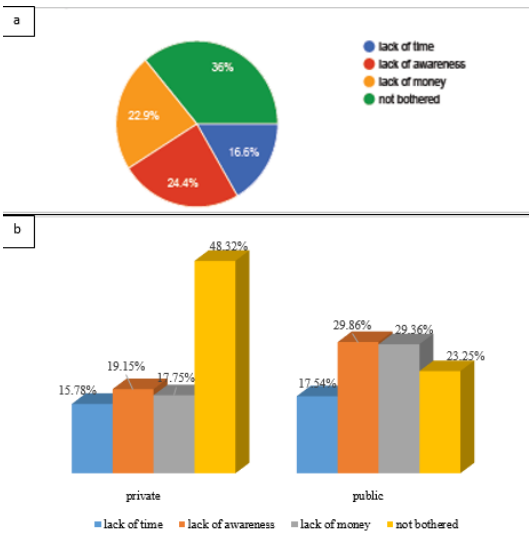

Fig. 9: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 9: What is the reason of not getting your teeth aligned yet by the dentist?

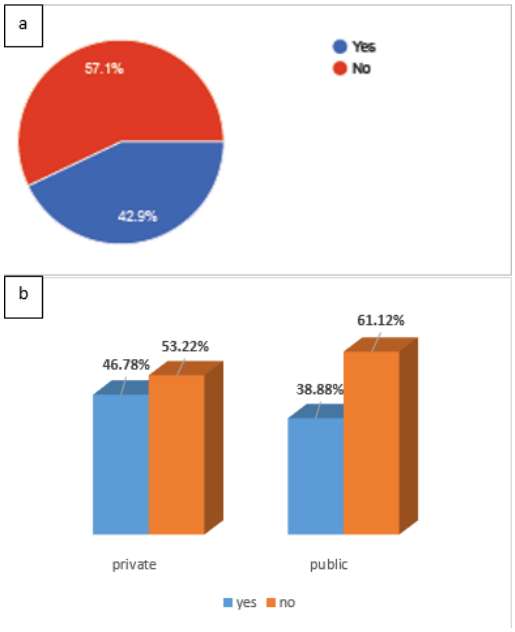

Fig. 10: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 10: Do you think straightening your teeth will make your smile more attractive?

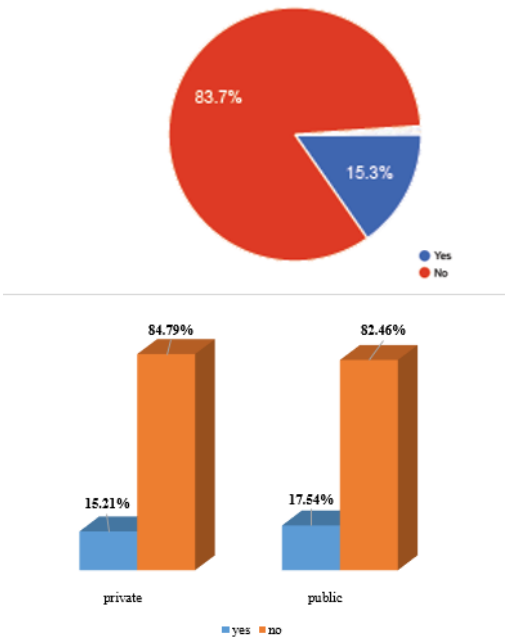

Fig. 11: a: Pie chart showing descriptive statistic; **b:** Bar chart comparing private and public school students.

Questionnaire 11: Have you made fun of/ teased anyone because of their unattractive teeth?

self confidence to deal with the situations when they are being kicked or pushed. Gradually, they tend to make fewer friends and avoid smiling, laughing and talking when around other people.

The current study indicated that public school students were more exposed to verbal bullying and were teased by more number of students and in a more frequent time period because of their teeth, when compared to private school students.

Similarly, Chikaodi et al studied bullying and the contribution of physical and dentofacial characteristics among Nigerian adolescents and found that there was more intimidation in public schools than in private schools.[6] Similarly, Bazán-Serrano et al reported that bullying due to the features of teeth was more frequent in a public educational institution (22.22%) than in a private one (10.77%).[10]

Unlike Mello et al[11] who reported that children who attend private schools were more likely to suffer all types of violence compared to those in public schools, the current study indicated that public school students were subjected to more physical violence like kicking and pushing because of their teeth. Hence, it is no wonder that public school students avoided smiling, laughing and talking in front of others more because of their teeth, but this result was non significant. When compared with private school students, more public school students had talked to the dentists in order to get their teeth straightened but because of their socio- economic status, they were deprived of the treatment. Also, Serrano MB[12] reported higher frequency of bullying in the public school because of malocclusion and indicated that the socioeconomic educational context might influence the presence of bullying.

However, the study indicated that despite of the results, private school students also considered that their smile would enhance after an orthodontic treatment. Only one question from the survey that was denoted to the bullies indicated that public school students tend to bully more when compared with private school students because of malocclusion.

Adolescents is a period of transition from childhood to adulthood and plays a decisive role to form a social/antiosocial adult in future. Major disappointments and psychological trauma of an adolescent may impediment the long term personality of an individual. Talking about Indian teenagers, most of them have to deal with this transition all alone, because Indians don't seem to acknowledge the need to value psychological trauma much. Hence, there is not a single article focusing on the interlink between malocclusion and bullying, and the psychosocial trauma caused due to it. The aim of orthodontic treatment has shifted from being purely physical to psychosocial focus and one major psychosocial affect is caused due to bullying

So, this study revealed that malocclusion highly affects psychological status of and individual and can play a major role in bullying in both private and public school students. An orthodontist may be the first health professional to come in access to the psychological status of the patient with/or without bullying because of malocclusion. Hence, it is an utmost necessity of an orthodontist to address the condition in the very first appointment itself because that would be helpful in the upcoming appointments to optimize treatment.

5. Conclusion

Malocclusion do leads to bullying in private and public school students, however public school students are more intimidated by teeth related bullying and are more psychologically affected because of malocclusion when compared with private school students.

6. Conflict of Interest

The authors declare no relevant conflicts of interest.

7. Source of Funding

None.

References

1. Artese F. The orthodontist's reach in bullying. *Dent Press J Orthod*. 2019;24(2):15–21. doi:10.1590/2177-6709.24.2.015-016.edt.
2. Abutayyem HM. Psychosocial impacts of malocclusion and orthodontic treatment in adolescent patients (Doctoral dissertation, UCL (University College London)); 2016.
3. Saúde OD. Levantamento epidemiológico básico de saúde bucal: manual de. 3rd Edn. São Paulo: Ed. Santos; 1991.
4. Kay E, Locker D. Effectiveness of Oral Health Promotion: A Review. In: Health Education Authority. London, UK; 1997.
5. Al-Bitar ZB, Al-Omari I, Sonbol HN, Al-Ahmad H, Cunningham SJ. Bullying among Jordanian schoolchildren, its effects on school performance, and the contribution of general physical and dentofacial features. *Am J Orthod Dentofacial Orthop*. 2013;144(6):872–8. doi:10.1016/j.ajodo.2013.08.016.
6. Chikaodi O, Abdulmanan Y, Emmanuel AT, Muhammad J, Mohammed MA, Izegboya A, et al. Bullying, its effects on attitude towards class attendance and the contribution of physical and dentofacial features among adolescents in Northern Nigeria. *Int J Adolesc Med Health*. 2017;31(2):1–8.
7. Singh B, Saxena MG. Social Stigma Due To Malocclusion-Role of an Orthodontist. *J int Dent*. 2018;1(2):563–8.
8. Singh S, Bansal N, Sandhu N. Incidence of malocclusions in India - A review. *JOHCD*. 2012;6(1):21–4. doi:10.5005/johcd-6-1-21.
9. Kharbanda OP, Sidhu SS, Sundaram KR, Shukla DK. Prevalence of malocclusion and its traits in Delhi children. *J Indian Orthod Soc*. 1995;26(3):98–103.
10. Bazán-Serrano M, Carruitero MJ. Assessment of general bullying and bullying due to appearance of teeth in a sample of 11-16 year-old Peruvian schoolchildren. *J Oral Res*. 2017;6(11):287–90.
11. Mello FMC, Silva JLD, Oliveira WA, Prado RRD, Malta DC, Silva MAI, et al. The practice of bullying among Brazilian schoolchildren and associated factors, National School Health Survey. *Cien Saude Colet*. 2015;22(9):2939–48.
12. Serrano MB, Carruitero M. Assessment of general bullying and bullying due to appearance of teeth in a sample of 11-16 year-old Peruvian schoolchildren. *J Oral Res*. 2017;doi:10.17126/joralres.2017.084.

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Cite this article: Johnson S, Misra V, Yadav A, Attri S, Yadav D, Martina . Comparative assessment of bullying and psychosocial trauma caused due to malocclusion in private and public high school students. *IP Indian J Orthod Dentofacial Res* 2022;8(2):104-112.