



DENTAL MALALIGNMENT IMPACT ON SELF-ESTEEM LEVELS AMONG SCHOOL CHILDREN

Dental Science

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ABSTRACT

Aim: To assess the impact of dental malalignment among the school children on their self-esteem level. **Materials and Methods:** The cross-sectional study was conducted among 12 to 15 years of school children. WHO type III examination was used for the oral health assessment and self-esteem was estimated using the Rosenberg Self Esteem Scale score (RSES). The descriptive and inferential analysis of the data was done by using IBM SPSS software version 22. **Results:** In the present study, mean age and RSES scores were 14.21 ± 2.12 and 26.09 ± 3.39 respectively. Stepwise multiple linear regression analysis was applied and best predictors in relation to RSES in the descending order were Dental Health Component (DHC) and Aesthetic Component (AC) respectively. **Conclusion:** It was found that various dental malalignment causes a profound impact on aesthetics and psychosocial behaviour of school children, thus affecting their self-esteem.

KEYWORDS

Dental caries, Malocclusion, Tooth loss

INTRODUCTION:

The vast majority of the school children lives in developed countries [1]. Teenagers in contrast to children [2] or adults [3] appear to be characterized more by the absence than by the presence of class gradients in health. Oral health in school children is recognized as having distinctive needs [4] due to a potentially high caries rate, increased risk for traumatic injury, an increased aesthetic desire and awareness and unique social and psychological needs [5]. Social psychology is affected by the physical appearances, self-concept and social acceptance of individuals. It is being claimed that one major constituent of self-concept is self-esteem [6].

The facial features and appearance plays a major role towards self-perceived appearance [7-9]. Among school children social relationship is directly dependent on physical attractiveness [10] hence aesthetic alteration can have a direct impact on self-esteem and ultimately quality of life [11,12].

However, there are very limited studies which provide us with an evidence to suggest that self-esteem is enhanced after orthodontic treatment [13,14]. As self-esteem is more of a psychological concept therefore, even the common dental disorders like dental trauma, tooth loss and untreated carious lesions may affect the self-esteem which may further influence the quality of life of an individual. As school's life is a foundation stone for further avenues in life, thus, this study aims to assess the impact of dental malalignment among the school children on their self-esteem level.

Materials and methods:

The present study was conducted among 12 to 15 years school children in cross-sectional design for which the ethical clearance was obtained from Ethical Review Board of College. The required cluster of population was targeted from the children enrolled in various schools; written consent was taken from the administrators of the selected schools and the guardians of the students for the research.

Oral health assessment was carried out among a total of 1679 students aged 12 to 15 years from the selected schools. Among them 1258 students were diagnosed with either of the dental disorders such as dental caries, dental trauma, missing teeth and malocclusion, were further send an invitation consisting of written consent for participation in the next segment of the present study. The selected students who could not obtain the parental consent or undergoing orthodontic treatment or suffering from systemic ailments were excluded from the study. Considering the exclusions final sample size

was 1140, that went through a detailed intraoral examination followed by questionnaire related to self esteem. Intraoral examination was performed by two calibrated examiners.

WHO type III examination was carried out under natural light using mouth mirrors and sharp probes [15]. The intra oral examination comprised of: a) All maxillary and mandibular anterior teeth from canine to canine were examined for traumatic injury using a modified version of Ellis's classification [16]. b) Number of missing teeth, location of missing teeth (maxillary and/or mandible), and zone of missing teeth to be replaced (masticatory and/or aesthetic) were examined. The aesthetic zone was defined as incisors, canines and 1st premolars in the upper jaw and incisors and canines in the lower. The masticatory zone was defined as the 2nd premolars and the 1st and 2nd molars in the upper jaw and both premolars and 1st and 2nd molars in the lower jaw [17]. c) Number, location (maxillary and/or mandible) and zone of untreated carious lesion (masticatory and/or aesthetic) was examined using WHO criteria [18]. d) Index of Orthodontic Treatment Need (IOTN) index [19] was used for assessment of malocclusion. Both the Dental Health Component (DHC) and the Aesthetic Component (AC) of the IOTN were recorded by the author who had previously been calibrated in the use of the IOTN. The DHC of the IOTN ranks malocclusions according to the severity of various occlusal traits into five grades. Grades 1 and 2 represent no or little need, Grade 3 a borderline need, and Grades 4 and 5 a definite need for treatment. The AC of the IOTN consists of 10 coloured photographs with different levels of dental attractiveness ranked from the most attractive (Grade 1) to the least attractive (Grade 10). Grades 1-4 represent no or little aesthetic need, Grades 5-7 borderline aesthetic need, and Grades 8-10 definite aesthetic need for orthodontic treatment [20].

The RSES scale [21] consists of 10 items regarding self esteem. Each item was rated on a 4-point response scale, 1 being 'strongly agree' and 4 'strongly disagree'.

Statistical analysis:

The descriptive and inferential analysis of the data was done by using IBM SPSS. Statistics Windows, Version 20.0. (Armonk, NY: IBM Corp). Logistic and linear regression analysis was executed to test the individual association of different independent clinical variables with self esteem. The effect of each independent variable was assessed adjusting for that of all others in the model.

Results:

Mean RSES score among school children subjects was found to be 26.

A total of 172 subjects had trauma in their anterior teeth, among these most of them had Ellis class 1 trauma (11.2%). Maxillary teeth loss (4.30%) was found to be more as compared to mandibular with most them falling in the category of aesthetic zone (4.04%). Untreated carious lesions were maximum in masticatory zone of mandibular region as compared to maxillary (table 1).

Stepwise multiple linear regression analysis, which was executed to estimate the linear relationship between RSES and various independent variables, which revealed that the best predictors in the descending order was DHC, AC, Decay (aesthetic zone), Decay (masticatory zone), Tooth loss (aesthetic zone), Tooth loss (masticatory zone), Anterior fracture of tooth (table 2)

DISCUSSION:

The results of this study showed a significant association between self esteem and perceived dental aesthetics, as individuals who perceived themselves as 'less attractive' have presented with lower self-esteem scores than those who saw themselves as 'attractive'. This implies that self esteem might be affected by self perceived aesthetics. Similar results were seen by Claudino D and Traebert J [8] and Badran SA [4] while study by Sheikh A et al., does not support any association between malocclusion and self esteem [22], this might be because severe malocclusions are better recognized by person.

It was seen in the present study, from the multivariate analyses that though DHC and AC component of IOTN has maximum impact on self esteem but other dental disorder like decay in tooth, tooth loss and anterior fracture of tooth also had potential influence on self esteem of the study population. Decayed teeth and tooth loss have substantial effect on quality of life and even the well being of the person. Present study shows a significant influence of decayed teeth and tooth loss on self esteem.

Authors, feel that the dental caries has impact on overall health of a person. Pain in oral cavity can affect speaking ability, eating, sleeping, swallowing and the altered appearance, leading to undermine self esteem. Similarly, missing teeth can interfere with chewing ability, diction, and aesthetics. Low self esteem related to tooth loss can lead to inability to socialize, perform work and daily activities [23]. According to the authors, abnormalities in the aesthetic zone, affects school children psychosocially, which, in turn, may reduce their self esteem. Anterior teeth fractures can affect the individuals' oral aesthetics. Facial and dental attractiveness represents an important element of quality of life [11].

According, to authors for establishing a substantial relationship between dental disorders and self esteem, studies with longitudinal design are advocated in order to have a better understanding regarding the post treatment effects on the psychological concept of this age group with special needs. As the study is mainly based on school children reports, responses to the questionnaire may have been influenced by whatever else was on the participants' mind at the time the question was asked. Further, it is possible that individual participant replies are influenced by response style and that the same response bias is at work in each person's answers to the respective questions, leading to an over or underestimation of the contribution of oral health to self esteem.

Conclusion:

Dis-satisfaction with dental appearance is a strong predictor for low self esteem. It was found that various dental malalignment like malocclusion, anterior traumatic tooth, tooth loss and untreated decay cause a profound impact on aesthetics and psychosocial behaviour of school children thus, affecting their self esteem.

Table 1: Descriptive and clinical variables of subjects

Variables	N (%)
GENDER	
Male	496 (43.5)
Female	644 (56.5)
ANTERIOR TRAUMATIC TOOTH	172 (15.09)
Ellis class 1	128 (11.2)
Ellis class 2	40 (3.5)
Ellis class 3	4 (0.4)
TOOTH LOSS	80 (7.02)

TOOTH LOSS LOCATION	
Maxillary	49 (4.30)
Mandible	31 (2.72)
ZONE OF TOOTH LOSS	
Masticatory	34 (2.98)
Aesthetic	46 (4.04)
UNTREATED CARIOUS LESION	568 (49.82)
DECAY LOCATION	
Maxillary	208 (18.25)
Mandible	516 (45.26)
DECAY ZONE	
Masticatory	497 (43.60)
Aesthetic	84 (7.37)
IOTN* (DHC)**	
Little need	507 (78.12)
Borderline need	112 (17.25)
Definite need	30 (4.62)
IOTN (AC)***	
Little need	524 (86.18)
Borderline need	37 (6.08)
Definite need	47 (7.73)
RSES (Mean ± SD)	27.09 ± 3.12
AGE (Mean ± SD)	14.95 ± 2.08

*-Index of orthodontic treatment need, **-Dental Health Component, ***-Aesthetic Component

Table 2: Multiple linear regression model for RSES

Model	R	R2 Change	p value
1	0.59	0.40	0.001
2	0.62	0.05	0.04
3	0.68	0.06	0.001
4	0.71	0.07	0.02
5	0.78	0.06	0.001
6	0.83	0.08	0.01
7	0.86	0.1	0.01

1. Predictors: Dental health component (DHC)
2. Predictors: DHC, Aesthetic component (AC)
3. Predictors: DHC, AC, Decay (Aesthetic zone)
4. Predictors: DHC, AC, Decay (Aesthetic zone), Decay (Masticatory zone)
5. Predictors: DHC, AC, Decay (Aesthetic zone), Decay (Masticatory zone), Tooth loss (Aesthetic zone)
6. Predictors: DHC, AC, Decay (Aesthetic zone), Decay (Masticatory zone), Tooth loss (Aesthetic zone), Tooth loss (Masticatory zone)
7. Predictors: DHC, AC, Decay (Aesthetic zone), Decay (Masticatory zone), Tooth loss (Aesthetic zone), Tooth loss (Masticatory zone), Anterior fracture of tooth

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