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Impact of dental disorders and its influence on self esteem levels among adolescents

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Abstract

Introduction: 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 thus influencing the quality of life.

Aim: This study aims to assess the impact of dental disorders among the adolescents on their self-esteem level.

Materials and Methods: The present cross-sectional study was conducted among 10 to 17 years adolescents. In order to obtain a representative sample, multistage sampling technique was used and sample was selected based on Probability Proportional to Enrolment size (PPE). Oral health assessment was carried out using WHO type III examination and self-esteem was estimated using the Rosenberg Self Esteem Scale score (RSES). Using IBM SPSS software did the descriptive and inferential analysis of the data. Logistic and linear regression analysis was executed to test the individual association of different independent clinical variables with self-esteem.

Results: Total sample of 1140 adolescents with mean age of 14.95 ± 2.08 and RSES of 27.09 ± 3.12 were considered. Stepwise multiple linear regression analysis was applied and best predictors in relation to RSES in the descending order were Dental Health Component (DHC), Aesthetic Component (AC), dental decay {(aesthetic zone), (masticatory zone)}, tooth loss {(aesthetic zone), (masticatory zone)} and anterior fracture of tooth.

Conclusion: It was found that various dental disorders like malocclusion, anterior traumatic tooth, tooth loss and untreated decay causes a profound impact on aesthetics and psychosocial behavior of adolescents, thus affecting their self esteem.

Keywords: Dental caries, malocclusion, tooth loss

Introduction

Tooth decay, also known as cavities, is the second only to the common cold as the most prevalent disease in the United States. Tooth decay occurs when plaque, the sticky substance that forms on teeth, combines with the sugars and/or starches of the food you eat. This combination produces acids that attack tooth enamel.

You can get cavities at any age-they aren't just for children. As you age, you can develop cavities as your tooth enamel erodes. Dry mouth due to age or medications can also lead to cavities. The best way to prevent tooth decay is by brushing twice a day, flossing daily, and going to your regular dental check-ups. Eating healthy foods and avoiding snacks and drinks that are high in sugar are also ways to prevent decay. Gum disease, also known as periodontal disease, is an infection of the gums surrounding the teeth. It is also one of the main causes of tooth loss among adults. Some studies have indicated that there may be a link between heart disease and periodontal disease.

Everyone is at risk for gum disease, but it usually occurs after age 30. Smoking is one of the most significant risk factors. Diabetes and dry mouth also increase your risk. The symptoms include bad breath, red, swollen, tender, or bleeding gums, sensitive teeth, and painful chewing. The two major stages of gum disease are gingivitis and periodontitis. Regular dental check-ups along with brushing at least twice a day and flossing daily play an important role in preventing gum disease.

Bad breath, also called halitosis, can be downright embarrassing. According to dental studies, about 85 percent of people with persistent bad breath have a dental condition that is to blame. Gum disease, cavities, oral cancer, dry mouth, and bacteria on the tongue are some of the

dental problems that can cause bad breath. Using mouthwash to cover up bad breath when a dental problem is present will only mask the odor and not cure it.

Oral cancer is a serious and deadly disease that affects millions of people. The Oral Cancer Foundation estimates that someone in the United States dies every hour from oral cancer, but it is often curable if diagnosed and treated in the early stages. It is most often seen in people over the age of 40. The biggest risk factors are tobacco and alcohol use, including chewing tobacco. HPV-a sexually transmitted wart virus-also increases the risk. The symptoms of mouth or throat cancer include sores, lumps, or rough areas in the mouth. You may also have a change in your bite and difficulty chewing or moving your tongue or jaw.

There are several types of mouth sores and they can be pesky and bothersome. Unless a mouth sore lasts more than two weeks, it is usually nothing to worry about and will disappear on its own. Common mouth sores are canker sores (aphthous ulcers) that occur inside the mouth and not on the lips. They are not contagious and can be triggered by many different causes. They are only a concern if they don't go away after two weeks. Fever blisters or cold sores are caused by the *Herpes simplex* virus and occur on the edge of the outer lips. They are contagious and will come and go but are not completely curable. Mouth sores are also seen in oral thrush or candidiasis, a yeast infection of the mouth that can be seen in infants, denture wearers, people with diabetes, and during cancer treatment.

Tooth erosion is the loss of tooth structure and is caused by acid attacking the enamel. Tooth erosion signs and symptoms can range from sensitivity to more severe problems such as cracking. Tooth erosion is more common than people might think, but it can also be easily prevented. Tooth sensitivity is a common problem that affects millions of people. Basically, tooth sensitivity involves experiencing pain or discomfort to your teeth from sweets, cold air, hot drinks, cold drinks or ice cream. Some people with sensitive teeth even experience discomfort from brushing and flossing. The good news is that sensitive teeth can be treated. Sensitive teeth can also be a sign of a cracked tooth or a tooth abscess, which needs to be treated by your dentist to prevent losing a tooth or getting an infection in your jawbone. If you suddenly develop tooth sensitivity, make an appointment with your dentist to see if there is a source that needs to be treated.

While many toothaches and dental emergencies can be easily avoided just by regular visits to the dentist, accidents can and do happen. Having a dental emergency can be very painful and scary. Common problems that require an urgent trip to your dentist include a broken or cracked tooth, an abscessed tooth, or a tooth knocked out in an accident. Go to a hospital for trauma care if you have a fractured or dislocated jaw or severe cuts to your tongue, lips, or mouth. If you have a tooth abscess that is causing difficulty swallowing or you have developed a fever or facial swelling, get emergency care as well [1, 2].

Adolescence is a transitional stage of physical and psychological human development, closely associated with the teenage years. The vast majority of the world's adolescents (88 percent) live in developing countries. India constitutes approximately 243 million adolescents, which forms the quarter of the country's population. Adolescents in contrast to children or adults appear to be characterized more by the absence than by the presence of class gradients in health [3].

Oral health has a substantial effect on people's general health and well being. Oral health in adolescent patient is recognized as having distinctive needs due to a potentially high caries rate, increased risk for traumatic injury, an increased aesthetic desire and awareness and unique social and psychological needs [4, 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. Self-esteem can be understood as sum of one's self-confidence, self worth and self respect. The individual's health along with other influencing factors plays a vital role in building the self-esteem dimension. Oral health being an integral part of general health can also influence the level of self-esteem, which has been widely recorded with help of RSES [6, 7].

During the adolescence the facial features and appearance plays a major role towards self-perceived appearance. Among adolescents social relationship is directly dependent on physical attractiveness, hence aesthetic alteration can have a direct impact on self-esteem and ultimately quality of life [8, 9]. However, there are very limited studies, which provide us with an evidence to suggest that self esteem is enhanced after orthodontic treatment. 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 [10, 12].

As adolescence is a foundation stone for further avenues in life, thus, this study aims to assess the impact of dental disorders among the adolescents on their self esteem level.

Materials and Methods

The present study was conducted among 10 to 17 years adolescents in cross-sectional. The required cluster of adolescent population was targeted from the children enrolled in various schools. In order to obtain a representative sample, city was divided into four different zones (i.e., north, south, east and west) in first stage. Later, four wards were selected randomly from each zone. From each selected ward a school was selected based on PPE size making the initial number of selected school to 16. According to PPE, the probability of schools to be considered in the study depends on the total strength of the children; schools with higher enrolment had better chances of inclusion in the study. Out of 16 total schools, two schools refused to participate, giving an initial school participation rate of 87.5%. To ensure that the sample remained representative for the population, an appropriate replacement of the schools was done.

Oral health assessment was carried out among a total of 1784 students aged 10 to 17 years from the selected schools. Among them 1245 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. Two calibrated examiners performed intraoral examination. WHO type III examination was carried out under natural light using mouth mirrors and sharp probes [11-15]. 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) was 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) were examined using WHO criteria [17, 18].
- d Index of Orthodontic Treatment Need (IOTN) index [19] was used for assessment of malocclusion. The author who had previously been calibrated in the use of the IOTN recorded both the Dental Health Component (DHC) and the Aesthetic Component (AC) 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 colored 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 needs for orthodontic treatment [20].

To ensure the diagnostic reliability, a Gold Standard examiner conducted the process of calibrating the two examiners for the clinical conditions before the main study was carried out. The training session consisted of evaluating 30 adolescents, for diagnosing and recording dental disorders (dental trauma, tooth loss, untreated carious lesion or malocclusion). The inter examiner Kappa values of 0.95 and 0.89 were obtained for the two examiners. After the intra oral examination, the RSES was distributed among the students with a prior detailed description of the inventory in regional language for better understanding [21]. The RSES scale 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'. Five items were positively worded (item 1, 3, 4, 7, 10), and 5 were negatively worded (item 2, 5, 6, 8, 9). The scores for the positively worded items were inverted in the analysis so that a score of 1 ('strongly agree') was set to 4. Addition of the item scores gave an overall score from 10-40; with higher score indicating higher self esteem [22].

Statistical Analysis

Using IBM SPSS did the descriptive and inferential analysis of the data. 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

The [Table] depicts the distribution of descriptive and clinical characteristics of 1140 subjects with mean age of 14.95. Mean RSES score among adolescent subjects was found to be 27.09. While evaluating means RSES score in males and females, it was found to be 25.16 and 29.02 respectively (not shown in table). 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. While evaluating malocclusion through DHC and AC component need for 649 and 608 required treatment respectively.

Table 1: Descriptive and clinical variables of subjects.

Variables	N (%)
Gender	
Male	496 (43.5)
Female	644 (56.5)
Anterior Traumatic Tooth	
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

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

[Table-2] represents 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. IOTN DHC level explained 40.1% of the variance in the model and the cumulative variance provided by all the predictors {(DHC, AC, Decay (aesthetic zone), Decay (masticatory zone), Tooth loss (aesthetic zone), Tooth loss (masticatory zone), Anterior fracture of tooth} was 78%.

Table 2: Multiple linear regression models for RSES.

Model	R	R ²	Adjusted R ²	SE	R ² Change	P
1	0.59	0.41	0.41	3.72	0.40	0.001
2	0.62	0.45	0.45	3.74	0.05	0.04
3	0.68	0.53	0.53	3.77	0.06	0.001
4	0.71	0.57	0.57	3.78	0.07	0.02
5	0.78	0.67	0.67	3.81	0.06	0.001
6	0.83	0.74	0.74	3.84	0.08	0.01
7	0.86	0.78	0.78	3.85	0.10	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

Discussion

Self-esteem of a person can be understood as a capability to accept the worthiness of self. It is recognized to play a critical role in one's mental health and psychopathology such as symptoms of depression [23]. However, there is still lack of knowledge towards how individuals evaluate themselves, especially an adolescent [24]. Adolescence is a crucial stage of life in which prevention from both current impairment and future illness is possible. Thus, by understanding the probable risk factors one can identify adolescent who might need an early intervention, which will help in development of a productive adulthood. Thus, this study aims to identify the impact of dental disorders i.e., malocclusion, anterior traumatic tooth, tooth loss and untreated decay on self-esteem of adolescents using RSES. Among the many devices the self-report version of the RSES is most widely used measure to access self esteem, globally. In addition; the RSES displays a transparent one dimensional factor structure [25].

RSES scale levels was found to be more in females than males which was in agreement with the study of Birkeland K *et al.* [26] These results could be accepted as females placed themselves at the more attractive end of the scale and place more emphasis on their looks than males, which was in line with another study conducted by Alhaja ESA *et al.* [27]

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 and Badran SA [4] while study by Sheikh A *et al.*, does not support any association between malocclusion and self esteem, this might be because severe malocclusions are better recognized by person [28].

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 could lead to inability to socialize, perform work and daily activities [29]. According to the authors, abnormalities in the aesthetic zone, affects adolescent 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]. Due to easy viewing in comparison to the back teeth, trauma in anterior teeth easily lead to dissatisfaction, with oral aesthetics. Individuals who perceive themselves as having poor oral aesthetics have low self esteem.

While interpreting the outcome of this study, authors came across certain limitations that the cross-sectional design of the study prevents establishing any concrete relationship between dental disorders towards self-esteem. 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.

Limitation

As the study is mainly based on adolescent 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 disorders like malocclusion, anterior traumatic tooth, tooth loss and untreated decay cause a profound impact on aesthetics and psychosocial behavior of adolescents thus, affecting their self esteem.

References

1. Anthony D. The state of the world's children 2011-adolescence: An age of opportunity. United Nations Children's Fund (UNICEF), 2011.
2. Van der LF, Groothoff J. Social inequalities and health among children aged [2] 10-11 in the Netherlands: Causes and consequences. *Soc Sci Med.* 1995; 40:1305-11.

3. Power C, Matthews S. Origins of health inequalities in a national population sample. *Lancet*. 1997; 350:1584-89.
4. Badran SA. The effect of malocclusion and self perceived aesthetics on the self esteem of a sample of Jordanian adolescents. *Eur J Ortho*. 2010; 32(6):638-44.
5. American academy of Paediatric Dentistry. Guideline on Adolescent Oral Health Care.
6. Harter S. In *Self-esteem*. US: Springer; Causes and consequences of low self-esteem in children and adolescents, 1993, 87-116.
7. Ozhayat EB. Influence of self-esteem and negative affectivity on oral health-related quality of life in patients with partial tooth loss. *Community Dent Oral Epidemiol*. 2013; 41:466-72.
8. Claudino D, Traebert J. Malocclusion, dental aesthetic self-perception and quality of life in a 18 to 21 year-old population: A cross section study. *BMC Oral Health*. 2013; 13:3.
9. Burden DJ. Oral health-related benefits of orthodontic treatment. *Semin Orthod*. 2007; 13:76-80.
10. Traebert ESA, Peres MA. Do malocclusions affect the individual's oral health-related quality of life? *Oral Health Prev Dent*. 2007; 5:3-12.
11. Marques LS, Pordeus IA, Ramos-Jorge ML, Filogônio CA, Filogônio CB, Pereira LJ *et al*. Factors associated with the desire of orthodontic treatment among Brazilian adolescents and their parents. *BMC Oral Health*. 2009; 9:34.
12. De Paula DF, Santos NCM, Silva ET, Nunes MF, Leles CR. Psychosocial impact of dental esthetics on quality of life in adolescents: association with malocclusion, self-image, and oral health-related issues. *Angle Orthod*. 2009; 79:1188-93.
13. Varela M, Garcia Camba JE. Impact of orthodontics on the psychologic profile of adult patients: A prospective study. *Am J Orthod Dentofacial Orthop*. 1995; 108:142-48.
14. Shaw WC, Richmond S, Kingdon A, Kenealy PM, Worthington H. A 20 year cohort study of health gain from orthodontic treatment: Psychological outcome. *Am J Orthod Dentofacial Orthop*. 2007; 132:146-57.
15. Peter S. *Essential of preventive dentistry*. 2nd ed. New Delhi: Arya publications; Survey procedures, 2003.
16. Ellis RG. *The classification and treatment of injuries to the teeth of children*. 3rd ed. Chicago: The Year Book Publishers, 1952.
17. Hanson BS, Liedberg B, Owall B. Social network, social support and dental status in elderly Swedish men. *Community Dent Oral Epidemiol*. 1994; 22:331-37.
18. World Health Organization. *Oral Health Surveys: Basic methods*. 4th ed. Geneva: WHO, 1997.
19. Brook PH, Shaw WC. The development of an index of orthodontic treatment priority. *Eur J Orthod*. 1989; 11:309-20.
20. Dogan AA, Sari E, Uskun E, Saglam AM. Comparison of orthodontic treatment need by professionals and parents with different socio-demographic characteristics. *Eur J Orthod*. 2010; 32(6):672-76.
21. Rosenberg M. *Society and the adolescent child*. Princeton, NJ: Princeton University Press, 1965.
22. Schmitt DP, Allik J. Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *J Pers Soc Psychol*. 2005; 89(4):623.
23. Lincoln TM, Mehl S, Ziegler M, Kesting ML, Exner C, Rief W. Is fear of others linked to an uncertain sense of self? The relevance of self-worth, interpersonal self concepts, and dysfunctional beliefs to paranoia. *Behav Ther*. 2010; 4:187-97.
24. Polce Lynch M, Myers BJ, Kliwer W, Kilmartin C. Adolescent self-esteem and gender: Exploring relations to sexual harassment, body image, media influence, and emotional expression. *J Youth Adolescence*. 2001; 30:225-44.
25. Whiteside-Mansell L, Corwyn RF. Mean and covariance structures analyses: An examination of the Rosenberg Self-Esteem Scale among adolescents and adults. *Educ Psychol Meas*. 2003; 63:163-73.
26. Birkeland K, Bøe OE, Wisth PJ. Orthodontic concern among 11-year-old children and their parents compared with orthodontic treatment need assessed by index of orthodontic treatment need. *Am J Orthod Dentofacial Orthop*. 1996; 110:197-205.
27. Alhaija ESA, Al-Nimri KS, Al-Khateeb SN. Self-perception of malocclusion among north Jordanian school children. *Eur J Orthod*. 2005; 27:292-95.
28. Sheikh A, Mathew T, Siew TB. Dental Malocclusion among University Students and Its Effect on Self-esteem: A Cross-sectional Study. *World J Dent*. 2014;5(4):204-08.
29. Batista MJ, Rihs LB, Sousa Mda L. Risk indicators for tooth loss in adult workers. *Braz Oral Res*. 2012; 26:390-96.