Original Article

Assessment of Dental Problems and Self-esteem among School Children: A Cross-sectional Study

TENZIN TSEPHEL[1], SHARIN NEETAL D'SOUZA[2], KC LEENA[3], PRIYA ABRAHAM[4], KJ JINCY[5], KB PURUSHOTHAMA[6]

ABSTRACT

Introduction: The transitional stage of a person's physical and psychological development, known as school age, is strongly related to adolescence. An individual's oral health significantly impacts their general health and happiness. Oral health is a crucial component of overall well-being and can affect one's level of self-esteem. Even common dental conditions like dental trauma and untreated caries can have an impact on an individual's self-esteem, which in turn can affect their quality of life.

Aim: To explore the dental problems and self-esteem of school-age children.

Materials and Methods: A cross-sectional study was conducted in selected schools of Mangaluru, Karnataka, India. A total of 86 school children aged between 10 and 15 years were included using a non probability purposive sampling technique. The study duration was eight months, from February 2021 to September 2021. A self-structured rating scale was employed to assess self-esteem, and a self-structured checklist was used to assess dental issues. Survey participants who scored higher than four on the checklist were invited to complete a self-esteem evaluation scale to gain further insights into their dental concerns. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 23.0, applying descriptive and inferential statistics to evaluate the collected data. The relationship and association between the concepts were examined using Karl Pearson's correlation coefficient and the Chi-square test.

Results: According to the study's findings, 75 (87.2%) school children had moderate self-esteem, while 11 (12.8%) had high self-esteem regarding dental issues. The majority of school children, 52 (60.5%), had moderate dental problems, while 23 (26.7%) had severe dental problems, and 11 (12.8%) had very severe dental problems. The results of the study also revealed a significant relationship between school-aged children's dental issues and their sense of self-worth. The calculated p-values indicate that there was no significant association between self-esteem and demographic data. However, there was a significant association between dental problems and other demographic variables, such as family income per month.

Conclusion: Based on the present study's findings, school-aged children experienced mild dental issues, and there was a substantial link between these issues and students' self-esteem. Additionally, the study showed that there was no significant association between self-esteem and demographic data. However, a significant association was found between dental problems and various demographic variables, such as family income per month. Therefore, it is argued that each person's self-esteem in relation to dental issues may differ.

INTRODUCTION

Age at school is a crucial time when people's abilities and attitudes are developing. Rapid physiological changes cause a person to become more conscious and interested in their own body. Body image can cause embarrassment, pride, shyness, or even sadness. It is crucial to understand the incidence and frequency of various dental issues and the necessity for treatment [1]. General health and oral health are interdependent. One of the most common illnesses affecting people is dental disease and related structures. The consequences are significant, although they are not life-threatening. Since oral diseases are chronic and require ongoing care, the financial aspect must be considered, along with the social, psychological effects, and treatment [2]. Self-esteem is how people perceive themselves and how well they perform tasks that are important to them. Students' beliefs and feelings about themselves at school shape their self-esteem [3]. When they perceive themselves as being close to their "ideal" selves, the individuals they aspire to be, their sense of self-worth is at its highest. Teenagers with high self-esteem are better able to handle disagreements, resist peer pressure, and make friends. They are often more positive and smile more, leading to increased laughter and smiles [3].

Dental caries is the main topic of discussion when it comes to oral health, especially in developing nations like India. With the emergence of central incisors and first molars at around 6 years old, the incidence of dental caries begins in the permanent teeth [4]. Approximately 60-70% of children between the ages of 5 and 11 have one or more lesions in their permanent teeth. Findings from the National Health and Nutrition Examination Survey (NHANES) 1999-2004 showed that the percentage of children and adolescents aged 6 to 11 years and 12 to 19 years who had dental caries in their permanent teeth had decreased to about 20% and 60%, respectively, while the percentage of those with untreated decay remained stable at about 8% and 20% [5].

According to the World Dental Federation, Fédération Dentaire Internationale (FDI), tooth decay affects over half of the world's population (44%), making it the most common among the 291 disorders listed in the study on the global burden of diseases. Oral disease affects 3.9 billion people globally [6]. Tooth decay affects 60-90% of school children worldwide and nearly 100% of adults, often leading to pain and discomfort. Oral disorders can impact every aspect of life, including relationships, self-esteem, academic performance, employment prospects, and social interaction. It can also result in social isolation and a decrease in income [6].

Kaur P et al., conducted a cross-sectional study on the effects of dental problems on teenagers' levels of self-esteem in India. Multiple-stage sampling methods were used to obtain a representative

sample. Oral health assessment was conducted using a World Health Organisation (WHO) type III examination, and self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES). The study found that various dental issues have a significant negative impact on adolescents' psychosocial behaviour and aesthetics, leading to lower self-esteem [7]. In the present study, a checklist was used to initially assess dental problems, and only individuals scoring higher than 4 were evaluated for self-esteem. This approach was helpful in determining if dental disorders were associated with increased self-esteem concerns in school children. These findings can help in assessing the dental health of hospitalised children and provide effective management to prevent such concerns by informing and educating parents.

Overall, the research still lacks strong evidence on this issue. Furthermore, a review of the literature clearly indicates that dental problems seem to be a significant risk factor for children's well-being. Studies focusing on the Indian population in this area are not well-documented. Most studies on the extent of these problems have either focused on the adult population or a specific group of children. During adolescence, facial features and appearance play a major role in self-perceived appearance. As adolescence serves as a foundation for future opportunities in life, the present study aimed to assess the impact of dental problems among adolescents on their self-esteem levels.

MATERIALS AND METHODS

A cross-sectional study was conducted in selected schools in Mangaluru, Karnataka, India. A total of 86 school children between the ages of 10-15 years were included using a non probability purposive sampling technique. The study duration was eight months, from February 2021 to September 2021. The study was conducted after obtaining approval from Yenepoya deemed to be university with the reference number ECR/1337/Inst/KA/2020. Informed consent was obtained from both parents and children prior to data collection.

A survey was administered to 200 students from a few schools in Mangaluru. To assess dental issues, students were required to complete a self-structured checklist. Students scoring four or above (86 students) were included in the study, while those scoring four or less (114 students) were not included. The self-esteem of a sample of adolescents was evaluated using a self-structured rating measure.

Seven specialists in the fields of nursing, dentistry, and psychology were asked to validate the tool, and their recommendations were incorporated into the research. The reliability of the tools was evaluated using the Cronbach's alpha test, and the result was 0.83, indicating good reliability. The data was collected using the following sections:

Section A: Demographic proforma consisting of nine items: age, gender, type of family, residence, education of father, education of mother, occupation of father, occupation of mother, family income per month.

Section B: Self-structured checklist [Annexure-1] to assess dental problems among school children. Total scores were classified as follows: 10 and above=very severe dental problems, 7-9=severe dental problems, 4-6=moderate dental problems, 1-3=mild/uncomplicated, 0=good oral health. Students scoring four and above were selected for self-esteem assessment.

Section C: Self-structured rating scale to assess self-esteem on dental problems among school children. The scale had five points ranging from 1-5. The total score was arbitrarily classified into three levels: 88-120=high self-esteem, 57-88=moderate self-esteem, 24-56=low self-esteem.

STATISTICAL ANALYSIS

The statistical data were analysed using IBM SPSS software version 23.0. Descriptive and inferential analyses of the data were conducted. The identification of dental issues in adolescents was performed using frequency and proportion. The correlation between self-esteem and dental problems was examined using Karl Pearson's correlation coefficient. To assess the association between dental problems, self-esteem, and demographic factors, the Chi-square test was utilised.

RESULTS

Demographic data is shown in [Table/Fig-1]. 46 (53.5%) of the students were between the ages of 14 and 15, 47 (54.7%) lived in rural areas, 66 (76.7%) of the students belonged to nuclear families, 30 (34.9%) of the fathers worked in agriculture, 63 (73.3%) of the mothers were housewives, 45 (52.3%) of the high school students had previously undergone examinations, and 74 (86%) of the total sample reported using mouthwash for oral hygiene.

Demographic variables	n (%)
Age (years)	
10-11	23 (26.7)
12-13	17 (19.8)
14-15	46 (53.5)
Gender	
Male	43 (50.0)
Female	43 (50.0)
Residence	
Rural	47 (54.7)
Urban	39 (45.3)
Family	
Nuclear	66 (76.7)
Joint	16 (18.6)
Extended	4 (4.7)
Religion	
Hindu	59 (68.6)
Christian	22 (25.6)
Muslim	4 (4.7)
Others	1 (1.2)
Education of father	
Primary education	24 (27.9)
High school education	24 (27.9)
PUC	18 (20.9)
Graduate	13 (15.1)
Postgraduate and above	3 (3.5)
No formal education	4 (4.7)
Education of mother	
Primary education	27 (31.4)
High school education	28 (32.6)
PUC	21 (24.4)
Graduate	4 (4.7)
Postgraduate	1 (1.2)
No formal education	5 (5.8)
Occupation of father	
Govt. employee	6 (7.0)
Private employee	15 (17.4)
Self-employee	28 (32.6)
Agriculture	30 (34.9)
Others specify	7 (8.1)

Occupation of mother	
Govt. employee	2 (2.3)
Private employee	6 (7.0)
Self-employee	14 (16.3)
Housewife	63 (73.3)
Others	1 (1.1)
Family income per month	
Less than Rs 5000/-	19 (22.1)
Rs 10000-15000/-	32 (37.2)
Above 15000/-	10 (11.6)
<20000	10 (11.6)
20001-30000	11 (12.8)
40001-50000	1 (1.2)
>50000	3 (3.5)
Previous check-up	
Yes	41 (47.7)
No	45 (52.3)
Brushing habits	
Once a day	39 (45.3)
Twice a day	46 (53.5)
Others	1 (1.2)
Oral hygiene practice	
Mouth wash	74 (86.0)
Flossing	10 (11.7)
Other	2 (2.3)
Eating habits especially sweets after 6 pm	
Once a day	68 (79.1)
Twice a day	15 (17.4)
Other	3 (3.5)
Treatment undergone previously	
Yes	22 (25.6)
No	64 (74.4)

[Table/Fig-1]: Distribution of the sample according to the demographic variables N: 86.

[Table/Fig-2] shows frequency and percentage of dental problems among school children.

[Table/Fig-3] shows assessment of self-esteem on dental problems among school children. None of the students had low dental self-esteem.

Score	Interpretation	n (%)
10 and above	Very severe	11 (12.8)
7-9	Severe dental problem	23 (26.7)
4-6	Moderate dental problems	52 (60.5)

[Table/Fig-2]: Frequency and percentage of dental problems among school children N=86.

Score	Interpretation	n (%)
88-120	High self-esteem	11 (12.8)
57-88	Moderate self-esteem	75 (87.2)
24-56	Low self-esteem	0

[Table/Fig-3]: Assessing the self-esteem on dental problems among school children N=86.

[Table/Fig-4] shows a significant correlation between dental problems and self-esteem among school children. The estimated result is significant at the level of significance (r=-0.319). Therefore, the research finding that dental issues and self-esteem among school children are significantly correlated is acknowledged.

Variable	p-value	Karl Pearson's Correlation (r)
Dental problems and self-esteem	0.003	-0.319

[Table/Fig-4]: Correlation coefficient computed between dental problem and self-esteem among school children N=86.
p<0.05 level of significance

The information in [Table/Fig-5] demonstrates a significant association between certain demographic factors, such as monthly household income, and dental problems. The dental problem score was unaffected by factors like age, gender, place of residence, type of family, religion, father and mother's educational levels, occupations, previous check-ups, brushing habits, eating habits (especially sweets after 6 pm), and previous treatments. Thus, it can be said that there is a strong association between dental issues and family income. As a result, the research hypothesis was supported, and the null hypothesis was rejected.

Demographic variables	Chi-square	df	p-value
Age in years	6.700	8	0.569
Gender	2.445	4	0.654
Residence	11.519	15	0.715
Type of family	3.612	8	0.890
Religion	6.716	12	0.876
Education of father	15.590	20	0.742
Education of mother	15.690	20	0.736
Occupation of father	12.986	16	0.674
Occupation of mother	13.486	16	0.637
Family income per month	14.104	24	0.021*
Previous check-up done with dentition	3.962	4	0.411
Brushing habits	8.734	8	0.365
Eating habits especially sweets	18.270	8	0.19
Treatment undergone previously	13.253	4	0.10

[Table/Fig-5]: Association of dental problems of school children with selected demographic variables N=86.
p<0.05 level of significance

[Table/Fig-6] demonstrates that there is no significant association between self-esteem and demographic factors such as age, gender, residence, family type, religion, parental education, parental occupation, previous check-ups, brushing habits, eating habits (particularly sweets after 6 pm), or previous medical treatment.

Demographic variables	Chi-square	p-value
Age in years	4.090	0.129
Gender	0.938	0.333
Residence	1.663	0.197
Type of family	1.530	0.465
Religion	6.729	0.81
Education of father	6.207	0.287
Education of mother	3.742	0.87
Occupation of father	1.965	0.742
Occupation of mother	7.593	0.108
Family income per month	6.783	0.341
Previous check-up done with dentition	0.647	0.421
Brushing habits	0.534	0.766
Eating habits especially sweets	8.910	0.17
Treatment undergone previously	1.802	1.180

[Table/Fig-6]: Association of self-esteem with selected demographic variables N=86.
p=<0.05 level of significance

DISCUSSION

All phases of life require a healthy, functional dentition because it supports vital human processes. The age at school is a crucial

time when people's abilities and attitudes are developing. It is critical to understand the prevalence, frequency, and need for treatment of various dental issues [8]. The purpose of the current study was to identify dental issues in school children who are extremely self-conscious about their appearance. According to the study's findings, 52 (60.5%) of school children had moderate dental issues, 23 (26.7%) had severe issues, and 11 (12.8%) had extremely serious issues. The study's findings provided strong support for estimating the frequency of malocclusion in the population of Bogotanian kids and teens in terms of varying degrees of severity in connection to sex and certain stages of dental development. Data were gathered from 4,724 kids between the ages of 5 and 17 years. According to the study's findings, 88% of the participants had some kind of aberration, ranging in severity from mild to severe. Of these, 50% had occlusal anomalies, 33% had space discrepancies, and 15% had dental anomalies [9]. Self-esteem can be defined as the capacity to embrace one's own deservingness. It is acknowledged that it has a significant impact on one's psychopathology, such as depressive symptoms and mental health. However, there is still a paucity of understanding regarding how people, particularly adolescents, judge themselves. Adolescence is a critical period of development during which it is feasible to prevent both current impairment and future sickness [10]. Consequently, oral issues could lower their self-esteem.

Good oral health is a critical component of overall health and well-being, and it plays a significant role in shaping an individual's self-esteem. By maintaining healthy teeth and gums, individuals can feel more confident and comfortable in social situations, improving self-esteem and quality of life [11]. These findings are in line with a study that was done to evaluate the relationship between dental issues and students' self-esteem at a few Mangaluru Schools. That study found a connection between the sample's dental issues and self-esteem. The findings of the present study are similar to the study carried out in Nigeria to determine the relationship between status, orthodontic consent, and self-esteem, supporting the conclusions. Dental Aesthetic Index (DAI) category demands, the study's findings indicated a substantial positive link between self-esteem and orthodontic concern [12].

Self-esteem did not significantly associate with any of the demographic variables in the current investigation. An investigation of the impact of orthodontic treatment and malocclusion on adolescent self-esteem provided strong support for the findings of this study. The findings of the study indicated that sex was a factor in the association between malocclusion and self-esteem. The girls' self-esteem was significantly impacted [13].

Implications of the study: The authors discovered certain nursing-related consequences while analysing the study's findings. The nurse administrator should take the initiative to create policies and plans that provide facilities to lessen dental issues and boost school children's self-esteem. The development of interventional program protocols to lessen dental issues and boost self-esteem should involve nurses as administrators. Nurse administrators should focus on understanding and managing it properly, as well as on information, approaches, and resources. At the institutional level, nursing administrators should assume the function of counselors.

Limitation(s)

The limitation of the study was that the geographic scope of the study precluded generalising the findings beyond that particular region.

CONCLUSION(S)

The main concern of students is evaluating oral problems, and in this case, they will be preoccupied with their appearance. Therefore, this study provided information about self-esteem in adolescents who have a specific health issue.

Acknowledgement

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PARTICULARS OF CONTRIBUTORS:
1. Nursing Student, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
2. Assistant Professor, Department of Child Health Nursing, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
3. Professor and Principal, Department of Community Health Nursing, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
4. Nursing Student, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
5. Nursing Student, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
6. Nursing Student, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sharin Neetal D'souza,
Assistant Professor, Department of Child Health Nursing, Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India.
E-mail: dsouzasharin83@gmail.com

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- For any images presented appropriate consent has been obtained from the subjects. NA

ANNEXURE 1: CHECKLIST TO ASSESS DENTAL PROBLEMS

Instructions:

Kindly put a tick mark (√) to the answer you think appropriate.

S. No.	Items	Yes	No
1.	Do any of your teeth have cavities?		
2.	Have you ever had your teeth cleaned by a dentist?		
3	Do you have the problem of bad breath?		
4	Do you have the habit of chewing ice or hard items?		
5	Do you feel any irritability or pain while drinking cold water for brushing your teeth?		
6	Is there any filling done to your teeth?		
7	Do you have the habit of nail biting or pen/pencil biting?		
8	Are any of your teeth in an inappropriate position?		
9	Do you have the problem of grinding teeth?		
10	Do you have the habit of eating more sticky chocolates?		
11	Is there any crowding present in your teeth?		
12	Did you lose any of your teeth?		
13	Have you ever experienced dental pain due to cavities or gum problems?		
14	Are your front teeth bent forward?		
15	Is there any discolouration present in your teeth?		
16	Is there a white/black spot present in your teeth?		
17	Are any of your teeth broken?		
18	Do you have the habit of using toothpicks?		
19	Do you have the problem of bleeding from the gums?		
20	Does your gum have any discolouration?		

Scoring

Every YES answer carries 1 mark; Every NO answer carries 0 mark each

Total score=20

Interpretation

10 and above=very severe

7-9=severe dental problem

4-6=moderate dental problems

1-3=mild/uncomplicated

0=good oral health

Selection criteria

Students having the score 4 and above will be selected for self-esteem assessment.