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Psychosocial Impact of Dental Appearance and Associated Factors among 15 year old School Children in Anuradhapura Municipal Council Area, in Sri Lanka

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ABSTRACT

Psychosocial impact that emanate from common oral disorders related to 'Dental Appearance' is an emerging issue among today's adolescents. Thus establishing the significance of psychosocial impact is a priority area in oral health research. **Objectives:** The aim of the present study is to quantify the psychosocial impact of dental appearance and to understand the oral health status, oral health needs and socio-demographic characteristics of the adolescents who subjected to those implications. **Methodology:** A descriptive cross sectional study was conducted among 626, 15 year old school children from nine government schools in Anuradhapura Municipal Council Area selected using Cluster sampling method. The data were collected using the modified version of Psychosocial Impact of Dental Aesthetic Questionnaire (PIDAQ) which was self-administered. **Results:** Thirty Seven percent of students were psychosocially affected due to their dental appearance. Sex, type of school attending, and highest level of parental educational attainment were significantly associated with psychosocial impact. Female adolescents were more affected than their male counterparts. A social gradient in psychosocial impact was identified with children from lower social background being the most seriously affected. Students in mixed schools were less psychosocially affected than the students in single sex schools. Perceived oral health status and perceived need for oral care also emerged as significant predictors. **Conclusion:** Psychosocial dimensions, perceived oral health problems, perceived need for oral care and some socio-demographic characteristics should be considered simultaneously during prioritization of the oral health needs of adolescents.

Keywords: Dental Appearance; Psychosocial Impact; Adolescents

Introduction

A friendly smile is one of the most important elements in creating a good first impression. When smile is destroyed by a dental disease, it may negatively influence an individual's developing self-image and self-esteem, which is particularly vulnerable during adolescence. In modern society, a significant role of teeth is to enhance appearance; many people find the six anterior teeth indispensable but will accept edentulous spaces in posterior regions. Teeth also play an important role in speech and communication and defective teeth may have a tremendous impact on inter-personnel communication. Dental appearance is considered as a salient aspect of physical appearance. It has a strong linkage with the facial appearance and the facial attractiveness since any defect in dental appearance is highly visible. Facial appearance is very important in determining an individual's integration in to society, and it provides clues about an individual's identity, intelligence and overall personality [1].The importance of dental appearance may change as a function of age and it is particularly important during adolescence. It is a developmental period marking transition from childhood to adulthood and begins with the onset of physiologically normal puberty. One-fifth of the world's population is adolescent, defined by WHO as a person between 10 and 19 years of age. In Sri Lanka, they constitute 3.7 million (19.7%) according to Department of Census and Statistics [2].During adolescence, body and facial characteristics are changing rapidly and this pattern of change renders

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most adolescents uncertain about the adequacy of their appearance. They are particularly sensitive to peer responses while parents and other family members continue to be influential. Factors within the wider social environment also significant (e.g. mass media). Therefore, adolescents with unattractive dental features are particularly vulnerable to negative self-evaluation of their appearance. According to the National survey on emerging issues among adolescents in Sri Lanka, 63% of school going and 70% of out of school adolescents had some attribute that they did not like themselves. It also emphasized that half of school and 75% of out of school adolescents had some key worry [3]. Hence more and more research activities should be targeted to address adolescent health issues and their distinctive needs. The present study was targeted on 15 year old adolescent age group, because they were recognized as having distinctive needs related to dental appearance, due to an increased aesthetic desire and awareness, increased risk for traumatic injury and periodontal diseases, a potentially high caries rate and unique social and psychological needs. To evaluate the impact of smile aesthetics related to dental appearance requires an understanding of the psychosocial meanings of dental appearance during this period of life. A number of dental problems can create mild to severe impairment of dental appearance, whether this impairment is the result of discolouration of teeth, malocclusion, severe dental caries, periodontal disease or traumatic dental injury. Any deviation from the normal dental appearance may result in feelings of insecurity related to appearance, inhibition in social contacts, comparison with others, unhappiness and emotional reaction [4].Dental discolouration can be due to various reasons. The commonest reason for dental discolouration among adolescents in Anuradhapura district is dental fluorosis. It is a major public health problem in the district and it is visible as soon as the secondary teeth of the children start to erupt at the age of 6-8 years. Hence, while developing social and early life skills, children are at their most vulnerable age to the psychological impact of discrimination. The moderate to severe forms of fluorosis meanwhile can result in profound embarrassment and psychological stress for the impacted child especially during the adolescent years. Recent studies have found that even the milder forms of dental fluorosis can produce dissatisfaction over the teeth's appearance [5]. Therefore, desire to improve aesthetics of the dentition by tooth whitening and removal of stained areas can be a high concern of the adolescent. Malocclusion also can elicit unpleasant social reaction and poor self-concept among adolescents, particularly if it is present in the anterior region, disrupting the smile [4].Several investigations have been carried out in to the psychological and social effects of malocclusion with respect to nick names and teasing, social attractiveness, self-esteem and popularity [6]. Therefore, the expected psychosocial benefits of orthodontic treatments would include an enhancement of self-esteem and a reduction in social-anxiousness. Even though orthodontic treatment is required for aesthetic or functional reasons, it is often delayed and inadequate for disadvantaged segments of the society. The prevalence of moderate to severe malocclusion among 15 year old school children in Sri Lanka was reported as 11% in 2002-2003 [7]. Adolescence marks a period of significant caries activity for many individuals due to an increased intake of cariogenic substances and inattention to oral hygiene procedures. According to the school medical inspections conducted under the school health programme in Sri Lanka, dental caries marked the highest reported identified health problem among school children in every year. Although the losing teeth is still seen as a natural consequence of ageing throughout the world, there is a positive trend for minimizing 'extractions' and 'preservation of natural teeth' for aesthetic desires. Contrary to this view, in some developing countries, access to oral healthcare is limited and even anterior teeth are often left untreated or are extracted because of pain and discomfort. Trauma with accompanying fracture of a permanent anterior tooth is also a tragic experience for the young patient and creates psychological impact on both the parents and children. Besides the pain and discomfort, the adolescent's changed appearance may make him the target for teasing and even being ridiculed by others. The victims are at increased risk of psychological and behavioural problems. Adolescence is a critical period for periodontal status due to pubertal changes, characterized by signs of gingivitis. According to National Oral Health Survey findings in Sri Lanka, gingivitis is common among children and adolescents [7].However, juvenile or early onset of aggressive periodontitis; a severe periodontal condition affecting individuals during puberty that leads to premature tooth loss, affects only about two percent of youth. Hence, it will not create increased aesthetic demand among adolescents. In our beauty conscious society, most areas of dentistry deal increasingly with aesthetics. Therefore, today's dentistry is a complex cosmetic art capable of managing the dental problems magnifying the personality and the self-confidence of the affected individuals [8]. The consequences of oral diseases involve not only physical health but also social and psychological well-being of an individual. The measuring of oral disease level in adolescents has been restricted to clinical indicators and their true

impact on an individual has never been adequately addressed. According to the concept of oral health-related quality of life (OHRQoL), good oral health includes the absence of negative impacts of oral conditions on social life, and sense of dento-facial self-confidence[9].Hence the actual burden of oral diseases should be assessed in terms of 'impacts'. Such information can have greater importance for adequate understanding of the oral health problems among adolescent school children and for rational planning and evaluating community preventive activities and oral health promotion.

Materials and Methods

A school base descriptive cross sectional study was conducted from July to September in 2009 in Anuradhapura Municipal Council Area which was an urban setting. The study population consisted of all 15 year old children enrolled in secondary section of government schools. Students with any craniofacial syndromes or anomalies were excluded. The sample size was calculated using the proportion of psychosocially affected children as 50% and expected error due to sampling as 5%. The calculated sample size was 640 with the correction of design effect of 1.5 and allowing for non-response rate of 10%. The sample studied constitute a group of 626, fifteen year old school children from nine government schools selected using cluster sampling method combined with probability proportionate to size technique. Aself-administered questionnaire was used to collect information on socio-demographic variables, perceived oral health problems & need for oral care and psychosocial impact of dental appearance. A psychometric instrument of a modified version of 'Psychosocial Impact of Dental Aesthetic Questionnaire (PIDAQ)' was developed using the already available tools of 'Psychosocial Impact of Dental Aesthetic Questionnaire (PIDAQ)'developed by Klages et al in 2004 [10] and the Dental Impact of Daily Living Index (DIDL) developed by Leao & Sheiham in 1993 [11]. A total of four dimensions, including dental dissatisfaction, psychological impact, social impact and aesthetic concern were assessed by a series of relevant statements. Response categories for the agreement of impact statements were given as "not at all", "a little", "somewhat", "strongly" and "very strongly". Secondly the relevance, clarity, and comprehensiveness of these items were assessed in a face and content validity study by an expert panel. Based on their responses and comments excluding irrelevant items and incorporating additional items, 20 items were developed for the final draft of the psychometric instrument. The questionnaire was first prepared in English and then translated into Sinhala and Tamil languages with the help of professional translators. It was done meaningfully using appropriate wording, while preserving the cultural sensitivity. It was pretested on a convenient sample of 15 year old school children in an adjoining MOH area. Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Colombo and permission was obtained from the Provincial Director of Health Services and the Provincial director of education, North Central Province. Informed consent of parents was obtained prior to the study. In each school all the eligible students were gathered to a separate hall with adequate space and the questionnaires were administered after giving a brief explanation about the study. Voluntary and anonymous nature of the study was discussed with all the participants and assurance of confidentiality was also given. Questions were read out loud one at a time by the Principal investigator while the participants filled in the responses on their own. The indicated teeth to comment on their dental appearance were considered as the teeth up to second premolars in both sides of upper and lower dentitions. It was demonstrated to the students using a brushing instruction model and pictorial presentation. Face mirrors were also made available for the students to re-examine their teeth while answering the questions. They were given adequate time to answer the questions and clarify any quarries. On an average 30 minutes were taken to answer the questions. During data analysis frequency distributions were generated and data was tabulated accordingly. Students were categorized in to two categorical variables named, 'students with psychosocial impact' and 'students without psychosocial impact'. The students who had responded to one or more of the impact statements of the psychometric measure as 'strongly agree' or 'very strongly agree' were considered for the category of 'students with psychosocial impact'. Others who had not responded to any of the impact statements as such were categorized as 'students without psychosocial impact'. Each dimension of impact in the psychometric measure was also assessed separately according to the above criteria. Then further cross tabulations were done using these categories. Associations between variables were explored using Chi-squared statistics (X^2).A probability value (P) $\leq$0.05 was used to indicate statistically significant differences between groups. All the analysis was carried out using SPSS software package of version 15.

Results

A total of 626 participants responded to the questionnaire giving a response rate of 98%.

Socio-demographic characteristics of the study sample

Study sample consisted of 46.5% (n=291) of male children and 53.5% (n=335) of female children. There were 91.3% (n=572) of Sinhalese, and 8.7% (n=54) of Non Sinhalese comprising of Muslims, Tamils and Burghers. Most of the students attended to mixed schools (72.2%, n=452), whereas 27.8% (n=174) attended to single sex schools. Majority of parents (fathers/ guardians) had studied up to Ordinary/Level (n=378, 60.4%).

Table 1: Socio-demographic characteristics

Variable	No. (N=626)	%
Sex		
Female	335	53.5
Male	291	46.5
Ethnicity		
Sinhalese	572	91.3
Non Sinhalese	54	8.7
Type of school attending		
Mixed school	452	72.2
Girls'/ Boys' school	174	27.8
Parental educational attainment		
Up to O/L	378	60.4
Above O/L	245	39.1
Do not know	3	0.5
Father's occupation status*		
Code 1 & 2	342	54.6
Code 3 &4	277	44.2
Do not know/ not recorded	7	1.2
Mother's occupation status*		
Code 1& 2	98	15.6
Code 3 & 5	523	83.5
Do not know/ not recorded	5	0.9
Monthly family income		
<Rs. 10,000	212	33.9
>= Rs. 10,000	326	52.1

(Note: *Code 1: Professional/ managerial/ upper level business; Code 2: clerical/ technical/ middle level business; Code 3: Skilled/ unskilled labour; Code 4: unemployed for fathers only, Code 5: House wives for mothers only)

Prevalence of perceived oral health problems and need for oral care

Approximately half of the study sample (n=317, 50.6%) mentioned that they are having some kind of dental problem with their front teeth. Moreover, half of the students studied (n=302, 48.2%) stated that they need treatments to improve their dental appearance (Table: 2).Discolouration of teeth was the commonest problem (n=229, 36.6%) followed by malocclusion (n=168, 26.8%), dental decay (n=43, 6.9%), dental fracture (n=34, 5.4%), gingivitis (n=30, 4.8%) and missing teeth (n=15, 2.4%) (Table: 3).

Table 2: Distribution of study subjects according to the perceived oral health problems and perceived need for oral care

Variable	No.(N=626)	%
Perceived Oral Health problem		
- **Yes**	317	50.6
- **No**	309	49.4
Perceived Need for oral care		
- **Yes**	302	48.2
- **No**	324	51.8

Table 3: The different perceived oral health problems identified among the study subjects

Perceived Oral health problem	No.	%
Discolouration of teeth	229	36.6
Malocclusion	168	26.8
Dental fracture	34	5.4
Dental decay	43	6.9
Missing teeth	15	2.4
Gingivitis	30	4.8
Other	5	0.8

*Note: Percentage sum to more than 100% because some students perceived more than one oral health problem

Prevalence of psychosocial impact

About 37% (n=232) students were psychosocially affected due to their dental appearance (Table: 4). Dental dissatisfaction was the commonest dimension of impact among the students (n=157, 25.1%), followed by psychological impact (n=136, 21.7%), social impact (n=112, 17.9%) and aesthetic concern (n=56, 8.9%) (Table: 5).

Table 4: Distribution of study subjects according to the psychosocial impact of dental appearance

Psychosocial impact of dental appearance	No. (N=626)	%
Students with impacts	232	37.1
Students without impacts	394	62.9

Table 5: The different dimensions of impact

Dimension of impact	N	%
Dental dissatisfaction	157	25.1
Psychological impact	112	17.9
Social impact	136	21.7
Aesthetic concern	56	8.9

Psychosocial impact and factors associated

Sex, type of school attending, father's occupation status and highest level of parental educational attainment were significantly associated with psychosocial impact (P<0.001). Perceived oral health status and perceived need for oral care also emerged as significant predictors (P<0.001). (Table 6)

Table 6: Factors associated with psychosocial impact

Variable	*Psychosocial impact*				Total	Significance*
	With impact		Without impact			
	N	%	N	%	N	
Sex						X^2= 92.12
Female	182	54.3	153	45.7	335	Df=1
Male	50	17.2	241	82.8	291	P<0.001
Ethnicity						X^2= 2.16
Sinhalese	207	36.2	365	63.8	572	Df=1
Non-Sinhalese	25	46.3	29	53.7	54	P>0.05
Type of school attending						X^2= 199.7
Mixed school	91	20.1	361	79.9	452	Df=1
Girls'/ Boys' school	141	81.0	33	19.0	174	P<0.001
Parental educational attainment						X^2= 14.55
Up to O/L	162	42.9	216	57.1	378	Df=1
Above O/L	68	27.8	177	72.2	245	P<0.001
Father's occupation status						X^2= 23.57
Code 1 & 2	97	28.4	245	71.6	342	Df=1
Code 3 & 4	131	47.3	146	52.7	277	P<0.001
Mother's occupation status						X^2= 1.69
Code 1 & 2	42	42.9	56	57.1	98	Df=1
Code 3 & 5	188	35.9	335	64.1	523	P>0.05
Monthly family income						X^2= 3.20
<Rs. 10,000	87	41.0	125	59.0	212	Df=1
>= Rs. 10,000	109	33.4	217	66.6	326	P>0.05
Perceived oral health problem						X^2= 177.6
Yes	198	62.5	119	37.5	317	Df=1
No	34	11.0	275	89.0	309	P<0.001
perceived need for oral care						X^2= 150.5
Yes	186	61.6	116	38.4	302	Df=1
No	46	14.2	278	85.8	324	P<0.001

*Chi-square test has been performed

Discussion

With the changing oral disease patterns and rising consumer expectations on modern dentistry coupled with complex cosmetic dental care, dental appearance has become an important area of interest for recent research work. Information on 'Dental Appearance' appeared in the literature through various epidemiological studies have mainly focused on the clinical parameters of dental aesthetic problems. Hence, the aim of the present study was to evaluate the overall dental appearance of an adolescent in terms of psychosocial impact while giving special emphasis on the smile aesthetics. Moreover, this was the first study to assess the psychosocial impact of dental appearance among adolescents in Sri Lanka. It further examines the influence of several socio-demographic characteristics, perceived oral health problems and perceived need for oral care on the psychosocial impact of dental appearance. Therefore, this study provided an excellent opportunity to determine the burden of this problem among Sri Lankan school going adolescents and it was crucial for planning of oral health care programmes and resource allocation for dental care. Anuradhapura district was selected for the present study because it is an area endemic for dental fluorosis where the naturally occurring fluoride in the ground water is high. Hence, oral health outcomes of dental fluorosis also can be contributed to the psychosocial impact of dental appearance. According to the psychometric measure 37% of school going adolescents was psychosocially affected due to their dental appearance and this can arise from one or more of the four dimensions of impact namely dental dissatisfaction, psychological impact, social impact and aesthetic concern. Majority of students in the study

sample had mentioned about dental dissatisfaction, psychological impact and social impact while aesthetic concern was very much less (Table: 5). Dental dissatisfaction was reported by 25% of the students and it was the commonest impact profile reported by majority of the students who express their dissatisfaction on colour, shape, arrangement, appearance and gingival status of front teeth. Psychological impact was evident in 21.7% of students indicating their distress, worry, envy, comparability with others or poor concentration capacity on their studies due to undesirable dental aesthetics. Social impact was evident from 17.9% of the study sample indicating one or more social effects arising from avoidance of smiling, covering of the smile, social inhibition, offensive remarks by others, teasing by friends, suggestions of dental treatment by others and concerns about the feelings of opposite sex on their dental appearance. Aesthetic concern arising from self-consciousness of dental appearance assessed by the items of dislike to see their own smile in mirror or avoiding showing teeth in photographs was very much less as denoted by only 8.9%.According to the present study exploring the relationship between psychosocial impact of dental appearance and several socio-demographic factors, indicate that four socio-demographic variables were significantly associated with the psychosocial impact of dental appearance. They were the sex, school type, parental educational level, and father's occupational status. In the present study it has been revealed that female adolescents were more psychosocially affected than their male counterparts. Moreover, it is noteworthy that the adolescents who attended to mixed schools were less psychosocially affected than the students who were studying in single sex schools. It was able to identify a social gradient in psychosocial impact with children from lower social background being those most seriously affected. This was indicated by father's occupation status and the parental educational level. It also implied a possible parental influence on adolescent's psychosocial impact. However, the maternal occupation status and monthly family income were not significantly associated with the psychosocial impact of dental appearance in the present study (Table: 6).There were limited studies in the literature to ascertain the association between psychosocial impact and socio-demographic factors. However, significant differences according to sex and socio-economic status were appeared in several studies. In a study done by Rodrigo in 2005, it was concluded that the impact of malocclusion had significant association with the gender in 15 year old school children [12]. It was in accordance with the present study where female adolescents were more dissatisfied than their male counterparts. In accordance with these findings contemporary evidences from industrialized countries had shown that lower the material standards of living, worse the oral health status whatever measures are used to assess this, be they clinical, self-reported or quality of life indicators [13]. In 2007, Locker reported on socio-economic disparities in children's oral health related quality of life with children from lower income households having the poorest oral health related quality of life. The potential explanation was the differences in psychological assets and psychosocial resources [14].According to a recent study among 12 year old Tanzanian primary school children dental dissatisfaction was higher among the children from affluent backgrounds and the children whose parents were less educated [15]. This suggests that adolescents' concern about their dental appearance is influenced by the social and cultural context in which they live. It is evident for instance that spacing in malocclusion is disliked in white cultures but considered a sign of beauty in many African cultures. However, the findings of the present study had not established any association between psychosocial impact of dental appearance and ethnicity. When the students were asked about their common oral health problems 50.6% of them mentioned that they were having some kind of oral health problem with their front teeth (Table: 2). Discolouration of teeth was the commonest perceived oral health problem reported by 36.6% of students followed by malocclusion (26.8%), dental decay (6.9%), dental fracture (5.4%), gingivitis (4.8%) and missing teeth (2.4%). (Table 4).Although the discoloration of teeth was mentioned by only 36.6% of students as a perceived oral health problem, the prevalence of very mild to severe dental fluorosis in Anuradhapura district was 89.8% in the district of Anuradhapura and 55% to 77% in the North Central Province according to several epidemiological studies [16, 17].It was compatible with the study done by Tennakoon in 2004 which further investigate the awareness of white or brown patches on teeth among the 15 year old school children (17). The awareness was mostly expressed by children with moderate to severe dental fluorosis and it was only 38.5% which was very much closer to the present value. It suggests that these students had perceived the discoloration of teeth only at the stages of moderate to severe. The prevalence of slight malocclusion among 15 year old school children in Anuradhapura district was 16.3% and moderate/ severe malocclusion was 8.8% according to the National Oral Health Survey (NOHS) in 2002-2003 [7]. This was somewhat closer to the present value of perceived malocclusion which was

26.6%. Furthermore according to the NOHS (2002-2003), many young people had marginal gingivitis which did not incapacitate them and which they might not be aware of[7]. This was consistent with the present data since only 4.8% of students had mentioned gum disease as a perceived oral health problem.The present study was able to find significant association between these perceived oral health problems and psychosocial impact of dental appearance (Table: 6). Furthermore, 48.2% of the students stated that they need dental treatments to improve their dental appearance (Table: 2). There was a significant association between this perceived need for oral care and the psychosocial impact of dental appearance (Table: 6).There were several studies appeared in the literature, estimating the psychosocial impact of dental appearance. Most of these studies had not estimated the psychosocial impact due to overall dental appearance regarding smile aesthetics. They were conducted to assess the psychosocial effects of certain dental aesthetic problems mainly dental fluorosis, malocclusion and dental trauma which may impair the dental appearance. Therefore, comparing the present study, with those studies should be done with caution to avoid any misinterpretation. Furthermore, the variations may be due to various psychometric measures utilized in different studies. A study carried out in Anuradhapura district to assess the psychosocial impact of dental fluorosis had found 17.7% of the 15 year olds were subjected to psychosocial impact due to their dental appearance [17]. However the impact estimated in the present study was 37%. This may be due to the fact that present study had evaluated the effects of overall dental appearance influenced by several oral health problems. They further confirmed that awareness of white or brown patches on teeth was mostly expressed by children with moderate to severe dental fluorosis and psychosocial impact was also higher in these children. The psychosocial impact estimated as such was 73.3% in severe fluorosis group and 44.9% in moderate fluorosis group. In a previous study which was done by Rodrigo in 2005, on impact of malocclusion among school children aged 12 year and 15 years in the district of Gampaha suggested; impact of malocclusion was significantly associated with the severity of malocclusion. Severity of malocclusion among 12 year olds was significantly related to satisfaction with appearance, getting comments by others, getting teased and barrier for smiling. It is further related to worry due to malocclusion and avoid social function. [12]. It was further supported the present findings which have confirmed the negative impact of oral health problems on psychosocial wellbeing of an individual. The association of perceived oral health problems and psychosocial impact of dental appearance was further supported by two other previous studies carried out in the recent past. In 2004, following a study carried out by Klages et al on orthodontic patients and normal individuals using Psychosocial Impact of Dental Aesthetic Questionnaire (PIDAQ), it was established a direct effect of dental aesthetics on self-confidence, psychological impact, social impact and aesthetic concern[10]. These results were further confirmed by a study done by Khan &Fida (2007) using a modified version of PIDAQ, highlighting the negative influence of unpleasant aesthetics in social interactions [4].The present study was able to constitute a significant association of psychosocial impact of dental appearance and perceived need for oral care (Table: 6). It can be attributed to the psychosocial impact of dental appearance arising from huge unmet need for aesthetic dental care in the affected population. The students with perceived need might be subjected to more psychosocial implications like worry and distress due to their un-affordability to dental care or unavailability of aesthetic dental treatments. This is due to the fact that only a minority of patients can afford to pay the high cost involved in cosmetic dental care while minority of dentists are having the financial strength to acquire the costly practice infrastructure required for aesthetic dental care [8]. The state hospitals are also unable to provide those treatments at free of charge to each and every patient based on their demands. According to these available evidences, psychosocial impact of dental appearance constitutes an emerging issue among adolescents which is an under-investigated area in most of the school based studies in developing countries. Therefore, the present study attempted to focus an under-investigated area of psychosocial impact of dental appearance in Sri Lankan context. Moreover, based on the findings of the present study further studies should be carried out in different settings of Sri Lanka in order to confirm the present findings and for the improvement of the methodology. The information about the extent & significance of psychosocial impact of dental appearance is important for the planning and evaluation of therapeutic & preventive options in oral care. It was recommended to provide facilities to all the adolescent dental clinics in the district to provide high quality aesthetic dental treatments for needy adolescents especially for those who affected with moderate to severe dental fluorosis and malocclusion. Meantime special oral healthcare programmes should be targeted to raise the awareness among students and their parents regarding the preventive measures of common oral health problems that adversely affected their dental

appearance. Household defluoridation techniques should be introduced in fluorosis affected areas. Training programmes on oral health should be conducted for primary healthcare personnel and school teachers to increase the knowledge transition to the affected children on preventive measures. Partnership between health and education sector should be strengthened to address adolescent oral health problems and further research should be carried out to determine the oral health needs and perceptions and attitudes among adolescents.

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