Impact of Oral Health and Oral Heath Behavior on Happiness Among Young Adults in Mangalore City – An Explorative Study

Avinash B R[1], Ramya Shenoy[2], Mithun Pai B H[3], Rajesh G[4]

1. Department of Public Health Dentistry, Manipal College of Dental Sciences Mangalore. Mangalore, Karnataka.
2. Department of Public Health Dentistry, Manipal College of Dental Sciences Mangalore, Manipal Academy of higher Education. Mangalore, Karnataka.
3. Department of Public Health Dentistry, Manipal College of Dental Sciences Mangalore, Manipal Academy of higher Education. Mangalore, Karnataka.
4. School of Public Health, Boston University 715, Albany Street, Boston, MA.

Abstract

Happiness plays a major role in an individuals' physical and mental wellbeing. It is known to depend on various internal and external factors. Depression, stress and other factors are known to influence oral health. Few studies have examined impact of oral health and oral health behaviors on happiness among young adults, especially in the Indian scenario.

The study was conducted to assess the impact of oral health and oral health behaviors on happiness among young adults in Mangalore, Karnataka, India. A cross-sectional study was carried out among 16-23-year-old college students in Mangalore. Sociodemographic details, oral health behavior, oral hygiene habits and practices were obtained by self-administered questionnaire. Perceived happiness was recorded using Subjective Happiness Scale. Oral health status was assessed by using WHO oral health assessment proforma (2013). Multiple linear regression analysis was performed of happiness scores with age (β=-0.104, t=-2.47, p=0.014), decayed Teeth (β=-0.073, t=-1.75, p=0.50) and family income (β=0.089, t=2.10, p=0.036) and were found to be significant predictors of happiness scores.

From our study conducted it can be concluded that age, decayed teeth and family income emerged as significant predictors of happiness scores among respondents. There is a definite need to inculcate appropriate oral hygiene regimens and preventive dental care among young adults. This might have important implications for their overall general and mental wellbeing.

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Introduction

Happiness plays a major part in an individuals' physical and mental wellbeing. It can be considered as the basic ingredient for health in this busy, modern and stressful lifestyle. Definition of happiness varies from person to person from physical, mental and spiritual point of view. It can also be inferred that when people get basic general and oral health care, they can be happy and concentrate more towards their life goals and dreams.[1,2]

Happiness and mental conditions have known to cause poor oral health and may be associated with substance abuse like tobacco usage. People with such issues have negative behaviors towards regular dental treatment, frequency of brushing, snacking frequency, periodontal issues and lower socioeconomic status. It can thus have considerable public health implications that must addressed by health professionals.[1,3]

Malocclusion influences the facial form and appearance of the person. People with milder facial deformity face bullying, teasing and name calling from their peers and society, which may predispose them to low happiness and leading to depression.[1,3]

Dental injuries especially in the front teeth region can cause major impact on emotional

Corresponding author:
Dr Mithun Pai B H
Associate Professor, Department of Public Health Dentistry
Manipal College of Dental Sciences Mangalore
Manipal Academy of higher Education.Manipal
Mangalore, Karnataka- 575001
E-mail: mithun.pai@manipal.edu

wellbeing and bring about social stigma. The pain and sensitivity involved in the injuries can deprive them of their favorite food, their smile may be hampered as they are not socially presentable.[1,4]

Poor oral health is a very significant community health issue that affects every age group. Current study focuses on subject's oral health status, oral health behavior and habits, socio-demographic details, and their possible effects on general happiness of the population. Research on impact of oral health status and behavior on general happiness of young adults are of high importance, since happiness may be considered as a satisfactory outcome of health interventions and policies[1,6]

The aim of the present study is to determine the factors affecting the impact of oral health and oral health behavior on happiness among young adults in Mangalore city.

Materials and methods

A cross sectional study design was designed, a list of all colleges in Mangalore was obtained from the Block Education Officer, Mangalore and stratified random sampling technique was employed to select the colleges for the present study. A pilot survey was conducted among 2nd year degree college going young adults aged 16-23 years in Mangalore. Ethical clearance to conduct the study was obtained from the Institutional Ethics Committee. (Protocol Ref No. 17121). Informed consent was obtained from the subjects prior to the study.

Sample size was determined by review of literature and in consultation with the biostatistician. The following formula was employed for the selection of sample size:

$$n = (Z_{\alpha/2} + Z_{\beta})^2 * 2 * \sigma^2 / d^2$$

Where,

$Z_{\alpha/2}$ = critical value of the normal distribution at α/2; for a confidence level of 95%, α is 0.05 and the critical value is 1.96

Z_{β} = critical value of the Normal distribution at β; for a power of 80%, β is 0.2 and the critical value is 0.84

σ^2 = population variance

d = difference the investigator would like to detect.

From each of these institutions, a minimum of 160 participants per group were included in the study. A total of 480 students were included in the present study at baseline.

Inclusion criteria: Institutions affiliated to Mangalore University, Colleges having co-education and Familiarity of study subjects with English language

Exclusion criteria: Institutions and individuals not willing to consent, Subjects undergoing orthodontic treatment, Subjects who suffered physical/mental health problems in the last year, Subjects with known systemic illness and Subjects who are currently under treatment for physical/mental illness.

Examiner calibration was done to establish inter-examiner reliability, which was assessed by employing the Kappa Statistic. Based on the pilot study, Kappa statistic was found to be 0.9, which suggests good agreement.

Prior to the start of the main study, a pilot study was conducted to ascertain the reliability of the questionnaire. Face validity of the questionnaire was ascertained by expert opinion. Cronbach's alpha and split half reliability was found to be 0.82 and 0.79 respectively for the oral health behavior questionnaire and 0.72 and 0.68 respectively for the Subjective Happiness Scale.

Demographic details, previous medical and dental history, dietary habits, oral hygiene habits were obtained from the study subjects using a self-administered questionnaire. Kuppuswamy scale was used to categorize education, income, occupation and socioeconomic status.

Oral health behavior score was also obtained from the questionnaire. Appropriate practices were scored as 1 and inappropriate oral health practices were considered as score 0. They were summed up to get a continuous number and the maximum score was assigned to be 14 and least being 0.

WHO proforma (2013) was used for clinical examination of the oral soft and hard tissues.[7] Subjective Happiness Scale was used to measure the happiness of the subject. The questionnaire consists of 4 items which measures subject responses on a 7-point Likert scale.[8] Clinical examinations were done under natural lighting conditions in the college set up. The subjects were made to sit on the chair with head rested on head rest.

Data was analyzed using the Statistical Package for Social Sciences (SPSS), version 16 (SPSS Inc, Chicago IL). Pearson test was used to assess correlation between sociodemographic

variables and oral health parameters, oral health behavior and happiness scores. Multiple linear regression analysis was performed to determine predictors of happiness scores among the study subjects. Level of significance for the present study was fixed at 5%.

Results

The current study was conducted to determine the impact of oral health and oral health behavior on happiness among young adults in Mangalore city. Total of 561 college students volunteered to participate in this cross-sectional study.

Mean age of the subjects participated were 19±3 years. Total males constituted 56.3% (316) and females constituted 43.7% (245) of the population under study. Majority of the participants belonged to upper middle class forming 90.6% (508), 9.3% (52) belonged to upper class as per modified Kuppuswamy socioeconomic scale 2019.

The family income of majority of 70.6% (396) of subjects was found to be above 52,734, while 29.2% (164) had income between 26,355-52,733.

It was observed that a majority of 62.6% (351) fathers of the study participants were either graduates or post graduates.

A total of 75.6% (424) of the study participants reported brushing twice in a day. Overall, 15% (84) participants did not snack in-between meals, while a majority of them 85% (477) had a habit of frequent snacking. A total of two participants (0.4%) reported regular use of tobacco. Overall, 1.4% (8) of the participants reported regular dental checkup and a majority of 98.6% (553) of them visited dentist only if there were any emergencies or had never visited a dentist.

Gender was significantly associated with missing teeth (r= -0.113, p= 0.007), while father's occupation was significantly associated with missing teeth (r=-0.088, p= 0.037). Results also indicated that father's income was significantly associated with decayed teeth (r=-0.101, p=0.017), missing teeth (r=-0.120, p=0.004), filled teeth (r=0.082, p=0.050) and DMFT (r=-0.082, p=0.050). It was also observed that mother's education was significantly associated with missing teeth (r=0.089, p=0.035), and mother's income was significantly associated with DMFT (r=-0.084, p=0.046). It was found that mother's income was significantly associated with gingival bleeding (r=0.007, p=0.003).

Age was significantly associated with oral health behavior score (r=-0.142, p= 0.001), while father's income was significantly associated with removable dentures (r=-0.118, p=0.05). It was also observed that father's education, father's income and mother's education were significantly associated with oral health behavior scores (r=0.097, p=0.020), (r=0.102, p=0.015). Statistically significant associations were observed between family income and oral health behavior score (r=0.166, p=0.001), while socioeconomic status was significantly associated with malocclusion (r=0.086, p=0.042) and oral health behavior score (r=-0.083, p=0.048). Age was significantly associated with twice daily brushing (r=-0.80, p=0.050), while father's occupation was significantly associated with regular dental visits (r=0.096, p=0.024). Results also indicate that father's income and mother's education were significantly associated with twice daily brushing (r=-0.247, p=0.001), (r=0.096, p=0.023). It was also observed that family income was significantly associated with twice brushing a day (0.163, p=0.001) and socioeconomic status was significantly associated with regular dental visits (r=-0.116. p=0.006).

Results of correlation analysis indicated that age (r=-0.118, p=0.005), father's income (r=-.144, p=0.001) and family income (r=0.105, P=0.013) were found statistically significantly associated with happiness scores. [Table 1]

Results of multiple linear regression analysis indicated that age (β=-0.104, t=-2.47, p=0.014), decayed teeth (β=-0.073, t=-1.75, p=0.50) and family income (β=0.089, t=2.10, p=0.036) emerged as significant predictors of happiness scores among study subjects. [Table 2]

Discussion

General happiness in turn may contribute to the general wellbeing of an individual. Various sociodemographic factors are known to influence the oral health behavior and habits and in turn add their own significance to general happiness of the individual.

Dental decay, malocclusion, periodontal issues in subjects may lead to teasing among

young adults, which makes them alter their pattern of smile and their way of speaking. This may in turn lead to their abstinence from gatherings and functions. These behavioral changes combined with their social and demographic characteristics have a greater impact on young minds and their general happiness.

Educated parents, their occupation and income, socioeconomic condition, family income and size of the family has great effect on mental, physical, oral and overall well-being of the individual. The findings of our study are in corroboration with the findings reported by Antunes et al.[9]. The results of the present study indicate that there was a statistically significant association between gender and missing teeth. The reason for the same may be that generally females are more esthetically concerned about their smile, oral hygiene, personal care and appearance in comparison with males.

Results of the present study indicate that there is significant association between oral health behavior score and father's education, father's income, mother's education, family income and socioeconomic status. This result is in corroboration with the study results obtained by Marmot et al.[10] All these variables are interrelated and may contribute to persons better upbringing in the family, better knowledge about diet and oral health behavior and their affordability to the right treatment. Socioeconomic status showed statistically significant association with malocclusion. Lower socioeconomic status households tend to have low awareness, lesser financial resources towards optimal oral health and hygiene practices, and lesser aids and knowledge needed to implement the same.

Brushing twice a day was found to be statistically significantly associated with age. This finding agrees with the results reported by Honkala et al.,[11] Ulrich and Kent.[12] As the younger age group is more aware and concerned about their oral health conditions than their elder counterparts, their brushing habits may be more optimal. Father's income, mother's education, family income was found to be significantly associated with habits like brushing twice a day. An educated mother may understand the oral health issues, its consequences and the oral health awareness better. Father's income and family income adds to better financial support, better standard of living and affordability to better health products and hence it is significantly associated with good oral hygiene habits like brushing twice daily.

Father's occupation and socioeconomic economic status was found to be significantly associated with regular dental visits of their children. This agrees with the findings reported by Watt et al.[13] Fathers with secure occupation tend to be more aware of his children's oral and general health requirement and provide their best to fulfill their dental and medical immediate requirements. In the same way, better the socioeconomic status better will be the awareness about good oral health, which may be reflected as more regular visits to dentists.

Correlation analysis showed statistically significant association between age and happiness. The study results agree with the findings observed by Cooper et al.[14] It may be inferred that younger age groups are less exposed to tougher life challenges as they are constantly under parent's supervision and care. As the age increases, they tend to be more conscious about their career, family and get sensitized to the real-life situations, leading to stress and other social anxiety factors.

Fathers income and Family income was found to be significantly associated with the general happiness. This result is similar to the findings reported by Araya et al.[15] If the family is financially independent and has all the basic needs, then the members of the family tend to be happier and are expected to concentrate on their goals and ambitions and produce better outcome and satisfactory living.

Results of multiple linear regression analysis indicated that age, number of decayed teeth and family income were found to be significant predictors of happiness scores. This is in corroboration with results reported by Bowling et al.[16] As the age increases, the person is exposed to more real-life competitions, family and society expectations from them, they may be more concerned about the society. These internal and external conflicts generate stress and may make the person less happy. So, the younger age adults may be happier than their older counterparts.

Decayed teeth emerged as one of the predictors of general happiness, which is in corroboration with the findings reported by Alonge et al.[17] Decayed teeth have major

contribution to individual's general health and appearance. As being young adults, they are concerned with personal looks and presentation and hence the decayed teeth play a key factor in young adult's happiness.

Family income was one of the significant predictors of general happiness. These findings agree with the study conducted by Omari et al.[18] Being financially secure and independent has its own advantages. Individuals with basic necessities tend to perform better as he or she can concentrate on his or her career and ambitions. When the family is self-sustained to provide basic requirements to the children, they tend to perform better and be happy.

Results of the present study have to be viewed in the light of its limitations. Cross-sectional design of the study does not shed light on temporality. Since the study was conducted in one geographical area, the findings cannot be generalized and extrapolated. Employing questionnaires are fraught with inbuilt biases such as such as yea-saying/acquiescence bias, social desirability or faking good/bad (social desirability/deviation) biases. The findings of the present study have to be confirmed by further investigations to fully comprehend the implications of the same.

Conclusions

There is a definite need to inculcate optimal oral hygiene regimens and good healthy practices among college students. The importance of preventive dental care has to be highlighted to these young adults by decision and policy makers. This will ultimately lead to reductions in the disease burden of oral health problems in communities.

Declaration of Interest

There is no conflict of interest. As this is a self-funded project.

Sociodemographic characteristics		H1		H2		H3		H4		H	
		r- value	p- value	r- value	p- value	r- value	p- value	r- value	p- value	r- value	p- value
Age		**-0.090**	**0.033**	**-0.165**	**0.001**	**-0.106**	**0.012**	0.045	0.285	**-0.118**	**0.005**
Gender		-0.024	0.567	-0.038	0.363	-0.012	0.769	0.024	0.564	-0.015	0.729
Father	Education	**-0.098**	**0.020**	-0.016	0.698	-0.016	0.072	0.022	0.609	0.024	0.576
	occupation	-0.011	0.790	0.012	0.779	0.030	0.485	0.009	0.834	0.019	0.649
	income	**0.297**	**0.001**	**0.224**	**0.001**	-0.021	0.626	-0.074	0.079	**0.144**	**0.001**
Mother	Education	**0.135**	**0.001**	**0.145**	**0.001**	-0.008	0.848	-0.040	0.346	0.079	0.061
	occupation	-0.071	0.095	0.027	0.525	-0.049	0.251	0.037	0.388	-0.037	0.386
	income	-0.028	0.507	-0.003	0.936	-0.014	0.740	0.056	0.186	0.016	0.702
Family income		**0.233**	**0.001**	**0.190**	**0.001**	-0.32	0.444	-0.069	0.104	**0.105**	**0.013**
Address		-0.061	0.151	**-0.089**	**0.036**	-0.015	0.721	0.079	0.062	-0.015	0.715
Number of family members		**0.101**	**0.016**	0.009	0.827	-0.002	0.962	-0.019	0.646	0.029	0.492
Socioeconomic status		0.039	0.351	0.025	0.555	0.025	0.561	-0.019	0.661	0.024	0.564

Table 1. Correlation analysis of sociodemographic factors with Subjective happiness scale of the study participants. Significant at the level 0.05

Model	β	t	p-value	95% Confidence Interval	
				Lower Bound	Upper Bound
Age	**-0.104**	**-2.47**	**0.014**	**-3.130**	**-0.359**
DT	**-0.073**	**-1.75**	**0.050**	**-0.231**	**0.013**
Self-Reported Gingival Bleeding	0.075	1.79	0.073	-0.037	0.813
Family income	**0.089**	**2.10**	**0.036**	**0.014**	**0.406**
Mothers occupation	-0.043	-1.03	0.303	-0.121	0.038

Table 2. Multiple linear regression analysis of various factors done with happiness of study Participants. Significant at the level 0.05.

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