The Impact of Dental Neglect on Oral Health Among 16-30-Year-Olds in Dhulikhel, Kavrepalanchok, Nepal

Dr. Swagat Kumar Mahanta,[1] Dr. Manoj Humagain,[2] Dr. Chandan Upadhyaya,[3] Dr. Dilip Prajapati,[4] Dr. Ritesh Srii[5]

[1]Department of Community Dentistry, Kathmandu University School of Medical Sciences, Dhulikhel, Kavrepalanchok, Nepal;
[2]Department of Periodontology, Kathmandu University School of Medical Sciences, Dhulikhel, Kavrepalanchok, Nepal;
[3]Department of Oral and Maxillofacial Surgery, Kathmandu University School of Medical Sciences, Dhulikhel, Kavrepalanchok, Nepal;
[4]Department of Community Dentistry, Kathmandu University School of Medical Sciences, Dhulikhel, Kavrepalanchok, Nepal;
[5]Department of Oral Pathology, Kathmandu University School of Medical Sciences, Dhulikhel, Kavrepalanchok, Nepal.

ABSTRACT

Introduction: Oral health status is linked to oral health behaviour and dental neglect can be an important parameter for assessment of oral health status. Such evaluation will help in providing and planning appropriate health promotion activities to target population.

Objective: To assess socio-demographic variations in Dental Neglect (DN) and to determine the association between DN and oral health.

Methods: Analytical cross-sectional study done at dental hospital in Dhulikhel from September-November 2020. A sample of 327 aged 16-30 years were selected by convenience sampling technique. Demographic details along with DN were collected through the DN questionnaire. Both self-reported oral health and oral health status were assessed. Oral health status was determined by using the Oral Hygiene Index-simplified (OHI-S) and the Decayed Missing Filled index (DMFT).

Results: Majority (170, 52%) of the sample were from high DN group. A total of 187 (57.2%) of the participants rated their oral health status as all right. Higher number of participants were seen in the fair group of oral hygiene status. Significant correlations were found between education and OHI-S scores. Mean DMFT score was 3.6±1.6 which had higher mean Decayed (D) component as compared to the Missing (M) and Filled (F) components in the index.

Conclusion: Dental neglect is present among the study population and is associated with self-reported oral health status. Disparities were observed between the socio-demographic variables and DN. The DN Scale can be used in dental health promotion and also in evaluation of health promotion interventions.

Keywords: Dental neglect; oral health; young adults.

INTRODUCTION

A key measure of oral health behaviour is the assessment of dental neglect (DN). Standardised approaches to measurement of oral health behaviour can measure changes in oral health behaviour with time.[1] Dental neglect can be a predictor of poor oral health in children and adults.[2] It is important to assess the level of dental neglect in a population and to identify disparities to plan and implement health promotion activities.[3]

Adolescence has been identified as the time when personal oral health behaviour may be internalised and become habits.[2] A study of Norwegian adolescents found that 16.4% of those who failed to visit the dentist had decayed, missing, and filled teeth (DMFT) scores more than one standard deviation above the mean, compared with 3.3% of non-avoiders.[4]

The Dental Neglect Scale (DNS)[5] assesses the extent to which an individual cares for his/her teeth, receives professional dental care, and believes oral health to be more important. A six-item version of the DNS has been successfully used among adults in several populations across the world.

The aim of this cross-sectional study was to assess the association of dental neglect and oral health status. Secondary objectives being assessment of associations between education, income, and dental neglect.

METHODS

The present study was an analytical cross-sectional study conducted in the dental outpatient department (OPD) of Dhulikhel hospital in the months of September-November 2020. Ethical approval was obtained from the ethical board of Kathmandu University (Ref. 87/20). A convenience sampling technique was used in the study. Sample size was calculated using the formula Z^2pq/e^2; Where $Z = 1.96$ for 95% confidence interval; p = proportion of population with DNS score >15 = 75.8 as no similar study had been carried out in Nepal and Indore is one of the major cities of India which is large, populated, and similar to Kathmandu;[6] q = 1-p = 24.2; e = Maximal tolerable error = 5%. So, with this formula the sample size was calculated to be 281. Taking 5% non-response rate the sample size was chosen to be 330. Three participants refused to participate in the study. So, the final number of participants was 327. All the participants in the age group of 16-30 years who gave written consent were included in the study. Participants with any oral conditions or pathologies and oral and maxillofacial trauma which can lead to dental neglect were excluded. A self-administered questionnaire used in the study. Demographic details were collected. Income was used as a proxy for socio-economic status. Prasad's classification 2019 was used.[7] Prasad's classification takes into consideration of income as a variable and it is simple to calculate. This can be applied to assess the socio-economic status in both rural and urban areas. The Dental Neglect questionnaire developed by Thomson et al.[3] which is a pretested and validated questionnaire was used to assess the dental neglect. Reliability was tested by Skaret et al.[4] Each participant rated six statements using a Likert scale which ranged from one ("definitely yes") to five ("definitely no"). The statements were: "I keep up my home dental care"; "I receive the dental care I should"; "I need dental care, but I put it off"; "I brush as well as I should"; "I control snacking between meals as well as I should"; and "I consider my dental health to be important." DNS scores were calculated and a median split was created to form low and high dental neglect groups. Scores from 1-15 were categorised as low dental neglect and 16-30 was high dental neglect. Oral health status was recorded using Oral Hygiene Index-Simplified (OHI-S)[8] and Decayed Missing Filled Teeth Index (DMFT).[9] Descriptive and inferential statistical analyses were carried out in the present study. Unpaired t-test and ANOVA was used for statistical analysis. The statistical software IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA) was used for the analysis of the data. Significance was set at P <0.05.

RESULTS

Majority of the participants were male (222, 67.9%), in the age group of 24-30 years (204, 62.4%), had an intermediate certificate of education (152, 46.5%) and were from the Socio-Economic Status (SES) class 3 (131, 40.1%) (Table 1). No participants were from SES class 4 and 5 and hence were not included in analysis. It was observed that (170, 52%) of the study participants had high and (157, 48%) had low dental neglect. Females scored higher dental neglect scores than males however the difference was not statistically significant. Unpaired t-test was used in the comparison of age groups, dental neglect was observed to be significantly higher among participants aged 16-23 years (15.64±2.6, P <0.05) as compared to the older age group.

Table 1: Demographic characteristics of study participants.

	n (%)
Gender	
Male	222 (67.9)
Female	105 (32.1)
Age groups	
16 – 23	123 (37.6)
24 – 30	204 (62.4)
Educational status	
Illiterate	16 (4.9)
High school certificate	67 (20.5)
Intermediate certificate	152 (46.5)
Graduate/ postgraduate	92 (28.1)
Socio-economic status	
SES class 1	113 (34.6)
SES class 2	83 (25.4)
SES class 3	131 (40)

Table 2: Comparison of study participants according to dental neglect scale.

	Mean±SD	P value
Gender		
Male	15.57±2.5	0.68
Female	15.69±2.3	
Age groups (years)		
16 – 23	15.64±2.6	<0.05
24 – 30	14.58±2.3	
Educational status		
Illiterate	15.56±1.7	0.89
High school certificate	15.45±2.4	
Intermediate certificate	15.71±2.2	
Graduate/ postgraduate	15.55±2.7	
Income		
SES class 1	15.81±2.2	0.5
SES class 2	15.59±2.3	
SES class 3	15.44±2.7	

Table 3: Comparison of Mean OHI-S and DMFT scores according to dental neglect.

	OHI-S	DMFT
Low dental neglect	2.38±0.7	3.45±1.6
High dental neglect	2.60±0.7	3.74±1.7
P value	0.005	<0.05

Education did not have a significant impact on dental neglect as Intermediate certificate participants scored higher DNS score (15.71±2.2) but the difference was not statistically significant. In the socio-economic status it was observed that the participants who were of higher socioeconomic status reported higher mean dental neglect (15.81±2.2, Table 2).

Upon clinical examination, participants with higher dental neglect had significantly higher mean OHI-S (2.60±0.7) and DMFT scores (3.74±1.7, P <0.05) as compared to the low dental neglect group (Table 3).

DISCUSSION

Dental Neglect is a novel approach to assess the oral health behaviour of a population. The present study showed that majority of the participants were from the high dental neglect group (52%). The mean dental neglect score for the entire study population was 15.61±2.4. The mean scores reported by Thomson et al.[5] and Mc Grath et al.[1] were 13±3.6 and 14.81±3.62 respectively. The possible reason could be that majority of the study population had lower education and belonged to lower socio-economic status. The responses for the Dental Neglect Scale, "You brush as well as you should", "you do not receive the dental care that you should", "You require dental care but you put it off", "You keep up your dental care", from the present study were similar to the findings reported by McGrath et al.[1] Females had higher dental neglect than males. This finding is in accordance with the study done by Mathur et al.[10] whereas Thomson et al.[5] and Jamieson et al.[3] found males to have higher dental neglect. This finding maybe attributed to the increased apprehension and fear among females towards dental treatment which in turn may lead to increased dental neglect. The present study found that the mean dental neglect was higher in the age group of 16-23 years. Similar finding was reported by McGrath et al.[1] The score reported in their study for this age group was higher than all other age groups. Coolidge et al.[2] also reported that dental neglect was high among the younger age groups as compared to the older individuals. This may be due to an assumption that, oral health is neglected in younger ages and as age increases the individuals become more aware of their oral health. The finding that dental neglect decreased as the income increased reported by Thomson et al.[5] is contrary to the present study.

The mean OHI-S score and the mean DMFT was found to be significantly higher in the high dental neglect group. The study done by Locker et al.[5] showed higher plaque scores and higher decayed surfaces in the study population. The limitations of the present study are that a convenience sampling technique was used, for such a study a stratified random sampling technique would have been more appropriate. A further follow-up study with a larger, representative sample of the population would be more ideal to further evaluate the findings of this study. The sample used is of one geographical area and thus the results may not be generalisable to the entire population. Since the study was self-reported and the participants were explained about the study in detail, there are chances of incorporation of social desirability bias.

CONCLUSION

The study showed that differences are present among study participants with respect to demographics, education, and socio-economic status. It was interesting to find that adolescents had higher dental neglect than young adults. As found in previous research methods based on self-reports are both effective, less costly, and also less invasive compared to clinical examinations. The dental neglect scale used in the study can be used to assess the attitude of the individuals towards their oral health. Based on the amount of dental neglect, health interventions can be planned. It can also be useful for policy makers to design strategies for appropriate and effective interventions towards helping the population.

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