DOI: https://doi.org/10.53350/pjmhs22163199

ORIGINAL ARTICLE

Assessment of Dental Caries among adults of different Socioeconomic groups

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ABSTRACT

Background: Dental caries is one of the leading dental diseases worldwide. Its towering prevalence in all age groups is worrisome and it lies in the top ten most common chronic health conditions. Interplay of biological, environmental, social, and behavioral elements forms its etiology. Recently, there has been growing research which has looked at the environmental and social factors that impact the oral health of people in different age groups.
Aim: To determine the frequency of dental carries among participants belonging to different socioeconomic groups.
Methods: It was adescriptive cross-sectional study. The study was carried out at Dental department of Begum Haseena Memorial Medical Center, Wah Cantt from 15th February 2019 till 15 August 2019. Three hundred participants (36 men and 264 women) aged 19-60 years were included through non-probability consecutive sampling.
Results: Total of 300 patients belonging to different socio-economic groups were included in study. Most of the respondents were from lower SES which comprised of 74% of the total sample size. Highest number of respondents fell in the age range of 28-35 i.e., 37%. SES was assigned by calculating per capita income through total income from all sources divided by number of households dependent on that income. Interviews were conducted and statistical analysis was done using correlation and multiple linear regression which revealed significant association between SES and DC ($p < 0.05$).The prognosis of dental health diseases can be predicted by using socioeconomic status as an indicator.
Conclusion: Prevalence of dental health diseases can be decreased through cost effective prevention strategies which should pivot around spreading awareness among masses about the undesirable outcomes of oral health diseases and educating them about the importance of good oral hygiene.
Keywords: Dental caries, Adults, Socio-economic status

INTRODUCTION

Dental caries is an infectious health condition which is preventable and treatable. It lies in the top ten most common chronic health conditions[1]. Its etiology depends on social, environmental, biological, and behavioral elements[2]. Destitution, low socioeconomic status (SES), deficient education and poor quality of life are main factors causing it[3]. Fluorides, xylitol chewing gums, buffers in dairy products, no sugars in meal have resulted in better oral health4. The extent of tooth decay is the index of primary dentition/permanent dentition (DMFT). It is the number of decayed, filled or extracted teeth. Presence of tooth decay can be done by counting the number of edentulous population[5].

The data available in this field is very limited and little research has been carried out. WHO established a Global Data Bank in 1969 on oral health for data collection from all over the world. In 1982, it was planned by WHO and FDI that a DMFT value below 329 should be targeted for the population having an average age of 12 years.US $298 billion is spent on oral health issues annually which makes 4% of the global health problem[6].

Streptococcus mutans is usually responsible but lactobacillus is also a cause of caries. *S. mutans* usually colonizes oral cavity of children. The general route of this organism is through the mouth of caregiver by sharing foods and utensils[7]. Lactobacilli are less important cause of caries as they adhere inefficiently to smooth enamel of teeth. Hence lactobacilli are thought to help in worsening of disease and not initiating it[8]. Vitamin A and D deficiencies and protein energy malnutrition cause erosion of enamel and atrophy of salivary glands reducing the release of salivary buffer to decrease mouth acidity[9]. Bacteria on invading dental plaque, cause anaerobic metabolism of sugars with release of organic acids causing demineralization of enamel and dentine[10]. Carvalho and Schiffner showed in a study that among adults, 33–85% brushed teeth twice daily with fluoride toothpaste[11].

Received on 02-09-2021
Accepted on 12-02-2022

The objective of the study was to determine the frequency of dental carries among adults of different socioeconomic groups.

MATERIALS AND METHODS

It was a descriptive cross-sectional study. After approval from Institutional Ethical Review Board, the study was carried out at Dental Department of Begum Haseena Memorial Medical Center, Wah Cantt from 15th February 2019 till 15 August 2019. 300 participants (36 men and 264 women) aged 19-60 years were included through non-probability consecutive sampling. Male and female patients capable of giving consent and with diagnosis of dental caries were included. Patients having cognitive impairment and life-threatening diseases were excluded. After obtaining approval from the Hospital Ethics Committee, sample population was taken from the dental outpatient department. Informed consent was taken from each patient. The demographic details (age, education, occupation, socio-economic status, place of residence) of the patient were collected on a pre-designed proforma. Dental caries were evaluated by clinical examination and by using the decayed, missing and filled teeth index (DMFT). SPSS version 17 was used for data analysis. The quantitative variables of the study like age, DMFT score were presented as mean and standard deviation. The qualitative variables like education, income, family structure, profession were presented as frequencies and percentages. Effect modifiers like age, education, income, occupation and family structure were stratified. Post stratification chi- square test was applied; keeping p-value ≤0.05 was considered significant.

RESULTS

Out of 300 respondents, 96 were Matric pass, 35 were FA pass, 24 were FSc, 57 were graduates, 15 were post graduates and 73 were uneducated. It must be mentioned here that 73(24.3%) uneducated subjects who were a part of the sample population, had dental caries. Out of 300 respondents, per capita income of 74 % was less than 40,000 per month, 20% had per capita income of

40,000-60,000 per month and 5.66% had greater than 60,000 per month. The minimum DMFT score of the participants was 0, maximum was above 10 whereas majority (n= 142) of respondents' score fell in the range of 6-10 mean. Out of 300 participants, only 98(32.67%) had a DMFT score of 0, out of which 14 belonged to upper socioeconomic group, 71 belonged to middle socioeconomic group and 13 belonged to lower socioeconomic group. In the age category of 19-27 years out of 110, in 77, dental caries were present on examination, in 28-35 years out of 111, in 89 participants, dental caries were found on examination. In 36-44 years out of 45 in 37, dental caries were present, in 45-52 out of27, in 19 dental caries were found on examination and in age category of 53-60, out of 7, dental caries were found in 4 participants on examination. Out of 264 female participants, 203 had dental caries on examination and out of 36 male patients, 23 had dental caries. In 96 Matric pass participants, 70 had dental caries on examination, out of 59 FA/FSc pass participants, in 42, dental caries was present, out of 57 participants who were graduated, 33 had dental caries on examination. Out of 15 participants who had postgraduate degrees, 8 had dental caries and all participants among the 73 uneducated ones were found to have dental caries on examination. P-Value is insignificant. In less than 40,000/month category out of 222 participants, in 198, dental caries were found on examination. In 40,000-60,000/month category, out of 60 participants, in 26, dental caries were present and more than 60,000/month category out of 18 participants, in 2, dental caries were present. P-Value is insignificant.

Table 1: Post Stratification of dental caries (DC) on the basis of socioeconomic status (SES) of participants (n=300)

	Presence of DC		Total
	Yes	No	
Lower SES (Per capita income < 40,000 /month)	198	24	222
Middle SES (Per capita income 40,000- 60,000/month)	26	34	60
Upper SES (Per capita income > 60,000/month)	2	16	18
Total	226	74	300

P value 0.046

DISCUSSION

Schwendicke studied the association between increased risk of oral diseases in adults who were less educated and had low monthly income[12]. Our study also provides a systematic correlation between dental caries and SES, age, gender and education of its participants. Worldwide, a lot of studies have been done to assess oral health of children, adolescents and adults but the focus on the elderly population has been somewhat narrow[8].In our study, the participant's education, earnings and the number of subjects dependent on that earning per household have been used to indicate the SES as these factors show an individual's economic and social standing[13].

SES is also regarded as an important indicator in assessing risk for dental caries. Another study showed that presenting complaints of tooth ache, decayed teeth, unreplaced extracted teeth and periodontal illnesses were more common in people who belonged to lower socioeconomic status[14].

CONCLUSION

The prognosis of dental health diseases can be predicted by using SES as an indicator. Level of education, per capita earning of a family and type of household are the factors highlighted and their complex interplay has a direct effect on development of dental health issues. Prevalence of dental health diseases can be decreased through cost effective prevention strategies which should pivot around spreading awareness among masses about the undesirable outcomes of oral health diseases and educating them about the importance of good oral hygiene. The target population should be those who have a low educational status and income. In addition, this can be followed up by research to establish the causal link between SES and dental health issues and also to assess the effectiveness of focused intervention.

Conflict of interest: The author declares no conflicts of interest.

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