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ORIGINAL ARTICLE

The State of Oral Health and Dental Condition in Sindh's Rural Areas

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ABSTRACT

Aims: To ascertain the prevalence of dental caries using DMFT scores, to characterize the oral health status and associated factors of patients attending the Nasirabad Rural Health Center Dental Clinic, and to develop tools and strategies for collecting data for rural oral hygiene statistics. The district collects baseline data to aid in the improvement of dental health initiatives in rural Sindh.

Design: From August 2018 to May 2019, convenience sample research was undertaken. Patients aged 15 or older met the requirements. Adult Oral Health Assessment Form (WHO) was used to gather data on oral health examinations. The Nasirabad Rural Health Centre's Dental Unit used a basic mouth mirror and an explorer to interview and clinically examine all subjects. The tools are sterile. On proformas collected biographic and DMFT data. Microsoft Excel 2016 was used to enter and analyses data. The sample comprised both genders and ages. In this study, dentists calculated the mean DMFT score. Items from an adult oral health questionnaire were modified and categorized as Demographics and Clinical evaluation. Demographic data included the patient's age and gender. The dentition was examined for healthy, decaying, missing, and filled teeth (Ft).

Results: Microsoft Excel was used to organize and analyses the data. Males made up 41% of the population, while females made up 59%. Caries prevalence was 96 percent overall, with 204(22%) having a low caries status, 250(26%) having a moderate caries status, and 451(48%) having a high caries status. The mean DMFT score was 11.1424017, the standard deviation was 8.0937, and the Significant Caries Index (SiC) was 20.99363057 based on the DMFT value and the number of participants.

Conclusion: The research population had poor oral hygiene and dentition. The mean DMFT Score was 11.1424017 and the frequency of dental caries was 96%, with a female bias. Pakistan is a poor nation with little dental health resources and awareness. Providing public oral health education and motivation, water fluoridation, and adopting newer research-based treatments of remineralization of dental caries must be prioritized. It is a major job for the health profession and the government. This issue is critical for dental health and requires immediate care.

Keywords: Dental Caries, DMFT Index, Oral Health, Prevalence, Rural Areas

INTRODUCTION

Oral health, like people's opinions and socioeconomic status, is a highly personalized concept. Individuals' views of their oral health and the attitudes of dentists who provide dental care in rural public hospitals have a major influence[1]. Oral health, as defined by the World Health Organization (WHO), is the "condition of being free of chronic orofacial pain, oral sores, dental caries and tooth loss, periodontal disorders, or other factors affecting the oral cavity's health and function[2]". Chewing, speaking, aesthetics, and social contact are all negatively affected by oral disorders. Psychological state is also negatively affected. Diabetes and coronary heart disease are exacerbated by poor oral health[2,3,4].

Oral health problems are more frequent in emerging and developed nations' rural areas. Nasirabad is a seat in the district of Qambar Shadadkot in the Pakistani province of Sindh. According to the 2017 census, this region's population is 151,500. Residents suffer a slew of medical issues, including tuberculosis and Hepatitis C Virus (HCV) infection, in addition to a high prevalence of animal bites, notably dog bites. There is just one Rural Health Center in this region, which is managed by Integrated Health Services. In nations such as Pakistan, rural healthcare is largely focused on tuberculosis, polio, maternal and child health, and trauma, with little or no attention paid to dental care services in certain regions. While oral health is a vital part of overall health and is critical for overall well-being. Serious diseases such as oral cancer have been linked to poor oral hygiene, dentition status, chronic periodontitis, cigarette use, and other risk factors.

Dentist visits are less frequent in those who have financial issues with dental care. Patients' overall health is favorably associated with their social class and education, according to researchers. As respondents' social class rises, they are more likely to describe their overall health as "good" or "excellent." Low-income people are more prone to have dental problems, according to Scarroth[5]. There are several challenges to dental treatment in backward regions like Nasirabad because of this service coverage is typically restricted. Sindh, Pakistan, has limited statistics on oral health and dental problems.

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Our goals were to develop a method and strategy for collecting oral health data in rural areas of Pakistan, and to define the oral health status and associated variables among the Nasirabad population.

MATERIALS AND METHODS

From August 2018 to May 2019, a descriptive cross-sectional study was conducted using convenience sampling after approval from IRB. Patients aged 15 years or older who attended the Nasirabad Rural Health Center in Qambar Shadadkot, Sindh, Pakistan, satisfied the qualifying criteria. The World Health Organization's Adult Oral Health Assessment Form was used to collect data on oral health examinations. A single dental surgeon interviewed and clinically evaluated all participants at the Nasirabad Rural Health Centre's Dental Unit, using a simple mouth mirror and an explorer. The instruments have been sterilized. The Deteriorated, Missing, or Filled Teeth (DMFT) Index was used to quantify caries exposure using 32 teeth and was calculated according to WHO (World Health Organization) standards. Proformas were used to collect biographic and DMFT data. Microsoft Excel 2016 was used to enter and evaluate data in terms of descriptive analysis and frequency. The sample included members of each gender and age group. Dentists quantified dental caries prevalence and the mean DMFT score. A survey was constructed by modifying items from an adult oral health questionnaire and categorizing them as Demographics and Clinical assessment. The patient's age and gender were included in the demographic information. Clinical examinations were performed on the dentition, which included healthy, deteriorating (Dt), missing (Mt), and filled teeth (Ft).

RESULTS

Nine hundred and forty one individuals aged 15–49 and 50+ years were examined at the Dental Clinic of RHC Nasirabad throughout the research period based on inclusion criteria. 386 males and 555 women were present. The frequency of dental caries by age group is shown in Table 1 Prevalence of dental caries in relation to age n=941. 712 (76%) of the 941 patients were between the ages of 15 and 49, consisting of 273 men and 439 females, while 229 were over 50, consisting of 113 males and 116 females. The mean DMFT value for individuals aged 15–49 is 8.468225, while those aged 50+ have a mean DMFT value of 2.674176. The prevalence of dental caries by gender is shown in Table 2 Prevalence of dental caries in relation to gender n=941. There were 386 males and 555 females in the study, with an average DMFT value of 4.568385 and 6.574017, respectively. According to the DMFT Score Scale, 36(4%) of the 941 patients had a 0 DMFT Score, 204(22%) had a 1–4 DMFT Score, 250(26%) had a 5–9 DMFT Score, and 451(48%) had a score of greater than 9. As shown in Table 3 DMFT score based on DMFT scoring scale, the mean DMFT Score for all patients was 11.142, with an 8.0937 standard deviation and a 20.993 significant caries index (SiC)

Table 1 Prevalence of dental caries in relation to age n=941

Age Group	n	Male	Female	Mean DMFT Value
15 – 49	712 (76%)	273	439	8.468225
50+	229 (24%)	113	116	2.674176

Table 2 Prevalence of dental caries in relation to gender n=941

Gender	Total No. of Patients (%)	Mean DMFT Value
Male	386 (41%)	4.568385
Female	555 (59%)	6.574017

Table 3 DMFT score based on DMFT scoring scale

DMFT Score Scale			
0	1 – 4 (Low Caries Status)	5 – 9 (Medium Caries Status)	>9 High Caries Status
36 (4%)	204 (22%)	250 (26%)	451 (48%)

Table 4 DMFT Score with Mean DMFT & sic

DMFT 0	n	DMFT 1 – 4	n	DMFT 5 - 9	n	DMFT > 9	n	Mean DMFT	SiC	St. Deviation
0	36	1	32	5	53	10	21	11.1424017	20.99363057	8.0937
		2	47	6	68	11	37			
		3	87	7	52	12	29			
		4	38	8	33	13	15			
				9	44	14	28			
						15	23			
						16	37			
						17	19			
						18	43			
						19	41			
						20	18			
						21	14			
						22	14			
						23	21			
						24	17			
						25	17			
						26	13			
						27	15			
						28	10			
						29	4			
						30	3			
						31	7			
						32	5			
	N= 36		N= 204		N= 250		N= 451			

DISCUSSION

Dental caries is a persistent infection of the tooth's hard tissues that is characterized by alternating phases of demineralization and remineralization and can eventually result in cavitation and tooth loss [6]. Biological and social factors such as high levels of mutans streptococci bacteria, prior caries experience, poor dental hygiene, sugar consumption, insufficient fluoride exposure, reduced salivary flow, and socioeconomic hardship all impact the caries process in the oral cavity[7].

According to our survey, dental caries is now prevalent at 96 percent, with a mean DMFT of 11.1424017. It should be emphasized that early enamel lesions were not considered carious lesions in this study, suggesting that the caries process is active and that such teeth can be re-mineralized with adequate preventive measures. The caries experience in the investigated group was evaluated by age and gender, revealing a feminine preference of 59 percent females and 41% men. The DMFT Index and the SiC Index[8] are both traditional markers of caries incidence. On the other hand, the SiC Index can give critical supplementary information regarding the impact of caries on the most vulnerable patients[9]. At the age of 15, Marthaler et al[8] discovered a SiC of 4.31. The SiC concentration measured in this investigation was 20.99363057, which was rather high. This is different from Bahawalpur[10], where the prevalence of dental caries was 52% among males and 48% among females. These may be less focused on women in remote regions to maintain their dental health. However, the results are comparable with a research carried out by Mosha HJ and others[11], which reveals a greater female prevalence of caries.

A cross-sectional research in a hospital revealed 78.2%[12] of total prevalence dental caries in Bahirdar City, 21.8%[13], 78% and DMFT 2.93%[14]. The frequency of caries and DMFT in 2005 was 89.2 and 13.24 respectively in Al-Ahsa[15]. In his 2012 study, Al-Shehri[16] showed a higher DMFT estimate of 18.6 for senior residents of a medium age 72 years in residential houses in Riyadh. The increasing prevalence of caries in our studies can be reflected in the fact that people in rural Pakistan pay little attention to their women's health and give a major focus on the health of their male children, part of whom could be due to attitudes towards the dominant male society in rural Pakistan. Another reason that might explain for a high caries prevalence could be related to low socio-economic conditions, because most participants were farmers and could not maintain their overall hygiene for two or three days. Rural people do not generally seek dental care unless they have significant pain, which is not eased by the self-medication, due to a lack of dental knowledge of overall well-being.

CONCLUSION

The research population had poor oral hygiene and dentition. The mean DMFT Score was 11.1424017 and the frequency of dental caries was 96%, with a female bias. Pakistan is a poor nation with little dental health resources and awareness. Providing public oral health education and motivation, water fluoridation, and adopting newer research-based treatments of remineralization of dental caries must be prioritized. It is a major job for the health profession and the government.

Conflict of interest: Nil

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