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Oral Health Status among Postmenopausal Women Attending Tertiary Hospital of Bharatpur, Nepal

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ABSTRACT

Introduction: Menopause is a biological process occurring in middle aged women causing changes in the level of circulating hormones. Changes in the oral flora, oral mucosa and decrease in bone mineral density leads to many menopauses related oral findings.

Objective: This study was conducted with the objective to assess the oral health status of postmenopausal women visiting tertiary health care centre in Bharatpur, Chitwan.

Methods: Analytical cross-sectional study was conducted among 224 postmenopausal women attending dental OPD in a tertiary health care centre. Comprehensive oral examination was done where CPITN index was used to record periodontal health and DMFT index was used to record caries experience of the patient. Data entry was done in Microsoft Excel and statistical analysis was done using SPSS version 20.

Results: Total 224 patients were examined with age range of 45 to 78 years and the mean age of 56.71 years. 113 study participants comprising 50.4%, showed supra or subgingival calculus followed by gingival bleeding in 54 (24.1%). Mean decayed score among study participants was found to be 2.71±2.85, mean missing score was found to be 4.29±7.83.

Conclusion: Mean score for missing teeth suggestive of sequel of dental caries and periodontitis was found higher among the post-menopausal women followed by mean decayed score. Dental caries score was high probably due to dryness of mouth and other predisposing factors.

Keywords: CPITN; DMFT; postmenopausal.

INTRODUCTION

Menopause is a natural biological process which is diagnosed once a woman has gone through twelve months without a menstrual period. It occurs in middle aged women from 45-55 years of age, where circulating sex hormone level changes leading to several clinical as well as psychological effects thereby changing the quality of life.[1] This period is also linked with increased susceptibility to oral diseases due to decrease in estrogen hormone.[2] Due to decrease in the salivary flow rate and altered salivary composition, there are increased chances of development of several oral conditions.[3] Also,

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menopause is considered to be a risk factor for primary osteoporosis, reducing the bone mineral density, thereby contributing to periodontal diseases.[4,5]

Menopause is an inevitable condition where several oral health related issues arise due to hormonal changes including thinning of oral mucosa, affects in intraoral tissues, changes in oral flora and decrease in bone mineral density leading to dry mouth, burning mouth, gingival and periodontal diseases.[2] The purpose of this study was to assess the caries status and periodontal health of postmenopausal women visiting tertiary health care centre in Bharatpur, Chitwan.

METHODS

A cross-sectional study was conducted among 224 postmenopausal women visiting College of Medical Sciences – Bharatpur from October 2023 to March 2024. Ethical approval was obtained from College of Medical Sciences – Institutional Review Committee (Reference number COMSTH-IRC/2023-50). Women attending dental OPD aged 45 years old and over, who have gone through twelve months without a menstrual period and who gave consent for the study were included in the study. However, regularly menstruating women who refused to give consent to the study were excluded. Purposive sampling technique was used for data collection. The participants were explained about the purpose of the study and also given a consent form prior to the study.

Sample size was calculated using the formula: $N = Z^2pq/e^2$ where $Z = 1.96$; p = prevalence of periodontitis in postmenopausal women = 17.8^2 and $e = 5\%$. Therefore, sample size was calculated to be 224.

Each study participant received a comprehensive oral health examination. Study tool comprised of two sections: Patient history and periodontal and dental examinations. Patient history consisted of information on medical and dental history, deleterious habit history like tobacco consumption, age of menarche, age of menopause, number of pregnancies, number of births, years of oral contraceptives used and use of hormone replacement therapy. Periodontal examination was done using Community Periodontal Index of Treatment Needs (CPITN) Index using mouth mirror and CPITN probe. The entire dentition was divided into six sextants and each sextant was assigned a score for assessment of periodontal health and treatment needs. Code X was assigned when only one tooth or no teeth are present in the sextant, Code 4 for pathological pocket of 6 mm or more, Code 3 for pathological pocket of 4-5 mm, Code 2 for presence of supra or subgingival calculus, Code 1 for gingival bleeding after gentle probing and code 0 for no signs of disease. Treatment needs 0 for no need of treatment, 1 suggesting need to improve personal oral hygiene, 2a for scaling and

improving personal oral hygiene, 2b for scaling and root planing along with improving personal oral hygiene and 3 for complex surgical treatment. Dental caries status was evaluated using Decayed Missing and Filled teeth index using mouth mirror and CPITN index. Total lifetime caries experience of the patient was calculated by taking sum total of decayed, missing and filled teeth.

Data was coded and entered in Microsoft Excel and statistical analysis was done using Statistical Package of Social Sciences Version 20. Descriptive statistics was calculated for categorical variables using frequency and percentage. For numerical data, mean and standard deviation were calculated. Independent t-test was used to find statistically significant difference between dry mouth and DMFT/CPITN score.

RESULTS

Demographics

Total of 224 patients were examined whose age ranged from 45 to 78 years and the mean age was 56.71±7.38 years. The deleterious habit history included tobacco consumption history which showed that 163 (72.8%) of the study participants were non-smokers while 61 (27.2%) were either current or former smokers. History of oral hygiene habit showed that 202 (90.2%) of them brush only once daily whereas 22 (9.8%) brush twice daily. Similarly, only 14 (6.3%) floss regularly whereas 210 (93.8%) of the participants never floss their teeth. Medical history showed that majority of the participants were with no relevant medical history i.e. 139 (62.1%) followed by hypertension in 39 (17.4%), hypothyroidism in 13 (5.8%), diabetes mellitus in 11 (4.9%).

Table 1: Characteristics of study participants.

Variables	Minimum	Maximum	Mean ± Standard deviation
Age	45	78	56.71±7.38
Age of menarche	11	17	14.75±1.65
Age of menopause	40	55	48.85±4.33
Number of pregnancies	1	7	3.09±1.17
Number of births	1	7	2.6±1.17
Reproductive years	24	44	34.09±5.14

Figure 1 shows the distribution of study participants based on their findings on dry mouth. It was found that 90 (40.2%) of the study participants had findings of dry mouth present.

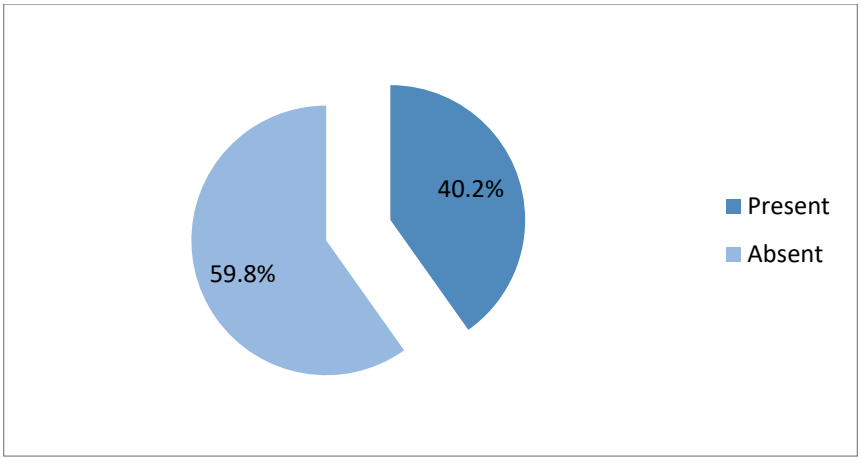

Figure 1: Distribution of dry mouth findings among study participants.

Table 2: Decayed, Missing and Filled teeth of the study participants.

	Decayed	Missing	Filled	DMFT Score
Mean ± SD	2.71±2.85	4.29±7.83	1.37±1.86	8.33±7.82
Minimum	0	0	0	0
Maximum	15	32	10	32

Table 2 shows that the mean decayed score among study participants was found to be 2.71±2.85, mean missing score was found to be 4.29±7.83 and mean filled score was found to be 1.37±1.86.

Table 3: Community Periodontal Index of Treatment Needs score among study participants.

CPITN Score	Frequency	Percentage
Code 0, Healthy	15	6.7%
Code 1, Gingival bleeding	54	24.1%
Code 2, Supra or subgingival calculus	113	50.4%
Code 3, Pathological pocket of 4-5 mm	42	18.8%
Code 4, Pathological pocket of 6 mm or more	0	0.0%

Table 3 shows the maximum CPI score among the study participants showing 113 (50.4%) with supra or subgingival calculus followed by gingival bleeding in 54 (24.1%) participants and pathological pocket of 4-5 mm in 42 (18.8%) participants. Therefore, 54 (24.1%) of the patients have a need to undergo scaling and improvement in their oral hygiene and 42 (18.8%) of the patients have the need to undergo scaling and root planning.

Table 4: Dry mouth and DMFT and CPITN score

	Dry mouth	N	Mean	Std. Deviation	p value
DMFT	Absent	134	8.87	8.97	0.21
	Present	90	7.54	5.67	
CPITN	Absent	134	1.63	.907	<0.001*
	Present	90	2.09	.554	

*Statistically significant, independent t-test applied

Independent t-test was done to find the association between dry mouth and DMFT score as well as CPITN score. It was found that there was statistically significant difference between CPITN score and dry mouth findings.

DISCUSSION

Women are more susceptible to oral diseases at various stages of their lives due to hormones, including menopause.[6,7] These oral changes are associated with reduced salivary flow, change in salivary composition and alterations in oral microorganisms. Current study shows that 90 (40.2%) participants which is a majority of participants had dry mouth findings along with alterations in taste sensation. Saliva has a major role in breaking down the food components which is processed by the taste buds and when salivary flow decreases due to lack of estrogen, the taste has been found to be altered.

Postmenopausal patients have shown a higher prevalence of dental caries and increase in number of missing teeth.[2,5]Current study has also shown that the mean missing score of the study participants is highest which is. 4.29 followed by mean decayed score (2.71) and mean filled score (1.37). Study by Alves et al. shows that nearly all women had at least one missing tooth, the number being higher in post-menopausal women which is 10.8. The difference was found in missing teeth among the two groups of women including pre and post-menopausal suggesting a likely effect of menopause on loss of teeth.[5]

Full mouth clinical examination for periodontal health status was done using CPITN index which revealed 113 patients comprising of 50.4% showed supragingival or subgingival calculus followed by pathological pocket of 4-5 mm. Statistically significant differences was found between the periodontal findings and dry mouth findings similar to many studies with complains of persistent bad breath, inflamed gingiva, mobile and sensitive teeth.[5,8] Gingival tissues are highly susceptible to hormonal changes therefore their ability to combat minor infections and maintain a balance is compromised thereby causing gingival and periodontal diseases.

CONCLUSIONS

Missing teeth suggestive of sequel of dental caries and periodontitis was found to be greatest among the post-menopausal women. Hormone related changes in the oral cavity causes significant changes in the oral tissues contributing to periodontal diseases, dryness in mouth and other oral findings. Dental caries is also found to be higher due to dryness of mouth and other predisposing factors. Regular follow up and monitoring is the key to maintenance of good oral health.

Conflict of Interest: None

NJHS

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