

## Influence of Menopause on Oral Health: A Cross Sectional Study

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### ABSTRACT

**Purpose:** Oral and dental health in post menopausal women is a rising concerning issue to the stomatologists. Though many clinical trials are conducted in the past, there is insufficient evidence regarding their correlation. Moreover clinically controlled studies are not available. Hence the present study was undertaken to assess the oral manifestations in post menopausal women and compare them with age matched male subjects serving as controls.

**Materials and methods:** 100 post menopausal women and 100 age matched men were included in the present study. Each individual was subjected to a preformed questionnaire [Table-1] which was divided into two sections namely oral symptoms and oral findings. Oral symptoms included history about dry mouth, burning mouth, altered taste perception, orofacial pain and dysphagia. Oral findings included xerostomia, DMFT status, periodontal status, halitosis, bald tongue, ulcerations and red & white lesions. The results thus obtained were subjected to statistical analysis.

**Results:** Oral symptoms were more prevalent in post menopausal women compared to males, though were statistically insignificant. However oral findings showed greater prevalence in men, except for xerostomia, compared to post menopausal women [statistically insignificant]. Age wise comparison of oral symptoms was statistically significant as the age progressed. Oral findings were statistically insignificant with respect to age.

**Conclusions:** The findings of the present study conclude that oral symptoms were more prevalent in post menopausal women compared to men. Age could play an important role in the prevalence of oral symptoms and findings irrespective of gender.

**Key words:** burning mouth; menopause; oral health; xerostomia.

### INTRODUCTION

Menopause literally means “without estrogen” and is indicated by cessation of menstruation. Natural menopause is defined as a spontaneous cessation of menstruation for 12 consecutive months at 45-55 yrs age. [1,2]

Menopause initiates a host of physiological changes. Alterations in oral health of post menopausal women are a rising concern to stomatologists. Xerostomia, burning mouth, dysgeusia, chronic orofacial pain, periodontal

problems are some of the few oral problems reported. However, only a few scientific trials are available which have evaluated the oral manifestations in post menopausal women. The present study evaluates the oral manifestations in post menopausal women and compares them with age matched males serving as controls.

#### **Aims and objectives**

1. To assess the incidence and severity of oral manifestations in postmenopausal women.

2. Compare the oral manifestations of post menopausal women with age matched men.
3. To compare the oral manifestations based on age groups irrespective of gender.

## MATERIALS AND METHODS

100 post menopausal women and 100 age matched men were included in the present study. Inclusion criteria included for women were that the individuals who have stopped menstruating for at least 12 consecutive months. Individuals with systemic problems which usually contribute to oral problems/symptoms like diabetes mellitus, endocrinal disorders, renal disorders, anemia and neurological disorders were excluded from the present study.

**Table-1: Questionnaire proforma used in the present study**

PROFORMA		
	PRESENT	ABSENT
<b>ORAL SYMPTOMS</b>		
A) dry mouth		
B) burning mouth		
C) altered taste		
D) oro-facial pain		
E) difficulty swallowing		
<b>ORAL FINDINGS</b>		
A) xerostomia		
B) DMFT		
C) periodontal status		
D) halitosis		
E) bald tongue		
F) ulcerations		
G) red and white lesions		

Each individual was subjected to a preformed questionnaire [Table-1] which was divided into two sections namely oral

symptoms and oral findings. Oral symptoms included history about dry mouth, burning mouth, altered taste perception, orofacial pain and dysphagia. Oral findings included xerostomia, DMFT status, periodontal status, halitosis, bald tongue, ulcerations and red & white lesions. The results thus obtained were subjected to statistical analysis.

## RESULTS

Post menopausal women showed higher prevalence of oral symptoms compared to males, though were statistically insignificant [Table 2&3]. However oral findings were more prevalent among men compared to post menopausal women except for xerostomia [statistically insignificant]. Age wise comparison of oral symptoms was statistically significant as the age progressed. Oral findings were statistically insignificant with respect to age [Table 4].

**Table-2: Incidence of oral symptoms and oral findings in females and males**

Oral parameters	Females	Males
<b>Oral symptoms</b>		
Dry mouth	56%	49%
Burning mouth	65%	59%
Altered taste perception	57%	48%
Oro facial pain	48%	26%
Dysphagia	42%	30%
<b>Oral findings</b>		
Xerostomia	52%	48%
DMF teeth	96%	97%
PDL status	100%	93%
Halitosis	98%	99%
Bald tongue	33%	36%
Ulcerations	16%	26%
Red & White lesions	27%	28%

**Table-3: Comparison of oral symptoms and findings between males and females**

TABLE :3 GENDER WISE COMPARISON							
	Sex	N	Mean	Std. Deviation	t-test	p-value	significance
Oral Symptoms	Male	101	7.120	1.518	0.038	0.970	ns*
	Female	99	7.110	1.377			
Oral findings	Male	101	11.530	1.254	1.709	0.078	ns*
	Female	99	11.240	1.161			

Ns\* - not significant

**Table-4: comparison of oral symptoms and oral findings between different age groups**

TABLE :4 AGE WISE COMPARISON:							
	Age groups	N	Mean	Std. Deviation	f-value	P value	sig
Oral Symptoms	40-50 Years	31	6.420	1.385	5.050	0.007	Ss**
	50-60 Years	96	7.140	1.366			
	> 60 years	73	7.380	1.497			
	Total	200	7.120	1.446			
Oral findings	40-50 Years	31	11.350	1.142	0.313	0.731	ns
	50-60 Years	96	11.330	1.254			
	> 60 years	73	11.480	1.203			
	Total	200	11.390	1.215			

Ss\*\* -statistically significant; Ns\* - not significant

## DISCUSSION

Cell growth and function are known to be regulated by estrogens, mediated by estrogen receptors namely ER $\alpha$  and ER $\beta$ . Oral soft tissues and salivary glands express ER $\beta$  receptors. This shows that estrogens could play an important role in the maintenance of homeostasis of oral cavity and salivary glands. Oral epithelial maturation is adversely affected in post menopausal period, leading to atrophic epithelium which eventually becomes susceptible to inflammation. Hence post menopausal women often complain of burning mouth. The function of salivary is partially mediated by estrogen receptor expression and blood estrogen levels. Hence post menopausal women also complain of xerostomia associated with deficient estrogen levels.<sup>[3]</sup>

Oral health implies being free of chronic orofacial pain, oral and pharyngeal cancer, and oral tissue lesions, birth defects like cleft lip and palate, and other diseases and disorders that affect the oral, dental and craniofacial tissues, collectively known as craniofacial complex.<sup>[4]</sup> Maintenance of intact oral health is a key factor for optimum quality of life. Post menopausal women are known to suffer from compromised oral health.

In the present study oral symptoms were more prevalent in post menopausal women compared to males, though were statistically insignificant. Burning mouth syndrome is a chronic orofacial pain condition not attributable to any obvious etiology. Pathogenic mechanisms like neuropathic pain could be an important contributing factor which could be further complicated by xerostomia.<sup>[5,6]</sup> Post menopausal women had higher incidence of burning mouth syndrome compared to men in the present study.

Xerostomia is a subjective symptom where in patient complains of dryness in the mouth. Post menopausal women had higher prevalence in the present study compared to men. Studies

have shown that estrogen has effects on salivary glands. The function of salivary is mediated by estrogen receptor expression and blood estrogen levels. Hence post menopausal women complain of xerostomia associated with deficient estrogen levels.

Chronic orofacial pain is usually attributed to psychosocial factors in post menopausal women. Atypical odontalgia and atypical orofacial pain are commonly reported in these patients. Similar results were obtained in the present study compared to the previous literature.

Higher DMFT scores and compromised periodontal status was observed in both males and females which could be perhaps related to xerostomia as saliva in an important defensive agent against microbial pathogens.<sup>[7,8]</sup>

Bald tongue is a condition where in atrophied papilla is observed which is usually secondary to anemia. However anemic patients were excluded from the present study. Hence the high prevalence of bald tongue in both males and females is probably related to age related physiological changes. The same reason holds good for dysgeusia in the individuals of present study.

Red and white lesions evaluated in the present study revealed that there is no much difference between males and females in the present study. Erosions and leukoplakic patches were more commonly associated lesions in the present study.

The findings of the present study were relatively comparable to findings of Santosh P et al (2013)<sup>[9]</sup> and Tarkkila L et al (2008).<sup>[10]</sup>

## CONCLUSION

The findings of the present study conclude that oral symptoms were more prevalent in post menopausal women compared to men. Age could play an important role in the prevalence of oral symptoms and findings irrespective of gender. Stomatologists in collaboration with gynecologists shall play a crucial role

in early recognition and prompt management of oral manifestations in post menopausal women.

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