Original Article

Self-reported oral health status and self-care practices among mid-life women at a secondary care hospital in a rural area of Delhi, India

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Abstract

Background: Poor oral health status is more likely among socioeconomically disadvantaged women and low literacy due to poor oral hygiene. Onset of menopausal symptoms also triggers hormonal changes, adversely influencing oral health. The study objective was to determine the self-reported oral health status and self-care practices among perimenopausal women attendees of the medical outpatient department of a government hospital in Delhi, India

Methods: We conducted a cross-sectional study at a secondary care hospital among 136 women aged 40-59 years, having either perimenopause symptoms or with menopause. Data were collected through face-to-face interviews using the Hindi version of the WHO Steps Module on Oral Health. A p-value < 0.05 was considered statistically significant.

Results: Sixty-nine (51.2%) participants had not received any schooling. Oral health status was reported as average or poor by 61 (44.85%) and 59 (43.4) participants for their teeth and gums, respectively. Pain or discomfort in teeth was reported by 77 (56.6%) participants, along with chewing 66 (48.5%) and speech difficulties 21 (15.4%). Most participants 114 (83.8%) brushed their teeth only once a day, and rarely (3.7%) flossed. Participants with low education and a greater number of missing teeth were significantly more likely to report suboptimal dental health status.

Conclusion: A large proportion of mid-life socioeconomically vulnerable women in India report poor oral health and hygiene with self-perceived suboptimal teeth or gum status. Visually oriented information, education, and communication (IEC) campaigns for oral health promotion should be evaluated in public health facilities.

Keywords: Oral Health; Oral Hygiene; Health Promotion; India

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Introduction

Oral health is a major determinant of an individual's overall health, reflecting in its psychosocial, functional, and symptomatic domains (1). It is well-established that poor oral health by inhibiting dietary choices, social contact, and inducing sleep disturbances substantially worsen the individual's quality of life (2). However, despite common oral health problems being mostly preventable through good hygiene, the neglect of this public health problem continues (3, 4).

According to the World Health Organization (WHO), nearly 3.5 billion people worldwide are afflicted by oral

diseases, and untreated tooth decay is the most common oral health problem reported globally indicative of the enormity of this neglected public health problem (5, 6).

India, like other developing countries, has a very high prevalence of dental caries and periodontal diseases (2). Although India has a National Oral Health Program, under the National Health Mission, systemic efforts in improving oral health-seeking behavior and access to oral health care services have been lacking (7). Socioeconomically disadvantaged populations, especially women, are notably less likely to receive dental care due to barriers relating to lack of awareness, inadequate availability, and difficult access to professional oral healthcare services when devoid of integration with primary healthcare (8, 9). According to a large-scale cross-sectional study, only 12% of Indian women aged between 15-45 years have ever received dental care in their lifetime (10).

Furthermore, women in perimenopause and post-menopause are at higher risk of poor oral health status due to fluctuation in the female sex hormone levels triggered by the onset of menopause (11). Nevertheless, there exists a paucity of data in India related to the burden of self-reported oral health problems and self-care practices among mid-life women attending outpatient clinics of general hospitals for other routine health conditions. Identification of this hidden burden of dental problems is important since it can guide health policy towards the provision of preventive dental care in such vulnerable populations (12). The study objective was to determine the self-reported oral health status and self-care practices among women attendees in the outpatient settings of a government hospital in Delhi, India.

METHODS

We conducted a cross-sectional study among women with perimenopause and women having attained menopause, and aged between 40-59 years. We excluded women previously diagnosed with any malignancy, any obvious mental illness or any serious acute health event.

The study was conducted among women outpatient attendees in the medicine department of a secondary care hospital in the North-Western district of Delhi, India. The hospital mostly caters to patients that are socioeconomically disadvantaged, with poor literacy. The catchment areas of the hospital comprise of urban slums and less developed rural villages. However, there was no dental OPD operating in the hospital.

Perimenopause was defined as women who were having any of these symptoms: menstrual irregularities, hot flashes, sleep disturbances or mood swings in the previous 3 months.

Post-menopause was defined as women who had undergone at least 12 consecutive months without a menstrual period.

Suboptimal dental health status was defined as patients rating their teeth condition as either average, poor, or very poor.

The primary outcome was the proportion of women reporting any existing oral health problem.

The prevalence of oral health problems among women in India has been reported as 12.6% in a previous study (6). At 95% confidence levels, 6% margin of error, and accounting for 10% non-response, the sample size calculated using OpenEpi was 136.

Patients of the female gender, and meeting the selection criteria waiting in the queues of the selected outpatient departments were invited to participate in the study.

Data were collected using the WHO Steps Module on Oral Health, which was linguistically validated through a back-and-

forth translation process into the local language, Hindi (13). We conducted face-face interviews with the questionnaires being verbally administered due to the low literacy in the study population. The participants were asked to describe the condition of their teeth and gums respectively as perceived by them on a six-item continuous rating scale either as 'excellent' 'very good,' 'good,' 'average,' 'poor', and 'very poor.' Furthermore, they were asked whether their teeth or gums caused any pain or discomfort in the past 12 months. Dental health seeking behavior was assessed by asking the participants when the last time they had seen a dentist was, and what was the primary reason for their previous dental visit.

The socioeconomic status (SES) of the participants was calculated based on per capita income and classified through the BG Prasad scale after updating for the income criterion based on the consumer price index for industrial workers (14, 15).

The data were analyzed with IBM SPSS Version 25 (Armonk, NY: IBM Corp). Data were expressed in frequency and proportions for categorical variables and mean and standard deviation for continuous variables. The association between the independent variables (age, education, SES) and the outcome variables [dental and gum status dichotomized into suboptimal (reported as average or poor) and optimal (reported as excellent, very good, good)] was tested using the chi2 test. A p-value < 0.05 was considered as statistically significant. The variables which were significantly associated with suboptimal dental health status ($P \leq 0.05$) were included in a step-wise binary logistic regression model. The final model was tested for goodness-of-fit by the Hosmer-Lemeshow test.

The study was approved by the Ethics Committee of the Maharishi Valmiki Hospital, Pooth Khurd, Delhi (No.F.1(7-v)/1/MVH/2013/2668 dated 30.05.2019). All the participants provided written and informed consent. At the end of the interview, all the participants were provided health education towards maintaining optimal oral self-care practices for oral health promotion.

RESULTS

Sociodemographic and clinical characteristics

We enrolled a total of 136 women patients reporting to the outpatient department of the hospital. The response rate of the survey was 92%. The mean ± S.D age of the participants was 49.2 ± 6.1 and ranged from 40 to 59 years. The educational status of the participants was very low, and more than half (51.2%) did not receive any schooling. The mean ± S.D years of schooling was only 3.3 (4.6) years. Most (83.8%) of the participants were housewives, and the others were unskilled workers. The average (S.D) number of children borne by the participants was 3.7 (1.4). Diabetes Mellitus was present in 18 (13.2%) participants. None of the participants reported tobacco smoking or alcohol consumption. Smokeless tobacco use was reported by 4 (2.9%) participants.

Self-reported oral health status and self-care practices

A total of 61 (44.85) and 59 (43.4) participants reported suboptimal teeth and gum status, respectively. A strong correlation was also observed between the self-reported state of teeth and gums ($r=0.787$, $p < 0.001$). Pain or discomfort in the teeth during the previous 12 months was reported by 77 (56.6%) participants. Most participants (83.8%) brushed their teeth only once a day, but no association was found between the participant's educational status and the frequency of brushing ($p = 0.263$) (Table 1).

On bivariate analysis, suboptimal dental health status was significantly associated

Table 1. Self-reported oral health status in the participants (N=136)

Number of natural teeth	Number (%)
1-9	4 (2.9)
10-19	22 (16.2)
≥20	110 (80.9)
State of teeth	
Excellent	3 (2.2)
Very Good	12 (8.8)
Good	60 (44.1)
Average	47 (34.6)
Poor	14 (10.3)
Very Poor	0 (0)
State of gums	
Excellent	4 (2.9)
Very Good	16 (11.8)
Good	57 (41.9)
Average	47 (34.6)
Poor	12 (8.8)
Very Poor	0 (0)
Dentures	
Upper	17 (12.5)
Lower	7 (5.1)
Pain or discomfort in the previous 12 months	
Yes	77 (56.6)
Dental cleaning practices	
Once daily	114 (83.8)
Twice daily	22 (16.2)
Methods for dental cleaning	
Toothbrush with toothpaste	133 (97.8)
Wooden toothpick	30 (22.1)
Chewstick	14 (10.3)
Dental floss	5 (3.7)
Last oral health service	
<6 months	28 (20.6)
6-12 months	27 (19.9)
1-2 years	22 (16.2)
2-5 years	12 (8.8)
>5 years	22 (16.2)
Never received oral health care services	25 (18.4)

with increasing age, lower literacy and educational attainment, higher SES, a greater number of missing teeth, and preexisting diabetes mellitus (Table 2).

The logistic regression model correctly classified 68.4 % of the cases {chi2=32.43} (p <0.001). The Hosmer Lemeshow goodness of fit test-statistic had a p-value of 0.388 from which we concluded that the model estimates the data acceptably. On adjusted analysis, we found participants with a greater number of missing teeth and with lower education were significantly more likely to report suboptimal dental health status (Table 3).

Dental health-seeking behavior

The effect on dental problems on the health and well-being of the participants are reported in Figure 1. Fifty-five (40.44%) participants reported having accessed dental health services in the previous 12 months and it was significantly associated with the presence of chewing difficulties ($p < 0.001$). The most common reasons for accessing dental services were routine consultation 51 (37.5%), pain 72 (52.9%), and for continuing treatment of existing ailments 13 (9.6%).

DISCUSSION

Suboptimal oral health signifies the presence of oral disease activity or progression with either the lack of perceived well-being with or without functional impairment (12). The present study was conducted among women in their mid-life years (40-59 years) with either perimenopause or after the onset of menopause and mostly having mostly poor literacy. Postmenopausal women and women with diabetes reported more suboptimal dental and gum status compared to perimenopausal women and non-diabetic women but these associations were not statistically significant. Overall, more than 4 in 10 women reported suboptimal self-reported teeth and gum status. Nevertheless, less than one in six women practiced twice-daily brushing, and just one in five practiced any interdental cleaning suggestive of a high prevalence poor oral hygiene, factors which are known to increase predisposition to multiple teeth loss amongst mid-life women (16). Another study among middle aged rural women in Northern India (Avasthi et al: 2019) reported only 7.1% women practicing twice

Table 2. Distribution of sociodemographic and clinical factors associated with suboptimal dental and gum health status in the participants (N = 136)

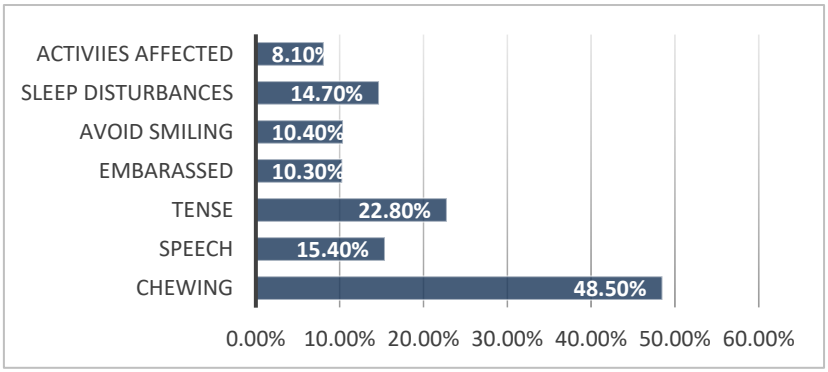
Characteristic	Total	Dental condition Suboptimal (Average/Poor) n = 61 (44.85)	P-value	Gum's condition Suboptimal (Average/Poor) n = 59 (43.3)	P-value
Age (in Years)					
40-49	68 (50)	20 (29.4)	<0.001	21 (30.9)	0.003
50-59	68 (50)	41 (60.3)		38 (55.9)	
Education (in years)					
≤5	105 (77.2)	55 (51.4)	0.001	52 (49.5)	0.008
≥6	31 (22.8)	6 (19.4)		7 (22.6)	
SES					
Upper/Middle (1-3)	93 (68.4)	46 (49.5)	0.112	46 (49.5)	0.035
Lower (4-5)	43 (31.6)	15 (34.9)		13 (30.2)	
Number of teeth					
1-19	26 (19.1)	21 (80.7)	<0.001	24 (92.3)	<0.001
≥20	110 (80.9)	40 (36.3)		35 (31.8)	
Diabetes					
Present	18 (13.2)	12 (66.6)	0.046	12 (66.6)	0.032
Absent	118 (86.8)	49 (41.5)		47 (39.4)	
Menopausal status					
Perimenopause	54 (39.7)	19 (35.2)	0.066	19 (35.2)	0.118
Post menopause	82 (60.3)	42 (51.2)		40 (48.8)	

Table 3. Logistic regression analysis of predictors associated with suboptimal dental health status in the participants

Characteristic	Unadjusted odds ratio (95% C.I.)	Adjusted odds ratio (95% CI)	P-value
Age (in Years)			
50-59	3.644 (1.787-7.433)	2.44 (0.86-6.90)	0.093
Education (in years)			
≤5	4.583 (1.738-12.1)	3.25 (1.12-9.37)	0.029
Number of teeth			
1-19	7.35 (2.572-21.0)	5.53 (1.81-16.91)	0.003
Diabetes			
Present	2.81 (0.989-8.01)	1.744 (0.473-6.431)	0.404
Menopausal status			
Post menopause	0.517 (0.255-1.048)	0.971 (0.352-2.676)	0.954

CI: Confidence interval

Figure 1. Health problems due to dental complaints in the participants* (N=136)



* Multiple response

daily brushing and only 69.2% women using toothpaste and toothbrush to clean their teeth while having multiple missing teeth (17).

In the present study, a majority (56.6%) of the women reported pain or discomfort with their teeth during the previous 12 months, almost five-fold higher (12.6%) compared to the results of a large representative national community survey in India (8). These findings indicate that women with low educational status who are socioeconomically vulnerable were significantly more likely to show dental problems compared to the general population.

Our study findings also highlight the disparities in oral health between developed and developing countries. The cross-sectional analysis of data from a longitudinal study reported that most (92.5%) Canadian residents aged 45-85 years reported 'good/very good/excellent' oral health, and dental service-use in the previous year (79.6%) (1). In contrast, in the present study, only 2.2% participants reported excellent state of teeth, while 34.6% reported average and 10.3% poor dental status. Furthermore, the last oral health service received within the previous 12 months was reported by only 40.5% of participants, which was restricted to emergency consultation in 62.5% cases. The Avasthi study (2019) reported nearly 2 in 3 rural women in rural parts of Northern India preferred utilization of dental care services but these were lacking at the primary healthcare level (17). A facility-based study in a North Indian city also reported acute tooth ache being the most common (48.5%) cause for dental consultation by patients (18).

A major study finding was the very high prevalence of difficulties in chewing (48.5%) foods, inadequate dental hygiene (83.8%), and the complete absence of oral healthcare-seeking behavior in nearly one in five participants. These findings corroborate the evidence from prior studies that observed poor oral health awareness and limited accessibility to professional oral care services among Indian populations (17, 19).

In conclusion, poor oral health and hygiene persist as a major public health challenge in India. The relevance of opportunistic screening for dental problems in primary and secondary health facilities in India is also indicated from our study findings that requires significant capacity building. Future studies also should assess the effectiveness of predominantly visually-oriented information, education, and communication (IEC) campaigns for oral health promotion in the outpatient settings of public health facilities that frequently cater to patients with poor literacy status.

Study Limitations

There are several limitations to this study. First, it was restricted to a single-site, which limits the generalizability of our findings. However, our sample was homogenous, comprising of mostly socioeconomically vulnerable patients. Second, the small sample size was not adequately powered to detect significant differences for identifying the predictors of oral health status. Third, the cross-sectional design precluded the possibility of finding out any causal association of suboptimal oral health with their risk factors. A 12-month recall period also induced recall bias. Fourth, the oral health status was based only on subjective self-report and was not accompanied by clinical screening to assess dental morbidities including the caries status, periodontal index, and the presence of oral mucosal lesions (17, 18). Nevertheless, self-reporting is considered a reliable indicator for assessment of oral health status in the middle-aged and elderly populations (1, 20).

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Conflicts of interest: None to declare

Author contributions: SB, and RP developed the study concept and design. RP acquired the data. SB analyzed and interpreted the data, and wrote the first draft of the manuscript. All authors contributed to the intellectual content, manuscript editing and read and approved the final manuscript. BB and SK provided administrative support.

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