

A Cross-Sectional Study to Evaluate the General Oral Health Status and DMFT Score among Females of Rural Area, Bagh, Azad Kashmir

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ABSTRACT

Objective: When assessing and keeping tabs on the state of dental health in a region, the Decayed, Missing, and Filled Teeth (DMFT) index is invaluable. This study aimed to evaluate the oral health status in particular females and evaluate their DMFT (Decayed, Missing, and Filled Teeth) scores, loss of gingival attachment and need for a prosthesis in a village in Kashmir.

Materials and Methods: Four villages in Azad Kashmir were chosen randomly using an online randomizer to participate in this cross-sectional survey. Participants' dental health (periodontal state, prosthetic requirements, dental caries, and dental fluorosis) were recorded using a self-structured questionnaire based on WHO criteria (WHO, 1997). The Chi-square test was used to compare categorical data groups using SPSS for statistical analysis.

Results: The results showed that 69.2% of the participants used toothbrushes and paste to clean their teeth. The mean number of missing, and filled teeth and decayed, was lower in women aged 20-30 years (7.79 ±5.25) than in those aged 31-40 years (9.69 ±6.22). 70% of the female participants (middle-aged) needed dental prostheses. 56.5 per cent of the women had a loss of attachment (LOA) between 4 and 5 mm, whereas 23.2% had an LOA between 6 and 8 mm. There was a statistically significant difference in demand for multiunit dental prostheses between the 20–30 and 31–40 age groups.

Conclusion: As a result, rural middle-aged women have a considerable demand for dental treatment, yet they receive a disproportionate concentration on dental health.

Keywords: Dental Status, DMFT Score, Oral Health, Rural areas, Women

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INTRODUCTION

Health, education, income, employment, personal security, asset control, and political engagement all fare worse for women than for males in Pakistan's strongly patriarchal culture.¹ Medical attention is sought by males at a higher rate than by women.² Pakistani culture is structured in such a way that males have a superior social position, which translates to their receiving preferential treatment in the medical field.^{3,4}

In addition to social and behavioural influences, the biology of women has a cumulative impact on their health. Girls and women are susceptible to a variety of risks and vulnerabilities throughout their lives.⁵ Midlife is a particularly sensitive time for women since the hormonal shifts that occur then may have a major influence on their physical and mental health in addition to their general quality of life.⁶ According to a study, middle-aged women are more susceptible to plaques, periodontitis, gingivitis, and reduced tooth anchorage during the menopause transition.³ In addition, premenopausal and postmenopausal women frequently experience dry mouth, unpleasant mouth sensation, burning mouth syndrome, loss of bone tissue resulting in periodontitis, a higher oral hygiene index, and an increase in Decayed, Missing, and Filled teeth (DMFT index).^{3-5,7} It has also been observed that these symptoms may give rise to other problems, including oral generalized gingival atrophy, oral ulceration, candidiasis mandibular dysfunction, etc.^{3,4}

Dental caries, saliva, dysesthesia, atrophic gingivitis, a change in taste, osteoporosis, and periodontitis of the jaws may disqualify these women from receiving a prosthetic device or dental implants (change in taste will disqualify the women).^{5,8} Health and oral health-related quality of life assessments are based on several theoretical methodologies and conceptual frameworks that have been offered in the literature.⁹ Since one's thoughts about the oral health impact profile might affect one's self-care behaviours and ultimately one's health-related quality of life, this topic has gained increasing attention in recent years. Even though various studies^{8,10} have investigated the general health morbidity of middle-aged women, the oral health condition remains understudied. Due to their health attitude, lack of accessibility, and lack of affordability, women in rural areas frequently do not utilize health care.¹¹

Studies with limited sample sizes and surveys of women who have been to a clinic are the primary sources of information on this topic in Pakistan. Furthermore, no studies have focused on the dental health of local women between the ages of 18 and 44. Therefore, it is crucial to evaluate the condition of women's oral health in far-flung areas of Azad Kashmir.

MATERIALS AND METHODS

This cross-sectional study was undertaken in 4 villages of Azad Kashmir, Pakistan between December 2020 and October 2021 using dental treatment camps (11 months). Nearly 55% of the district's population resides in rural areas, including 0.1 million women.¹² Therefore, the following characteristics were used to determine the sample size: (CDC, Open Epi Info, Georgia, United States, Atlanta): a population size of 210,000, 95% CI, and a predicted frequency of 50% for the population outcome component. Consequently, the estimated sample size was calculated to be 286, and an additional 15% of the sample was added to account for incomplete data collected throughout the data collection procedure, bringing the total sample size to 300. The people were approached for the study, and 16 declined, for a 98 per cent response rate. For the present research, the district government provided the phone numbers of various surveillance officers of the district. To ensure that each cluster had the same number of settlements, we employed a web-based random number generator. To save time, we used a sampling method to choose participants. Participated women were divided into two groups, one between the ages of 20 and 30 and another between 31 and 40. When a research camp ended, everyone in the community got free dental treatment.

The Research Board and Ethical Committee of the institution both approved the study. The consultants educated and calibrated the department's principal investigator. The intraexaminer reliability was evaluated with Kappa statistics = 0.82, 0.76, 0.85, and 0.90, respectively, for dental caries, periodontal status, prosthetic requirements, and dental fluorosis.¹² Participants were enrolled in the study if they met the inclusion criteria and provided informed permission. A female recorder who had been taught to be attentive to cultural concerns and confidentiality gathered demographic data, including socioeconomic status and education^{13,14}, and personal information in a face-to-face interview. A self-structured method based on the WHO's

1997 Basic Oral Health Surveys was used to document their level of oral health. The incidence of periodontal disease, dental caries, oral mucositis, the need for prosthetics, and dental fluorosis were all measured.¹⁵

SPSS for Windows, Version 26.0, was used to analyze the data. Mean \pm SD were computed for continuous data, whereas frequencies and percentages were derived for nominal and ordinal variables. Using the Chi-square test, groups were compared.

RESULTS

Three hundred women, with a mean age of 29.02, were included in the research. Almost 60% of the rural Kashmiri population was seen to be illiterate. About 69.2% of people used a toothbrush, 91.6 per cent of people brushed their teeth daily, and 75.6 per cent of people only rinse to clean their mouth daily as shown in Table 1.

Table 1: Frequency of the preferred aid, times of brushing and cleaning of teeth in study participants

Variables	Frequency (%)
Preferred type of aid	
Toothbrush and Toothpaste	185 (69.2%)
Finger and Toothpowder	52 (17.4%)
Tree sticks only	17 (5.7%)
Others	23 (7.5%)
Preferred frequency of Brushing Teeth	
At least once a day	276 (91.6%)
Twice a daily	21 (7.1%)
Thrice a day	3 (1.0%)
Tongue Cleaning	
Yes	226 (75.4%)
No	74 (24.6%)

The greatest number of decayed teeth occurred between the ages of 20 and 30, and the greatest number of missing teeth were between the ages of 31 and 40 as shown in Table 2. The middle-aged women had a higher number of decayed, filled and missing teeth and hence a higher DMFT score as compared to young girls below 30 years.

Table 2: Mean \pm SD of the variables of oral health status studied in the study groups

Decayed Teeth	
20-30 years	2.37 \pm 1.70
31-40 years	2.10 \pm 1.80
Missing teeth	
20-30 years	5.15 \pm 4.72
31-40 years	7.43 \pm 6.14
Filled teeth	
20-30 years	0.04 \pm 0.98
31-40 years	0.06 \pm 0.36
DMFT	
20-30 years	7.79 \pm 5.25
31-40 years	9.69 \pm 6.22

As shown in Table 3, 56.5 per cent of research participants demonstrated 4–5 mm loss of attachment (LOA), whereas 23.2% demonstrated 6–8 mm LOA. Nearly 65.3% of the participants in the study reported a need for dental care, while 34.7% had no perceived need; yet the group with no perceived need required at least one type of dental therapy.

Table 3: Frequency of Loss of attachment in study participants

Codes = Loss of Attachment in millimetres	Frequency (%)
Code 0 = 0-3 mm	57 (19.0%)
Code 1 = 4-5 mm	170 (56.5%)
Code 2 = 6-8 mm	70 (23.2%)
Code 3 = 9-11 mm	2 (0.6%)
Code 4 = 12 mm or more	1 (0.3%)
Code X = Excluded	1 (0.3%)

As shown in Table 4, 57.1 per cent of participants need maxillary prosthesis and 51.4 per cent need mandibular prosthesis between the age group of 20 to 30 years. In the age group between 30 to 40 years, 51.4 per cent of participants need a maxillary prosthesis and 65.5 per cent need a mandibular prosthesis.

Table 4: Frequency of need for a prosthesis in the study groups

Need for Prosthesis	Age 20-30 years (n=140)	Age 31-40 years (n=160)	p-value
Maxilla			
Yes	80 (57.1%)	112 (70%)	<0.05
No	60 (42.8%)	48 (30%)	<0.05
Mandible			
Yes	72 (51.4%)	105 (65.6%)	<0.05
No	68 (48.5%)	55 (34.3%)	<0.05

DISCUSSION

The purpose of this research was to evaluate the state of oral health among rural village women in Azad Kashmir between the ages of 20 and 40. This is maybe the most comprehensive study in terms of the total number of samples collected. We used a more scientific approach in selecting our study's sample size than previous studies on postmenopausal women, which focused on the oral health of younger women.^{7,16-21} More than half of the people who took part in the research couldn't read or write. Women in the research group had poor oral health habits because they did not have the opportunity to get an education throughout their formative years.²²

This research discovered that middle-aged women had a greater proportion of decaying and missing teeth. The present study found a much lower mean DMFT score than the previous research.^{7,16-21,23-26} Overall, rural women in the United States have a lower mean DMFT than their counterparts in other countries, even when this value rises with age. Studies done on Thai women in a rural region of Norway also found much higher mean tooth loss rates than the present study.²⁷ Furthermore, older women had lower mean-filled teeth compared to studies performed on rural women in other countries, and the present study indicates significantly lower mean-filled teeth compared to past research from other parts of the world.^{25,28-30} This research's findings showed women over the age of 40 lost more teeth than males agreeing with a study from rural China that found most of its participants had less than 10 healthy teeth.³¹ Females in rural China, on the other hand, were found to have maintained more of their teeth than males.²⁹

Participant loss of Attachment (LOA), like that shown in research by Brennan et al and Baleum et al and highlights the critical need of spreading awareness about the importance of oral hygiene.^{30,32} In Pakistani research comparing the general oral hygiene habits of

various age groups, 69.2% of women reported using a toothbrush to clean their teeth. This figure was much lower than the 96% of women who reported using a toothbrush in the study.³³ However, just 25.6% of women were found to be frequent toothbrushes according to research by Zubiene et al. Media awareness campaigns and the advertising of various brands of toothpaste and toothbrushes on radio, television, and print media, in the USA, may have contributed to the 69.2% of Americans who reported using such items.³⁴ Of those polled, 74.1% had been to the dentist before, yet 64.3% still saw a need for dental work. However, the research did not get into the specific reasons for the same (barriers). The lack of urgency in receiving oral care may contribute to this, as may the high costs associated with dental treatment and the restricted availability of dental services.

Despite the availability of dentists in all basic healthcare institutions in Azad Kashmir, middle-aged women there do not make enough use of them. This might be because of practical considerations, family obligations, monetary dependence on the male spouse, or an incapacity to make choices.²²

This research's strength lies in the fact that it is a field study rather than one conducted in a hospital or other healthcare facility. Not only did we not evaluate the barriers to oral health treatment, but we also did not analyze any potential variables that may have influenced the participants' oral health condition. Perhaps a viable and cost-effective strategy to enhance the oral health care facilities for this group of women would be to hold screening camps at the village level and route those who require special treatment to community health centres. Promoting government programmes available to middle-aged women in the district, such as the Mukhyamantri Muft Ilaj Yojana, which provides 21 forms of free dental care to the general population, could be a valuable resource for

female health workers providing oral health education and encouraging the use of dental services.³⁵ This research had certain limitations, including the fact that it was limited to a single urban setting for reasons of cost and accessibility.

CONCLUSION

There is a substantial disparity between the demand for and supply of dental treatment among rural middle-aged women. Although many efforts have been made to improve adult dental health in recent years, the problem persists and is worrying. Changes in behaviour (such as brushing, using mouthwashes, and dental floss) as well as increases in socioeconomic status, individual and parental education, and access to health insurance can all improve people's oral and dental health. Because of their disproportionately higher rates of unfavourable behavioural habits and lower levels of education, people from lower socioeconomic backgrounds require extra attention from dental caries prevention programs.

DISCLAIMER

None to declare.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

ETHICAL STATEMENT

Ethical approval was obtained from the Ethical Review Committee of 1 MTN Medical Battalion.

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AUTHORS CONTRIBUTION

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