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Oral Health status of Pregnant Women in District Reasi: A cross-sectional study

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Abstract

Introduction: India is a developing country and 70% of its population lives in rural areas. A well-organized maternal and child health program under NRHM has been incorporated. The aim of this study was to report the oral disease burden of rural and urban antenatal women, thus highlighting the need to provide oral health care to this group.

Materials & Methods: The sample consisted of 750 rural and 639 urban pregnant women in their third trimester. Data were collected using interviewer administered questionnaires and a clinical oral examination conducted.

Results: The mean Decayed Missing and Filled Teeth (DMFT) among rural antenatal women were 5.26 ± 3.12, with 2.34 (± 2.24) decayed teeth, 1.35 (± 1.87) missing teeth, and 1.85 (± 1.94) filled teeth. Among urban antenatal women, the mean DMFT was 3.56 (± 3.76) with 1.08 (± 2.11) decayed teeth, 1.01 (± 1.65) missing teeth and 1.0 (± 2.59) filled teeth. Almost 65% of rural women presented with bleeding gums. Similarly, the prevalence of calculus was 35.4% for rural women and 12.4% for urban women.

Conclusion: The study concludes that the pregnant women in district Reasi have significant oral health issues with rural women having twice the issues as urban women. Oral health education should be included as an integral part of antenatal care to increase the women awareness. This would improve the mothers' dental care-seeking behavior and also in turn will improve the oral health status of society as education starts at home.

Keywords: Dental caries, periodontal disease, pregnant women.

Introduction

India is a developing country with a well-established public health infrastructure. Of the 1,210,193,422 residents reported in the 2011 provisional census report (1), as per reported by UN it is 1,417,274,177 and, approximately 70% live in rural areas.(2) As per the census 2011 the Jammu And Kashmir population was 12,267,013, which is growing day by day. A well-organized maternal and child health program under

NRHM started in 2005 has significant gains in reducing both maternal and infant mortality rates.(3) The program consists of maternal health, child health, women's health and family planning. Pregnant women are eligible to receive antenatal care free of charge in the public health system, irrespective of their socioeconomic status and geographic location.

Pregnancy is a special state for a woman, which is associated with a myriad of emotional and physiological changes in different parts of body including oral cavity and dental health.(4) These changes predispose women to dental caries and periodontal diseases.(5) Oral tissues are known to be affected by pregnancy with the most frequent and greatest changes occurring in the gingival tissue.(6) Pregnant women may be more susceptible to periodontal disease since higher concentrations of oestrogen and progesterone can induce hyperaemia, oedema and bleeding in periodontal tissues,(7) increasing the risk of bacterial infections. Periodontal disease is both preventable and treatable. Controlling plaque by brushing, flossing and professional prophylaxis, including scaling and root planing, all help to achieve good dental health in pregnancy.(8)

In recent times, the oral health of pregnant women has been gaining more interest because of the suspected association between periodontal diseases and adverse pregnancy outcomes such as premature birth, low birth weight and pre-eclampsia.(9-11) The provision of routine antenatal care is aimed at ensuring general maternal well-being and the subsequent delivery of healthy babies. However, while oral health is now accepted as an important component of general well-being of pregnant women in developed countries it remains an underrated component in developing countries such as India. Prevention of oral and dental problems and their complications during pregnancy is possible through having pregnant women expressing appropriate knowledge, attitude and practice.

The objective of this study was to report the oral disease burden of rural and urban antenatal women, and to assess women's knowledge and attitude towards oral and dental health during pregnancy thus highlighting the need to provide oral health care to this group.

Materials and Methods

A cross-sectional study was carried out among pregnant women belonging to rural and urban settings residing in Reasi district of Jammu and Kashmir. The rural setting included 750 pregnant women (in their 3rd trimester); whereas urban settings included 639 pregnant women (in their 3rd trimester) in the same province. Written, informed consent was obtained from the selected participants. Participants with systemic diseases were excluded from the study. The study was conducted in accordance with the ethical guidelines for human experiments as laid down in the Helsinki decleration (12).

All participants were examined for Decayed, Missing, filled teeth (DMFT) index for dental caries experience and Community Periodontal Index of Treatment Needs (CPITN) for periodontal status assessment.

The data were collected using an interviewer-administered. The questionnaire included socio-demographic information, utilization of dental services and perception of the safety of receiving dental treatment during pregnancy, administered as a sub-question of perceived need for receiving dental care. Those who responded 'no' to the latter were then asked about their perception of the safety of receiving dental care during pregnancy, recorded as 'safe' or 'unsafe'. For the urban sample a minor modification was made to the questionnaire regarding the perception of receiving dental care during pregnancy. This was assessed as a

separate question worded 'Is it safe to receive dental care during pregnancy?' (response 'Yes' or 'No').

Statistical analyses were conducted using SPSS v 21.0. Chi-square test of statistical significance was used to compare the frequencies between the two groups.

Results

The mean age of the rural and urban of antenatal women was 25.12 ± 3.6 years and 29.11 ± 3.94 years, respectively (p=0.001). The ages ranged from 18 to 45 years for rural women and 18 to 41 years for urban groups. Among both groups, the majority of pregnant women were housewives 73.4% (urban) and 74.3% (rural), respectively. The majority of rural and urban participants were either expecting their first or the second baby: 82.9% and 87.9% respectively; and rural and urban utilization of dental services within past 12 months was 38% and 64%, respectively. In all, 51% of rural antenatal women were not willing to receive dental care, irrespective of having oral health problems. All these differences were statistically significant (p<0.05) (Table 1).

The burden of dental caries among rural and urban antenatal women was high with a rural prevalence of 93.2%, and 79.1% for urban women. However, rural women had a significantly higher prevalence of dental caries than urban women (p=0.001). On average the rural women had as twice as many untreated dental caries compared with their urban counterparts (p=0.001). Rural women did not differ significantly from urban women in the number of missing teeth despite having a slightly higher score (p=0.155) (Table 2).

The prevalence of healthy periodontium was as low at approximately 7% for both groups of women. Almost 65% of rural women presented with bleeding gums, while this was only so for 2% of the urban women. The prevalence of shallow periodontal pockets (4-5 mm) was 4.8% for rural women but 71.5% for urban pregnant women (p<0.0001) (Table 2).

Discussion

The study revealed that the pregnant women in district Reasi carried a high burden of oral disease with regard to dental caries and periodontal disease. Location (urban v/s rural) was another significant predictor for caries experience. Furthermore, urban women were significantly more likely to use dental care services within the preceding 12 months.

Similar studies conducted in developed countries such as the USA have revealed that most women do not access oral health care during pregnancy despite evidence that poor oral health can have an adverse impact on the health of the pregnant woman and her baby.(13) A recent study reported low utilization of dental care services by Malaysian antenatal women but that those who were aware of the association between poor maternal oral health and adverse pregnancy outcomes were more likely to use those services.(14)

The rural women's negative perceptions of receiving dental treatment during pregnancy may have contributed to their lower rates of dental services utilization in the preceding 12 months and higher prevalence of untreated dental caries. Differences in the availability and accessibility of dental care services in urban and rural locales could also have been influential. That urban women had a higher prevalence of 4-5 mm periodontal pockets despite higher access to dental care may be attributable to the hormonal changes at their stage of pregnancy increasing sensitivity to periodontal disease.(15)

Alternatively, more urban women may have had scaling (professional removal calculus above and below gingiva), which could have facilitated a more accurate assessment of probing pocket depths. Moreover, the

main clinical parameter accounted for in periodontal diagnosis by the CPITN index is probing pocket depths, and this may have given rise to an overestimation of prevalence measures;(16) however, a recent study reported underestimation of prevalence measures using the CPITN index.(17) Therefore, the periodontal status findings of both groups could have been influenced by inherent measurement issues.

Conclusion

Pregnancy is an important milestone in a women's life and it indicates an increased need for dental care, among other health needs. Pregnant women in Reasi district have a high burden of dental caries and periodontal disease. This study indicated that rural women had as twice as many untreated dental caries compared with urban women, but were unlikely to use oral healthcare services due to concerns about safety in receiving dental care during pregnancy. Lack of dental visits during pregnancy may be attributed to lack of oral health care information and counseling in the antenatal health care centers. Oral health education should be included as an integral part of antenatal care to increase the women awareness. This would improve the mothers' dental care-seeking behavior.

Therefore, oral health care services should be made more accessible and acceptable to all rural and urban pregnant women through the national program.

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Legend Tables

Table 1: Distribution of rural and urban antenatal women by socio-demographic attributes, utilization of dental services and misconceptions about receiving dental treatment during pregnancy

Attribute	Location		P-Value*
	Rural (N=750)	Urban (N=639)	
Age in years (±SD); range	25.12(±3.64);18-45	29.11(±3.94);18-41	0.001*
Children – n (%)			
≤ 2	621 (82.9)	561 (87.9)	0.001
Occupation – n (%)			
Unemployed	527 (70.3)	469 (73.4)	0.001
Utilization of dental services#			
Yes - n (%)	292 (38.9)	411 (64.3)	0.001
Perception of received dental care during pregnancy			
Not safe – n(%)	20 (5.4) ##	216 (33.8)	0.001

(#)- within preceding 12 months; (##)- among 382 rural mothers who were not willing to receive dental care.(*)- x2 test to compare proportions used for all categorical variables; (**)- t-test to compare means of independent samples.

Table 2: Burden of oral disease among urban and rural antenatal women.

Variable	Location		P-Value*
	Rural (N=750)	Urban (N=639)	
Dental caries prevalence			
Has caries (DMFT ≥ 1)	699 (93.2)	505 (79.1)	0.001
DMFT			
Mean (± SD)	5.26 (± 3.12)	3.56 (± 3.76)	0.001
D (± SD)	2.34 (± 2.24)	1.08 (± 2.11)	0.001

M (± SD)	1.35 (± 1.87)	1.01 (± 1.65)	0.155
F (± SD)	1.85 (± 1.94)	1.0 (± 2.59)	0.026
Range score	0.18	0.28	
Periodontal disease- n (%)			
Healthy	20(2.6)	57 (8.9)	0.0001
Bleeding	492 (65.6)	15 (2.3)	
Calculus	266 (35.4)	79 (12.4)	
4-5mm pockets	36 (4.8)	457 (71.5)	
>6mm pockets	13.5 (1.8)	22 (3.5)	

D- decayed teeth; M- missing teeth; F-filled teeth. DMFT- index denotes sum of decayed, missing and filled teeth; SD- standard deviation; (*)- Chi-square test used, other p-values are based on t-test for comparing means of independent samples.