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Original Research Article

Association of Self Perceived Oral Health on Oral Health Related Quality of Life among Pregnant and Non Pregnant Women in Bangalore City

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ABSTRACT

Introduction: A woman's pregnancy experience not only influences her general health but also has an effect on her oral health. Diet and oral hygiene practices changes due to oral problems. High levels of oral diseases may also have an impact on the oral-health-related quality of life (OHRQoL) as well. **Objective**: To find an association between self-perceived oral healths on oral health related quality of life among pregnant and non-pregnant women. **Materials and Methods:** A total of 600 pregnant and non-pregnant women participated in the study with a mean age of 21±2.8.The study was carried out among 300 women in various stages of pregnancy, reporting for antenatal check-up at KC General Hospital Bangalore and 300 non pregnant women were recruited among women who were either accompanying patient to the hospital or those who attended the OPD of General medicine at KC General Hospital. The participants in the study were administered oral health impact profile-14 questionnaires followed by oral examination for dental caries and periodontal status using WHO 1997 criteria. The statistical test applied was independent t-test. **Results:** The highest oral impact on quality of life among pregnant women was interrupt meals (1.00±0.00) followed by painful aching in the mouth (0.79±0.63) followed by diet been unsatisfactory (0.55±1.17). Among non-pregnant the OHIP which most commonly affected the teeth or mouth was sense of taste worsened (0.9±0.28), followed by being self-conscious (0.68±1.36) and trouble pronouncing any words (0.64±0.97). Factors such as bleeding gums (1.00±2) and dental caries (1.07±0.253) had impact on OHIP-14 in pregnant women and non-pregnant women. **Conclusion:** Self perceived oral conditions such as bleeding gums, decayed teeth, showed to have an impact on oral health related quality of life.

KEYWORDS: Oral health related quality of life, pregnancy, oral disorders, OHIP-14.

INTRODUCTION

Quality of life (QOL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life. What makes it challenging to measure is that, although the term "quality of life" has meaning for nearly everyone and every academic discipline, individuals and groups can define it differently. [1]

OHRQOL is a relatively new but rapidly growing phenomenon which has emerged over the past two decades. Several authors have explored the evolution of OHRQOL and documented the circumstances that have led to its prominence. Slade and others identified the shift in the perception of health from merely the absence of disease and infirmity to complete physical, mental and social well-being, the definition of the World Health Organization (WHO), as the key issue in the conception of HRQOL and, subsequently OHRQOL. [1]

High levels of oral diseases may also have an impact on the oral-health-related quality of life (OHRQoL) as well. [2]

Since the old wives' tale of "loss of a tooth for every pregnancy", oral health during pregnancy has long been focus of interest. Studies documenting the effects of hormones on the oral health of pregnant women suggest that 25 to 100 percent of these women experience gingivitis and that 10 percent may develop pyogenic granuloma. Good oral health is important across a person's lifespan. Pregnancy is particularly important time to promote oral health and healthy behaviour, including education about the prevention of dental caries. [3]

Although some studies on OHRQoL among pregnant women have been reported, they have been limited to exploring the impact of certain factors, such as pain, on the OHRQoL. [2]

There are few studies that assessed the oral heath related quality of life among pregnant women and compared that with the non-pregnant women.[2] In another study the authors had assessed the factors like bleeding gums, burning gums, swollen gums, decayed teeth, loose teeth, food lodgement, sensitive teeth and tooth pain only among pregnant women. [4] But the impact of decayed teeth that can lead to acute pulpitis which can have an effect on the day to day activities and disturbed sleep remains unassessed. In essence oral disorders can affect the interpersonal relationships and daily activities and therefore the goodness or quality of life. [5]

Aim of the Study

To find an association between self-perceived Oral healths on Oral health related quality of life among pregnant and non-pregnant women.

Objectives of the Study

- To assess self-perceived Oral factors on Oral health related quality of life among pregnant and non-pregnant.
- To assess Oral health related quality of life among pregnant and non-pregnant women.

MATERIALS AND METHODS

A cross-sectional descriptive study was conducted to assess "Association of self-perceived oral health on oral health related quality of life among pregnant and non-pregnant women in Bangalore city" aged 18-30 years attending OPD of Kempu Cheluvarajamnanni General (KCG) hospital of Bangalore city. The data was collected during July 2011 to September 2011.

Permission & Consent

Necessary permission to carry out the study was obtained from the Superintendent of the KCG hospital and Head of the Department of Obstetrics and Gynaecology and General medicine after explaining the procedure and purpose of the study. Ethical approval was obtained before conducting the study. Informed consent was obtained from the study participants after explaining the procedure and purpose of the study.

Pilot study was conducted among 25 pregnant and 25 non pregnant women to determine the feasibility and validity of the standardized proforma and to calculate the

sample size. The Oral Health Impact Profile-14 (OHIP-14)[6] and self-perceived questionnaire was translated to local (Kannada) language and back translation was done to ensure the validity of the original questionnaire. A sample size of 600 was taken out which 300 were pregnant and 300 were non pregnant women.

Selection of the Study Participants

The study participants were recruited from the Obstetrics and Gynaecology Department and Department of General Medicine of KCG hospital in Bangalore city based on the inclusion criteria. Non pregnant women recruited were mainly relatives of pregnant women who accompanied them for the check up and from the Department of General Medicine.

Inclusion Criteria

Inclusion criteria were

1. Pregnant women reporting for antenatal check-up.
2. Pregnant and non-pregnant women aged 18-30 years.
3. Pregnant and non-pregnant women who had completed high school education and who were able to read Kannada (local language).

Data Collection

A total of 600 participants were included in the study, which consisted of 300 pregnant and 300 non pregnant women. The study was carried out using a standardized proforma. The proforma consisted of three parts.

1. The first part consists of questionnaire related to demographic profile.
2. Second part consisted of self-perceived and OHIP-14 questionnaire.
3. Third part consisted of clinical examination.

Questionnaires

The general information regarding the demographic profile, dental history, diet history, personal habits and oral hygiene practices was collected from the pregnant and non-pregnant women through an interview.

Self-perceived status questionnaire consisted of 10 questions followed by Oral Health Impact Profile (OHIP-14) with a Likert-type scale ranging from 0 (never) to 4 (very often). Each study participants took around 15 minutes to complete the self-administered questionnaire.

Clinical Examination

The examination was done by a single calibrated examiner. Twenty five sets of autoclaved instruments taken for the day-to-day examination. The examination was carried out under the natural light. The clinical examination was carried out to assess the caries experience using decayed, missing and filled teeth index (DMFT index) and for periodontal status Community Periodontal Index with Loss of Attachment using WHO criteria. [7]

Statistical Analyses

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 14.0. Statistical significance was considered at $p < 0.05$ (confidence interval of 95% was taken).Descriptive statistics was done which provided the percentages. The statistical test applied was independent t-test.

RESULTS

A total of 600 women participated in this study out of which 300(50%) were pregnant and 300(50%) were non-pregnant women. Out of 300 pregnant women, 73(24%), 84 (28%), 143(48%) were in first, second and third trimester of pregnancy respectively. Among pregnant and non-pregnant women majority were in the age group of 18-25 years: 224 (74.7%) and 297(99%) in pregnant and non-pregnant groups respectively and 76 (25.3%) pregnant and 3(1%) non-pregnant women were in the

age group of 26-30 years. Among 300 pregnant women, 238(79.3%) had completed high school, followed by 51(17%) with intermediate / post high school diploma and 11(3.7%) had post-graduate qualification.

Among the pregnant women the mean DMFT was 1.67± 2.02; out of which, mean number of Decayed teeth was 1.52±1.79, mean number of Missing teeth was 0.92±0.46 and mean number of Filled teeth was 0.2±0.172.Among the non-pregnant women, mean DMFT was found to be 1.01±1.39, out of which mean number of Decayed teeth was 0.41±0.719, mean number of Missing teeth was 0.01±0.173and mean number of Filled teeth was 0.59±1.20. It was found that mean DMFT was significantly higher in pregnant women compared to non-pregnant women ($p< 0.001$). (Table 1)

TABLE 1: DISTRIBUTION OF THE STUDY GROUPS ACCORDING TO THEIR MEAN DMFT STATUS.

Teeth	Pregnant	Non pregnant	P value
Decayed Teeth	1.52±1.79	0.41±0.719	
Missing Teeth	0.92±0.46	0.01±0.173	
Filled Teeth	0.2±0.172	0.59±1.20	
DMF TEETH	1.67±2.02	1.01±1.39	p<0.001

In the present study, out of 300 pregnant women 23(7.7%) had code 0, 73(24.3%) had code 1, 190(63.3%) had code 2, 14(4.7%) had code 3 and none of them had code 4. Out of 300 non-pregnant women, 47(15.7%) had code 0, 107(35.7%) had code 1, 146(48.7%) code 2, none of them had code 3 and code 4. None of them had Loss of Attachment in accordance with WHO oral health survey methodology, which states that when the CEJ is not visible and the highest CPI score for the sextant is less than 4, any loss of attachment for the sextant is estimated to be less than 4mm (WHO Basic survey 1997). (Table 2)

TABLE 2: DISTRIBUTION OF THE STUDY GROUPS ACCORDING TO THEIR CPI STATUS.

CPI	Pregnant n(%)	Non Pregnant n(%)	Total n(%)
0= Healthy	23(7.7)	47(15.7)	70(11.7)
1= Bleeding	73(24.3)	107(35.7)	180(30.0)
2= Calculus	190(63.3)	146(48.7)	336(56.0)
3= Pocket 4-5mm	14(4.7)	0(0.0)	14(2.3)
4= Pocket 6mm or more	0(0.0)	0(0.0)	0(0.0)
Total	300(100)	300(100)	600(100)

The most self-reported oral health status affecting pregnant women was bleeding gums, decayed teeth and sensitive teeth whereas in non-pregnant women complained of food lodgement, decayed teeth followed by bleeding gums. (Table 3)

TABLE 3: SELF REPORTED ORAL HEALTH IN RELATION TO OHRQOL PREGNANT AND NON PREGNANT WOMEN.

Symptoms	Self - reported oral Health status	Prevalence(n)	
		pregnant	Non pregnant
Bleeding Gums	Present Absent	168 132	126 174
Burning gums	Present Absent	92 208	8 292
Swollen gums	Present Absent	24 276	101 199
Loose teeth	Present Absent	10 290	87 213
Decayed teeth	Present Absent	171 129	129 178
Tooth pain	Present Absent	117 183	81 219
Food lodgement	Present Absent	105 195	203 97
Sensitive teeth	Present Absent	179 121	32 268
Problems performing day to day activities	Present Absent	35 265	142 158
Disturbed sleep	Present Absent	16 284	81 219

Highest mean OHIP-14 scores for pregnant women was to interrupt meals (1.00±0.00), painful aching mouth (0.79±0.63) and diet was unsatisfactory (0.55±1.17) whereas for non-pregnant women had highest mean scores was for sense of taste has worsened (0.9±0.28),Self-conscious (0.68±1.36) and bit embarrassed (0.63±0.9). There was statistical difference

between OHIP-14 between pregnant and non-pregnant women except for had difficulty doing your usual jobs. (Table 4)

TABLE 4: DISTRIBUTION OF THE STUDY GROUPS ACCORDING TO THEIR MEAN OHIP-14.

OHIP-14	Pregnant	Non Pregnant	p-value
Have you had trouble pronouncing any words because of problems with your teeth or mouth	0.03±0.18	0.64±0.97	<0.0001
Have you felt that your sense of taste has worsened because of problems with your teeth or mouth	0.3±0.171	0.9±0.28	<0.0001
Have you had painful aching in your mouth	0.79±0.63	0.17±0.37	<0.0001
Have you found it uncomfortable to eat any foods because of problems with your teeth or mouth	0.15±0.354	0.24±0.65	<0.0356
Have you been self-conscious because of your teeth or mouth	0.16±0.37	0.68±1.36	<0.0001
Have you felt tense because of problems with your teeth or mouth	0.22±0.41	0.53±1.02	<0.0001
Has been your diet been unsatisfactory because of problems with your teeth of mouth	0.55±1.17	0.21±0.41	<0.0001
Have you had to interrupt meals because of problems with your teeth or mouth	1.00±0.00	0.00±0.00	<0.009
Have you found it difficult to relax because of problems with your teeth or mouth	0.38±1.16	0.6±0.24	<0.0014
Have you been a bit embarrassed because of problems with your teeth or mouth	0.22±0.701	0.63±0.9	<0.0001
Have you been a bit irritable with other people because of problems with your teeth or mouth	0.14±0.344	0.45±0.9	<0.0001
Have you had difficulty doing your usual jobs because of problems with your teeth or mouth	0.00±0.058	0.00±0.0	=1.000
Have you felt that life in general was less satisfying because of problems with your teeth or mouth	0.21±0.406	0.43±0.82	<0.0001
Have you been totally unable to function because of problems with your teeth or mouth	0.3±0.18	0.0±0.58	<0.0001

The dimension affecting pregnant women was Physical Disability (0.42±0.9),followed by Psychological discomfort (0.38±0.7) and for non-pregnant women Psychological discomfort (1.21±2.5) and Physical pain (1.03±1.2) was most affected dimension. All the values where greater among non-pregnant women compared to pregnant women which was statistically significant. (Table 5)

TABLE 5: DIMENSION OF ORAL HEALTH RELATED QUALITY OF LIFE AMONG PREGNANT AND NON PREGNANT WOMEN

Dimension	Pregnant	Non Pregnant	p-value
Functional Limitation	0.06±0.35	0.73±.25	<0.000
Physical Pain	0.32±0.72	1.03±1.2	<0.000
Psychological Discomfort	0.38±0.7	1.21±2.5	<0.000
Physical Disability	0.42±0.9	0.82±1.5	<0.000
Psychological Disability	0.28±0.9	1.01±0.2	<0.000
Social Handicap	0.1±0.3	0.4±0.9	<0.000
Handicap	0.24±0.5	0.43±0.8	<0.000

DISCUSSION

Oral health-related quality of life (OHRQoL) is one indicator of oral health. In this study, OHRQoL was assessed with the 14-item Oral Health Impact Profile. This scale measures the negative impact of problems related to teeth, mouth or dentures on physical, psychological and social dimensions of oral well-being. [8]

The study showed mean DMFT which was higher in pregnant women (1.67±2.02) compared to non-pregnant(1.01 ± 0.17) ($p< 0.001$). The decayed component was higher among pregnant women (1.52±1.7) compared to non-pregnant women(0.41±0.7);the missing component was higher among pregnant (0.92±0.4) compared to non-pregnant women (0.01±1.3); the filled component was higher among non-pregnant women(0.59±1.2) compared to pregnant women(0.2±0.17) as non-pregnant women had more dental visit

compared to pregnant women. The caries experience of the present study groups is considerably lower than other studies 5.2 ± 2.9. [5] 9.8±5.1. [9] 4.08 ± 3.6. [2]

In this study pregnant and non-pregnant women had more of code 2 and code 1 respectively but around 14(4.7) had code 4 in pregnant women where none had code 4 in non-pregnant women. The present study had only 14(4.7) pregnant women having code of 4 which is lower compared to a study where 86((33.2) of the study population had periodontal pockets (pocket depth ≥4 mm). [4]

In the present study 10 self-perceived questions regarding bleeding gums, burning gums, swollen gums, loose teeth, decayed teeth, tooth pain, food lodgement, sensitive teeth, difficulty performing day to day activities and disturbed sleep due to pain were administered. It was seen that pregnant women perceived as having decayed teeth, bleeding gums, followed by sensitive teeth whereas non pregnant women perceived as having food lodgement, decayed teeth and bleeding gums.

In this study OHIP which most commonly affected the teeth or mouth among pregnant women was to interrupt meals (1.00±0.00) followed by painful aching in the mouth (0.79±0.63) followed by diet been unsatisfactory (0.55±1.17). Among non-pregnant the OHIP which most commonly affected the teeth or mouth was sense of taste worsened (0.9±0.28), followed by being self-conscious (0.68±1.36) and trouble pronouncing any words (0.64±0.97). One of the studies showed the highest mean score for painful aching in the mouth (1.7±1.1), followed by diet been unsatisfactory and had to interrupt meals (0.6±1.0) affected the teeth or mouth in pregnant women. [4]

A study conducted in Turkey showed that OHIP-14 scores were higher for painful aching and uncomfortable to eat. The OHIP-14 scores were higher in females this may be because females appeared to be more susceptible to disruption by oral disorders.[10] According to a study conducted in Spain in OHIP the main problems were found in worry about the mouth (OHIP-5) 54.5%, followed by pain (OHIP-3) 50.5%, discomfort when eating (OHIP-4) in 32.5% among females. [9]

In the present study the dimension of QHRQoL which affected the pregnant women was physical disability (0.42±0.9), psychological discomfort (0.38±0.7) followed by physical pain (0.32±0.72) among non pregnant women psychological discomfort (1.21±2.5), physical pain (1.03±1.2) and psychological disability (1.01±2) affected the most. In one of the study the pregnant women had more mean score for physical pain (2.7±1.9), followed by physical disability(1.2±1.7) and functional limitation (0.8±1.4) and psychological discomfort (0.8±1.4) and for non-pregnant women highest mean was for physical pain (1.2±1.2) followed by psychological discomfort (0.7±1.1) and physical disability (0.7±1.0). According to the authors perceived impact of oral health on the quality of life among women was low. This may be explained by the facts that most of the younger age group are known to cite a low impact of oral health on quality of life and another possible reason could have been a social desirability bias that may have resulted in the respondents giving lower scores than usual on the OHIP -14 items. Standard reference period of the OHIP-14 i.e. 6 months would have been insufficient to record the impact of pregnancy on OHRQoL. [2]

In another study that the perception of physical and psychological well-being is lower among women in the later stages of pregnancy and the puerperium when compared with the pre pregnancy period.

OHRQoL is reflected by the OHIP-14 scores was uniformly and significantly poorer among those who reported oral health problems than those who did not.[4]

Mean OHIP score for functional limitation was 0.9 and 3.7 for physical pain in a study conducted in Chennai. The author felt that physical pain is the most important factor affecting quality of life this can be explained by the fact that majority of Indians still visit a clinician only for relief of pain as and when it occurs.[5]

A study conducted in Norway showed that the most commonly reported problem was physical pain (56%), followed by psychological discomfort and psychological disability (30%) and in this study women reported higher OHIP-14 scores. Impaired oral health was more often reported by women, younger individuals, those with a lower educational level, irregular seekers of dental care and those who rated their oral health as very poor. [11]

A Thailand study showed that discomfort chewing (15.8%), discomforts with social interaction (12.5%) and pain (10.6%) were the mostly reported. The adverse consequences of oral diseases on daily life including psychological dimension: feeling embarrassed in social settings, especially females. [12]

A Jordan study showed that physical pain as the most commonly reported complaint among women with severe periodontitis. The authors felt that periodontal disease had a negative impact on quality of life and this impact was greater in patients with severe periodontal disease. [13]

Limitations

- The study was hospital based, hence the results cannot be generalized as the study population does not represent the general population.
- OHIP-14 tool is said to be complicated tool as it is difficult to understand and it is mainly dependent on the behavioral and emotional aspect of an individual. Hence the tool may not have measured what it intended to measure.
- In the present study participants who fulfilled the eligibility criteria was taken hence matching of pregnant and non-pregnant women was not done and equal number of pregnant women in each trimester was not taken.
- Hence further longitudinal studies are required to explore the oral health related quality of life among pregnant and non-pregnant women. Pregnant women should be followed up from first trimester to postpartum to know the exact impact of pregnancy on oral health related quality of life. So that appropriate preventive measures can be undertaken during pregnancy.

CONCLUSION

In conclusion in the present study pregnant women had higher scores of OHIP-14 compared to non-pregnant women. This can be due the perception of good oral health among pregnant women and importance given to oral health is less during pregnancy as during the time of pregnancy the foetus is of utmost important.

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