

Oral Health Complaints in Pregnant Women Visiting a Tertiary Care Hospital in Mumbai, India: A Retrospective Observational Study

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ABSTRACT

Introduction: Pregnancy results in a lot of changes within the oral cavity, and recent reports have suggested an association between dental issues and poor pregnancy outcomes. Although many studies indicate that dental procedures can be carried out safely on pregnant patients to alleviate pain and promote better oral health, dental health is not given importance in pregnancy mainly due to fear and misconceptions that dental care can adversely affect the foetus.

Aim: To summarise the dental presenting complaints and clinical examination findings of pregnant women and to evaluate the proportion of those compliant with the respective dental treatment services recommended by the dentist.

Materials and Methods: It was a retrospective observational study analysing data pertaining to all pregnant patients who reported to the Department of Dentistry at Seth G.S. Medical College and King Edward Memorial Hospital in Maharashtra, India between December 2017 and September 2018. There was

no formal sample size estimation, and all eligible patients' data available in the department registry, which was maintained as part of routine clinical care, were analysed. A structured Case Record Form (CRF) was used to collect demographic and clinical data from these registers, and descriptive statistics were used to summarise the data.

Results: The mean±Standard Deviation (SD) age of study sample was 27.69±4.584 years. A total of 81 patients' data were included for the analysis. The most common presenting complaint and examination finding were pain and dental caries, respectively. The most common treatment plan suggested and performed was medication, followed by extraction. The number of patients who followed-up was 37 (45.67%).

Conclusion: Pain and carious tooth were the most common presenting complaint and examination finding, respectively. The proportion of patients who came for follow-up was not adequate, warranting enhanced awareness activities to reduce stigma over dental care during pregnancy.

Keywords: Abdominal pregnancy, Awareness, Dental health service, Oral hygiene, Patient compliance

INTRODUCTION

A woman's body undergoes tremendous transformation throughout the course of pregnancy, and hormonal fluctuations or variations can cause a multitude of changes right upto the molecular level in the oral cavity, especially the gingival tissues [1,2]. On one hand, these hormonal changes can affect the oral biome, causing the proliferation of harmful microorganisms in dental plaque. On the other hand, changes in eating habits and pregnancy-related issues, such as morning sickness or gastric acid regurgitation, can cause severe erosion of the teeth and increase their susceptibility to develop caries [3].

The reported association between poor maternal oral health and obstetric complications, such as premature labour [4], preeclampsia [5], gestational diabetes [6], etc., has gathered much attention in the last two decades. Although causality is unclear, both pregnancy outcomes and dental outcomes have long-term consequences, making it an important issue concerning women's health as a whole [7].

Despite an increasing number of studies and reports indicating that preventive, routine, and emergency dental procedures can be carried out safely on pregnant patients to alleviate pain and promote better oral health [8], dental health during pregnancy is not given the importance it deserves [7]. This is either because women do not have access to dental care during pregnancy or due to fear and misconceptions that dental care can adversely affect the foetus [7]. Thus, the aim of the study was to summarise the presenting complaints and clinical examination findings of pregnant women presenting to the Department of Dentistry and evaluate the proportion of those compliant with the various dental treatment services offered.

MATERIALS AND METHODS

It was a retrospective observational study carried out in a tertiary care referral medical college hospital, Seth GS Medical College and King Edward Memorial Hospital, Mumbai, Maharashtra, India, conducted from January 2019 to December 2019. Data collection was done over the first nine months, and analysis and the final report were prepared in the last three months. The study was approved by Institutional Ethics Committee (IEC) under study reference number EC/OA-164/2018. A consent waiver was obtained from the IEC as the study was retrospective in nature. The study was conducted in accordance with the National ethical guidelines for biomedical and health research involving human participants (Indian Council of Medical Research, 2017), the Declaration of Helsinki (Fortaleza, 2013), and the Indian Good Clinical Practice Guidelines (New Delhi, 2013).

Since, the study was retrospective and descriptive in nature, there was no formal sample size estimation. It was decided to include all eligible participants since the time the data registers had been maintained in the department as part of routine clinical care.

Inclusion and Exclusion criteria: Data pertaining to all pregnant patients who reported to the Department of Dentistry at study Institute between December 2017 and September 2018, and whose details were available in the department registry maintained as part of routine clinical care, were included in the study. Pregnant female inpatients whose dental complaint was only assessed as a part of the referral call from the parent unit and who failed to visit the Outpatient Department (OPD) after discharge were excluded from the study.

Study Procedure

As part of routine clinical care, registers are maintained in the department for all outpatients. A structured Case Report Form (CRF) was used to collect demographic and clinical data from these registers. Some of the information collected included age, educational qualification, trimester of pregnancy, gravida, oral hygiene practices, past medical and dental history, current chief complaints, treatment advised and performed, and follow-up details. The modified Kuppuswamy scale was used to classify education and occupation [9]. Individual patient identities and study records were kept confidential at all times.

STATISTICAL ANALYSIS

The data collected through the Case Report Forms (CRFs) were transferred to an electronic database using Microsoft Excel (Publisher: Microsoft, USA, 2016). Password-protected computers accessible only to researchers or authorised study personnel were used to save the data. Statistical Package for Social Sciences (SPSS) for windows, version 25.0 (Publisher: IBM Corp., USA, 2017) was used for statistical analyses. Socio-demographic characteristics such as age and education were summarised using descriptive statistics. The patient's oral health issues, the rate of acceptance of the dental treatment plan, and the number of patients coming for follow-up were depicted as frequencies and percentages.

RESULTS

The total number of pregnant patients who had been assessed during the study period was 99. Out of this, 18 were excluded as they were pregnant inpatients assessed as part of the referral call from the parent unit but failed to visit the OPD. Thus, the total number of patients who were pregnant and whose data were included in the study was N=81. Pregnant patients who were discharged and excluded from the study were 18. The mean±Standard Deviation (SD) age of study sample was 27.69±4.584 years. The majority 60 (74%) were from urban areas, with approximately 69 (85%) being housewives. The other socio-demographic characteristics are summarised in [Table/Fig-1]. Approximately 29 (35%) were referred by physicians, while the others 62 (65%) came for a dental consultation on their own [Table/Fig-1]. The number of primigravidae was 34 (42%), while the multigravidae were 47 (58%).

The presenting complaints are summarised in [Table/Fig-2]. The most common complaint was pain, followed by swelling, decay,

Characteristics		Frequency (N=81)	Percentage
Location	Rural	16	19.75
	Urban	60	74.07
	Sub-urban	5	6.17
Educational qualification*	No formal education	3	3.70
	Primary	7	8.64
	Middle school	13	16.05
	High school	20	24.69
	Intermediate/Diploma	22	27.16
	Graduate	15	18.52
	Postgraduate/Professional	1	1.23
Occupation*	Homemakers	69	85.19
	Unskilled	5	6.17
	Professionals	7	8.64
Trimester	First	6	7.41
	Second	35	43.21
	Third	40	49.38
Gravida	Primigravida	34	41.98
	Multigravida	47	58.02

Past medical history	No history	62	76.54
	Cardiac disease	3	3.70
	Endocrine disorder	8	9.88
	Neurological disease	3	3.70
	Haematological disorder	3	3.70
	Others	2	2.47
Past dental history	No history	69	85.19
	Restoration	1	1.23
	Oral prophylaxis	2	2.47
	Root canal	4	4.94
	X-ray	2	2.47
	Refused treatment	3	3.70
Basic oral hygiene habits	Brushing once daily	43	53.09
	Brushing more than once daily	38	46.91

[Table/Fig-1]: Demographic characteristics.

*Based on modified Kuppuswamy's scale

growth, reduced mouth opening, tooth replacement, and bleeding gums. The clinical examination findings are summarised in [Table/Fig-3]. The most common finding was dental caries, followed by Pain On Percussion (POP), bleeding gums, and impacted wisdom teeth. The most common treatment plan suggested and performed was medications, followed by extraction. The secondary treatments

Complaints	Quadrant	Frequency (N=81)	Percentage
Pain	1	15	18.52
	2	19	23.46
	3	22	27.16
	4	23	28.40
Swelling	1	1	1.23
	2	0	0.00
	3	4	4.94
	4	0	0.00
Decay	1	2	2.47
	2	2	2.47
	3	3	3.70
	4	6	7.41
Growth	All	1	1.23
Reduced mouth opening	All	1	1.23
Tooth replacement	All	1	1.23
Bleeding gums	All	6	7.41

[Table/Fig-2]: Chief presenting dental complaints.

Examination findings	Quadrant	Frequency (N=81)	Percentage
Caries	1	19	23.46
	2	17	20.99
	3	19	23.46
	4	25	30.86
Impacted wisdom teeth	1	3	3.70
	2	1	1.23
	3	4	4.94
	4	5	6.17
Epulis	All	1	1.23
Trismus	All	2	2.47
POP positive	All	14	17.28
Swelling	All	3	3.70
Bleeding gums	All	13	16.05

[Table/Fig-3]: Dental examination findings.

POP: Pain on percussion

suggested and performed are noted in [Table/Fig-4]. The number of patients who followed-up was 37 (45.67%). The compliance with different procedures ranged from 39% to 100% [Table/Fig-4]. Authors did not perform an analysis for factors predicting treatment refusal as the number of patients who refused any treatment was less 7 (8.6%).

Treatment (N=81)	Advised		Completed		Compliance
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Percentage
Medications	53	65.43	52	64.20	98.11
Oral prophylaxis	79	97.53	31	38.27	39.24
Obtundent dressing	05	6.17	02	2.47	40.00
Restorations	03	3.70	02	2.47	66.67
Extraction	22	27.16	11	13.58	50.00
Biopsy	01	1.23	01	1.23	100.00
Follow-up visits with dental healthcare provider	81	100.00	37	45.68	45.68

[Table/Fig-4]: Treatment, compliance and follow-up details.

DISCUSSION

Pregnancy or gestation is a dynamic physiological state characterised by numerous transient systemic changes in the body. It can lead to local, microbiological, and immunological changes in the oral environment, increasing susceptibility to oral problems that can even result in tooth loss [10]. Therefore, authors conducted a retrospective observational study among pregnant women visiting department of dentistry at a tertiary care referral and teaching hospital. The most common presenting complaint was pain, and the most common examination finding was a dental caries. Medications followed by extraction were the most common treatment plans suggested. The number of patients who refused any kind of dental treatment was very low 7 (8.6%).

Although associations do not always imply causation, data from numerous studies have indicated that poor oral health can have a profound impact on both maternal and foetal health [11]. For instance, physiological alterations in plasma hormonal levels, such as high levels of oestrogen and progesterone during pregnancy, can cause various vascular changes in the oral epithelium [12]. Clinically, these changes primarily manifest as gingival hyperaemia, oedema, and/or exaggerated inflammatory responses to existing dental plaque, leading to gingivitis and pyogenic granulomas [13]. Thus, oral hygiene must be considered an integral part of antenatal care for pregnant women.

In a developing country like India, access to healthcare during pregnancy, especially related to dental or oral problems, is limited by various psychosocial, economic, and cultural factors [14]. It is worth noting that despite our center being located in an urban area, a little over one-fourth of the patients were from rural regions. This may be attributed to the fact that study centre is a tertiary care referral center, and times are changing such that rural dwellers are no longer hesitant to access modern healthcare. On a similar note, 78 (97.5%) of the patients had at least a primary level of education, and 58 (71.6%) had secondary school education. This was higher compared to a recent study conducted by Awasthi MS et al., in Nepal, where they reported 47.4% of participants having secondary education [15]. This could be considered an important driving factor for them to seek dental treatment during pregnancy, as epidemiological studies have shown that a lack of knowledge about the importance of oral hygiene ultimately contributes to poor oral health [16].

Authors found that only 29 (35%) of the patients were referred for dental care by their physicians/ANC providers, while the rest came on their own with symptoms, rather than through routine examinations and prompt referrals by ANC providers before symptom onset. This finding is similar to those from other studies. For instance, Patil S

et al., reported that 85.7% of gynaecologists in their study never examined the oral cavity as a part of routine Antenatal Care (ANC) examinations and rarely referred their pregnant patients to dental care [17]. Similarly, Gupta S et al., reported that 96% of pregnant women had not been educated by gynaecologists about the impact of oral health on pregnancy outcomes [18].

In present study, authors observed that the most common presenting complaint among patients was pain, and the most common clinical presentation was a carious lesion on a tooth. The second most common clinical finding noted was Pain On Percussion (POP), followed closely by spontaneous gingival bleeding. These findings were consistent with previous studies carried out among the general population in India, indicating that dental healthcare services are mostly sought after the onset of pain in India [19]. This is further supported by the fact that 69 (85.2%) of the patients had no history of any dental treatments, highlighting the general lack of routine dental care in the country [20].

An important finding was that in many cases, the delay in seeking dental help had worsened the condition of the tooth, often leading to a situation where the tooth was no longer restorable. Out of the 22 patients who were advised extraction, only half underwent the procedure. Similar trends were also noted with other treatment options such as restorations and endodontic procedures. Only 39.2% of the patients reported for oral prophylaxis, despite emphasising the importance of periodontal health during pregnancy. The follow-up of patients after the procedures was also inadequate. Some possible reasons for inadequate compliance could be myths, cultural/family restrictions, fear of treatment affecting the foetus, and socio-economic barriers [19,21].

Many dental procedures are mistakenly considered unsafe, and studies have shown that women prefer to delay dental treatment or avoid appointments, either by their own initiative or due to the recommendation of others such as family and healthcare professionals [19,22]. On the flip side, the literature is replete with reports that periodontal treatment during pregnancy does not increase the incidence of preterm labour or spontaneous abortions/stillbirths [23]. Additionally, the use of dental anaesthesia for extractions, endodontic or restorative treatment does not pose a significant teratogenic risk to the foetus [24]. Furthermore, although conflicting evidence exists, there are reports that claim better pregnancy outcomes if active periodontal disease is treated. For instance, two meta-analyses have concluded that different periodontal treatments decrease preterm births and marginally decrease the incidence of low birth weight [25,26]. It is also important to note that a good dental health would facilitate better chewing ability for the mother and, therefore, better nutrition for both the mother and the foetus [27]. Thus, expectant mothers, their families, and sometimes even their ANC care providers need to be appraised of these facts by planning proper interventions at an institutional level.

Limitation(s)

The current study has a few limitations. Firstly, the sample size of the study was small. A study with a larger sample size would provide

more accurate estimates. Additionally, since it was a single-centre study, the estimates may not be truly representative of the entire nation or the state of Maharashtra, India, but rather a representation of patients visiting hospitals similar to the one where present study was conducted. Furthermore, although authors intended to perform regression analysis to identify predictors of those who refuse any kind of dental treatment, we were unable to do so due to the small number of cases. Finally, as the hospital is a tertiary care referral centre and teaching hospital, there may be a likely bias towards only complicated or high-risk pregnant patients being referred.

CONCLUSION(S)

In present retrospective observational study of 81 expectant mothers, pain was the most common presenting dental complaint, and a carious tooth was the most common examination finding. Only 35% had been referred by their ANC providers, while the rest reported on their own, and compliance with suggested treatments was inadequate for most procedures. Although there is evidence that pregnancy can worsen existing periodontal conditions, it is also a time when women receive regular medical attention. Thus, this opportunity must be utilised to reinforce the importance of good oral hygiene and health for both the mother and the unborn child. Institutional-level policies must be tailored to dispel myths and reduce stigma surrounding dental care during pregnancy, thereby improving patient compliance and acceptance of dental treatment during pregnancy.

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