Original Article

Prevalence of Dental Pain During Pregnancy

Dental Pain During Pregnancy

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ABSTRACT

Objective: The purpose of this study was to find out how often oral pain is during pregnancy.
Study Design: Cross-sectional observational study
Place and Duration of Study: This study was conducted at the Dental OPD of Chiniot General Hospital Korangi Karachi from Nov 2019 to July 2020 for a period of nine months.
Materials and Methods: This study was initially designed to include 150 pregnant females but due to COVID -19 situation and OPDs closure restrict many pregnant females for their dental check-ups and appointments in Dental OPDs. Thus, the data collected of 90 participants including all stages of pregnancy and the analysis was done on the results of 90 participants. Before the commencement of data collection, each participant was given an informed consent.
Results: Among the study participants (n=90) who sought dental care, 64 (71.1%) presented with dental pain while 26(28.9%) presented with periodontal symptoms.
Conclusion: A high prevalence of dental pain was observed among pregnant women and dental caries was the most specific determinant of the dental pain.
Key Words: Dental pain, Pregnancy, Dental caries, Oral hygiene status

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INTRODUCTION

Pregnancy is a period during which a woman is evolving, she undergoes many changes and adjustments in her body. During pregnancy, a female is experiencing hormonal, biochemical, and physiological alterations in the body due to which many systemic changes occur. The oral cavity is also affected like general health conditions during the gestational period and is highly vulnerable for oral mucosal changes that may be responsible for many dental problems. This may cause orofacial pain[(1)]. When foetal growth reduces the stomach's volumetric capacity in the third trimester, pregnant women frequently increase the frequency and quantity of carbohydrate ingestion. Increased tooth plaque accumulation, acid generation, and dental decay are all linked to these changes[(2,3)].

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Both the general and oral health of pregnant women got affected due to physiological and hormonal fluctuations. Increase in levels of estrogen and progesterone causes dilation and increase permeability of blood vessels, lowering the immune response thus reducing host immunity and cause more vulnerability towards oral infections and inflammation[(4)]. Increase in progesterone and estrogen may lead to hyperemia, edema, bleeding, and increased risk of bacterial infections in oral tissues[(5)]. Pregnant women are more prone to gingivitis, tooth mobility, dental caries, and erosion, and should undergo preventative oral health care as a result[(6,7)]. Due to episodes of acute oral discomfort, pregnant women commonly seek emergency dental care[(8)]. Limits and restrictions that patients and providers face during pregnancy influence dental care. Fear and worry about dental treatment, a lack of information about dental disorders, and misunderstandings about the influence of dental therapy on foetal development are all reasons why pregnant women avoid dental care[(9, 10)]. Furthermore, many dental professionals are unsure if conducting dental treatments on pregnant women is safe [(2, 11, 12)] . Prenatal dental treatment is not typically recommended by obstetricians[(13)]. Despite the fact that tooth discomfort and oral health assistance during pregnancy are significant dental outcomes, in dental care populations, their prevalence and relationship to risk factors have not been adequately studied. This descriptive observational study investigated the

prevalence of dental pain during pregnancy, its connection with sociodemographic variables and oral health problems, and prenatal dental treatment history in a population of pregnant women in Karachi.

MATERIALS AND METHODS

An observational cross sectional study was conducted in Chiniot General Hospital Korangi Karachi. Ethical approval from Ethical Review Board Szabist University was obtained and a permission letter was obtained from Chiniot General Hospital Korangi Karachi for conduction of the research, with the aim to determine the prevalence of dental pain and the associating factors including the major determinant responsible for that pain. The sample size was estimated using Open epi sample size calculator by taking statistics for dental pain as 54.9% (1), margin of error as 8% and 95% confidence level. For this study data was obtained from pregnant females reported with dental pain. All pregnant females aged between 18 to 45 years in all stages of pregnancy coming for routine dental consultations in Dental OPD or emergency department were included. 140 to 150 estimated sample size of pregnant females was calculated. The Sampling technique used was Non-Probability Consecutive Sampling Technique. Consecutive sampling is a sampling technique in which every subject meeting the criteria of inclusion is selected until the required sample size is achieved, the reason for selecting this sampling technique is due to limited time period for data collection and the number of pregnant females visiting dental clinic is also very limited, so keeping time interval in mind I chose consecutive sampling and include every pregnant female visiting dental clinic having dental pain and other dental issues that fits in the inclusion criteria of my study. This study was initially designed to include 150 pregnant females but due to COVID-19 situation and OPDs closure restrict many pregnant females for their dental check-ups and appointments in Dental OPDs. Thus, the data collected of 90 participants including all stages of pregnancy and the analysis was done on the results of 90 participants. Before the commencement of data collection, each participant was given an informed consent. The details of the study were explained and they were not forced to participate if not willing to. From all the participants that were approached, only 2 pregnant females reported with dental pain and were known cases of diabetes mellitus and one patient who refused to be the part of study were excluded. The study participants were interviewed and asked questions about the sociodemographic data that includes age, residence, educational status, marital status, income status of family. They were asked about their presenting complains due to which they need to visit dentist. Pregnancy status (Gravida and trimester) were also asked from the patients. Dental examination was done by trained clinical experts in Dental care unit in Chiniot General Hospital Karachi. Patients were examined while seated on dental chair. The oral hygiene status was then evaluated, presence of visible plaque and calculus was also investigated, gingival bleeding on probing was also examined, carries status was also evaluated that how many carious teeth are present, is the same tooth pointed by patient having dental pain is carious or not. Already treated, filled, extracted, RCT treated teeth were also examined, any trauma history, gingival swelling (localized, generalized), extra oral swelling was also investigated.

Data was analysed by using SPSS software version 21.0. Mean of the data was reported for numeric variables. Frequency and percentage were reported for nominal and categorical variables. Fisher exact test was applied to assess the significance among appropriate variables.

RESULTS

All recruited pregnant women agreed to participate in the study (n = 90; 100 % response rate). Most (44.4 %) of the participants were aged 26–30 years and had obtained undergraduate diplomas (32.2%). The majority (73.3%) of respondents were housewives and 64.4% of them belonged to a middle socioeconomic background. Most (40.0%) women were in the second trimester of pregnancy and 35.6% were expecting their first child. Among the study participants who sought dental care, 71.1% presented with dental pain while 28.9% presented with periodontal symptoms. Although majority (88.9%) of the respondents did not have any comorbidities, 10% of the women had pre-existing hypertension. 78.9% of the participants had difficulty visiting the antenatal dental clinic. The study population are shown in table.

Among the 64(71.1%) participants who presented with pain, 38(42.2%) women exclusively complained of dental pain. 33.3% of the complains were of acute illness i.e. duration of symptom was of less than one week. Dental caries, present in 53.4% of the participants, was the most common associating factors with the history of presenting complain followed by gingivitis (27.8%) and 7.8% presented with both aforementioned associations. Within the study group 77(85.6%) of the women had no pregnancy related complications while 13(14.4%) had gestational diabetes. Details regarding the current antenatal dental visit are present in table 3.

When questioned about dental pain during the current pregnancy, 64 women (71.1%) responded that they have dental pain. 52 women (77.6%) stated that the pain started during gestation and 15 women (22.4%)

stated that they had pain before gestation which is exaggerating during pregnancy. Only 37.8% visited a formal dental set up to address their complaints during their previous pregnancies. The most common reason for the visit during ongoing pregnancy and previous pregnancies was dental pain (67.6%) followed by restorative procedure (14.7%), periodontal procedure (8.8%) surgical procedure (5.9%) and general checkup (2.9%) as illustrated in table: 2.

Table No.1: Demographics

Variable	n(%)
Age groups	
<=25 years	18(20.0)
26-30 years	40(44.4)
31-35 years	27(30.0)
>=35 years	5(5.6)
Education level	
Graduate	29(32.2)
Intermediate	15(16.7)
Masters	14(15.6)
Matric	15(16.7)
Middle school	8(8.9)
Uneducated	9(10)
Employment status	
employed	22(24.2)
Housewife	66(73.3)
Student	2(2.2)
Family income(a)	
High	4(4.4)
Low	28(31.1)
Middle	58(64.4)
Parity status	
Primigravida	32(35.6)
Multigravida	58(64.4)
Stage of pregnancy during dental visit	
first trimester	23(25.6)
second trimester	36(40.0)
third trimester	31(34.4)
Comorbids	
None	80(88.9)
hypertension	9(10.0)
Hepatitis C	1(1.1)
Difficulty in dental visit during recent visit	
Yes	71(78.9)
No	19(21.1)

Table No.2: Dental pain history for on-going pregnancy and previous pregnancies.

Dental pain during current pregnancy	
No	23(25.6)
Yes	64(71.1)
When did the pain begin.	
During gestation/Before gestation	
during gestation	52(77.6)
before gestation	15(22.4)
Previous visit to the dentist during pregnancy	
No	56(62.2)
Yes	34(37.8)
Reason for previous visit during pregnancy	
Restorative procedure	5(14.7)
General check up	1(2.9)
Periodontal procedure	3(8.8)
Surgical procedure	2(5.9)
Dental pain	23(67.6)

Table No.3: Presenting Complain

Variable	n(%)
Presenting complain of current visit	
Dental pain	64(71.1)
Periodontal symptoms	26(28.9)
Associated symptoms with dental complain	
limited mouth opening	2(2.7)
Extra oral swelling	17(23.0)
Sensitivity	4(5.4)
Associated symptoms with periodontal complain	
Bleeding gums	32(43.2)
gingival pain	4(5.4)
Halitosis	3(4.1)
Swollen gums	12(16.2)
Duration of presenting complaint	
< 1 week	30(33.3)
1 week	7(7.8)
2 weeks	6(6.7)
3 weeks	2(2.2)
4 weeks	8(8.9)
>4 week	37(41.1)
History of presenting complain	
Restoration dislodgment	2(2.2)
RCT treated tooth	1(1.1)
Impacted tooth	4(4.4)
Gingivitis	25(27.8)
Fixed Prosthesis dislodgment	1(1.1)
Dental Trauma	2(2.2)
Dental Caries and gingivitis	7(7.8)
Dental Caries	48(53.4)
Pregnancy general health complication	
No	77(85.6)
Yes(Gestational Diabetes)	13(14.4)

After obtaining the history from the patient general discussion regarding oral hygiene concluded that 55.6% did not know the importance of oral hygiene. Only 21.1% of the women brushed teeth twice a day (as recommended) while 6.7% never brushed their teeth. Abstinences from betelnut chewing was advised and regarding their current habits 31.1% used betel nut regularly.90% of the respondents had previous good experiences during dental visits and 55.6% felt anxious during dental check-up.

Only 45.6% of the women visited the dentist before pregnancy mostly for restorative procedure (34.2%) followed by periodontal procedure (29.3%) while dental pain before pregnancy was reported as low as 19.5%.

DISCUSSION

Due to many changes in the body, weakness and changed lifestyle pregnant females neglect the routine dental care and oral hygiene maintenance, which my further worsen their oral conditions and results in adverse pregnancy outcomes. Prenatal health care providers must have clear knowledge about oral health care and they must acknowledge the importance of good oral hygiene and good oral health during pregnancy. They must advice dental visits to pregnant females for early diagnosis and treatment strategies in order to improve the Oral Health Related Quality of Life. Several studies have demonstrated the importance of dental care during pregnancy[14, 15]. However, in a newly issued guideline for the implementation of prenatal care, the World Health Organization does not list oral health as a core component[16]. The current study discovered a significant rate of dental pain among pregnant women, emphasising the significance of including oral health care within prenatal treatment. In this study the prevalence of dental pain among pregnant women was high (71.1%). Amongst the 64 (71.1%) participants who presented with pain, 38 (42.2%) women exclusively complained of dental pain, 33.3% of the complains were of acute illness i.e. duration of symptom was of less than one week. 52 women (77.6%) stated that the pain started during gestational period and only 15 women (22.4%) stated that they had pain before gestation which is exaggerating during pregnancy. In a previous study which was conducted by a prenatal oral health program on pregnant women of all stages of pregnancy reported that 54.9 % women had dental pain during pregnancy, 84.9 % women reported that pain was initiated during the gestational period it was never experienced by them before. Some studies reported 25.8 to 44 % pregnant women with dental pain. Dental visits during pregnancy are reported at varying rates among nations, with Germany reporting the highest rate at 49 percent[17], Kuwait has a 50%[18], in the United Kingdom, the figure is 61 percent[10], in the United States, the percentage ranges from 35 to 43 percent[14, 19] and 90 % in Denmark[20] . Despite the fact that dental treatment is offered free of charge to pregnant women in the United Kingdom, 39% of women did not visit a dentist throughout their pregnancy[10]. A Study conducted on general population to evaluate the dental pain or tooth ache prevalence and they reported a range of 7-32 % cases with severe tooth ache. Gingival bleeding , bad oral hygiene , dental caries are all determinants of dental pain , poor oral hygiene and visible plaque may be a contributing factor as dental plaque if not removed properly may cover an activated carious lesion which continue growing thus resulting in dental pain[4]. A previous study by Acharya noticed that painful mouth and difficulty in eating and chewing have worse effects on quality of life of a pregnant female[1]. Pregnant women most commonly became the sufferer of dental pain due to several dental problems occurring during their gestational periods. Due to several reasons pregnant females avoid the utilization of Dental Services like fear and anxiety, low perception about the safety of dental treatments and various other misconceptions. Some women also do not utilize dental services due to family restrictions.

CONCLUSION

Gestational period is a unique period in a woman's life but it may cause many physiological, physical and mental changes in a woman. All these changes and transformations supports the formation and maturation of a new life. This Study is beneficial as it provides a baseline data about high prevalence of dental pain and dental caries among pregnant women which will be helpful in creating awareness and developing educational programs and strategies for expectant mothers.

Author's Contribution:

Concept & Design of Study:	Madiha Anum
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REFERENCES

1. Shivakumar K, Patil S, Kadashetti V, Suresh K, Raje V. Prevalence of orofacial pain in pregnant women: A cross-sectional study. Ind J Multidisciplinary Dent 2017;7(2):101.
2. Livingston HM, Dellinger TM, Holder R. Considerations in the management of the pregnant patient. Special Care Dent 1998;18(5):183-8.
3. Romero BC, Chiquito CS, Elejalde LE, Bernardoni CB. Relationship between periodontal disease in pregnant women and the nutritional condition of

their newborns. J Periodontol 2002;73(10):1177-83.
4. Krüger MS, Lang CA, Almeida LH, Bello-Corrêa FO, Romano AR, Pappen FG. Dental pain and associated factors among pregnant women: an observational study. Maternal and Child Health J 2015;19(3):504-10.
5. Togoo RA, Al-Almai B, Al-Hamdi F, Huaylah SH, Althobati M, Alqarni S. Knowledge of pregnant women about pregnancy gingivitis and children oral health. Eur J Dent 2019;13(02):261-70.
6. Lieff S, Boggess KA, Murtha AP, Jared H, Madianos PN, Moss K, et al. The oral conditions and pregnancy study: periodontal status of a cohort of pregnant women. J Periodontol 2004;75(1): 116-26.
7. Mendia J, Cuddy MA, Moore PA. Drug therapy for the pregnant dental patient. Compendium of continuing education in dentistry (Jamesburg, NJ: 1995) 2012;33(8):568-70, 72, 74.
8. Hashim R. Self-reported oral health, oral hygiene habits and dental service utilization among pregnant women in United Arab Emirates. Int J Dent Hygiene 2012;10(2):142-6.
9. Dinas K, Achyropoulos V, Hatzipantelis E, Mavromatidis G, Zepiridis L, Theodoridis T, et al. Pregnancy and oral health: utilisation of dental services during pregnancy in northern Greece. Acta obstetricia et gynecologica Scandinavica 2007; 86(8):938-44.
10. Rogers S. Dental attendance in a sample of pregnant women in Birmingham, UK. Community Dental Health 1991;8(4):361-8.
11. Pistorius J, Kraft J, Willershausen B. Dental treatment concepts for pregnant patients--results of a survey. Eur J Med Res 2003;8(6):241-6.
12. Savage MF, Lee JY, Kotch JB, Vann WF. Early preventive dental visits: effects on subsequent utilization and costs. Pediatr 2004;114(4):e418-e23.
13. Strafford KE, Shellhaas C, Hade EM. Provider and patient perceptions about dental care during pregnancy. The J Maternal-Fetal Neonatal Med 2008;21(1):63-71.
14. Gaffield ML, Gilbert BJC, Malvitz DM, Romaguera R. Oral health during pregnancy: an analysis of information collected by the pregnancy risk assessment monitoring system. J Am Dent Assoc 2001;132(7):1009-16.
15. de Oliveira BH, Nadanovsky P. The impact of oral pain on quality of life during pregnancy in low-income Brazilian women. J Orofacial Pain 2006;20(4).
16. Organization WH. WHO antenatal care randomized trial: manual for the implementation of the new model. World Health Organization 2002;9241546298.
17. Günay H, Goepel K, Stock K, Schneller T. Position of health education knowledge concerning pregnancy. Oral-Prophylaxe 1991;13(Spec No): 4-7.
18. Honkala S, Al-Ansari J. Self-reported oral health, oral hygiene habits, and dental attendance of pregnant women in Kuwait. J Clin Periodontol 2005;32(7):809-14.
19. Mangskau K, Arrindell B. Pregnancy and oral health: utilization of the oral health care system by pregnant women in North Dakota. Northwest Dent 1996;75(6):23-8.
20. Christensen LB, Jeppe-Jensen D, Petersen PE. Self-reported gingival conditions and self-care in the oral health of Danish women during pregnancy. J Clin Periodontol 2003;30(11):949-53.