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Assessing Patient Acceptance of Integrating Oral Care with Prenatal Care in a Safety Net Clinic

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Abstract

Background: Lack of adequate oral health has been associated with adverse pregnancy outcomes, and both the American Dental Association and the American College of Obstetrics and Gynecologists advocate oral health care for women while pregnant, especially women served by health centers serving the underinsured and uninsured.

Objective: A Rural, Safety Net Clinic, which provides healthcare to medically underserved persons in the Williamsburg area of Virginia, began offering dental care to pregnant women accessing prenatal care from January 2015. We want to document the clinic's experience with patient acceptance of the free dental care offered.

Methods: We reviewed data on the uptake of dental care from January 2015 to June 2018.

Results: In 2015, 22.9% of women referred had a dental procedure carried out and in 2016 and 2017, the percentages were 26.4% and 29.3% respectively. The percentage for the first half of 2018 was 32.1%. Their two main reasons for declining was having no dental health problems and having issues with transportation.

Conclusion: While the number of pregnant women accepting oral care is rising; less than a third of women in this vulnerable population accepted oral dental care while pregnant. We recommend further exploration of why uninsured and underinsured women decline dental care to determine how to effectively intervene with dental care for low income women to improve pregnancy outcomes.

Keywords: Prenatal care; Dental care; Safety net; Medically underserved

Introduction

Oral cavity infections and inflammations have been associated with higher risk of adverse pregnancy outcomes in diverse populations across the globe [1-7]. The mode of action is hypothesized to be due to the increased immune reaction in the mouth and movement of immune cells from other parts of the body to the mouth to fight the oral infection. Immune cells moving from other parts of the body to the oral cavity results in a negative impact on the symbiotic relationship between in situ bacteria and organs in other parts of the body and leads to these organs being more susceptible to untoward effects including the placenta and amniotic fluid, resulting in compromised situation for the developing fetus [8]. This explains why periodontal disease is associated with a variety of diseases such as atherosclerosis, Coronary Heart Disease, stroke, diabetes and Alzheimer's disease, including adverse pregnancy outcomes [9-13]. Since dental therapy during pregnancy reduces adverse pregnancy outcomes [3], referral for dental care during pregnancy is encouraged [14], especially by clinics serving low income pregnant women [15]. The American College of Obstetrics and Gynecologists released a committee opinion in 2013 and reaffirmed in 2017, stating that "Oral health is an important component of general health and should be maintained during pregnancy" [15]. The American Dental Association also affirmed in 2018, that regular and emergency dental care is safe at any stage during pregnancy [16]. Sampling women from the Rhode Island Vital Records birth database, Oh et al. , found that 52.7% visited a dentist during pregnancy and women who were younger than 30 years of age, not married, with lower education and lower household income and lived in urban areas were less likely statistically to have visited a dentist while pregnant [17]. A study in Florida, retrospectively interviewed African-American women who had delivered within a month and found most women did not receive information on dental care during prenatal visits [18]. The barriers the women noted to getting dental care included lack of insurance, difficulty finding a dentist, low priority given to dental care and misconceptions about the safety and appropriateness of dental care during pregnancy. Also, over 50% had not seen a dentist within a year of getting pregnant. In San Diego health clinics providing prenatal care to the medically underserved, it was found that 55% had not had dental oral care within a year of pregnancy and there was poor dental oral care amongst the women surveyed [19]. A study of prenatal care providers in Florida found that prenatal centers rarely informed patients about the importance of oral health care during pregnancy [20]. The problem of dental caries in pregnancy is associated with less education, lower family income and racial minorities and it is therefore important to have prenatal centers serving the medically underserved provide information and access to oral health care [21].

To improve pregnancy outcomes in low-income populations, many prenatal healthcare centers serving this population have instituted prenatal oral healthcare with varying results. Kerpen and Burakoff [22], used private and public dental facilities as referral for a hospital prenatal center, which focused on reducing poor pregnancy outcomes among the medically underserved in a New York state community. They found that 75% of pregnant women referred returned for multiple dental follow-up visits from a population in which over 70% had not seen a dentist in one year or more before becoming pregnant. In North Carolina, limited success was reported in getting pregnant women to take the dental healthcare provided even when extra administrative steps to support such patients in a safety net clinic were instituted [23]. The report found that only 42% of mothers who attended an appointment completed treatment before delivery. Distance to the clinic was a factor in women not completing treatment and many patients were lost during the referral process from community clinic to the dental center. In a medically underserved population in NY state, in a prenatal clinic which incorporated dental health into prenatal program, they found that by age 2, the children of mothers who were in the program had better dental health outcomes than pregnant women who didn't have prenatal dental care [24]. Providing prenatal dental care information in group prenatal care setting for low income women improved dental outcomes for pregnant women compared to those no provided dental information in their prenatal groups in a study at the University of California, San Francisco [25]. A recent study surveyed physicians in the National Provider Identifier (NPI) database of Medicaid and Medicare providers and found that two-thirds provide dental counseling to pregnant women [23]. There seems to be a consensus that providing dental care to low income pregnant women is important, the effectiveness of counseling and referring pregnant women in a medically underserved population has not been investigated [26]. While integrating oral and dental care is now standard recommendation there are few published studies on the referral behavior of patients and the effectiveness of integration of prenatal care with dental care in a safety net clinic for the medically underserved [27]. In this study we look at the process and outcome of introducing oral healthcare in a safety net clinic providing prenatal services to the medically underserved in Williamsburg, Virginia.

Method

Olde Towne Medical and Dental Center (OTMDC) is a rural, not-for-profit, safety net clinic serving the uninsured and underinsured. The center implemented integration of oral health care into prenatal visits starting in January 2015. In this paper we report the acceptance by patients and the outcome of the integration from January 2015 to June 2018. All women attending the clinic for prenatal care were offered free oral health exams and dental care after brief counseling on the importance of dental care during pregnancy. From October to December 2014, both dental and obstetric providers at the clinic as well as dental and obstetric support staff and front-desk staff were familiarized with the pertinent literature on why the program was important for the patient population served and trained on asking patients if they wanted a free dental referral at the same location. Dental hours dedicated to obstetric patients was set-up as well as walk-in appointments for pregnant patients. The visits were tracked using the electronic health record program, Allscripts. OTMDC was established in 1993 and draws patients from York and James City Counties and City of Williamsburg. There are approximately 15,000 patient visits per year from about 5000 individual patients. Seventy-Eight percent (78%) of the patients are uninsured, 13% are Medicaid/Medicare insured patients and 3% have Medicaid dental insurance. This study only utilized medical records and data from service provision and therefore no IRB approval or informed consent was obtained.

Results

Majority of prenatal patients declined the free dental care offered. From January 1, 2015 to December 31, 2015, 567 pregnant women were referred for dental care, 195 (34.4%) of the women scheduled a dental appointment and 130 (66.7%) of them kept their appointment, 59 were no shows and 6 cancelled, representing 30.2% and 3.1% of women who scheduled appointments. From January 1, 2016 to December 31, 2016, 576 pregnant women were referred for dental care, 216 (37.5%) of the women scheduled a dental appointment and 152 (70.3%) of them kept their appointment, 64 were no shows (29.6%) and none cancelled. From January 1, 2017 to December 31, 2017, 600 pregnant women were referred for dental care and 249 (41.5%) of them scheduled a dental appointment and 176 (70.7%) of them kept their appointment and 82 (33.0%) were no shows. From January 1, 2018 to June 30th 2018, 430 pregnant women were referred for dental care and 198 (46.0%) of them scheduled a dental appointment and 138 (69.6%) kept their appointment and 54 (27.2%) were no shows and 6 (3.0%) cancelled.

In 2015, only 22.9% of women referred for dental care had a procedure from keeping their appointment. In 2016, the percentage was 26.4 and in 2017 it was 29.3%. For January to June 2018, the percentage who had a procedure from the total referred is 32.1%. Many of the women who had dental services had multiple procedures done. The total number of dental procedures carried out in 2015 on prenatal women was 157 on 130 women. Table 1 shows the distribution of dental procedures from 2015 to June 2018. In 2016, 155 dental procedures were carried out on 152 women. In 2017, there were 253 procedures carried out on 176 pregnant women and from January to June 2018, there were 139 dental procedures on 138 pregnant women.

A survey of 65 patients who had repeatedly declined the dental appointment offered on their prenatal visits was carried out, to determine reason for the rejection, and the reasons given were not having a dental problem and therefore seeing no reason to see a dentist, and second was transportation issues. No one mentioned fear of dentists and concerns about the health of their baby or adverse effects on their pregnancy.

Ethnic make-up of the pregnant women who underwent dental procedures in each year is in Table 2. The proportion of Hispanic women in the population has slowly increased with a slow decline in the percentage of White women. Marital status was only available for 2017 and for the first half of 2018 and the percentages are in Table 3. An overwhelming percentage of the women were unmarried (70% in 2017, 71% in Jan to June of 2018).

Procedure	2015	2016	2017	2018 (Jan to June)
Exam	52	39	108	59
Prophylaxis	30	31	43	20
Restorative	15	22	26	24
Extractions	13	14	19	14
Endodontics	1	2	2	0
Emergency	30	37	26	2
Fluoride	16	10	29	20
Total	157	155	253	139

Table 1: Number of types of procedures carried out per year from 2015 to June 2018.

Ethnicity	2015 (%)	2016 (%)	2017 (%)	2018 (Jan-Dec) (%)
Asian	0.06	0.05	0.00	1
Black	16	16	21	20
Hispanic	48	50	59	60
White	23	20	20	17
Other	0.05	0.06	0.00	2
No Ethnic Information	12.9	13.9	0.00	0.00

Table 2: Percentages of each Ethnicity of the pregnant women who underwent dental procedures.

Marital Status	2017 (%)	2018 (Jan to June) (%)
Divorced	0.00	1.00
Married	27.00	25.00
Separated	0.00	1.00
Single	71.00	70.00
Widowed	1.00	3.00
No Marital Information	1.00	0.00

Table 3: Marital status of the pregnant women who accessed oral care from 2017 to June 2018 in percentages.

Discussion

Oral health status is determined by income level in all states in the US and dental safety net clinics such as Olde Towne Medical and Dental Center could contribute to reducing dental health disparities [28]. Integrating prenatal and dental health services at the same location for the uninsured and underinsured should eliminate the effect of cost, referral and transportation issues on getting dental care that are have been identified in surveys as limiting access for this population [27]. The assumed premise is that patients will accept and undergo the dental care they are referred to but patients that fall into the underserved community have complicated issues that go beyond availability of the service. A study that carried out an oral dental health care intervention with home dental cleaning during WIC visits for women on Medicaid, found that 55.8% received the home dental care offered while some were not contactable and some refused treatment [29]. Byrd et al. found only 42% of women completed prenatal treatment even when it was free as part of a safety net provision [26]. The main reason for not completing treatment given was distance, financial and dismissing the need. Even when we provided free dental services at the same location, the percentages of women not accepting a dental appointment were 65.6% in 2015, 62.5% in 2016, 58.5% in 2017 and 67.9% in the first half of 2018. This means that of the prenatal patients of the clinic, dental service provided to patients ranged from a low of 22.9% in 2015 to a high of 32.1% in the first half of 2018. There was a yearly increase, and this could indicate that pregnant women using the clinic have slowly started to accept and value the dental intervention provided but the numbers are still too low to ensure that the women are getting the dental care needed to prevent the untoward effects of poor dental health on their pregnancy.

The issues surrounding why low-income women will choose not to have dental care while pregnant needs further study. A study that included sub-urban women and urban medically underserved women, found that while sub-urban women had better dental health and were more likely to have visited a dentist within 6 months, both groups of women attending had misconceptions about oral health during pregnancy and had no knowledge about the association between dental health and pregnancy outcomes [30]. This indicates a need for a general awareness campaign on the association of dental health and poor birth outcomes. A literature review of studies looking at the association between parental factors and development of early childhood caries, found that there were underlying socio-cultural and psychological factors that had not been fully examined by published reports, and recommended collaboration between psychologists and

dentists to identify the underlying social, psychological and cultural factors that increase the risk of children getting dental caries early in life [31]. These psycho-social and cultural factors don't start after birth but are present in the prenatal period and affecting the pregnancy outcomes and the early childhood health of the child. Some of the issues for low income pregnant women that may need to be evaluated include factors such as chronic depression, fear for the health of the unborn child, lack of understanding of and the fear of dental care. The counseling interviews with our patients in this study revealed none of them stated they were afraid of dentists and none expressed potential ill effects of oral health care on their pregnancy. They mainly dismissed the need for preventive dental care and mentioned transportation issues. Byrd et al. also found transportation mentioned as a reason for not completing dental care for women at safety net clinic such as ours and this is important because dental care usually require several visits [23]. Lack of access to transportation is a leading barrier to accessing healthcare in rural areas and providing transportation incentives has worked in improving attendance of prenatal visits [32,33] and could also be used to incentivize pregnant women to attend their dental appointments. The dismissal of preventive dental care could be due to women perceiving no need for preventive dental care when they experience no pain and carry out routine dental care activities such as brushing and flossing. The dismissal could also be a stand-in for overwhelming issues of lived experiences in poverty, which affect accessibility from a psychological basis. Such lived experiences as having adequate food and shelter and other issues associated with daily living affect accessibility to healthcare [34]. Another possible factor is socio-cultural norms. A study of prenatal patients at two safety net clinics which offered dental care in San Diego found that Hispanic pregnant women had worse dental problems and needed more urgent care and had worse health care practices than Filipina women and women of other races [19], indicating that there may be a socio-cultural factor involved in accepting dental care. Given the large percentage of Hispanic women in our data, a need for focus on the Hispanic community to examine ideas and attitudes towards dental health and to develop interventions targeted specifically at this population may be warranted.

Exploring ways to improve transportation access for low income pregnant women and examining how stressors of everyday living of low-income women affect their uptake of healthcare services in general but prenatal and dental care specifically, needs to be further explored. Lastly, understanding the socio-cultural factors involved in patients rejecting free dental care while pregnant should lead to designing interventions and counselling that directly strike at the issues medically underserved women are concerned about and help improve their birth outcomes and the health of their child. Maternal attitudes towards dental care surely will carry on after delivery and mother's dental health is associated with the dental health of their children past the early childhood period [35]. Setting up women with good dental hygiene while pregnant will help with delivery outcomes and the future dental health and overall health of their children. It is therefore important to further investigate the reasons low-income pregnant women refuse dental care even when provided free. Such an investigation is crucial to determining the right counselling to use to get more low-income pregnant women to accept dental care. Ending dental health disparities will need to go beyond just physical access of having dental offices available but also socio-cultural and psychological access that limits people from taking advantage of the available dental care.

The increase in percentage of Hispanic women and decline in White women in our data over time is possibly tied to the Affordable Care Act which could be slowly taking up some of the underinsured women leaving mostly uninsured women which usually includes a large percentage of immigrants with no access to insurance coverage. Our percentage of unmarried mothers is large given that the percentage of unmarried mothers in the US is at 40% but tends to be higher in racial minorities and women with less education and less income [36] but lower for immigrants [37].

Our study is at one location and the primary purpose of the intervention was not for research but to deliver service and therefore documentation may not have been as high as those required for research.

Conclusion

In conclusion, more research is needed on how safety net clinics like OTMDC can get their pregnant patients to use their dental facilities as part of a comprehensive prenatal care program. Our study indicates that removal of physical and financial barriers to accessing dental care for medically underserved pregnant women attending a safety net clinic does not result in universal uptake and that other issues such as psychosocial, cultural and availability of transportation are barriers that need to be explored.

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Conflict of Interest

None.

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