Knowledge, Attitude and Beliefs of Undergraduate Medical and Dental Students towards Dental Treatment during Pregnancy

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ABSTRACT

Objective: To determine the knowledge, attitudes and beliefs of undergraduate pre-clinical medical and dental students; at the University of the West Indies, towards dental treatment during pregnancy.

Methods: All first and second year students attending the University of the West Indies, Schools of Dentistry and Medicine were invited to participate in a self-administered validated questionnaire which was piloted on the dental interns for item clarity.

Results: Two hundred and seventy-seven students participated in the study. Mean age 20.6 years, 53.8% female, with the major ethnic groups showing 56.2% Indo-Trinidadian and 21% Mixed. Some (12.3%) thought that swollen gums were associated with pregnancy, while 28% of participants felt that bleeding gums were not associated with pregnancy. The majority of participants (61.8%) felt that it was safe to conduct dental examinations during pregnancy however, 27.6% of the participants felt that radiographs were safe during pregnancy. The majority (54%) were uncertain whether pregnancy was associated with tooth decay. More than three quarter of the students (77.9%) were unsure whether oral disease was associated with pre-eclampsia.

Conclusion: These data provide the first insight into the knowledge, attitudes and beliefs of pre-clinical, undergraduate dental and medical students on pregnancy and oral health in the Caribbean. The knowledge of the participants in this study was low, which underscores the need to educate all future health professionals at the preclinical level on the correlation between dental health and pregnancy and the importance of the effects of dental treatment on systemic diseases.

Keywords: Undergraduate, pregnancy, West Indies

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INTRODUCTION

Several studies have shown that there is an association between maternal oral health and the general health of both the pregnant woman and her child (1). Pregnancy is associated with an increased risk of oral conditions such as dental caries, pyogenic granulomas, mobile teeth, gingivitis and periodontitis (2). The incidence of periodontal disease in pregnant women is higher than in non-pregnant women, possibly due to the increase in concentration of oestrogen and progesterone during pregnancy.

Periodontal disease is an inflammatory response, by the host to bacterial infection, which leads to the destruction of the bone and surrounding tissues (3). It is a common chronic infection which has a variable prevalence, between 35- 79%, worldwide (4). Periodontal disease has recently been suggested as a contributory factor to impaired glucose metabolism in women who had a history of Gestational Diabetes (5). Periodontitis has been associated with poor pregnancy outcomes such as pre-term birth, low birth weight and gestational diabetes.

Moreover, it was suggested that periodontal disease may increase the risk of having preterm low birth weight (PLBW) infants. This is as a result of the biologic mediators of inflammatory processes such as prostaglandins E2 and tumor necrosis factor (TNF). The common bacterial product lipopolysaccharide may also have a triggering role which adversely changes the course of pregnancy (5).

Many women do not present for dental care during their pregnancy even though all dental prevention, diagnosis and treatment can be safely provided during the entire pregnancy. 1 This may be due to both the dental practitioner’s and the mother’s knowledge and beliefs about dental care during pregnancy.1 In a study on medical doctors’ attitudes and knowledge of the association between oral health and pregnancy outcomes, it was shown that “physicians do not routinely advise their patients to seek dental care during pregnancy (6).

In general, little is known about health care professionals' knowledge and attitudes regarding oral health care during pregnancy (7) and to the best of our knowledge, there is no such information for undergraduate dental and medical students. Therefore, the knowledge, attitudes and beliefs (KAB) of dental and medical students is important to decrease the paucity of information on this topic.

METHOD

The sampling frame for this study comprised the class register for all first and second year students attending the University of the West Indies, Schools of Dentistry and Medicine were invited to participate in a self-administered questionnaire consisting of twenty-six questions. Those who were in clinical years- three to five or graduates of the U.W.I. School of Dentistry and School of Medicine or were under eighteen years old were excluded from the study.
Undergraduate, pre-clinical students in first and second years of medicine and dentistry were asked by six second year dental students, to participate in the questionnaire prior to their didactic lectures at the Faculty of Medical Sciences. The reason for non-participation was not ascertained.

The questionnaire was based on a validated one used in a similar study on Obstetricians (8) and was piloted on the dental interns at the School of Dentistry for item clarity. The questionnaire was divided into three sections:

(1) The students' demographics, medical or dental year of undergraduate study;

(2) The students' knowledge of associations between pregnancy and oral health;

(3) The students' knowledge of oral health care during pregnancy and attitudes towards oral healthcare during pregnancy.

In sections two and three the responses were yes, no and don't know (Table 1). Ethical approval for the study was given by the University of the West Indies Research Ethics Committee and written consent for the study was obtained from each student. Data collection took place between January and March 2015. Data were analysed using SPSS version 22.0

RESULTS

The reason for non-respondents was not ascertained in our study; however the majority (68%) of non-responders was from the medical undergraduates in year two.

Knowledge of associations between pregnancy and oral health

Some (12.3) % thought that swollen gums were associated with pregnancy, while 28% of participants felt that bleeding gums were not associated with pregnancy (Table 1).

Knowledge of associations between oral health and pregnancy outcomes

There was a general lack of knowledge by the undergraduate students with respect to the effect of oral disease on pregnancy outcomes; few (10.9%) thought that oral disease was associated with preterm birth (Table 1).

Beliefs of safe oral health interventions during pregnancy

The majority of participants (61.8%) felt that it was safe to conduct dental examinations during pregnancy while, 27.6% felt that radiographs were safe during pregnancy. The majority 45.1% did not know if extractions were safe during pregnancy while 33.3% felt that local anaesthesia was unsafe.

Characteristics of the participants

One hundred and sixty of two hundred and seventy-seven students in the first year and 117 of 316 students in the second year of medicine and dentistry participated in the study. There was a response rate of 46.7%. The majority of students (80.5%) were medical undergraduate

students. The participants were aged between 18 and 30 years with a mean age of 20.6 (SD 2). Most participants (53.8%) were female; the main ethnic groups comprised Indo-Trinidadian (56.2%), Mixed (21 %) and Afro-Trinidadian (15.2%) (Table 2).

Attitudes towards oral healthcare during pregnancy

Most of participants (87.4%) stated that they would recommend a dental visit during pregnancy while, 16.5% said they would delay this dental visit. The majority 88.3% would advise their patients to have routine cleanings during pregnancy however, 68% would not advise their pregnant patients to have dental extractions (Figure 1).

DISCUSSION

During pregnancy there is an increased response to dental plaque which leads to swollen gingivae which are prone to bleeding on brushing (9). In a recent study on dental interns (10), most of their participants (92%) agreed that pregnancy increased the tendency to have gingival inflammation, while in our study only 12.3 % thought that pregnancy was associated with swollen and 11.3% thought that pregnancy was associated bleeding gums.

Given that periodontal disease may affect pregnancy outcomes, one study suggests that dentists should play a proactive role in the maintenance of oral health of pregnant women (11). In our study the majority of participants (87%) stated that they would recommend dental visits and 80.4% would not recommend that the dental visit be delayed during pregnancy. This is a positive finding, in that another study on Brazilian public health professionals (7), the authors opined that health care professionals who had more favourable attitudes had a more positive approach to understanding the connection between oral and systemic health.

Pregnancy does not lead to tooth loss; however, only 38.6 % of the participants in this study shared this belief, which is in contrast to a study on Obstetricians, in which the majority of

their respondents correctly responded to this belief. Patients who are pregnant often pay visits to the dentist for tooth related pain and infections. These conditions often require the use of a diagnostic imaging technique to aid in their management. In a study on dental interns (10) more than half (63%) said that there were no problems with x-rays during pregnancy and only 9% did not know, whereas in our study only 27.6 % stated that x-rays were safe and more than half of the students (50.9%) were unsure.

This finding is of interest because the delay of dental treatment during pregnancy due to the postponement of dental radiography may have adverse effect on mother and fetus. Although x-rays are a form of ionizing radiation that can result in cell and DNA damage it has been found that dental radiation exposure to the fetus is negligible (12, 13). The current recommendations are that routine dental radiographs should be avoided during all trimesters of pregnancy but they can and should be used selectively whenever they are needed. All of the various techniques for minimizing the absorbed radiation dose like rectangular collimation of the beam and the use of the lead apron should be undertaken when radiographs are necessary in the pregnant patient. Thus, education of students about the safety of dental radiation during pregnancy students plays an integral role in the future health and well-being of their pregnant patients and their unborn children.

Additionally, only 16.3 % students in our study thought local anesthetic was a safe intervention during pregnancy whereas 60% of the dental interns thought that it can be used (10). This is a negative conclusion with respect to our research as it was found in a study on the oral health care of patients (11) that local anaesthetic can be safely administered to pregnant patients, who are a healthy, once proper aspiration technique and correct dosages are used. In our study, the major responses to the safety of antibiotics during pregnancy was that it was not safe (44.9%) or many (42%) were unsure whereas Amoxicillin was the most commonly prescribed antibiotic of dental interns (96%) in their study (10).

In this study the vast majority of participant's 61% correctly believed that examinations were safe during pregnancy and 95.3% had a positive attitude towards recommending that pregnant patients had dental examinations. This is a much higher than a similar study 6, where only 49 % of medical doctors reported that they advised their pregnant patients to have dental visits and unfortunately 88% advised their patients to delay dental treatment until after pregnancy whereas in our study only 19.5% had this advice. The undergraduate students also had positive attitudes towards routine dental cleanings, where 90.5% state that they would advise this treatment during pregnancy and 76.6% would recommend periodontal cleanings.

The majority of the participants in this study did not know about the relationship between pregnancy and oral health and vice versa and their knowledge was in general poor where only (10.9%) correctly believed that oral disease was associated with preterm delivery and (6.5%) with pre-eclampsia. In addition to this, 17.3% of students found that oral disease was correctly correlated with low birth weight. These results were in contrast to that of the study on Obstetricians in which the majority correctly stated that there was a link between health of gums and pregnancy and periodontitis could eventually cause preterm birth (8). This contrast maybe attributed to the difference in the level of knowledge, between undergraduate medical and dental students and Obstetricians.

The greatest proportion of students (59.3%) stated that their information on oral health and pregnancy was derived from a source other than what was listed in the questionnaire followed by the internet (42.7%). These results were in contrast to the findings on medical doctors (6), in which 85% of medical doctors found books and magazines to be their source of learning this information and in another study on dental interns, their main source was books 61% and 30% internet (10).

The University of the West Indies, Faculty of Medical Sciences, has shared classes for the medical and dental students in the first and second years of undergraduate training. A recent study (7) showed that there should be encouraged opportunities for learning about oral and systemic health; especially since health care professionals who had worked in the public service or had post-grad programs were more favourable to oral health aspects of pregnancy. Moreover, in a study on the training of midwifery students in oral care of pregnant patients, they showed that the attitude of their participants improved three months after an intervention (14). It is therefore believed that this target group of preclinical undergraduate students would be ideal to incorporate classes on the association between pregnancy and oral health.

The participants of this study are not representative of all pre-clinical medical and dental undergraduate students studying in Trinidad and the sample size is small.

CONCLUSION

These data provide the first insight into the knowledge, attitudes and beliefs of pre-clinical, undergraduate dental and medical students on pregnancy and oral health in the Caribbean. The holistic approach of modern day medicine gives direct indication to the importance of correspondence between medicine and dentistry. Given that the knowledge of the participants in this study was low, our findings, illustrate the need to educate not only dentists, but also all future health professionals at the preclinical level on the correlation between dental health and pregnancy and the importance of the effects of dental treatment on systemic diseases.

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Table 1: showing first and second year dental and medical students' responses to the effects of oral disease on pregnancy outcomes, pregnancy effects on oral health and safe oral health interventions in pregnancy

Effect of pregnancy on oral health	Yes (%)	No (%)	Unsure (%)
Swollen gums	12.3	19.9	67.9
Bleeding gums	11.3	28.0	60.7
Excess tooth decay	16.3	29.7	54.0
Tooth loss	10.5	38.6	50.9
Effect of oral disease on pregnancy outcomes			
Preterm birth	10.9	21.1	68.0
Low birth weight	17.3	20.6	62.1
Abortion	4.7	35.4	59.9
Still Birth	5.4	31.8	62.8
Pre-eclampsia	6.5	15.6	77.9
Safe oral Health interventions during pregnancy			
Dental examination	61.8	10.5	27.6
X-ray safety	27.6	21.5	50.9
Dental extraction	26.2	28.7	45.1
Tooth brushing	89.5	1.4	9.1
Flossing	89.8	3.6	6.5
Mouth wash	76.1	8.0	15.9
Local anaesthetic	16.3	33.3	50.0
Antibiotics	13.0	44.9	42.0
Would recommend a dental visit during pregnancy	87.0	12.7	0.4
Would recommend a delayed dental visit during pregnancy	19.6	80.4	-
Attitudes of students towards oral treatment during pregnancy			
Examination	95.3	4.7	-
Routine cleaning	90.5	9.5	-
Periodontal cleaning	76.6	23.4	-
Fillings/Crowns	47.6	52.4	-
Extractions	30.4	69.6	-
Students' sources of information			
Book/Magazine/Pamphlet	21.1	78.9	-
Medical/Dental Journal	16.2	83.8	-
Undergraduate curriculum	17.8	82.2	-
TV	32.4	67.6	-
Internet	42.7	57.3	-
Other	59.3	40.7	-

Table 2: showing characteristics of the participants

Undergraduate program	Frequency	Valid Percentage (%)
Dentistry	54	19.5
Medicine	233	80.5
Age		
18-24	261-277	94.6
25-30	15	5.4
Gender		
Male	128	46.2
Female	149	53.8
Year of Study		
1st	160	57.8
2nd	117	42.2
Ethnicity		
Afro Caribbean	42	15.2
Indo Caribbean	155	56.2
Caucasian	9	3.2
Chinese	1	0.4
Mixed	58	21.0
Other	11	4.0

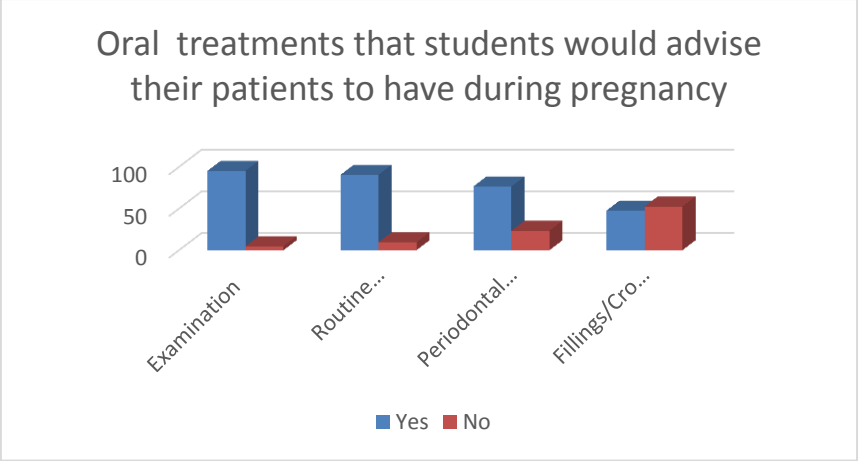

Fig. 1: Attitudes towards oral healthcare during pregnancy.