Knowledge, Attitude and Practice of Dentists Towards Provision of Dental Care to Pregnant Women

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Abstract

Aim : The objective of this study was to evaluate the knowledge, attitude and practice of dentists towards provision of dental care to pregnant women.

Material and Method: A multiple choice questionnaire was self-administered to dentists in Chennai. The collected data was statistically analysed.

Results: Although majority of the dentists were well informed about the management of pregnant patients, dilemmatic attitudes were seen regarding dental radiographs, local anaesthesia and prenatal fluoride supplementation.

Conclusion: This demonstrates the need to broaden the knowledge of dental surgeons via CDE programs and workshops.

Keywords: *Oral health, pregnancy, dentists, knowledge, drugs, radiographs.*

Introduction

Pregnancy begins when the embryo becomes implanted into the endometrial lining of a woman's uterus. In humans, it lasts for approximately nine months. It is divided into 3 trimesters[1]. The gestation period is characterised by both physiological and emotional changes. The hormonal transformations may bring out oral changes, requiring greater assistance from dentists [2-5]. Common symptoms such as gastro-intestinal reflux, nausea and vomiting result in an acidic oral environment that promotes demineralization of tooth enamel and the growth of dental caries causing pathogens [6-9]. Rising levels of oestrogen and progesterone produce an inflammatory response that predisposes women to gingival manifestations like gingivitis, periodontitis, gingival hyperplasia and pyogenic granuloma [6,8]. In fact, pregnancy gingivitis is recognized as the most common oral manifestation in pregnant women [10-12]. Moreover, the increased susceptibility to infections and reduced ability to repair soft tissue caused by hormonal fluctuations increases the risk of developing periodontitis [13]. Untreated periodontitis results in loss of alveolar bone, supporting structures and ultimately in tooth loss [14]. Oral disease during pregnancy could lead to complications beyond the oral cavity. Periodontal disease, has been linked to preeclampsia (pregnancy hypertension) gestational diabetes, preterm birth, low birth weight and still births [15-24].

Pregnancy is a normal physiological phase in a woman's lifetime and warrants the routine preventive and emergency oral health care provided to other members of the general population [25]. The provision of dental treatment during pregnancy is not only safe, it is also an important aspect of antenatal care and is advised by the American Congress of Obstetricians and Gynecologists and the American Academies of Periodontology and Pediatrics [26-31].

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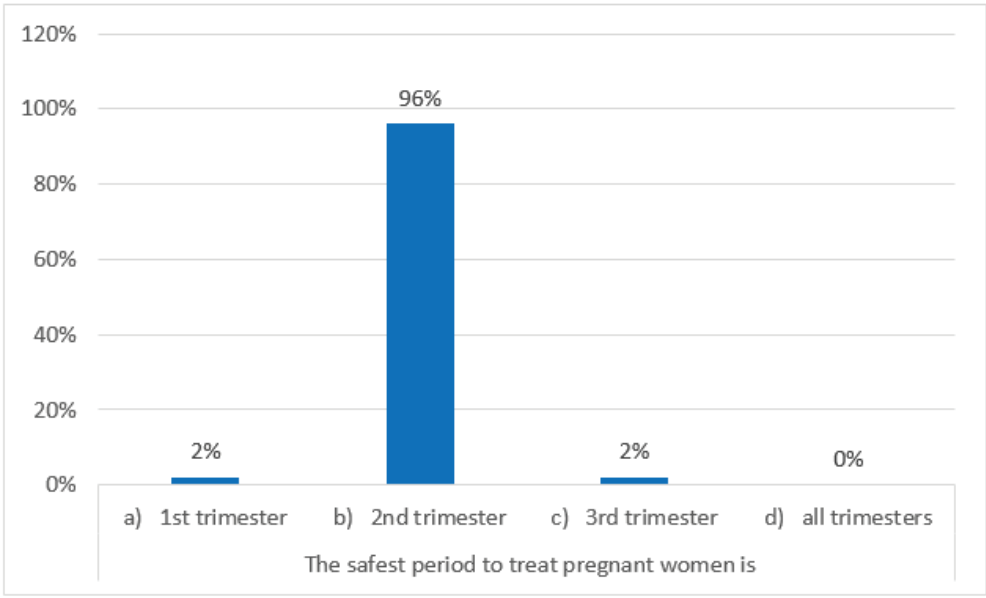
Comprehensive oral examination of pregnant patient is recommended to diagnose disease processes that need immediate treatment to prevent self-medication with unsafe over the counter medications for pain relief [32]. In a study it was found that general dentists with low/moderate knowledge were less likely to provide comprehensive care for the pregnant patient [33]. Efforts to promote oral health of pregnant woman have increased in the recent years due to identified link between maternal transmission of bacterial and early childhood caries [34]. In addition, poor maternal oral health has also been linked to adverse pregnancy outcomes [32, 34, 35]. Nutritional intake of pregnant woman can also be affected due to poor oral health which in turn can impair the supply of nutrients necessary for fetal growth and survival [32].

Most pregnant patients are generally healthy and hence dental treatment need not be denied solely because they are pregnant [32,36]. There is concern among dentists that dental procedures that cause bacteremia may lead to uterine infections, spontaneous abortions or preterm labor. However, there is no evidence that dental procedure induced bacteremias increases the woman's risk of experiencing fetal loss or preterm labor or delivery [37]. Inspite of this, practitioners may hesitate to treat pregnant patients for the fear of injuring either the mother or the unborn child [32,37,38]. This may be due to lack of preparation and the knowledge required, which may aggravate the oral condition of the patient and bring harm to both mother and baby [39, 40]. This reluctance is attributed, to deficiencies in the training of undergraduate dental surgeons [41]. Curricular studies of US and Canadian dental schools suggest changes towards a more interdisciplinary curriculum in collaboration with other professions' health schools, is desirable [42].

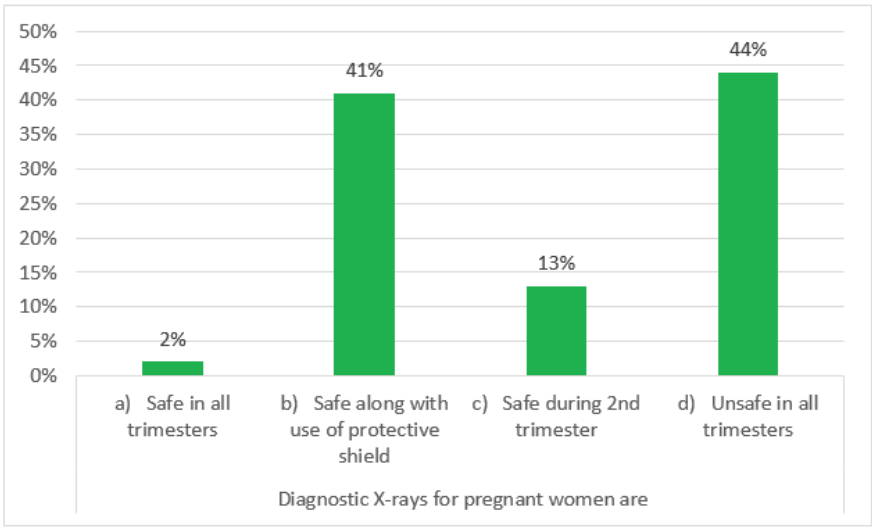
Materials and Method

A cross-sectional survey was conducted among dentists in Chennai in December 2017. The survey instrument was a structured, self-administered multiple choice questionnaire which was developed in consultation with oral medicine specialist to improve its content validity. The study included a random convenience sample comprising of 200 participants. The questionnaire had 20 questions in total, regarding drug administration, infection consequences, oral findings, treatment aspects, and radiation exposure with respect to pregnant patients. Data was collected and statistically analysed using Chi-square test.

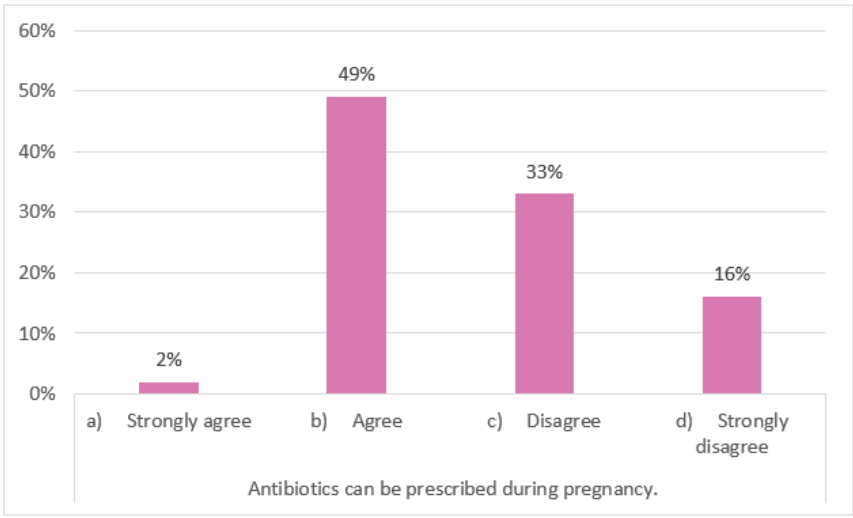
Results



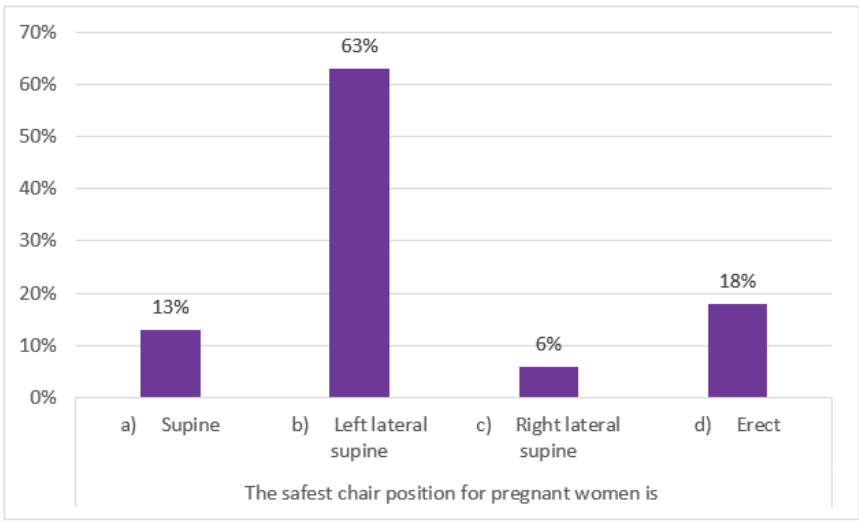
Graph 1: Safest period to treat pregnant women



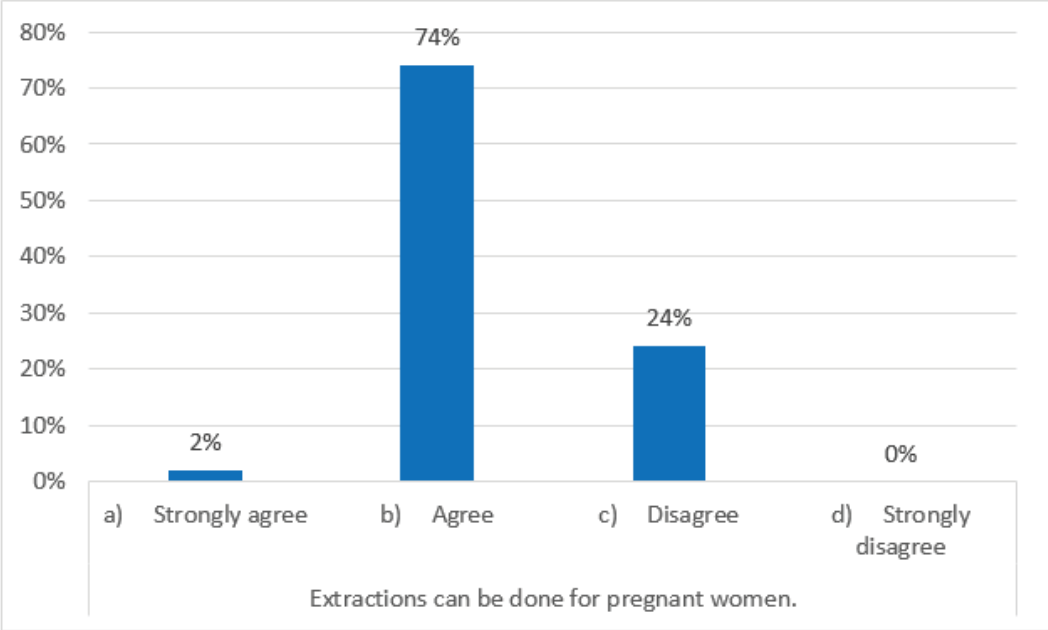
Graph 2: Diagnostic X-rays for pregnant women



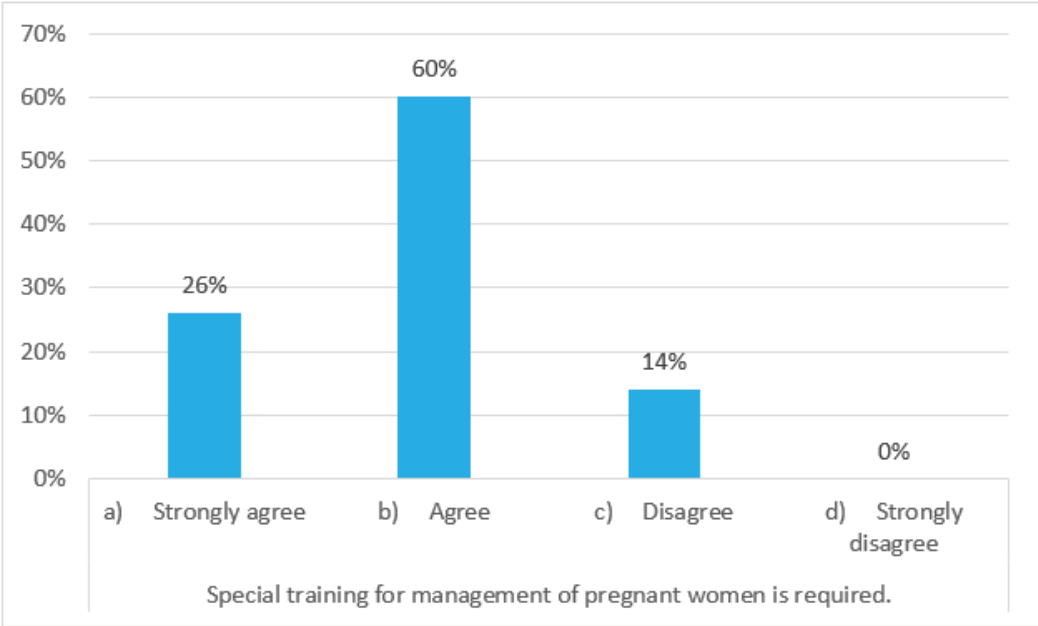
Graph 3: Prescription of antibiotics during pregnancy



Graph 4: Safest chair position for pregnant women



Graph 5: Whether extractions can be done for pregnant women



Graph 6: Whether special training for management of pregnant women is required

Discussion

Most of the study participants (91%) were aware of the fact that the most common oral manifestation in pregnant women is gingival disease. Similar results were obtained in several other studies too [43]. The increase of the level of progesterone in the gingiva increases the synthesis of prostaglandins, being the probable explanation for the intensification of gingival inflammation [44]. Majority of the dentists (96%) knew that the 2nd trimester was the safest period to treat pregnant women (graph 1). During the second trimester organogenesis is completed and hence is the safest period for providing dental care. Though there is no risk to the fetus during the third trimester the pregnant woman may experience discomfort due to the increased size of the

uterus [43]. Dental radiographs can be taken during all the trimesters of pregnancy if standard radiation hygiene practices like use of lead apron and thyroid collar are followed [45]. Estimated fetal exposure from a single dental radiograph is 0.0001 rad. Therefore, it would take 50,000 examinations to reach the cumulative 5-rad dose limit [46]. In our study, 44% of the members considered dental radiography unsafe in all trimesters, 41% of them considered it safe along with use of protective shield, and 13% of them considered it safe during 2nd trimester (graph 2). The results were similar to other studies as well [43,47].

Food and drug administration (FDA) has classified drugs into five categories. Drugs in category a and b are safe for use, whereas those in category c may be used only if the benefits outweigh the risks. Drugs in category d are avoided with some exceptional circumstances, while those in category x are strictly avoided [48]. Most antibiotics permitted by the dentist belongs to category b of FDA classification with exemption of gentamycin and doxycycline both of which fits in to class d. Penicillins and cephalosporins which are beta-lactum ring derived antibiotics are the first choice for orofacial infections [49]. 49% of the participants agreed that antibiotics can be prescribed during pregnancy, while 33% of them disagreed and 16% of them strongly disagreed (graph 3). Regarding the use of antibiotics, 80% of the dentists said they would prescribe amoxicillin for pregnant women, while 11% said cephalosporin. Similar results were seen in several other surveys [43]. Acetaminophen is the most common and safest analgesic used in pregnancy and is categorized in group b by the FDA classification.[50] Most of the participants (74%) were aware of the fact that acetaminophen is the safest analgesic for pregnant women. Anaesthetics such as lidocaine and prilocaine are categorized in class b of the FDA classification. The concentration of epinephrine in a local aesthetic used in dentistry is considered safe provided a check is kept on the proper aspiration technique and the amount injected [51]. In our study, regarding the use of anesthetic, 50% said they would administer lidocaine without adrenaline for pregnant women, while 38% said they would administer lidocaine with adrenaline. Similarly, results from several studies suggest that dentists avoid the use of vasoconstrictors in pregnant women [52]. Regarding inhalation sedation with nitrous oxide, 66% of the participants in our study disagreed with the fact that it is advisable for pregnant women, while 21% agreed with the fact. Nitrous oxide is not listed in the FDA classification as its use during pregnancy is still controversial. It is best to avoid nitrous oxide during first trimester [53]. Regarding inhalation sedation with midazolam oxide, 68% disagreed with the fact that it is advisable for pregnant women, while 18% agreed with the fact. Benzodiazepines are contraindicated during pregnancy, as they could have a teratogenic power [52].

During treatment, the patient should not be placed in the supine position because of the possibility of supine hypotensive syndrome and deep venous thrombosis. If supine hypotension develops, rolling the patient on to her left side affords return of circulation to heart by moving the uterus off the vena cava [43]. 63% of the participants knew that the left lateral supine position is the safest chair position for pregnant women, while 18% of them said erect position was the safest (graph 4). 58% disagreed that prenatal fluoride supplementation (for pregnant women) reduces risk of caries in children, while 34% agreed. Although fluoride is a known substance that prevents tooth decay, fluoride supplements are not necessary for pregnant women because its benefits are proven only in the postnatal stage [43]. It's safe to perform elective procedures i.e. Root canal, extraction, restorations during the 2nd and 3rd trimesters [48]. 74% agreed that extractions can be done for pregnant women, while 24% disagreed (graph 5). 76% of the study participants agreed that root canal treatment can be done for pregnant women and 18% of them strongly agreed. 55% of the dentists disagreed that periapical surgeries can be done for pregnant women, while 36% agreed. 71% of the people agreed that amalgam restorations can be done for pregnant women, while 23% disagreed. 60% agreed and 26% strongly agreed that special training is required for management of pregnant women (graph 6). Similarly, in a study by Praveena Tandradi participants claimed to have "just a little" information and were interested to attend CDE programs [43].

Conclusion

Majority of the dentists in our study were well informed about the dental management of pregnant women. Nevertheless, dilemmatic attitudes were seen in relation to few aspects such as dental radiographs, local anaesthesia administration and prenatal fluoride supplementation. This demonstrates the need to broaden the knowledge of dental surgeons regarding dental care of pregnant women via changes in dental curriculum, CDE programs and workshops.

No conflict of Interest

Ethical Clearance: Taken from Institutional Ethical Clearance Committee

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