



PERCEPTIONS, KNOWLEDGE AND ATTITUDES OF LATIN-AMERICAN HEALTH PRACTITIONERS REGARDING ORAL HEALTH IN PREGNANT WOMEN

Percepciones, conocimientos y actitudes de profesionales de la salud latinoamericanos acerca de la salud bucodental de gestantes

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ABSTRACT

Objective: To identify perceptions, attitudes and knowledge gaps regarding oral health in pregnancy among obstetricians and gynaecologists and health-care practitioners in Latin America.

Materials and methods: Cross-sectional study of specialists in obstetrics and gynaecology, residents, general practitioners and professional nurses. Simple random sampling from a base sample of 680 healthcare practitioners. The sample size was calculated at 103 subjects, with a 95% confidence level, a knowledge prevalence of 65%, and a 10% accuracy. A self-administered questionnaire especially designed on the basis of previous studies was used. Sociodemographic characteristics, knowledge, attitudes and perceptions were measured.

Results: Of 103 professionals selected, there was a total of 84 respondents: obstetricians and gynaecologists (53.6%), general practitioners (23.8%), registered nurses (16.7%) and graduate students of the obstetrics and gynaecology specialty (6%). There was information available from practitioners in 13 out of 19 countries. Of them, 57.1% had not received any training in oral diseases. Of the respondents, 20% had a high level of knowledge, and 25% had a positive attitude.

Conclusion: There are knowledge gaps among the different practitioners surveyed regarding oral health in pregnant women. Training and team work are recommended.

Key words: Prenatal care, oral health, primary healthcare, knowledge, oral diagnosis, attitude.

RESUMEN

Objetivo: identificar percepciones, actitudes y brechas de conocimientos acerca de la salud bucodental de gestantes entre ginecoobstetras y profesionales de salud latinoamericanos.

Materiales y métodos: estudio de corte transversal en especialistas en obstetricia y ginecología,

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médicos residentes, médicos generales y enfermeras profesionales. Muestreo aleatorio simple con un marco muestral de 680 profesionales de salud. Se calculó un tamaño de muestra de 103 sujetos, con un nivel de confianza del 95 %, un valor de prevalencia de conocimientos del 65 % y una precisión del 10 %. Se aplicó un cuestionario autodilucidado, especialmente diseñado a partir de estudios previos. Se midieron las características sociodemográficas, los conocimientos, las actitudes y las percepciones. Se aplicó estadística descriptiva.

Resultados: se obtuvo un total de 84 encuestas de 103 profesionales seleccionados. Estas correspondieron a: ginecoobstetras (53,6%), médicos generales (23,8%), enfermeras profesionales (16,7%) y estudiantes de posgrado de la especialización en ginecología y obstetricia (6%). Se dispuso información de profesionales de 13 de los 19 países. El 57,1 % no había recibido capacitación en patologías orales. El 20 % de los encuestados tuvo un nivel alto de conocimientos, y el 25 % tuvo una actitud positiva.

Conclusión: se presentan brechas de conocimientos entre los diferentes profesionales encuestados acerca de la salud bucodental de las gestantes. Se recomienda capacitación y trabajo en equipo.

Palabras clave: atención prenatal, salud bucal, atención primaria en salud, conocimiento, diagnóstico bucal, actitud.

INTRODUCTION

The American Academy of Periodontology defines periodontal disease as a chronic inflammatory response to the presence of bacterial plaque and, more specifically, to pathogenic microbial complexes that colonise and remain in the subgingival space, forming pathological pockets (1). It is divided into gingivitis and periodontitis. Gingivitis refers to gum inflammation due to the accumulation of dental plaque limited to the gum, not affecting the supporting structures of the teeth. Periodontitis is characterised by compromise of the periodontal ligament and the supporting bone (2, 3). Periodontal disease may lead to loss of teeth and has been

associated with a higher risk of atherosclerosis, rheumatoid arthritis, aspiration pneumonia, poor pregnancy outcomes (4), and poor quality of life in the elderly (5).

Gingival tissue has oestrogen and progesterone receptors that allow these hormones to exert various effects on the tissues, either the epithelium, the connective tissues or the blood vessels (6). Progesterone produces dilation of the gingival capillaries, which is the usual cause of the clinical findings in gestational gingivitis; it is also responsible for the increase in gingival exudate and vascular permeability (7). Gums in pregnant women have a greater inflammatory reaction to plaque, apparently due to the increased gingival crevicular fluid resulting from elevated progesterone levels during pregnancy (8). Oestrogen is metabolised in gingival tissues due to the enzymatic action that transforms estrone into estradiol; this conversion is three times higher in the presence of inflammation and it is an indicator of the degree of clinical inflammation (9). On the other hand, pregnancy predisposes to increased appetite and predilection for unusual foods, leading many times to a diet that is not nutritious or balanced, probably rich in sugar, that may have an adverse effect on dental health (10).

It has been described that periodontal disease is associated with a higher risk of preterm delivery and low birth weight (7), due either to invasion into the foeto-placental unit or to elevated intra-amniotic concentration of PGE-2 and TNF-alpha, physiological mediators of childbirth, secondary to periodontal inflammatory response (4). It has also been reported that pregnant women in Colombia have poor oral hygiene (11), and that poor oral health affects quality of life due to problems with mastication, local pain and physical appearance (12). Consequently, prevention of periodontal disease in pregnant women by means of adequate oral hygiene and timely referral to dental services is of the greatest importance in order to improve oral health, reduce physical problems and prevent a risk factor for poor perinatal outcomes (13).

Treatment of this condition in pregnant women is the same as in non-pregnant women and focuses mainly on controlling the infection and reducing inflammation (14).

Considering that practitioners who are in closest contact with pregnant women during prenatal control are the obstetrician-gynaecologist (OB-GYN) and the nurse, it is important for them to be aware of the changes in the oral physiology, the higher risk of periodontal disease during pregnancy, as well as of the potential association with poor perinatal outcomes. It has been reported that health education provided by the practitioners has a positive influence on the knowledge, attitudes and behaviours of individuals, groups and organisations (13, 15). However, some studies have identified the need for training in the health area, given knowledge gaps in up to 75% of OB-GYN specialists (16).

In the Latin American region, there is little data regarding the level of knowledge provided to the healthcare professionals in charge of caring for pregnant women during their basic and graduate training. The same is true for the knowledge provided during continuing education processes, as well as the everyday perceptions and attitudes regarding oral care in pregnancy, which are needed in order to promote work in multi-disciplinary teams to facilitate comprehensive care for women during this stage. Therefore, the purpose of this study is to identify perceptions, attitudes and knowledge gaps among OB-GYN specialists and other healthcare staff regarding oral health during pregnancy in Latin.

MATERIALS AND METHODS

Cross-sectional cohort study with the participation of specialists in obstetrics and gynaecology, resident physicians, general practitioners and registered nurses who attended the XXth Latin-American Congress of Obstetrics and Gynaecology “FLASOG 2011”, and who agreed to complete our survey. The professionals who did not answer all the items of the survey were excluded.

A simple random sampling was used for the study, using as a sample base a total of 680 health-care professionals who attended the event and whose names were entered in the database on the first day of registration. A confidence level of 95%, a 65% prevalence value of knowledge pertaining to the association between periodontal disease and poor perinatal results (17), and a 10% accuracy were considered for the sample, resulting in a sample of 78 professionals. A final sample size of 103 professionals was defined based on an estimated non-response rate of 30%.

Procedure. For the random selection, the chairs for the attendees to each of the two simultaneous plenary sessions scheduled for the second day of the Congress were numbered, as it was expected that these sessions would attract the largest number of participants. The aim was to avoid scatter in terms of times and rooms where the symposia and discussion fora would take place. A folder with the informed consent, the anonymous survey format, and the information of where to drop the completed survey was left on the selected chairs.

The survey tool consisted of 26 structured items in four domains, namely, sociodemographic information, knowledge about oral pathologies associated with systemic compromise in pregnancy and their adverse effects, attitude towards guiding and providing oral care in pregnant women, and perception regarding certain beliefs and behaviours related to this issue. For content analysis, the questionnaire included questions about knowledge and perceptions of obstetricians regarding oral health in pregnant women, validated in the study by Al-Habashneh *et al.* (18), as well as some questions on beliefs from the study by Strafford *et al.* (19).

A pilot study was conducted with medical and nursing faculty and students who had done their practice in prenatal care. Of 32 items, 6 were removed because they were found not be discriminating, and Cronbach's alpha was 0.813. Values from 1 to 5 were used for the Likert-type scale, where 5 was the rating for the positive “totally agree” statement,

and 1 was the rating for the opposite statement. For the *knowledge* domain, the items were averaged and then recategorised, assigning the following ranges: 3.8-5.0 good, 3.0-3.7 fair, and less than 3.0 poor. For attitude towards the oral health component during consultation with pregnant women, a rating between 4 and 5 was considered positive, 3-3.9 indifferent, and less than 3 was considered negative.

Variables measured. Sociodemographic variables were level of education, type of profession, years of experience, gender, place of origin. Knowledge was defined as the level of scientifically accepted information the professionals had regarding oral hygiene habits, frequent oral diseases and how to prevent them, relationship between oral health and general health and between oral problems and adverse pregnancy outcomes, indications and safety of dental procedures during pregnancy (tooth extraction, root canal therapy, use of anaesthesia, dental X-rays, use of analgesics).

Attitudes were defined as behaviours and the willingness to promote oral health and provide education to pregnant women. They included time invested in discussing oral health, patient education skills, feeling comfortable consulting the dental service, promotion of oral hygiene, personal oral hygiene habits. The professionals were asked whether they felt uncomfortable discussing oral health issues during pregnancy.

Perceptions were defined as the representations of the respondents regarding oral health during pregnancy. Every healthcare professional has the experience of his/her customs, view of the world, and representations of the body, health and disease. The survey delved into perceptions regarding safety, access and need of prenatal dental treatments, communication barriers among the various professionals providing care to pregnant women, and myths and realities about the decline in oral health during pregnancy.

Once the data were collected, they were processed using the IBM SPSS (Statistical package for Social Science) v.22, Program license number Z125-

3301-14, for tabulation and analysis. Frequency and percentage measures were used for the categorical variables and central trend was used for numerical values, with their respective confidence intervals. Two subgroups were created in order to interpret the data by type of profession,; a group of specialists in obstetrics and gynaecology, and a group of all the other professionals.

Ethical considerations. The study was approved by the Ethics Committee of the Public Health Science Doctoral program of Universidad de Guadalajara through official communication DCSP/2011/010 that states that the study does not entail any risk for the participants and will abide by the regulations of the country where it is applied.

RESULTS

Of the 103 professionals initially planned, 84 met the selection criteria and completed the entire survey. The respondents included 53.6% OB-GYN specialists, 23.8% general practitioners, 16.7% registered nurses and 6% graduate students of the obstetrics and gynaecology specialisation program, and 65.5% of the respondents were females. When the respondents were divided into two segments, it was found that the majority were women, both in the group of OB-GYN specialists (51.1%) as well as in the group of all other healthcare professionals (82.1%). Of the 19 countries participating in the Congress, professionals from 13 countries responded the survey, as follows: 29.8% from Nicaragua, followed by 9.5% each from Argentina, Ecuador and México, with a frequency ranging between 1.2% and 8.3% for respondents from Guatemala, Honduras, Panama, Peru, Venezuela, Bolivia, Brazil, Colombia and Cuba. The mean age of all the professionals was 40.5 (95% CI: 37.9-43.1), the mean age being higher for OB-GYN specialists at 47.2 (95% CI: 44.5-49.8), while for the rest of the healthcare professionals, mean age was 32.7 (95% CI: 29.6-35.8).

Knowledge. In terms of knowledge of healthcare professionals regarding oral health in pregnancy, the

mean was de 3.4 (95% CI: 3,2-3,5), and 22 of the respondents (26.4%) had a rating of 3.8 or higher; Table 1 shows averages by type of professional. In terms of training in oral diseases, 22 (48.9%) OB-GYN specialists, 5 (35.7%) nurses, 6 (30%) physicians and 3 (60%) students of the OB-GYN speciality had received some form of training during their academic life.

Associations were reported between oral health and low birth weight, 45 (53.6%); premature birth, 51 (60.7%); premature rupture of membranes, 39 (46.4%); preeclampsia, 25 (29.8%) and no complication, 13 (15.5%). Moreover, 57 (67.8%) agreed with the statement that pregnancy may worsen periodontal disease, and 23 (39.3%) did not agree with the existence of a link between periodontal disease and pre-term delivery because they felt more research is needed. The questions in the knowledge domain that had the best ratings were those associated with the importance of referring the patient from the medical consultation to the dental service, addressing the oral health component during prenatal visits, the use of analgesics during pregnancy, and the importance of not deferring dental treatment during pregnancy. Regarding this item, 55 (65.5%) stated disagreement with deferring dental treatment until after delivery. Knowledge about dental procedures during pregnancy, including tooth extractions, root canal therapy, X-rays of

the mouth, and the difference between gingivitis and periodontitis had a poor rating. There were no significant differences between the group of obstetricians-gynaecologists and the group of all the other professionals. Regarding dental X-rays at any time during gestation, 34 (40.5%) stated disagreement and 15 (17.9%) did not state a position. Root canal therapies are not recommended by 25 (29.7%) of the respondents, and 27 (32.1%) did not state any opinion. Regarding the advisability of using nitrous oxide in pregnant women, 25 (29.7%) agreed that it was not advisable, and 38 (45.2%) did not state an opinion. Regarding tooth extractions, 20 (23.8%) of the respondents would not recommend it and 26 (31%) did not state their opinion.

Attitudes. In terms of the assessment of attitudes among professionals, the mean score was 3.5 (95% CI: 3,4-3,7). Of the respondents, 21 (28.5%) had a positive attitude with regard to promoting oral health and providing education to the pregnant woman. Table 2 shows attitudes by type of professional. The questions with the higher ratings were willingness to promote oral health during the consultation, using the prenatal visit as an opportunity to influence oral health, and time they would be willing to devote to oral health during consultation. The lower ratings were associated with the items pertaining to not feeling comfortable discussing oral issues due to lack of knowledge

Table 1.
Distribution, by profession, of the level of knowledge regarding oral health in pregnant women, among professionals attending the Latin American Congress of Obstetrics and Gynaecology. Managua, Nicaragua, 2011

Profession	n	Mean	95% confidence interval
Physician	20	3,3	3,0-3,5
OB-GYN	45	3,4	3,3-3,6
Nurse	14	3,5	3,3-3,7
Graduate student	5	3,4	2,7-4,1

about dental procedures and their safety during pregnancy, and not having the skills to educate pregnant women regarding oral health. There were no significant differences between the group of obstetricians-gynaecologists and the group of all the other professionals. Inquiry into how they would feel if they had to request a dental consult in a pregnant woman, 44 (52.3%) stated that they would not feel uncomfortable. Of the respondents, 47 (56%) recommended that the dental consultation should take place in the first trimester, and 18 (21.4%) stated that any trimester was good for dental consultation; 10.7% and 2.4% recommended the second and third trimester, respectively. The percentage of pregnant women referred to dental consultation according to medical and nursing professionals was 53.8%, and 25.7% according to OB-GYN specialists. Of the participants, 77.4% promoted oral health among the pregnant women they see, as stated by 65 of the respondents. Nursing professionals were the ones who promoted oral health the most among pregnant women.

Perceptions. In terms of perceptions of whether not much can be done during prenatal visits to influence oral health, 47 (55.9%) respondents disagreed. Of the 84 professionals, 53.6% stated that one-third of the pregnant women they see

attend dental services. Regarding communication among dentists, physicians and nurses with the aim of addressing oral health issues in pregnant women, only 13 (15.50%) stated that there is good communication among professionals of different areas; 42 (50%) reported that communication was not good, and 29 (34.5%) did not state their opinion. Finally, regarding questions on perceptions about myths and realities associated with the decline of oral health in pregnant women, 48% of the respondents agreed that the foetus steal calcium from the mother's teeth, and 66.7% agreed with the statement that a tooth is lost with every pregnancy.

DISCUSSION

This study found knowledge gaps regarding the training on oral diseases and their association with complications during pregnancy and delivery in a representative sample of all the participants of the XXth Latin American Congress of Obstetrics and Gynaecology. Of the respondents, close to 25% had good knowledge of different aspects related to the relevance of dental procedures during gestation, the distinction between diseases such as gingivitis and periodontitis, and about the use of some medications. Regarding attitudes, this study identified a positive attitude in 28.5% of the

Table 2.
Distribution, by profession, of the attitude regarding oral health in pregnancy among professionals attending the Latin American Congress of Obstetrics and Gynaecology. Managua, Nicaragua, 2011

Profession	n	Mean	Intervalo Confianza 95%	Positive attitude	Attitude Indifferent	Attitude Negative
Physician	20	3,4	3,1-3,6	15,0%	50,0%	35,0%
OB-GYN	45	3,6	3,4-3,8	28,9%	46,7%	24,4%
Nurse	14	3,5	3,2-3,8	21,4%	64,3%	14,3%
Graduate student	5	3,6	2,7-4,5	40,0%	40,0%	20,0%

respondents. In terms of perceptions, up to 40% of the professionals have the perception that prenatal control must not include a dental consult, and that there is no good communication with the dentist.

Our findings regarding the level of knowledge are similar to those reported by Rodríguez *et al.* (20) who found a good level in 29.5% of general practitioners and OB-GYN specialists in the city of Bucaramanga, Colombia. Our findings regarding training in oral diseases associated with complications during gestation and childbirth (42.9%) are similar to the figure of 44.6% reported by Araujo *et al.* among OB-GYN specialists in Santa Catalina, Brazil (21), and lower than the 60% reported by Maeda *et al.*, also in Brazil (22). According to the authors of the latter study, the population of pregnant women could receive better care in terms of oral health if obstetrician-gynaecologists were to provide education and refer them to dental consultation, considering that they are the first point of contact with this population. It has been described that education regarding risk factors aimed at preventing oral problems should not be left to the dentist alone (20).

Close to 61% of the practitioners surveyed were aware of the relationship between poor oral health and premature birth. This finding is similar to the 61% reported by Rocha *et al.* (17) among members of the Brazilian Federation of Obstetrics and Gynaecology Societies; the 63% reported by Tarannum *et al.* (15) in the district of Bangalore, Karnataka, India; and the 65% reported by Strafford *et al.* (19) among dentists and obstetricians in Ohio, United States. However, our finding is lower than the 85% reported by Suri *et al.* (16) among obstetricians in Chandigarh, India, and the 78.3% reported por Araujo *et al.* (21), but higher than the 50% reported by Al-Habashneh *et al.* (18) among physicians in northern Jordan, and the 40.4% reported in the study by Rodríguez *et al.* (20).

The behaviour of 65.5% of the respondents of not deferring dental treatment in the pregnant woman

is in contrast with the study by Al-Habashneh *et al.* (18) in which 88% of the respondents suggested postponing dental treatment until after delivery. Regarding referral of the pregnant woman by specialised staff and other healthcare professionals to dental care, the results are similar to those reported by Menoli in Brazil (23).

Our findings regarding referral to dental care in the first trimester (56%) are lower to those reported by Rodríguez *et al.* (20) at 91%, and higher than the results reported by Tirelli (24) in São Paulo, Brazil, where 64.7% of the professionals recommend referral during the second trimester.

Between 24% and 40% of the respondents did not recommend procedures such as tooth extractions, root canal therapies or dental X-rays during pregnancy. This result is similar to that reported by Tarannum *et al.* (15), where 50% and 56% of the respondents considered dental X-rays and tooth extractions unsafe, respectively. In the study by Araujo *et al.* (21) 25.3% of the professionals surveyed were of the opinion that dental X-rays were contraindicated.

This study found very similar results to those reported by Al-Habashneh *et al.* (18) among physicians in northern Jordan regarding their perceptions about two common myths related to the decline of dental health in pregnant women. They found that 57% of the respondents agreed that the foetus steals calcium from the mother's teeth, and 52% agreed with the statement that one tooth is lost with every pregnancy.

As far as the strength of the study is concerned, we did not find any studies in the literature with the participation of different countries in Latin America, looking into knowledge gaps, perceptions and attitudes regarding oral health issues in pregnant women, although relevant studies have been conducted in individual countries (15, 21, 23, 24). The proportion of professionals who responded the survey was slightly lower than the proportion of respondents (95%) to the survey conducted during

the national congress in France (13), but higher than the proportion of respondents (79.2%) in the study on knowledge, attitudes and practices regarding oral health and pregnancy among obstetricians in India (16).

A limitation of the study was that not all the countries participating in the event were represented in the sample (representation of approximately 70%). Our results cannot be generalised to all professionals in the region; however, although the survey was conducted in 2011 and included only a small sample, it provides a general notion of the knowledge about oral health among professionals in charge of providing maternal healthcare in the region.

CONCLUSION

Although an important proportion of healthcare professionals are aware of the potential association between periodontal problems and complications during gestation and delivery, there are knowledge gaps and deficiencies regarding the attitude towards dealing with oral health issues during prenatal visits and referring pregnant women to dental services. This situation calls points to the need to provide updated, scientific-based information and to strengthen interdisciplinary work in the area of oral health in pregnancy.

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