artigo

Hanna, L. M. O., Oliveira, J. S., Reis, A. C. G., Vaz, J. G., Oliveira, E. M.
Nutritional and oral analysis of pregnant women in the maternal infant program of Pará - MINPA

Nutritional and oral analysis of pregnant women in the maternal infant program of Pará - MINPA

Análise nutricional e bucal de gestantes do programa materno infantil do Pará – MINPA

Análisis nutricional y oral de mujeres embarazadas del programa materno infantil de Pará – MINPA

RESUMO

Objetivo: Avaliar o índice de CPOD (dentes cariados, perdidos e obturados) e associá-los ao consumo alimentar e índice de massa corporal (IMC). Método: 31 grávidas fizeram avaliação nutricional para obtenção do IMC e hábitos nutricionais, e avaliação odontológica para obtenção do índice de CPOD. Resultado: 39% das grávidas apresentaram IMC bom, e 61% apresentaram IMC ruim. Das grávidas com IMC bom, 18,18% apresentaram lesão de cárie, 25% tinham elementos obturados e 22,22% apresentavam ausência de algum elemento (perdidos) apenas. Já as grávidas com o IMC ruim, 63,15% apresentavam lesões de caries, 75% tiveram elementos obturados e 77,77% apresentavam ausência de algum elemento (perdidos). Mostrando assim a prevalência de elementos cariados, obturados e perdidos em grávidas que apresentaram o IMC ruim. Estatisticamente, houve significância de 0,046 . Conclusão: Os cuidados e orientações na saúde nutricional e bucal são de extrema importância no período gestacional.
DESCRITORES: Odontologia; Ciências da Nutrição; Gestantes.

ABSTRACT

Objective: To evaluate the DMFT index (decayed, missing and filled teeth) and associate them with food consumption and body mass index (BMI). Method: 31 pregnant women underwent nutritional assessment to obtain BMI and nutritional habits, and dental evaluation to obtain the DMFT index. Result: 39% of pregnant women had a good BMI, and 61% had a bad BMI. Of the pregnant women with a good BMI, 18.18% had a carious lesion, 25% had filled elements and 22.22% had only one missing element. As for the pregnant women with a bad BMI, 63.15% had caries lesions, 75% had filled elements and 77.77% had the absence of some element (lost). Thus showing the prevalence of decayed, filled and lost elements in pregnant women who had a bad BMI. Statistically, there was a significance of 0.046. Conclusion: Care and guidance in nutritional and oral health are extremely important during pregnancy.
DESCRIPTORS: Dentistry; Nutritional Sciences; Pregnant Women.

RESUMEN

Objetivo: Evaluar el índice CPOD (dientes cariados, perdidos y obturados) y asociarlos con el consumo de alimentos y el índice de masa corporal (IMC). Método: a 31 gestantes se les realizó valoración nutricional para obtener IMC y hábitos nutricionales, y valoración odontológica para obtener el índice CPOD. Resultado: el 39 % de las embarazadas tenía un IMC bueno y el 61 % tenía un IMC malo. De las gestantes con buen IMC, el 18,18% presentaba lesión cariosa, el 25% tenía elementos obturados y el 22,22% solo faltaba un elemento. En cuanto a las gestantes con mal IMC, 63,15% tenían lesiones de caries, 75% tenían elementos obturados y 77,77% tenían ausencia de algún elemento (perdido). Demostrando así la prevalencia de elementos cariados, obturados y perdidos en gestantes que presentaban mal IMC. Estadísticamente hubo una significación de 0,046. Conclusión: El cuidado y la orientación en salud nutricional y bucal son de suma importancia durante el embarazo.
DESCRIPTORES: Odontología; Ciencias de la Nutrición; Mujeres Embarazadas

Leila Maués Oliveira Hanna
Professor of the Medicine Course at the State University of Pará. PhD in Pediatric Dentistry from UNICSUL
ORCID: 0000-0002-9913-9883

Juliana de Souza Oliveira
Master in Dental Clinic
ORCID: 0000-0003-1369-9095

Alynne Caroll Galdina Reis
Postgraduate student in Orthodontics and Orofacial Harmonization at IOA.
ORCID: 0000-0001-7416-556X

Jennifer Gomes vaz
Dental Surgeon by UNINASSAU.
ORCID: 0000-0002-8752-9788

Eduardo Miranda de Oliveira
Postgraduate student in orthodontics at IOA.
ORCID: 0000-0001-5352-7314

INTRODUCTION

The associations between oral health conditions, dietary practices, nutritional status and general health status are complex. Inadequate nutrition can affect oral health, including dental caries, periodontal disease, and diseases of the oral mucosa. Compromised oral health can alter food choices and negatively impact food intake, leading to suboptimal nutritional status, leading to chronic systemic diseases. [1]

The incidence of caries in pregnancy is not directly linked to pregnancy, but to the usual changes related to the gestational period, such as an increase in the frequency of food intake, especially carbohydrates and carelessness with oral hygiene, which increases the risk for the development of dental caries. [2]

Some studies suggest that missing teeth and carious lesions are related to an increase in body mass index (BMI). A review of international dietary guides released since the 1960s showed that the majority (84.5%) recommend reducing the consumption of sugars, with the aim of preventing various chronic diseases, especially caries and obesity. Reducing sugar consumption is, therefore, an important measure to promote oral and general health, with health education as a vital strategy. [3] Individuals with a high BMI produce a higher level of inflammatory proteins, a fact that may be associated with periodontal disease.

The DMFT index (Decayed, Missed and Filled Teeth) has been widely used in epidemiological surveys of oral health. It is an index recommended by the World Health Organization (WHO) to measure and compare the experience of dental caries, its value expresses the average number of decayed, lost and filled teeth. These indices are important for understanding the epidemiological conditions of a particular research group. [4]

As it is a national and general problem, which directly affects the health of pregnant women and babies, this research aims to evaluate the DMFT index and associate them with the nutritional indices of pregnant women, such as food consumption and body mass index (BMI). The results of this research will contribute to the advancement of knowledge about the mechanism and impact of biological and psychosocial factors on the determinants of maternal and child health and nutrition, also collaborating in the planning of intervention actions aimed at reducing the risk associated with nutritional disorders and their consequences in the pregnant woman's oral cavity.

METHOD

This research was approved by the Research Ethics Committee, Plataforma Brasil, under opinion 4,953,395.

The inclusion criteria were pregnant women aged between 15 and 50 years, who were between the 4th and 9th gestational period, and who voluntarily agreed to participate in the research by signing the Free and Informed Consent Form (ICF), for pregnant women over 18 years of age, Term of Assent (TA), and TCLE

> The incidence of caries in pregnancy is not directly linked to pregnancy, but to the usual changes related to the gestational period, such as an increase in the frequency of food intake, especially carbohydrates and carelessness with oral hygiene, which increases the risk for the development of dental caries.

artigo

Hanna, L. M. O., Oliveira, J. S., Reis, A. C. G., Vaz, J. G., Oliveira, E. M.
Nutritional and oral analysis of pregnant women in the maternal infant program of Pará - MINPA

for minors for minor pregnant women.

Pregnant women who did not meet the above criteria were excluded.

The study was exploratory and descriptive, with a cross-sectional design and a quantitative approach. The research was developed at the Clínica Escola de Odontologia da Uninassau-Belém in 2019, in which it provided the physical space for the development of the MINPA program authored/coordinated by Prof. Dr. Leila Hanna.

The sample consisted of 31 pregnant women. To carry out the data collection, the pregnant women underwent a nutritional assessment, aiming to obtain specific data to obtain the Body Mass Index (BMI), food, gastrointestinal signs and symptoms, oral supplements, alcohol consumption and smoking. Then, they went to the dental evaluation, where a detailed anamnesis was made and then they underwent a clinical examination, for the analysis of the DMFT index (decayed, lost and filled).

After collecting data, they were submitted to the Fisher and McNemar statistical test, where the level of significance was set, whose (P = 0.046) shows that the Body Mass Index (BMI) and the DMFT index (decayed, missed and filled) are significantly and statistically related. All statistical processing was performed using the BioEstat software version 5.3.

It is worth mentioning that BMI is the acronym for Body Mass Index, a parameter adopted by the World Health Organization to calculate the ideal weight of each person. And its classification is given as follows: greater than 40.0: severe obesity; between 18.5 and 24.9: normal; less than 18.5: thinness.

RESULTS

It was first verified about the age of the pregnant women, and they were divided into groups organized according to table 1.

Then, pregnant women were asked about alcohol use and whether they smoked. Among the 31 pregnant women,

64.52% answered that they did not use alcoholic beverages, 35.48% answered that they did consume alcoholic beverages. When asked about smoking, 83.87% of pregnant women answered that they did not use cigarettes or the like, and 16.13% of pregnant women answered that they still did use cigarettes.

During the nutritional assessment, a survey of data on the pregnant women's meals was also carried out (Table 2), within the questionnaire, it was specified in the question about how many meals they

had in the day, but not numerically, the questions were asked in a way that they would come looking for what these meals would actually be on a routine basis. The results show a certain variance between the pregnant women's meals, which shows that not all of them ate their meals correctly.

After collecting data on the pregnant women's meals, they were asked about the signs and symptoms during pregnancy, including constipation, diarrhea, dysgeusia, emesis, nausea, odynophagia, gastric fullness, burning and reflux. During

Table 1- Age group of pregnant women.

Variables	N°	%
15 to 21 years	06	19,35%
22 to 30 years	15	48,39%
31 to 40 years	08	25,81%
41 to 50 years	02	6.45%

Source: The authors themselves, Belém (PA). (2021)

Table 2 - Meals eaten by pregnant women

Variables	N°	%
Lunch dinner	01	3,33%
Breakfast/Lunch/Dinner	01	3,33%
Breakfast/lunch/dinner/supper	02	6,67%
Breakfast/Snack/Lunch/Dinner/Supper	01	3,33%
Breakfast/lunch/snack/dinner	07	23,33%
Breakfast/lunch/snack/dinner/supper	01	3,33%
Breakfast/snack/lunch/snack/dinner/supper	16	56,67%

Source: The authors themselves, Belém (PA). (2021)

Table 3 - Body mass index of pregnant women

Variables	N°	%
GOOD BMI	12	39%
BMI BAD	19	61%

Source: The authors themselves, Belém (PA). (2021)

artigo

Hanna, L. M. O., Oliveira, J. S., Reis, A. C. G., Vaz, J. G., Oliveira, E. M.
Nutritional and oral analysis of pregnant women in the maternal infant program of Pará - MINPA

the analysis, it was observed that all the pregnant women presented only some of the symptoms in question and that they became more recurrent among them, showing only results in gastric fullness, with 36.36% of involvement in the pregnant women, burning which presented 45.45% and reflux with 18.18%.

Based on weight, height, gestational period, BMI (body mass index) was obtained, they were organized into a good BMI index, where the pregnant women who had adequate weight for the gestation period were, and those with normal weight. The bad BMI index was assigned to pregnant women who were overweight, obese, or underweight, as shown in Table 3 below.

After the nutritional assessment, the pregnant women underwent dental evaluation to obtain the DMFT index (decayed, missing and filled). The results are shown in Table 4. This resulted in an average DMFT of 4.38.

Based on these findings, we sought to verify which dental elements were most affected in pregnant women, whether with good or bad BMI. The results showed higher prevalence in molars and lower prevalence in canines (Table 5).

With the results obtained, it was possible to correlate the body mass index and the DMFT index. The results showed that the most affected pregnant women with carious lesions are specifically the pregnant women who had a bad body mass index. Pregnant women with a good BMI index, which corresponds to 39% of the sample, found a total of 12 elements with carious lesions. In pregnant women with a bad BMI index, which corresponds to 61% of the sample, a total of 73 elements with carious lesions were found.

In pregnant women with a bad BMI index, which corresponds to 61% of the sample, a total of 13 filled elements were found. As well as 26 missing elements.

DISCUSSION

The results of the present research reinforce what has been observed in the scientific literature, that is, the need for interdisciplinarity between nutrition and dentistry during the gestational period. It is imperative that the relationship of the doctor/dentist/patient trinomial be part of preventive policies, therefore, quality care must be developed for pregnant women and babies. [5]

On the other hand, the literature reports that there are still few pregnant women with access to these guidelines. Authors point out that when evaluating the knowledge related to oral health of 237 pregnant women in the city of Araraquara-SP, they found that only 33% received guidance on how to maintain their oral health, with the dentist being the main disseminator (37.3%). A survey carried out in Anápolis-GO, of the pregnant women awaiting medical care in public health centers in the city, only 37.5% had received such information. [5]

It is important that dentists provide dietary advice to their pregnant patients, considering sugary foods, acidic foods and drinks and the way and frequency of ingestion, since sugar is an important dietary factor in the etiology of caries. Within this procedure, the assessment of food consumption helps in the detection of inadequate intake of nutrients and unfavorable habits to the general and oral health of the patient. [6]

The inadequacy of maternal anthropometric status, both pre-gestational and gestational, constitutes an unquestionable public health problem, as it favors the development of gestational complications and influence on maternal and fetus health conditions in the postpartum period, in the same way, several studies associate excessive weight gain during pregnancy with a higher risk of developing hypertension, diabetes, surgical delivery and obesity. [7,8] Studies have shown that women with excessive weight gain during pregnancy are 5.83 times more likely to give birth to a child with macrosomia. [7]

The references obtained with the body mass index (BMI) and the DMFT index of pregnant women prove that this relationship can have an effect both on oral health when it comes to body mass index, and on nutritional status, when it comes

Table 4 - DMFT index of pregnant women		
Variables	**N°**	**%**
CARIED	85	62%
LOST	32	23%
SHUTTERED	21	15%

Source: The authors themselves, Belém (PA). (2021)

Table 5 - Most compromised teeth during pregnancy		
Variables	**N°**	**%**
CANINE	02	1,55%
CENTRAL INCISIVES	04	3,88%
SIDE INCISIVES	04	3,88%
MOLARS	102	73,64%
PRE-MOLARS	26	17,05%

Source: The authors themselves, Belém (PA). (2021)

artigo

Hanna, L. M. O., Oliveira, J. S., Reis, A. C. G., Vaz, J. G., Oliveira, E. M.
Nutritional and oral analysis of pregnant women in the maternal infant program of Pará - MINPA

to oral health, it is very important that the two areas are worked together. Based on the analysis of statistical data, it was found that there is a prevalence of dental elements, decayed, lost and filled in pregnant women who had a bad body mass index.

It is observed that of the pregnant women with a bad BMI, 63.15% had caries lesions, and 36.84% had no carious lesions. Comparing to the good body mass index, only 18.18% had carious lesions and 81.81% had no caries. As for the filled elements, 75% of the pregnant women with a bad BMI had filled elements and only 25% of the pregnant women with a good BMI had filled elements. Only 22.22% of the pregnant women with a good BMI had lost elements, and 77.77% of the pregnant women with a bad BMI had lost elements, showing a significant difference in the DMFT index in pregnant women with a GOOD BMI and a BAD BMI.

The incidence of dental caries is not directly linked to the gestational period, but to nutritional factors, which makes the pregnant woman reduce the amount of food intake during meals and increase its frequency. This attitude results in an increase in carbohydrates in the diet, which, associated with carelessness with oral hygiene, increases the risk of caries. Pregnant women reduce the frequency of brushing, especially in the morning, due to morning sickness, those who maintain the same frequency brush faster with less efficiency. [5]

It is important to emphasize that the salivary flow increases in the first months of pregnancy and the hyperactivity of the salivary glands is a phenomenon without a defined cause. Excess salivary secretion causes nausea and vomiting and, if it persists until the end of pregnancy, causes a drop in the buffering capacity of saliva, an important factor in increasing the risk of dental demineralization. [8]

CONCLUSION

Although pregnancy alone is not responsible for the appearance of dental caries, periodontal disease and other oral manifestations, prenatal dental and nutritional follow-up is necessary with a view to identifying risks to oral health, the need for curative treatment and carrying out educational-preventive actions.

Based on the results obtained, it is noticeable that nutritional and dental actions during the gestational period are extremely important and necessary in the gestational period, as the results found in this research indicate a strong relationship between them.

REFERENCES

1, Gondivkar SM, Gadbail AR, Gondivkar RS, Sarode SC, Sarode GS, Patil S, Awan KH. Nutrition and oral health. Dis Mon. 2019 Jun;65(6):147-154. doi: 10.1016/j.disamonth.2018.09.009. Epub 2018 Oct 4. PMID: 30293649.

2. Moimas S, Rovida T, Garbin C, Santos A, SantosN. Saúde bucal e o emprego de medidas preventivas por pacientes gestantes, j health sci inst. 2015; 33(4): 328-32.

3. Brianezzi L, Al-Ahj L, Prestes L, Andreatta L, Vasconcelos L, Marsicano J, Peres A, Peres S, Impact of obesity on oral health: a literature review. RFO UPF vol.18 no.2 Passo Fundo Mai./Ago. 2013.

4. Cypriano S, Sousa M, Wada R, Avaliação de índices CPOD simplificados em levantamentos epidemiológicos de cárie dentária, Rev. Saúde Pública vol.39 no.2 São Paulo Apr. 2005.

5. Bastiani C, Soares A, Provezano M, Calvo M, Honório H, Rios D; Pregnant's knowledge about oral alterations and dental treatment during pregnancy; Odontol. Clín.-Cient. (Online) vol.9 no.2 Recife Abr./Jun. 2010.

6. Moimaz S, Zina L , Serra F , Garbin C , Saliba N, Análise da Dieta e Condição de Saúde Bucal em Pacientes Gestantes; Pesquisa Brasileira em Odontopediatria e Clínica Integrada, vol. 10, núm. 3, septiembre-diciembre, 2010, pp. 357-363.

7. Gonçalves C, Mendoza R, Cesar J, Castro N, Bortolomedi A. Índice de massa corporal e ganho de peso gestacional como fatores preditores de complicações e do desfecho da gravidez. Revista Brasileira de Ginecologia e Obstetrícia [online]. 2012, v. 34, n. 7.

8. Reis D, Pitta D, Ferreira H, Jesus M, Moraes M, Soares M; Educação em saúde como estratégia de promoção de saúde bucal em gestantes; Ciênc. Saúde coletiva 15 (1) ▪ Jan 2010.