

Odontological assistance in Pre-Natal: Construction and validation of a primary care instrument

Assistência odontológica no Pré-Natal: construção e validação de um instrumento para atenção básica

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ABSTRACT

Dental care during prenatal care is extremely important to prevent oral health problems and is provided by the Ministry of Health in the Primary Care Network. A descriptive study was conducted to develop and validate a specific questionnaire to investigate these services. The tool developed was composed of 17 items and submitted to the evaluation of 10 doctors specializing in health. Responses were analyzed using the content validity index (CVI) and calculated individually for each item, then the instrument's CVI summing them all and dividing by the total, reaching a CVI value of 0.98, which means that the content of the instrument makes it possible to measure what it proposes. The percentage of agreement of all judges for all items of 94.1% was analyzed. The changes suggested by the judges were fully accepted. Subsequently, the version of the instrument was applied to the target population as a pretest. 37 women were invited to answer the questions, which were analyzed according to a Likert scale. The Cronbach's alpha (α) test was used to measure the reliability and internal consistency of the instrument, giving us a score of 0.90 ensuring a proper consistency. Given the results obtained, the proposed instrument is suitable for the evaluation of dental care services offered to pregnant women and duly validated.

Keywords: Dental Care, Pre Natal Care, Validation Studies.

RESUMO

Os cuidados dentários durante os cuidados pré-natais são extremamente importantes para prevenir problemas de saúde oral e são prestados pelo Ministério da Saúde na Rede de Cuidados Primários. Foi realizado um estudo descritivo para desenvolver e validar um questionário específico para investigar estes serviços. A ferramenta desenvolvida foi composta por 17 itens e submetida à avaliação de 10 médicos especializados em saúde. As respostas foram analisadas utilizando o índice de validade do conteúdo (IVC) e calculadas individualmente para cada item, depois o IVC do instrumento somando todos eles e dividindo pelo total, atingindo um valor IVC de 0,98, o que significa que o conteúdo do instrumento torna possível medir o que propõe. Foi analisada a percentagem de concordância de todos os juízes para todos os itens de 94,1%. As alterações sugeridas pelos juízes foram plenamente aceites. Subsequentemente, a versão do instrumento foi aplicada à população alvo como um pré-teste. 37 mulheres foram convidadas a responder às perguntas, as quais foram analisadas de acordo com uma escala de Likert. O teste alfa do Cronbach (α) foi utilizado para medir a fiabilidade e consistência interna do instrumento, dando-nos uma pontuação de 0,90, assegurando uma consistência adequada. Dados os resultados obtidos, o instrumento proposto é adequado para a avaliação dos serviços de cuidados dentários oferecidos às mulheres grávidas e devidamente validado.

Palavras-chave: Cuidados Dentários, Cuidados Pré-Natal, Estudos de Validação.

1 INTRODUCTION

Many transformations in the oral microbiotic of pregnant women are listed in the literature, these physiological, hormonal and behavioral changes predispose women in this period to develop completely avoidable oral pathologies with proper monitoring and

guidance, plus several studies have associated oral problems in mothers and low child birth weight^{1,2,3}.

The National Oral Health Policy (Brasil Sorridente), implemented in 2004, was already seeking the expansion of dental care for pregnant women, bearing in mind that in this phase of life, women are more sensitive to adherence to habits that can improve their well being and promote the health of the child⁴. The literature also states that in this period women seek health services more easily, favoring the identification of patients who present higher risks to develop oral problems and affect the health of the fetus⁴.

Research has shown that the adherence and demand of these women to dental consultations is still low due to the resistance of both women and professionals in performing dental procedures that are bounded by taboos and myths⁵.

Considering that oral health is inseparable when the issue addressed is integral health of the pregnant woman, it is necessary to investigate in order to understand, with propriety, how attention to pregnant women is happening in the midst of this previously exposed context.

Since there is the fact that society is in constant change, Monteiro and Hora⁶ defend that science must accompany these transformations in order to understand them, analyze them and propose solutions to eventual problems, as they are identified and the old ones that have not yet been sufficiently explored.

According to Oliveira et al.⁷ the evaluation of the quality of health care has the possibility of being constructed from the study of the degree of satisfaction of the user, to whom the reason for the existence of a health service is due, however, for this evaluation to be legitimate an ideal instrument for this purpose must be used, considering the specificities of the population that the service is inserted.

In view of the above, this study sought to build and validate an instrument that investigates prenatal care for pregnant women served in the Basic Health Care Network, considering the specificities of this population, so that the weaknesses of the Network can later be understood, guiding strategies to improve care for these women.

2 METHODS

Descriptive study and methodological development, aimed at the validation of the content of the instrument of evaluation in the dental prenatal. The stages of establishing the conceptual structure were followed: definition of objectives and population; construction of the items and the response scale; selection and organization of the items;

structuring of the instrument; expert opinion; pre-test; and validity of content⁸. For this, the Delphi technique was used, by which the expert evaluation is analyzed and discussed on a specific topic⁹.

The study was composed of 10 judge examiners, all doctors and health professionals (2 doctors, 3 nurses, 3 physiotherapists, 1 biologist and 1 pharmacist). These professionals were selected from the Lattes curriculum, using as criteria training in the health area and experience in scientific research. The judges were contacted through e-mail, with an invitation letter, presenting the research proposal, and inviting them to evaluate the questionnaire. Invite was sent to 18 professionals of which 10 participated in the two stages of the research resulted in 8 losses. In cases where the answer was positive, they had access to the electronic form and the informed consent form.

The other part of the participants was composed of users who were in the waiting room of the health units for follow-up, expecting medical and nursing care. All patients who were present on the day of application of the questionnaire followed the schedule of care of the Basic Health Unit until the ideal number of evaluations was achieved. At this point there were no losses; all were present according to predetermined criteria in the study design. These users should necessarily have been accompanied by the Family Health Strategy team in 2017 or 2018. All mothers who did not have prenatal care in the Basic Health Care Network, users under 18 years of age and those diagnosed by the team with some psychological disorder were used as exclusion criteria. These were approached as they arrived for health service care without prior knowledge of the users who would be present. All women were informed about the content of the study and invited to participate on a voluntary basis. Faced with a positive feedback, they were presented to the Informed Consent Form before the application of the form.

The other part of the participants sample was composed of users who were in the reception of the health units for follow-up, awaiting medical and nursing care. All patients who were present on the day of application of the questionnaire following the Basic Health Unit's attendance schedule were selected for participation in the study until the ideal number of evaluations was reached. At this stage there were no losses; all were present and met the predetermined criteria in the study design. These users should necessarily have been accompanied by the Family Health Strategy team in 2017 or 2018. All mothers who did not have prenatal care in the Basic Health Care Network, users under 18 years of age and those diagnosed by the team with some psychological disorder were used as exclusion criteria. These were approached as they arrived for health service care

without prior knowledge of the users who would be present. All women were informed about the content of the study and invited to participate on a voluntary basis. Faced with a positive response, they were presented to the Informed Consent Form before the application of the form.

The calculation of the sample for the pre-test was based on the number of pregnant women attended in the 18 Family Health Units of the municipality of Assú in the year 2017. Thus, the formula proposed by Mattar 10 was used for the calculation of finite populations adding to the final value of "n", 15% related to losses reaching a total of 37 women.

$$n = \frac{Z^2 \cdot p \cdot q \cdot N}{e^2 \cdot (N - 1) + Z^2 \cdot p \cdot q}$$

The survey sample totaled 47 people, 10 judges and 37 users.

Validation of the instrument

The theoretical basis and creation of the evaluative instrument.

The process of construction of the instrument began with the theoretical basis of what is to be studied for operational definition of the construction and its dimensionality. The literature review took place in the Pubmed and Scielo databases considering the studies available in full in Portuguese and English from 2014 to 2019. Validation Studies, Pregnant Care, Pregnant Women, Pregnancy, Prenatal Care, Women's Health, Dental Care were used as descriptors.

After a theoretical basis, the dynamics of validation of the instrument included the following steps: creation of an account in Gmail, and consequently in Google Drive; preparation of a form in Google Drive, with the transcription of the instrument, containing two sections; 1 version of the form ready in September 2018.

The 15 items were judged by 10 experts, in two distinct steps. Kline 11 emphasizes that the construction of a questionnaire must be careful with the quantity of items so that it is not extensive and will annoy the subjects. Weighing this observation, 15 items were considered a reasonable number to measure, in which the patient takes approximately 2 to 3 minutes to respond avoiding fatigue and incongruous responses by the respondents.

Validation of AI through the application of the Content Validation strategy:

At first the instrument approached the profile of the specialist (years of age, time of professional performance and level of education), the name of the professional was

preserved in the questionnaire, however, they were identified by e-mail response to send the second version. Later, the instrument addressed questions regarding dental care to pregnant women, where the judges judged the items appropriate or not, checking the option "agree" or "do not agree" respectively. The judgment of the items was based on the following criteria: relevance of data, relevance, objectivity and clarity of the questioning so that they should meet the four criteria simultaneously to be kept in the instrument. A space for pertinent comments was also made available on each item if they wanted.

The electronic questionnaire was sent on 09/12/2018 by e-mail to 18 judges, all of them health professionals, doctors, and with experience in research, from which 16 answers were obtained. The return presented in this round underwent statistical treatment, and these data were compared with the level of consensus stipulated in the study, defined by the researcher at 80%, a parameter compatible with the scientific literature, in order to maintain or alter items⁹.

The next stage of evaluation (sending the 2nd version of the instrument after changes suggested by the evaluators) started on 20/03/2019, for the 16 specialists who had previously evaluated. The items that had presented less than 80% acceptance in the first version were adequate according to the mentioned suggestions and sent again. 10 replies were returned.

Procedure for analysis

For data organization, the Microsoft Excel 2013 program was used and analyzed in the light of the literature.

In the first moment the first version of the instrument that evaluates dental care in prenatal was judged by experts and the concordance index (CI) was obtained by dividing the total of concordance over the total number of evaluations (concordances + disagreements), values above 80% indicated relevance and good quality of item¹².

To evaluate the data regarding the target population, the internal consistency of the instrument was obtained through the Cronbach Alfa, used to evaluate the magnitude in which the items of an instrument are correlated and which must vary between 0.70 and 0.90 to be considered adequate¹³.

3 RESULTS AND DISCUSSION

Validation of content

In this approach, the Structure refers to the attributes of the facility where the care is provided, including: human, material, financial and organizational structure; the Process has to do with the activities performed to provide the care and the relationships established between professionals and users; and, finally, the result, are the effects on health and changes in user behavior, obtained from the care received¹⁴.

Characterization of the evaluators

The board of experts was composed of 10 evaluators who participated in all stages of the survey, 60% were female, 40% male. The sample was composed entirely of health professionals (3 nurses, 3 physiotherapists, 2 physicians, 1 biologist and 1 pharmacist) all of whom were PhDs and had extensive experience in scientific research. The mean age of the evaluators was 39.3 years (standard deviation \pm 10.59 years). The mean professional experience was 15.6 years (standard deviation \pm 10.84 years).

In the first version of the 15 items evaluated, 13 had acceptance equal or superior to 90% being maintained without change for the second version, while items 6 and 7, had acceptance of 70% of the evaluators. These were modified according to the suggestions of the judges for evaluation of the second version of the instrument.

In the second stage of evaluation, item 6 reached unanimous acceptance by the evaluators, while item 7 reached the percentage of 80%, being kept in the instrument according to criteria previously established in the methodology. The last two open questions were kept as a suggestion of the evaluators in the first stage of evaluation of the instrument.

The content validity index (CVI) was calculated individually for each item and then calculated the CVI of the instrument by adding them all together and dividing by the total. Therefore, a value of CVI - 0.98 was reached, ensuring that the content of the instrument makes it possible to measure what it proposes to measure. Moreover, it was analyzed the percentage of agreement of all judges for all items of 94.1% (Table 1).

Table 1 - Expert judgment (n=10) on items of the instrument for prenatal dental evaluation, 2019.

Question	Accept		Judgment		Inadequate		IVC
	Accept	%	Accepted with amendments	%	Inadequate	%	
1- Did you feel welcomed during the prenatal care follow-up by the primary care team?	10	100	--	--	0	0	1,0
2- Did you participate in pregnant women's groups during prenatal care?	10	100	Does not apply	--	0	0	1,0
3- Did you have trouble scheduling dental appointments during prenatal care?	10	100	Does not apply	--	0	0	1,0
4- Did you receive oral health information from the nurse, doctor, dentist, or other professional during prenatal care?	9	90	1	10	0	0	1,0
5- How many consultations did you have with the dentist during the prenatal period?	10	100	Does not apply	--	0	0	1,0
6- Were dental appointments previously scheduled?	7	70	3	30	0	0	1,0
7- Did you have priority in dental care over other patients?	7	70	1	10	1	10	0,80
8- Did you experience any discomfort during dental care? What (is)?	10	100	Does not apply	--	0	0	1,0
9- Was there a moment of conversation between you and the dentist before the dental evaluation?	10	100	Does not apply	--	0	0	1,0
10- Did you experience any dental discomfort during pregnancy?	10	100	Does not apply	--	0	0	1,0
11- Did you have trouble making dental appointments? Which one(s)?	10	100	Does not apply	--	0	0	1,0
12- Were you provided with the options for the service timetable, so that you could choose what best suited your routine?	10	100	Does not apply	--	0	0	1,0
13- During your appointment with the dentist, did you receive guidance on healthy habits related to oral health?	10	100	Não se aplica	--	0	0	1,0
14- Do you think it's important to have dental care during prenatal care?	10	100	Não se aplica	--	0	0	1,0
15- During pregnancy, did you seek any particular dental service?	10	100	Não se aplica	--	0	0	1,0

All the evaluators' suggestions were complied with, while they made the items more understandable and specific for dental prenatal investigation provided at SUS.

Items 3, 6 and 7 were modified according to the evaluators' suggestions as to which service the questioning was referring to, which provides the user with greater clarity in the questioning, and the researcher with less possibility of bias in the user's interpretation.

Item 8, even having 100% acceptance in the first evaluation of the questionnaire, was considered by some of the evaluators that the term "discomfort" would not be enlightening for the investigation in question, thus fitting several interpretations of the patients, so it was suggested to add at the end of the questioning the term "which" providing the researcher with the most complete and relevant information to guide decision making. The same suggestion was followed for item 11, knowing the difficulties, and not only knowing if they exist or not, perfects the information obtained. The two free speech questions were kept in the questionnaire at the suggestion of the judges and the decision of the authors as a complementary form, because it provides pregnant women to freely argue about dental care (Table 2).

Table 2 - Suggestions from specialists (n= 10) about the items considered appropriate with changes for evaluation of dental care at prenatal, 2019.

Inicial Questioning	Expert's suggestion	Accepted with amendments	Acceptation
3-Did you have trouble scheduling prenatal appointments?	Specify what type of query.	Você teve dificuldade para agendar as consultas odontológicas durante o pré-natal?	Yes
4- Did you receive oral health information from the nurse, doctor, during prenatal care?	Mention in the questioning all the basic attention team.	Você recebeu informações sobre saúde bucal pelo enfermeiro(a), médico(a), dentista, ou outro profissional durante o pré-natal?	Yes
6- Were the appointments previously scheduled?	Specify with which professional, since the consultations during the pre-Christmas stay previously scheduled.	As consultas odontológicas ficavam previamente agendadas?	Yes
7- Did you have priority in the care over other patients?	Especificar o tipo do atendimento já que há dia específico para atendimento à gestante para o médico e enfermeiro.	Você teve prioridade no atendimento odontológico em relação aos demais pacientes?	Yes

8- Did you experience any discomfort during dental care?	Add what kind of discomfort, since "discomfort" is vague and subjective.	Did you experience any discomfort during dental care? What (is)?	Yes
11- Did you have trouble making the dental appointments?	Make room for the patient to specify what kind of difficulty, so that the result makes sense.	Did you have trouble making dental appointments? Which one(s)?	Yes

Pre-Test Evaluation

Following the adjustments made on the basis of the judges' evaluations, the instrument was subjected to a pilot test to address the requirements of semantic analysis. In this respect, it was found that there was no difficulty in using it. For the users of the Basic Attention service provided by SUS, the questionnaire with Likert type scale was applied, in which each item presented four answer options. The choice of this type of scale for the population was made by offering more details about the population's understanding of the instrument. Thus, after expert evaluation and modifications, the final version was used at this stage (Table 3).

Table 3 - Reliability of the instrument items: dental evaluation during prenatal.

Question	Average of Scale without item	Question-total correlation	A
1. Did you feel welcomed during the prenatal care follow-up by the primary care team?	69,72	0,58	0,90
2. Did you participate in pregnant women's groups during the prenatal period?	69,86	0,44	0,90
3. Did you have trouble scheduling dental appointments during prenatal care?	70,10	0,48	0,90
4- Did you receive oral health information from the nurse, doctor, dentist, or other professional during prenatal care?	69,78	0,45	0,90
5- How many consultations did you have with the dentist during the prenatal period?	70,10	0,82	0,89
6- Were the dental appointments previously scheduled?	69,81	0,68	0,90
7- Did you have priority in dental care over other patients?	69,97	0,78	0,89
8- Did you experience any discomfort during dental care? Which (is)?	69,89	0,68	0,90

9- Was there a moment of conversation between you and the dentist before the dental evaluation?	70,13	0,66	0,90
10- Did you experience any dental discomfort during pregnancy?	69,64	0,37	0,90
11- Did you have trouble making the dental appointments? Which one(s)?	70,10	0,79	0,89
12- Were you provided with the options of service hours, so that you could choose what best suited your routine?	70,43	0,57	0,90
13- During your consultation with the dentist, did you receive guidance on healthy habits related to oral health?	70,32	0,61	0,90
14- Do you think it's important to have dental care during prenatal care?	69,94	0,58	0,90
15- During pregnancy, did you seek any private dental service?	70,21	0,78	0,89
16- What do you think could improve dental care for pregnant women?	69,35	-0,01	0,91
17- What is the importance of dental care during the prenatal period for you?	69,32	0,07	0,91
Score total			0,90

Characterization of patients

Of the participants in the study, all were residents of the municipality of Assú and had performed prenatal care in the Basic Care Network of that municipality. The mean age of the women was 24.7 years (standard deviation \pm 5.76 years). Regarding religion, 57% were Catholic, 21% Evangelical and 21% had no defined religion. Regarding housing arrangements, 59% lived with their spouse, 13% with their parents and 6% alone. In relation to monthly income, 81% had a minimum wage, 16% two minimum wages and only 3% three or more wages. When asked about the conjugal situation, 49% were single, 24% had married, and 27% answered that they had "another" type of relation not defined with the partner. As far as schooling is concerned, 91% attended the public education network and 9% the private education network. In addition, 24% completed only up to the primary level of education, 67% completed secondary education and 8% completed higher education.

The highest percentage of women had only 1 minimum monthly wage to support their family, which was minimally composed of 3 people (spouse, 1 child and the

woman), a fact that is linked to the majority having only completed basic education even being in adulthood. In this case, the importance of an effective service in the Basic Health Care Network should be emphasized, since possibly these women would not have financial conditions for a follow-up in the private services during the entire prenatal period.

Pre-test results with the target population

Of the 17 items answered, all reached the minimum percentage of 70% of comprehension by the patients, previously established in methodology with the minimum comprehension of 78% and the maximum of 100% of the participants.

To measure the reliability of the internal consistency type of the instrument, the Cronbach's Alpha test (α) was performed on the responses of the interviewees. Thus, the mean of the scale without item, the variable of the scale without item and the Alpha coefficient were analyzed, in which the total score was 0.90 (Table 3). This score represents a good internal consistency, since the expected scores are above 0.80 according to Streiner¹⁵.

4 CONCLUSIONS

This research resulted in the construction and validation of a suitable tool to investigate the assistance provided to pregnant women in the Network of Basic Health Care nationally, ensuring reliable results, providing subsidies for the development of related public policies and scientifically underpinning the decision-making of managers.

It is also added the fact that no duly validated instrument has been identified in the literature available that could specifically investigate prenatal dental care in Primary Health Care, providing robust scientific contributions for further studies to add quality to the care of these patients and their babies.

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