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ORIGINAL ARTICLE

Evaluation of pediatric prenatal visit contents using the Delphi technique

Caroline Helena Vetromille Jarque¹, Renata Artimos de Oliveira Vianna², Adauto Dutra Moraes Barbosa³

Keywords:

Prenatal care,
Pediatricians,
Delphi Technique.

Abstract

Objective: To evaluate the content needed by the pediatrician to assist with prenatal consultation. **Methods:** Prospective, quali-quantitative, exploratory, descriptive study, using the Delphi technique, in two rounds, with the application of two online questionnaires to a panel of pediatricians/neonatologists. In the first round, a questionnaire was applied to identify the sociodemographic profile of the participants and list the contents considered necessary for the consultation. The contents initially listed were taken to the panel for verification in the second round, in which the specialists indicated the degree of agreement (five-point Likert scale). The consensus to keep or delete the item from the list of contents was pre-established at 70%. A comparative analysis of the evaluation of pediatric neonatologists and non-neonatologists was also carried out. **Results:** A list of 33 items was obtained. There was no significant difference between the responses of neonatologists and non-neonatologists. **Conclusion:** The final items listed corroborate the existing literature recommendations on the consultation and the presentation of this list of contents equips the pediatrician for this action.

¹ Marinha do Brasil - Policlínica Naval de Campo Grande, Clínica de Pediatria - Rio de Janeiro - Rio de Janeiro - Brazil.

² Universidade Federal Fluminense - Faculdade de Medicina, Materno Infantil - Niterói - Rio de Janeiro - Brazil.

³ Universidade Federal Fluminense, Faculdade de Medicina - Niterói - Rio de Janeiro - Brazil.

Correspondence to:

Caroline Helena Vetromille Jarque.

Policlínica Naval de Campo Grande. Av. Brasil, nº 44878, Campo Grande, Rio de Janeiro, RJ, Brazil. CEP: 23078-001. E-mail: caroline.vetromille@gmail.com

INTRODUCTION

Pediatric consultation carried out during prenatal care is an opportune time to promote the beginning and strengthening of the bond between the pediatrician and the newborn's family. During this consultation, parents can be welcomed and prepared for the care they will provide in the future, reducing their anxieties by anticipating information and strategies to deal with everyday situations with the child¹⁻².

Despite its recognized importance, prenatal pediatric consultation is still not widespread in the practice of most pediatricians and obstetricians¹⁻³. This is also attributed to the lack of information in the literature, which limits its implementation by pediatricians to their routine care¹⁻².

Therefore, the objective of our study was to evaluate the content necessary for pediatricians to carry out prenatal consultations.

OBJECTIVES

To evaluate the content necessary for pediatricians to carry out prenatal consultations.

METHODS

A prospective study was conducted from April to September 2021, with the participation of pediatricians working in Brazil, including professionals from the contact network of those involved, in addition to others whose names were randomly selected on the internet and responded by email, WhatsApp® or Instagram® to the request to participate, constituting a convenience sample.

The participants (pediatricians/neonatologists) surveyed were included after proving that they had a residency/specialization or a specialist title in pediatrics/neonatology.

The exclusion criteria adopted were: failure to submit responses to the questionnaire(s) within the time recommended for completion of the round and submission of unintelligible or inappropriate responses to what was requested in the questionnaire.

To obtain a consensual list of the content necessary for the pediatrician to carry out the prenatal consultation, the Delphi Technique, Web Delphi⁴, was used.

Data Collection and Preparation of Questionnaires

Data collection, which began with the sending of questionnaires, was carried out over a period of 3 months for each of the two rounds.

The Google Forms® tool was used to prepare the questionnaires. The pediatricians contacted received an invitation, which included a link to access the Free and Informed Consent Form (FICF), followed by the 1st questionnaire.

After receiving the responses to the 1st questionnaire, which constituted the 1st round, and after analyzing the

data, an invitation (link) was sent for the 2nd round. Upon accessing the link, the participant had access to the partial result obtained in the 1st round of application of the Delphi technique, the initial list, and the 2nd questionnaire, based on the 1st round.

The first questionnaire consisted of 10 multiple-choice questions to outline the sociodemographic profile of the study participants and a single open question in which the pediatrician was asked to list the content he or she considered necessary for carrying out the prenatal pediatric consultation. The second questionnaire consisted of 34 multiple-choice questions, originating from the single open question, whose content had been mentioned by the respondents in the first round, which were grouped so that, for each item of knowledge on the list, the professional could assign a score on a two-way Likert scale, with options from 1 to 5: 1 - unimportant, 2 - somewhat important, 3 - reasonably important, 4 - important and 5 - very important. An open space was also made available for observations that the participants considered relevant to make. The criterion established for the content to be part of the knowledge list was that the score obtained should be 4 or 5 by more than 70% of the participants.

Statistical analysis was used to analyze the structured questions of the first and second questionnaires, calculating frequency and percentage of opinions. The chi-square test or Fisher's exact test was used to assess the distribution of data in relation to the sociodemographic profile, according to whether the participant was a non-neonatologist pediatrician or neonatologist. All data were analyzed using the IBM-SPSS® v.20 statistical software, with a confidence level of $p < 0.05$. The project that led to this study was approved by the Research Ethics Committee of the Marcílio Dias Naval Hospital, CAAE No. 50133821.4.0000.5256, under opinion number 5,048,618. All authors approved the final version of the article and declared that there was no conflict of interest.

RESULTS

The sociodemographic profile of the participants is shown in Table 1.

For the 1st round, the questionnaire sent to 300 pediatricians was answered by 81 (27%), who met the inclusion criteria, and none were excluded from the study. For the 2nd round, the new questionnaire was sent to the 81 pediatricians from the 1st round and answered by 59 (73% of the participants). No new content was added to the list from the 2nd questionnaire onwards.

Considering the 2nd round, 59/81 (73%), 56% of the surveyed participants were between 30 and 39 years old, were female (80%), and lived in the state of Rio de Janeiro (78%). Approximately 78% of the participants had experience only in pediatrics and had been practicing it for between 5 and 19 years (60%). Among the 22% of neonatologists, 32% had been practicing in the area for up to 9 years. Seventy-eight percent of

Table 1. Sociodemographic profile of non-neonatologist pediatricians and neonatologists (2nd round).

	Non- neonatologists n = 46	Neonatologists n =13	p-value
Age			
Less than 30 years	2 (4.3)	0 (0.0)	0.187
30 - 39 years	28 (60.9)	5 (38.5)	
40 – 49 years	11 (23.9)	4 (30.8)	
50 - 59 years	5 (10.9)	3 (23.1)	
More than 60 years	0 (0.0)	1 (7.7)	
Sex			
Females	37 (80.4)	10 (76.9)	0.716*
Males	9 (19.6)	3 (23.1)	
State			
Amazonas	2 (4.3)	0 (0.0)	0.657
Bahia	1 (2.2)	0 (0.0)	
Distrito Federal	2 (4.3)	0 (0.0)	
Mato Grosso do Sul	1 (2.2)	0 (0.0)	
Minas Gerais	0 (0.0)	1 (7.7)	
Rio de Janeiro	35 (76.1)	11 (84.6)	
Rio Grande do Sul	1 (2.2)	0 (0.0)	
Santa Catarina	1 (2.2)	0 (0.0)	
São Paulo	3 (6.5)	1 (7.7)	
Experience in pediatrics			
Less than 5 years	8 (17.4)	1 (7.7)	0.069
5 - 9 years	17 (37.0)	4 (30.8)	
10 - 19 years	13 (28.3)	1 (7.7)	
20 - 29 years	7 (15.2)	5 (38.5)	
30 years or more	1 (2.2)	2 (15.4)	
Experience in neonatology			
Less than 5 years	8 (17.4)	4 (30.8)	0.013**
5 – 9 years	5 (10.9)	2 (15.4)	
10 - 19 years	2 (4.3)	3 (23.1)	
20 - 29 years	4 (8.7)	2 (15.4)	
30 years or more	0 (0.0)	1 (7.7)	
Not applicable	27 (58.7)	1 (7.7)	
Level of training			
Specialization	39 (84.8)	7 (53.8)	0.111
MSc	4 (8.7)	4 (30.8)	
PhD	1 (2.2)	1 (7.7)	
Post-Doctoral	2 (4.3)	1 (7.7)	
Prenatal care			
Yes	18 (39.1)	5 (38.5)	0.614
No	28 (60.9)	8 (61.5)	

* Fisher's exact test; ** χ^2 test.

the respondents had only a specialization degree in pediatrics. Of the sample, 61% did not work in prenatal consultations. No statistical difference was observed in the profile of neonatologist and non-neonatologist pediatricians. A total of 34 items of content were then listed by the participants in the 1st round (Table 2). The listed items were evaluated, in the 2nd round, item by item by each participant was assessed and classified according to relevance, using the Likert scale. Of these items, 33 reached the consensus target established in at least 70% in options 4 and 5 of the scale and one, "cord blood storage", was excluded because it did not meet the inclusion criterion (it reached only 56% in options 4 and 5 of the scale). In options 1 and 2, no item reached 70%. Table 2 shows the distribution of the evaluations of each item and the percentage in options 4 and 5 among pediatricians and neonatologists. When comparing the evaluation of items by category between non-neonatologist pediatricians and neonatologists, there was no significant difference between the groups (Table 2).

DISCUSSION

There is no specific minimum number of experts to create a consensus panel on a given subject, but the results will be more stable the greater the number of experts, with a minimum of 6 and a maximum of 12 being desirable, and if they are from the same discipline, there are authors who consider 12 to 20 experts to be sufficient⁵. Niederberger and Spranger⁶ (2020), authors of an analysis of 12 systematic reviews using the Delphi technique in health sciences, showed that the average number of participants in the studies evaluated was generally in the low to medium range in the tens, such as 17 and 40 experts. McMillan et al.⁷ (2016) report that inviting more participants increases the variety of experts but eventually leads to a decrease in the return. In this study, despite 300 invitees for the first round, there was only 27% return to the invitations sent, making this decrease clear. Study compliance can be a challenge to overcome, and at most half of the people respond at the first contact⁸. Regarding the permanence of participants throughout the rounds, Romero-Collado et al.⁵ (2021) state that it is difficult for all experts to participate continuously throughout the process, with this permanence varying between 35% and 87%, so it is advisable to invite a minimum of 30 experts. The permanence obtained of 73% of the participants in this study, throughout the rounds, is in line with this reality. The most common is to carry out two to three rounds in the Delphi process, and for this reason, it is usually concluded, even if consensus has not been reached on all items⁹.

Cunha et al.¹⁰, in a non-systematic review on the role of the pediatrician in the first thousand days of a child's life, conclude that the professional can act in the promotion of actions focused on the concept, either in their professional practice or by advocating for this cause. The "DOHaD Concept" presented by the panel, with 83% of evaluations in options 4

and 5, points to the need for the pediatrician in prenatal care to know and identify possible factors that may contribute to the quality of life, even in the long term, for the individual who is still developing. The theme "maternal nutrition", so essentially related to the previous concepts, whose relevance in the literature has already been demonstrated¹¹, obtained 92% of evaluations in the two most relevant options of the scale applied. The contents "Physiology of pregnancy" and "Embryology" obtained consensus of 86 and 85%, respectively, in options 4 and 5 evaluated by the panel. They are the basis for understanding phenomena that go from physiological to pathological¹². Schön et al.¹³ (2007), in their review, point out the aspects of attachment parenting, which involves understanding the concept of exoterogestation, to promote parenting with attention and sensitivity to the child's innate emotional and physical needs, resulting in prolonged breastfeeding on demand, frequent carrying of the baby on the caregiver's body, and the baby sleeping close to the parents. They conclude that this approach to raising children provides the human baby with an ideal environment for optimal growth from a psychological and physiological point of view. The concept of "exoterogestation" presented 98% of the evaluations in the most relevant options.

Regarding the category of items related to knowledge of prenatal care itself (items 7 to 11), in which all items were evaluated with more than 90% consensus in options 4 and 5 of the applied scale, the need for the pediatrician to understand the prenatal process as a whole is evident. Knowing information about anamnesis, prenatal screening, exams and their interpretations, as well as vaccination of the pregnant woman and her family members, are highly relevant topics for the consultation^{2,14}.

The item "diseases and health problems in maternal health", with 96% of evaluations in options 4 and 5 on the importance scale, encompasses conditions that pose a risk for intrauterine growth restriction and increased morbidity and mortality of the fetus and/or newborn, making prenatal pediatric consultations especially important.²⁻³ In the category "neonatal risk factors", including items "prematurity", "inadequate birth weight" and "fetal and neonatal diseases", all items presented 98% of their evaluations in options 4 and 5 on the Likert scale used. Griswold et al.¹⁵ (2010) emphasize that the ideal prenatal consultation allows doctors to educate parents about premature birth and potential outcomes for the baby, while also providing parents with time to ask questions and express their values. They confirm that the uncertainty surrounding many decisions regarding the treatment and resuscitation of babies born at the limit of viability creates a situation in which responsibility for decision-making between parents and physicians is of utmost importance.

Miquel-Verges et al.¹⁶ (2009) investigated parents' expectations regarding prenatal consultations with neonatologists when faced with a prenatal diagnosis of congenital anomaly. They state that "mothers perceived that the con-

Table 2. Content Assessment - Number and frequency of choice of items 4 and 5 among Pediatricians (Ped) n = 46 and Neonatologists (Neo) n = 13.

Description of the content list items	Likert 4 - Ped	Likert 4 - Neo	P*	Likert 5 - Ped	Likert 5 - Neo	P*
First 1.000/1.100 days of life	8 (17,4)	3 (23,1)	0,6442	37 (80,4)	10 (76,9)	0,7838
DOHaD** concept	16 (34,8)	5 (38,5)	0,8706	23 (50,0)	5 (38,5)	0,4673
Maternal nutrition	12 (26,1)	9 (69,2)	0,0045	29 (63,0)	4 (30,8)	0,0406
Gestation physiology	20 (43,5)	8 (61,5)	0,2552	20 (43,5)	3 (23,1)	0,1868
Embryology	21 (45,7)	6 (46,2)	0,9747	19 (41,3)	4 (30,8)	0,4968
Exterogestation	5 (10,9)	5 (38,5)	0,6375	40 (87,0)	8 (61,5)	0,0387
Prenatal – Routine	13 (28,3)	3 (23,1)	0,7121	30 (65,2)	10 (76,9)	0,4294
Prenatal – Anamnesis	9 (19,6)	2 (15,4)	0,7337	33 (71,7)	11 (84,6)	0,3499
Prenatal – Exams	8 (17,4)	1 (7,7)	0,3945	36 (78,3)	11 (84,6)	0,6211
Prenatal – Vaccination of the pregnant and Family	15 (32,6)	6 (46,2)	0,3699	27 (58,7)	6 (46,2)	0,4267
Prenatal – High risk and regular risk pregnancy	12 (26,1)	2 (15,4)	0,4273	33 (71,7)	11 (84,6)	0,3499
Maternal risk factors associated with fetus/NB	5 (10,9)	1 (7,7)	0,7385	39 (84,8)	12 (92,3)	0,4891
Prematurity	6 (13,0)	0 (0,0)	0,1739	39 (84,8)	13 (100,0)	0,1377
Inadequate weight upon birth	14 (30,4)	2 (15,4)	0,2867	31 (67,4)	11 (84,6)	0,2306
Fetal and neonatal diseases	8 (17,4)	0 (0,0)	0,1087	37 (80,4)	13 (100,0)	0,0855
Labor physiology and complications	22 (47,8)	5 (38,5)	0,5557	19 (41,3)	6 (46,2)	0,7543
Pediatric care in the labor room	5 (10,9)	1 (7,7)	0,7385	40 (87,0)	11 (84,6)	0,8247
Cord blood storage (excluded)	20 (43,5)	5 (38,5)	0,7494	7 (15,2)	1 (7,7)	0,4891
Safe discharge from maternity	9 (19,6)	2 (15,4)	0,7337	34 (73,9)	10 (76,9)	0,8279
Breastfeeding	3 (6,5)	1 (7,7)	0,8801	43 (93,5)	12 (92,3)	0,8801
Complementary feeding	10 (21,7)	1 (7,7)	0,2562	36 (78,3)	10 (76,9)	0,9151
Care for the NB – General care	10 (21,7)	5 (38,5)	0,2231	35 (76,1)	7 (53,8)	0,1201
Care for the NB – NB crying	20 (43,5)	5 (38,5)	0,7494	23 (50,0)	6 (46,2)	0,8104
Care for the NB – Pacifier use	19 (41,3)	9 (69,2)	0,0778	24 (52,2)	3 (23,1)	0,0652
Care for the NB – Baby's sleep	16 (34,8)	6 (46,2)	0,4568	16 (34,8)	6 (46,2)	0,4568
Care for the NB – NB vaccination	3 (6,5)	1 (7,7)	0,8801	43 (93,5)	12 (92,3)	0,8801
Care for the NB – neonatal screening	3 (6,5)	0 (0,0)	0,3496	43 (93,5)	13 (100,0)	0,3496
Care for the NB – NB's safety	5 (10,9)	3 (23,1)	0,2611	40 (87,0)	10 (76,9)	0,3749
Care for the NB – alert signs	3 (6,5)	1 (7,7)	0,8801	42 (91,3)	12 (92,3)	0,9098
Care for the NB – infant's colic	13 (28,3)	6 (46,2)	0,2267	30 (65,2)	6 (46,2)	0,2188
Care for the NB – Postpartum care	5 (10,9)	4 (30,8)	0,0809	39 (84,8)	9 (69,2)	0,206
Postpartum	15 (32,6)	8 (61,5)	0,0614	23 (50,0)	5 (38,5)	0,4673
Family context and support network	10 (21,7)	6 (46,2)	0,0819	32 (69,6)	7 (53,8)	0,292
Safe and practical sources of information to the pregnant	17 (37,0)	9 (69,2)	0,0406	24 (52,2)	3 (23,1)	0,0652

P* = value calculated by the Chi-square. DOHaD** - Developmental origins of Health and Disease.

sultation, which included a visit to the neonatal intensive care unit, prepared them for the perinatal period, “because parents want realistic medical information”, specific to their situation, provided in an empathetic manner and expecting the best outcome”.

Knowledge related to “physiology of labor and its complications¹²”, “pediatric care in the delivery room¹²”, “cord blood storage¹⁷” and “safe discharge from the maternity ward¹⁸”, showed greater variation in the panel participants’ judgment regarding the relevance of the items, but the impor-

tance of these topics is still very evident in the literature. The SBP emphasizes that the type of delivery should be discussed with the obstetrician and the couple, in order to seek the best for the mother-child binomial². Published in 2018, also by the SBP, the document “Safe Birth” emphasizes that in the prenatal consultation the pediatrician should inform the parents about the importance of his presence in the delivery room, about his expertise in the precepts of neonatal resuscitation, reminding them of the need for a competent team to assist in the “Golden Minute”. He should also inform them about the importance of

timely clamping of the umbilical cord; of skin-to-skin contact, even in cesarean sections; and breastfeeding in the first hour of life, which corroborate good practices in the first hour, also known as the “Golden Hour¹⁹”. This enables the couple to demand these attitudes from the care team at the birth site. Knowing the criteria for safe discharge from the maternity ward is also important for pediatricians during prenatal care, since the decision regarding the best time for the mother-child to be discharged from hospital is a decision made throughout the hospital stay by the entire team that assists the mother-child pair, and shared with the family initially during prenatal care, when the pediatrician has the opportunity to assess risks¹⁸.

With 100% of the evaluations in options 4 and 5 of the Likert scale, the item “breastfeeding” is in line with the recommendations in the literature²⁰, which points to prenatal pediatric consultations as a valuable instrument for optimizing breastfeeding and demystifying several concepts that hinder breastfeeding. If the use of infant formula is the parents’ choice, they should be supported in their decision and advised on the type of formula to be used, how to prepare it, and the appropriate means of offering it³.

The items “newborn vaccination” and “neonatal screening” also obtained 100% consensus in options 4 and 5 of the scale applied. Vannice et al.²¹ (2011) published a study that aimed to evaluate whether providing informational materials about vaccines before the 2-month vaccination to mothers concerned about vaccine safety would positively change their attitudes and beliefs about childhood vaccination. In this study, in all groups there was a positive impact in receiving educational material about immunization, but there was no statistically significant difference in the timing of receiving this information.

Araia et al.²² (2012) pointed out that promoting mothers’ understanding and meeting their expectations regarding education about neonatal screening may require greater involvement from prenatal professionals. Informing parents about the purpose, benefits, process and possible results of screening may facilitate follow-up after an initial positive result and mitigate possible psychosocial harm, according to these same authors. All other items in the “NB care” category were presented with a percentage above 90% in the most relevant options; therefore, recognized by participants as important for the pediatrician who performs the prenatal consultation. Hygiene care, guidance on sleep patterns, colic, newborn crying, notions of newborn safety, with preparation of parents to identify warning signs are cited in the literature as focuses of the prenatal consultation and meet the objective of making parents efficient caregivers of their children². In addition, the prenatal consultation is an opportune moment to emphasize the importance of childcare and health promotion for children and adolescents². Other items on the list of contents obtained, such as “postpartum care - puerperium”, “family context and support network” and “safe and practical sources of information for pregnant women”, are also relevant²². It is important

to recognize conditions such as postpartum depression in the puerperium and to appropriately educate mothers on the subject, in addition to referring them for evaluation and treatment whenever necessary^{23,24}. Although França¹ (2018) points out that the pediatrician should also use the prenatal consultation to “discuss the family repercussions of the child’s birth, the impact on siblings and the social and emotional factors that may interfere with the parents’ emotional stability”, in the present study these responses were not clearly obtained as results. This discussion, however, may be made possible once the family context and support network of the pregnant woman, as indicated in this study, are addressed, and will become an important tool to help in facing family challenges after the birth of a child, enabling the identification of potential risks for the child, in which positive intervention can be made.

The items in the final list of contents corroborate, but do not discuss all the recommendations in the literature already available regarding prenatal pediatric consultations. The evaluation of the contents necessary for the pediatrician to assist in the prenatal consultation carried out in this study may contribute to better guidance and performance of the general pediatrician when participating in prenatal care.

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