Assessment of growth monitoring in child care visits at the Family Health Strategy in two municipalities of Paraíba State, Brazil*

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Abstract

Objective: to assess the process and structural aspects of child care visits at the Family Health Strategy, in relation to growth monitoring. **Methods**: evaluative study of implementation analysis, carried out in two municipalities of Paraíba State, Brazil; structural characteristics of the services were assessed and child care visits were observed for analysis of the working process. **Results**: 119 visits (53 in one municipality and 66 in the other) were observed; they were conducted by 18 nurses who were in charge of child care visits (nine from each municipality); five of the nurses had no training to work in primary health care and four units did not have a scale; weight (84.9%), height (84.0%) and cephalic perimeter (82.7%) measurements were held more frequently than recommendations for mothers (11.8% and 29.4% of the visits about height and weight, respectively). **Conclusion**: child growth monitoring is an action not yet consolidated, with significant deficiencies in the process.

Keywords: Primary Health Care; Child Care; Nutritional Monitoring; Process Assessment (Health Care); Family Nurse Practitioners.

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Introduction

Primary Health Care (PHC) values democratic and participative management and sanitary practices, team work and local level actions.[1] In this context, the Family Health Strategy (FHS) emerges as a possibility of reorganizing services and reviewing PHC's professional practices in Brazil. FHS reinforces the working process centered on developing multidisciplinary actions, focused on the promotion of health and prevention of diseases. FHS also believes these actions should be planned on the basis of the local needs and on the consolidation of bonds with the population, in order to assure effectiveness of primary health care services. It supports a change from the traditional model, centered on the doctor and curing actions, to an assistance model, focused on the family, comprehensively and continuously.[2-4] According to this transforming model, valuing the training of professionals with skills to work at the PHC is essential for the qualification of health care.[2]

> *Growth and development monitoring provides the health professional with an integrated and predictive analysis of the children's health.*

Some researchers have showed there is lack of professionals with specific skills to work at FHS and there is divergence between the recommended practices and the implemented ones.[3] Among the highlighted deficiencies, we can mention those related to professionals' interrelationship, excessive focus on bureaucratic and operational issues, deficiencies in completeness and qualification of the team and absence of adequate labor and training policies.[3] These factors, especially those related to professional training and team qualification, influence the conduction of growth monitoring actions.[5] Despite the relevance of these results, national literature records few studies in this field. There is, therefore, an urge to improve knowledge about the training and qualification of professionals who work at FHS, as well as to understand the impact of such conditions in the quality of assistance.[6]

PHC's food and nutrition actions are essential in the current health demands of the Brazilian population,

characterized by a nutritional transition.[7] As a primary health action, growth and development monitoring provides the health professional with an integrated and predictive analysis of the children's health, leading to reductions in undernutrition, morbidity and mortality, as well as the improvement of health promotion.[5,8] However, recent studies have pointed to the need for progress in children's growth monitoring. An example is the result which indicated the incorrect completion of 91.1% of the weight and height curves present in the Child Health Record (CHR) in a municipality of São Paulo State, in 2013.[9] In the municipality of Cuiabá, Mato Grosso State, researchers observed that 79.6% of the weight charts were incomplete or blank.[10] Studies carried out in Maringá, Paraná State (2012-2013),[11] in a municipality in the countryside of Paraíba State (2008)[12] and in Mandaguari, also located in Paraná State (2010),[13] identified fragilities in the conduction of child care visits and in the recording of procedures in the CHR. Gaps between the coverage and quality of health services, such as those aforementioned, are believed to have been limiting the advances in children's health.[14] Therefore, this study aimed at assessing the structural and process aspects of child care visits at FHS, regarding growth monitoring.

Methods

Study design

This is an evaluative study of growth monitoring implementation analysis, based on structural characteristics of the health care units and the working process in child care visits at FHS.

Context

Two municipalities of Paraiba State, Brazil, were selected, considering their similarities in the following aspects: geographical position (located in the metropolitan area of Paraíba State's capital [João Pessoa], with access to its heath care network), sociodemographic indicators (human development index [HDI]: 0.748 in Municipality 1 and 0.649 in Municipality 2) and FHS coverage above 80%. Municipality 1 has a population of 57,944 inhabitants, of which 4,596 are children under five years old. Its health care system is composed of 19 FHS teams. Municipality 2 has a population of 99,716 inhabitants, of which 7,862 are children under five years old. Its health care system

comprises 28 FHS teams. Both municipalities differ from each other regarding the composition of their health care teams: in Municipality 1, since 2001, the nutritionist works within the FHS team in the development of these actions; in Municipality 2, the nutritionist works exclusively at Support Centers for Family Health, helping physicians and nurses of health care teams to develop diet and nutrition actions. In both municipalities, nurses are in charge of child care visits.

Participants

The study was carried out in the FHS units of both municipalities, from July to December 2014. The sample was selected by conglomerates, in two stages. In the first stage, nine FHS teams were randomly selected in each municipality (representing about half of the teams in Municipality 1 and 1/3 of the teams in Municipality 2). In each selected health care team, we included all professionals in charge of child care visits (usually the nurse, in all teams) and all children under five years old (0-60 months old) who had been assisted by these professionals during the child care visit conducted on the day of the data collection, a typical day of work. Therefore, one of the goals of the study was to obtain local parameters to plan a larger assessment, in a representative sample of the municipalities of Paraíba State.

Data source

Information regarding health units' structure was obtained. For this purpose, we used a standardized questionnaire with closed questions. The questionnaire should be answered by all the health team members, under the leadership of the nurse. Information regarding practices in the context of growth monitoring was obtained through observation of the child care visits conducted by nurses. Two interviewers were in charge of the observations. They previously explained the purpose of the activity and stayed in the back of the consultation room, without expressing any opinion or behavior. A specific form was used to record the procedures adopted, in which possible answers were 'yes' and 'no'. Practices were defined considering the recommendations of the Brazilian Ministry of Health regarding organization of the working process and child growth and development monitoring by PHC.[15] All analyses took into consideration the child's age at the moment of the study. Considering the relevance of team work, for anthropometric measurement performed by professionals other than the nurse (for example, the nutritionist in Municipality 1), as part of the visits, the selected answer was 'yes'.

Measures adopted to avoid bias

The field team was composed of health professionals and students, with previous experience in field work, which had been supervised by a qualified professional. The quality control of the study included training and standardization of interviewers, production of the Instructions Manual and conduction of a pilot study in the municipality of Campina Grande, Paraíba State.

Study variables

For structure analysis, information regarding human resources and availability of materials, inputs and equipment was considered. In human resources, the following information was included: availability of the core team, length of time the nurse had job stability and qualification to work at PHC. Availability of materials included the existence of equipment to measure the child, medical records, CHR and background material for child health care (protocols/regulations/guidelines, technical documents of the Ministry of Health).

Regarding the working process, the following practices were observed:

a) measurements of weight, height and cephalic perimeter;
b) recording weight, height and cephalic perimeter into medical records;
c) recording weight, height and cephalic perimeter in the CHR chart; and
d) general recommendations on
- growth,
- weight based on current weight/age,
- height based on current height/age,
- cephalic perimeter based on current cephalic perimeter/age,
- importance of growth monitoring,
- weight based on the weight/age curve,
- height based on the height/age curve, and
- cephalic perimeter based on cephalic perimeter/age curve.

The information related to cephalic perimeter refer to under two-year-old infants. When the professional reported solely that the weight, height and cephalic perimeter were normal, without any nutritional recommendations, the observer selected the answer

'no'. Recommendations based on the curve were codified as 'yes' in the case of a child's first visit, and 'no' when there was no other record.

Statistical methods

Data were organized in electronic spreadsheets and double typed. The Validate application of the Epi Info software, 3.3.2 version, was used to analyze data consistency. Differences between municipalities for the variables of structure were analyzed using the Fisher's exact test. For variables related to nurse practices, the chi-square test or the Fisher's exact test were applied. A 5% significance level was adopted. The Stata software version 12.0 was used.

Ethical considerations

The project was approved by the Ethics Research Committee of the State University of Paraíba (Protocol No. 19689613.3.0000.5187), dated December 17th, 2013. All participants signed a Free Informed Term of Consent, a requirement for participation in the study.

Results

A total of 119 visits were observed, 53 in Municipality 1 and 66 in Municipality 2; they were conducted by 18 nurses (one professional per team). Table 1 shows the structure characteristics of the studied health care units. Only 38.9% of the nurses had job stability of at least two years and five of them reported not having been trained to work at PHC. Regarding material, inputs and equipment availability, a low availability of professional instruments to support child health care was reported by nine of the teams regarding protocols/regulations/guidelines, and by eleven teams regarding specific documents of the Ministry of Health.

Table 1 – Structural characteristics related to growth monitoring in child care visits at primary health care units of the Family Health Strategy in two municipalities of Paraíba State, 2014

Characteristics	Total (N=18)	Municipality 1 (N=9)	Municipality 2 (N=9)	p-value[a]
	n	n	n	
Human resources				
Completeness of core team				0.576
Yes	14	8	6	
Nurse with work stability for at least two years				0.335
Yes	7	5	2	
Nurse qualified to work at Primary Health Care				0.998
Yes	13	7	6	
Availability of materials, inputs and equipment				
Equipment to weight the child				0.576
Yes	14	8	6	
Equipment to measure the child				1.000
Yes	18	9	9	
Medical records				1.000
Yes	18	9	9	
Child Health Record				0.471
Yes	16	7	9	
Number of Protocols/regulations/guidelines for child care				0.347
≥3	9	6	3	
Technical documents from the Ministry of Health for child care updated				0.998
Yes	11	6	5	

a) Fischer's exact test.

The municipalities presented no difference in terms of structure items.

Table 2 shows the main results of the study regarding nurses' practices in the context of growth monitoring during child care visits. In the total sample, weight, height and cephalic perimeter measurements were conducted in more than 80% of visits. However, these measurements were recorded in medical records or CHRs less than 70% of times. Recommendations based on measurement records conducted in the observation day oscillated from 11.8% (height/age) to 29.4% (weight/age). Considering the curve, only 1.9% of the mothers were instructed with regard to cephalic perimeter/age, 2.5% with regard to height/age and 11.8% with regard to weight/age. There were higher frequencies of practices regarding weight, when compared to those related to height and cephalic perimeter.

When the two municipalities are compared, we can notice that, on the observation day, the nurses in Municipality 1 conducted more frequently weight measurements, recording of measurements (both in the medical records and in the CHR) and recommendations based on weight and height. The nurses in Municipality 1 did not report the weights of about one quarter of the children in medical

Table 2 – Growth monitoring actions in child care visits of children under five years old conducted by the Family Health Strategy in two municipalities of Paraíba State, 2014

Conducted actions	Total (N=119)		Municipality 1 (N=53)		Municipality 2 (N=66)		p-value[a]
	n	%	n	%	n	%	
Measurement							
Weight	101	84.9	50	94.3	51	77.3	0.010
Height	100	84.0	46	86.8	54	81.8	0.462
Cephalic perimeter[b]	86	82.7	45	88.2	41	77.4	0.143
Recording in medical records							
Weight	55	46.2	38	71.7	17	25.8	0.000
Height	55	46.2	36	67.9	19	28.8	0.000
Cephalic perimeter[b]	50	48.1	35	68.6	15	28.3	0.000
Recording in child health record							
Weight	81	68.1	46	86.8	35	53.0	0.000
Height	67	56.3	39	73.6	28	42.4	0.001
Cephalic perimeter	62	59.6	40	78.4	22	41.5	0.000
General recommendations							
About growth	44	37.0	27	50.9	17	25.8	0.005
About the importance of growth monitoring	32	26.9	17	32.1	15	22.7	0.253
Recommendations about weight							
Based on the current weight/age	35	29.4	22	41.5	13	19.7	0.009
Based on the weight/age curve	14	11.8	7	13.2	7	10.6	0.662
Recommendations about height							
Based on the current height/age	14	11.8	12	22.6	2	3.0	0.001
Based on the height/age curve	3	2.5	2	3.8	1	1.5	0.435
Recommendations about cephalic perimeter							
Based on the current cephalic perimeter/age[b]	13	12.5	8	15.7	5	9.4	0.335
Based on the cephalic perimeter/age curve[b]	2	1.9	1	2.0	1	1.9	0.978

a) Chi-square test or Fischer's exact test (for cases with frequency lower than five).
b) Values for children under two years old.

records, and the height and cephalic perimeter of about one third of them. The nurses in Municipality 2 did not register these parameters for most of the children (in about three quarters of the visits). In both municipalities, nurses recorded the measurements more frequently in the CHR than in the medical records: almost 90.0% of weight records, about 74.0% of height records and 79.0% of cephalic perimeter records in Municipality 1; and 53.0%, 42.4% and 41.5%, respectively, in Municipality 2.

In both municipalities, there were few recommendations based on anthropometric measurements on the visit day. In Municipality 1, less than 50.0% of mothers were instructed regarding weight and a few more than one fifth of them (22.6%) were instructed about the child's height. In Municipality 2, frequencies were even lower: 19.7% and 3%, respectively. Recommendations regarding weight, height and cephalic perimeter curves were rare practices among nurses in both municipalities, with no significant difference between them.

Discussion

This study results reveal three important and interrelated aspects. Regarding the structure of health care units, the lack of training for professionals who work at PHC and of technical documents for professional practice are significant issues, especially when we consider the amount and variety of options available for both situations. Regarding the working process, we should highlight the impairment of the longitudinality of child care during child care visits, based on diagnoses without proper recording and lack of health-related recommendations. A possible explanation may be found in the way inter-professional practices are developed. Moreover, it is worth noticing the relevance of these findings for the understanding of the nurse working process.[16]

A recent study, which systematized scientific production on growth monitoring in the context of the primary health care network in Brazil, between 2006 and May 2015, reported significant deficiencies concerning the structure (lack of qualification of professionals and of material to support professional practices) and the work process (low recording of anthropometric measurements, insufficiency of recommendations based on the performed records and underutilization of CHR).[5]

The results of this study are very similar. The aforementioned review[5] also illustrates the predominance of studies conducted in just one municipality, based on the application of questionnaires to health professionals or in the analysis of the completion of child care monitoring instruments. These aspects result in some limitations: health professionals tend to assess their own actions more positively;[17] and differences in the performance of FHS must be understood by comparing several realities.[18] In this sense, this study presents methodological improvements, considering that the information was obtained through observation of child care visits in two municipalities, leading to relevant results in both aspects assessed.

Regarding the structure, findings show that all of the 18 participant teams had the anthropometric instruments needed for measuring and only four did not have a scale to weight children. In the observed visits, all children had medical records and had their CHR presented. Thus, as we verified that not weighting the child was less common than not measuring their height, it can be understood that the low performance was not a result from lack of equipment, but of failures in the working process, possibly caused by deficiencies in aspects which are essential to professional development, such as qualification to work at PHC, satisfactory experience, stability and availability of supporting technical documents.

The first relevant aspect regarding the working process is related to the most general practice of measuring weight and height – in comparison with the recording of such measures – and of the recording of measurements – in comparison with the adoption of recommendations related to them –, diverging from promotion and prevention. This method of working hampers the experience of the growth process, restricts the possibilities of identifying risk situations, impairs the adherence and valorization of the CHR, inhibits the sharing of data among professionals and hinders the dialogue between these professionals and the service's users.[5,19] These results are similar to those of other studies which have reinforced the biologist vision of health and the adoption of curing practices – according to an integrative review[8], – which may impair the comprehensiveness of FHS assistance.[8,20] These findings add to those of qualitative studies with an approach on the nurses' perceptions regarding child care visits, conducted in the municipality of Maringá from 2012 to 2013,[13] in a municipality in

the countryside of Paraíba State in 2008,[12] and in Mandaguari, in 2010. They confirm the relevance of investments in the development of human resources which favor the qualification and training as critical aspects of the changes in the assistance model.[2,5,13,18,19]

The professional behavior of the nurses observed in this study also reveals differences between the two municipalities, regarding weight, height and cephalic perimeter recording, as well as the recommendations provided on the basis of notes related to current weight and height. The deficiencies were detected in both municipalities, representing the reality already exposed by previous studies, which illustrate the difficulties of the Brazilian primary health care network regarding growth monitoring.[5,8,19,20] These deficiencies refer to a wide range of factors, including the lack of training of professionals, their lack of knowledge about growth curves and the concepts implied on them, lack of time and non-use of the CHR by all members of the team.[5,8,19] In this study, the better recording of anthropometric data in Municipality 1 was favored by the work of other professionals – such as the nutritionist – in the conduction of measurements; something which did not occur regarding recommendations to mothers, based on the monitoring (curves), which were very scarce in both municipalities. It might be inferred that the hospital-centered vision and the lack of training of professionals contribute negatively to the adoption of practices, under the perspective of health surveillance.

The problems identified in this study regarding the recording of height and cephalic perimeter, both in the medical records and in the CHR, must be faced. These are parameters that reflect important conditions of the health situation and the state of neuro-psychomotor development of the child.[15] Weight assumes a similar connotation, considering that overweight is a concerning reality which affects Brazilian children.[21] Under this perspective, it is also essential to include the body mass index (BMI) in the health services routine, an aspect which is not addressed in the current study, but that could be included in future studies.[19]

It is worth noticing that the action of growth monitoring comprises, besides the aspects considered in this study, others such as the involvement of families and the ties between professionals and mothers. Structural conditions, co-responsibility and empowerment of families must be assured for a effective growth monitoring and encouragement of continuous care.[8,19,22,23] Growth monitoring is a simple and low-cost method that can be promoted through the interaction of PHC professionals, leaving no justification for its precarious situation in Brazilian health care services.[6,23] Moreover, growth and development monitoring is considered the basis of comprehensive child care, which legitimates its adoption as a priority for the effectiveness of the health system.[24]

Since the study is restricted to an intentional sample of children who were subject to a child care visit during the moment of data collection, results cannot provide an overview of what occurs with the growth monitoring of all children registered in the health care unit, nor can they serve as a generalization. Another limitation of this study is related to the impossibility of explanations related to factors involved in the performance under the professionals' perspectives. Nevertheless, the study of several cases from two different realities and the use of the observation technique must be seen as precursors of trustable information and analytical generalization.

Despite the fact that growth monitoring is a pillar of primary child care in Brazil, as well as a relevant quality indicator, it can be concluded that the action is not yet consolidated as a practice in child care visits at the FHS of the studied municipalities, with significant deficiencies in the working process. The overcoming of such issues includes joint efforts of health managers and professionals, in order to reorganize services under the guidelines of the Brazilian National Health System (SUS), adopting an integrated view of Health. The social and promotion relevance of child health makes child care a primary object of investigation, awareness and permanent professional qualification, so that growth monitoring practices are in consonance with the attributions of Primary Health Care.

Authors' contributions

Figueroa Pedraza D, contributed to the conception of the study, collection, analysis and interpretation of data, drafting and critical review of the manuscript. Santos IS, contributed to the interpretation of data, drafting and critical review of the manuscript. All the authors contributed to the development and final review of the manuscript and declared to be responsible for all aspects of the study, ensuring its accuracy and integrity.

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