Qualification of Family Health Care Expanded Support Centers: analysis according to the Program for Improving Access and Quality of Primary Care cycles

Qualificação dos Núcleos Ampliados de Saúde da Família: análise segundo os ciclos do Programa de Melhoria do Acesso e da Qualidade da Atenção Básica

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ABSTRACT The aim of the study was to analyze the indicators related to the management and working process of the Family Health Care Expanded Support Centers according to the Primary Health Care and the Centers teams perspectives in Brazil. This is a cross-sectional study with historical series analysis, using secondary data from the External Evaluation of the Program for Improving Access and Quality of Primary Care. The data were obtained from modules II and module IV from the 2nd and 3rd cycles. Chi-square and the Mann-Witney test ($p<0.05$) were performed. The grades given by the Primary Health Care teams to the Centers were above 7 and increased 1 point in the 3rd cycle, beside, there was an upgrade in almost all items from the 2nd to the 3rd cycles, concerning to the meetings with the municipal management and the working process of the Primary Health Care and Centers teams in the planning of actions and its frequency. We came to the conclusion that there was an increase in most indicators related to management and working process from the perspective of Primary Health Care team and Family Health Care Expanded Support Centers in Brazil.

KEYWORDS Primary Health Care. Unified Health System. Health evaluation. Health evaluation, access and evaluation. Quality improvement.

RESUMO *O objetivo do estudo foi analisar os indicadores relacionados à gestão e ao processo de trabalho dos Núcleos Ampliados de Saúde da Família, nas perspectivas da equipe de Atenção Básica e do próprio Núcleo Ampliado de Saúde da Família no Brasil. Trata-se de estudo transversal com análise de série histórica, com dados secundários da Avaliação Externa do Programa de Melhoria do Acesso e da Qualidade da Atenção Básica. Os dados foram obtidos dos módulos II e IV do 2º e do 3º ciclos. Foram realizados teste qui-quadrado e Mann-Witney (p<0,05). As notas atribuídas pelas equipes de Atenção Básica aos Núcleos foram acima de 7 e aumentaram 1 ponto no 3º ciclo, constatando-se melhora em quase todos os itens do 2º para o 3º ciclo, referente aos encontros com a gestão municipal e ao processo de trabalho da equipe de Atenção Básica e do Núcleo Ampliado de Saúde da Família no planejamento das ações e da periodicidade. Conclui-se que houve melhora na maioria dos indicadores relacionados à gestão e ao processo de trabalho, nas perspectivas da equipe de Atenção Básica e do Núcleo Ampliado de Saúde da Família no Brasil.*

PALAVRAS-CHAVE *Atenção Primária à Saúde. Sistema Único de Saúde. Avaliação em saúde. Qualidade, acesso e avaliação da assistência à saúde. Melhoria de qualidade.*

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Introduction

Seeking to implement a social welfare state, the Federal Constitution of 1988 was enacted and transformed health into a right of citizenship, creating a public, universal and decentralized health system, the Unified Health System (UHS)[1]. The principles of the UHS are equity, integrality and universality[2], and, since the 1990s, several actions and services are being implemented to form a regionalized and hierarchical health network[3-6].

Primary Health Care (PHC), or Primary Care (PC), needs to be able to solve most health problems[7], guide the organization of the health system, seek answers to the main health needs of the population and collaborate to change the current care model[8]. Thus, over time, there has been a historical construction of programs and policies with the purpose of strengthening PHC and having, at this level, the main gateway to the system and the coordination of health care from the perspective of the configuration of Health Care Networks (HCN)[5,9,10].

In 1991, there was the creation of the Community Health Agents Program (Chap), and, in 1994, the Family Health Program (FHP), which later became the Family Health Strategy (FHS) in the National Primary Care Policy (NPCP) from 2006[11], policy updated in 2011 and 2017[12]. The Ministry of Health (MH), based on municipal experiences and national debates, created the Family Health Support Center (FHSC), through the Ordinance No. 154, of January 24th, 2008, and, with Ordinance No. 3,124, of December 28, 2012, redefined the parameters for linking modalities 1 and 2, in addition to creating modality 3[13]. Therefore, each type 1 FHSC must be linked from five to nine Family Health Teams (FHt) and/or Primary Care teams (PCt) for specific populations (street clinic team, riverside and river teams); type 2 FHSC, three or four; and type 3 FHSC, from one to two FHt[13-15].

The FHSC work process is based on the theoretical-methodological framework of matrix support, initially limited to the FHS, and materialized in the sharing of problems and the exchange of knowledge and practices among professionals, as well as in the agreed articulation of interventions, taking into account the clarity of common and specific responsibilities of the PHC team[13,16]. In 2017, the updating of the NPCP enabled the work of FHSC with Basic Health Units (BHU), in a traditional model, having received the name of Family Health Care Expanded Support Centers (keeping the acronym FHSC)[17]. The flexibility of the work process of the new NPCP may negatively impact its operating format, due to the greater difficulty in operating in the logic of matrix support[12].

The improvement of the health service offered requires the implementation and encouragement of actions and policies that include construction, expansion and reform of the BHU, guaranteeing the presence of more professionals in the teams, encouraging good practices in work processes, informational continuity and institutionalization of the continuous assessment for quality improvement[18]. In this sense, according to Donabedian[19] principles, the use of relevant quality indicators and the understanding of the combination of results can identify substandard care and be a warning sign for the need for further investigation.

Recognizing the need to institutionalize health assessment, the MS, with Ordinance No. 1,654, of July 19th, 2011, established the Program for Improving Access and Quality of Primary Care (PIAQ-PC), which seeks to ensure a standard of comparable quality nationally, regionally and locally, in addition to strengthening the PHC, including a financial incentive for performance. On October 1st, 2015, Ordinance No. 1,645 revoked Ordinance No. 1,654, with new information about the Program[9,20,21]. In the 1st cycle of the PIAQ-PC, only two items related to the FHSC were evaluated. In the 2nd cycle, for the first time, there was a

specific FHSC module, in addition to the block of items about its support, within the PCt module, which were maintained in the 3rd cycle[22-24]

In this context, the aim of this study was to analyze the indicators related to the management and work process of FHSC from the perspectives of PCt and FHSC itself in Brazil.

Material and methods

Study design and ethical aspects

The cross-sectional study with analysis of the historical series was carried out with secondary data from modules II and IV of the 2nd (2013-2014) and 3rd (2015-2018) cycles of the External Assessment instrument of the PIAQ-PC.

All cycles of the PIAQ-PC were coordinated in a tripartite manner, by the Department of Primary Care (DAB) of the MH, the National Council of Health Secretaries (NCHS) and the National Council of Municipal Health Secretaries (NCMHS), with the collaboration of Higher Education Institutions (HEIs) as coordinating centers for External Evaluation[22,23]. The data were in the public domain and were made available by the MH.

Universe of study and sample

The sample universe was the PCt (module II) and the FHSC (module IV) of the PHC that joined and received an External Assessment of the 2nd cycle (2013-2014) or 3rd cycle (2015-2018) of the PIAQ-PC, with this adherence being voluntary and not mandatory.

All PCt and FHSC teams were eligible, regardless of the professional category of the respondent in module II of the 2nd or 3rd cycle (nurse, doctor or other professional with higher education in the PCt), or module IV of the 3rd cycle (social worker, pharmacist, physiotherapist, speech therapist, acupuncturist, clinical physician, occupational physician, geriatrician, gynecologist and obstetrician, homeopathic physician, pediatrician, psychiatrist, veterinarian, nutritionist, psychologist, teacher of physical education in health, occupational therapist, health worker or social educator). Module IV of the 2nd cycle had no variable to demonstrate which FHSC professional would have answered the questionnaire.

Data collect

The External Evaluation of the PIAQ-PC was carried out in cycles, in a multicentric way, under the responsibility of HEIs in the Brazilian states, divided by regions of responsibility, having trained and coordinated teams of independent interviewers, previously selected. The interviewers, *in loco*, collected the data from the teams' professionals, using validated forms, registered on tablets, and analyzed the corroborating documents, when necessary. Participating professionals were invited to sign an Informed Consent Form.

The 2nd cycle had the participation of 30,523 PCt (85.4% of PCt registered in Brazil); the 3rd cycle had 38,865 PCt (93.9% of PCt registered in Brazil). Regarding the FHSC, in the 2nd cycle there were a total of 1,813 centers (78.5% of the FHSC registered in Brazil), and in the 3rd cycle, a total of 4,110 centers (91.2% of the FHSC registered in Brazil).

Variables

For the present study, all questions related to FHSC were initially considered, directed both to PCt and to FHSC itself. After this selection, only the questions that could be compared between cycles, considering their content or answer format, were kept in the analysis. Adjustments were necessary for comparability, as shown in *box 1*.

Box 1. Variables, questions codes and answer categories of the Program for Improving Access and Quality of Primary Care (PIAQ-PC) and the study categories categories, by axis, between the 2nd and 3rd cycles of the Program. Brazil, 2013-2018

Cycle	Question Code	Answer Category from PIAQ-PC	Study Category
AXIS 1: Manegement			
debate between management and the PCt about the professionals who should make up the FHSC			
2nd cycle	II.33.1	Yes (1); No (2); Does not apply (3); 'Does not apply' (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.33.1	Yes (1); No (2); Does not apply (998); Does not know (999); 'Excluded team' (7); Lost data (9,997)	
presence of a person in charge of the FHSC in municipal management			
2nd cycle	IV.5.1	Yes (1); No (2); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	IV.3.1	Yes (1); No (2); Lost Data (9,997)	
frequency of meetings between FHSC professionals with the PCt			
2nd cycle	IV.5.3	Weekly (1); Biweekly (2); Monthly (3); No frequency defined (4); Do not happen (5); Does not apply (998); Lost data (9,997)	Yes (1, 2 e 3) or No (4 e 5)
3rd cycle	IV.3.2	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
AXIS 2: FHSC work process, from the perspective of the PCt			
PCt attended by matrix support in complex cases			
2nd cycle	II.9.4	Yes (1); No (2); Does not know; Did not respond (999); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.3.1	Yes (1); No (2); 'Excluded team' (7); Lost data (9,997)	
FHCS professionals carry out matrix support			
2nd cycle	II.9.5.1	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.3.2.1	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
PCt requests FHCS's support with written referrals			
2nd cycle	II.33.15.1	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.1.1	Yes (1); No (2); Does not apply (998); 'Excluded team'(7); Lost data (9,997)	
PCt requests FHCS's support with case discussions			
2nd cycle	II.33.15.2	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.1.2	Yes (1); No (2); Does not apply (998); 'Excluded team'(7); Lost data (9,997)	
PCt requests FHCS's support with shared consultations			
2nd cycle	II.33.15.3	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd	II.34.1.3	Yes (1); No (2); Does not apply (998); 'Excluded team'(7); Lost data (9,997)	
PCt performs appointment scheduling directly in the FHSC professional's agenda			
2nd cycle	II.33.15.4	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.1.4	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
the FHSC schedule is made with its PCt			
2nd cycle	II.33.5	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.4	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data (9,997)	

Box 1. (cont.)

Cycle	Question Code	Answer Category from PIAQ-PC	Study Category
you know the activities schedule of the FHSC with its PCt			
2nd cycle	II.33.11	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.5	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
all professionals from FHSC have guaranteed periodic activities with the PCt			
2nd cycle	II.33.12	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.6	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); 'Excluded team' (7); Lost data (9,997)	
PCt and FHSC have criteria for FHSC care and referrals to other care points			
2nd cycle	II.33.14	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.7	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); 'Excluded team' (7); Lost data (9,997)	
there are criteria between your team and the FHSC to trigger support in unforeseen situations (out of schedule or urgency)			
2nd cycle	II.33.16	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.8	Yes (1); No (2); Does not apply (998); Does not know; Did not respond (999); 'Excluded team' (7); Lost data (9,997)	
in unforeseen situations, your team gets the support of the FHSC			
2nd cycle	II.33.16.1	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.34.9	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
shared consultations happen between PCt and FHSC			
2nd cycle	II.33.17.1	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.4	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	Yes (1) or No (2)
case discussion takes place between PCt and FHSC			
2nd cycle	II.33.17.7	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.1	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
management of referrals and/or waiting lists for specialists between the PCt and FHSC			
2nd cycle	II.33.17.8	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.14	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
the demand for individual care to be provided by FHSC professionals is organized			
2nd cycle	II.33.17.9	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.2	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
discussion of topics takes place/permanent education actions between PCt and FHSC			
2nd cycle	II.33.17.10	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.9	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
the definition of access criteria, prioritization of cases and assignments of each professional takes place between the PCt and the FHSC			
2nd cycle	II.33.17.11	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.15	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	

Box 1. (cont.)

Cycle	Question Code	Answer Category from PIAQ-PC	Study Category
monitoring and evaluation of results of shared care between PCt and FHSC take place			
2nd cycle	II.33.17.12	Yes (1); No (2); Does not apply (998); Lost data (9,997)	Yes (1) or No (2)
3rd cycle	II.35.1.18	Yes (1); No (2); Does not apply (998); 'Excluded team' (7); Lost data	
average time to respond to the PCt request by FHSC			
2nd cycle	II.33.9	From 1 to 30 days: numeric from 1 to 30; Over 30 days: 31; Does not apply (998); Lost data (9,997)	Up to 1 day (1); From 2 to 7 days (2); From 8 to 15 days (3); From 16 to 30 days (4); Over 30 days (5)
3rd cycle	II.34.2	Up to 1 day (1); From 2 to 7 days (2); From 8 to 15 days (3); From 16 to 30 days (4); Over 30 days (5); Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
the FHSC responds to requests for support in a timely manner			
2nd cycle	II.33.10	Always (1); Most of the time (2); Sometimes (3); Rarely (4); Never (5); Does not apply (998); Lost data (9,997)	Always (1); Most of the time (2); Sometimes (3); Rarely (4); Never (5)
3rd cycle	II.34.3	Always (1); Most of the time (2); Sometimes (3); Rarely (4); Never (5). Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
what is the frequency of meetings between FHSC professionals and PCt			
2nd cycle	II.33.13.1 a II.33.13.5	Weekly (II.33.13.1); Biweekly (II.33.13.2); Monthly (II.33.13.3); No defined periodicity (II.33.13.4) Yes (1); No (2); Does not apply (998); Lost data (9,997)	Weekly (1); Biweekly (2); Monthly (3); No defined periodicity (5); In the case of more than one option, the highest frequency was considered
3rd cycle	II.35.2	Weekly (1); Biweekly (2); Monthly (3); Over 30 days (4); No defined periodicity (5); 'Excluded team' (7); Lost data (9,997)	Weekly (1); Biweekly (2); Monthly (3); Over 30 days (4); No defined periodicity (5)
how PCt assesses FHSC's contribution to solving user needs			
2nd cycle	II.33.20.1	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.1	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
how PCt assesses FHSC's contribution to the reduc tion of unnecessary referrals to specialized care			
2nd cycle	II.33.20.2	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.2	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
how PCt assesses the contribution of the FHSC in qualifying referrals			
2nd cycle	II.33.20.3	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.4	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	

Box 1. (cont.)

Cycle	Question Code	Answer Category from PIAQ-PC	Study Category
how PCt assesses the FHSC's contribution to deal with problems considered difficult			
2nd cycle	II.33.20.4	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.5	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
how PCt assesses the FHSC's contribution to the improvement of health indicators for the population in the territory			
2nd cycle	II.33.20.5	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.8	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
how PCt assesses the FHSC's contribution in the improvement of the health situation of shared cases			
2nd cycle	II.33.20.6	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.6	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
how the PCt assesses the FHSC's contribution in expanding the actions offered at the Basic Health Unit and the population's access			
2nd cycle	II.33.20.7	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.2.9 e II.36.2.10	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	It was calculated by the average of the questions with rounding of the scores. Numerical from 0 to 10
evaluation of the support your PCt receives from the FHSC			
2nd cycle	II.33.21	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); Lost data (9,997)	Numerical from 0 to 10
3rd cycle	II.36.3	0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; Does not apply (998); 'Excluded team' (7); Lost data (9,997)	
AXIS 3: Work process in FHSC's owns perspective			
the FHSC identifies the main demands to support PCt			
2nd cycle	IV.10.1	Yes (1); Sometimes (2); Não (3); Lost data (9,997)	Yes (1 or 2); No (3)
3rd cycle	IV.5.2	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
FHSC actions articulated with the planning of the PCt			
2nd cycle	IV.7.7	Yes (1); No (2); Lost data (9,997). Included in 'No' is the calculation of 68 teams who answered 'no' to question IV.7.5, about 'not carrying out planning', meaning 'no' in such question	Yes (1); No (2)
3rd cycle	IV.7.7	Sempre (1); Most times (2); Sometimes (3); Never (4); Lost data (9,997)	Yes (1, 2 or 3); No (4)
the FHSC monitors the indicators related to its work process			
2nd cycle	IV.7.9	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.4		

Box 1. (cont.)

Cycle	Question Code	Answer Category from PIAQ-PC	Study Category
the FHSC carried out some self-assessment process in the last 12 months			
2nd cycle	IV.7.10	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.5		
the FHSC carries out shared consultations with the PCt			
2nd cycle	IV.8.4.2	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.7.1		
the FHSC conducts therapeutic groups			
2nd cycle	IV.8.4.4	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.7.2		
the FHSC carries out health education activities			
2nd cycle	IV.8.4.5	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.7.4		
the FHSC registers its actions in medical records common to PCt			
2nd cycle	IV.11.1	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)
3rd cycle	IV.7.10		
continuing education is offered to FHSC professionals			
2nd cycle	IV.6.4	Yes, for all professionals (1); Yes, for some professionals (2); No (3); Lost data (9,997)	Yes (1 or 2); No (3)
3rd cycle	IV.4.1	Yes (1); No (2); Lost data (9,997)	Yes (1); No (2)

Source: Own elaboration.

PCt: Primary Care Team. FHSC: Family Health Care Expanded Support Centers.

The dependent variables investigated were grouped into three blocks: Management; FHSC work process from the perspective of PCt; and work process from the perspective of FHSC itself.

The independent variable was the PIAQ-PC cycle: 2nd (2013-2014) or 3rd (2015-2018) cycle.

Data analysis

The data obtained were analyzed using the Statistical Package for the Social Sciences (SPSS) 20.0 and presented in absolute (n) and relative (%) frequencies. The presence of missing data in the database did not exclude the PCt or the FHSC teams from the global analysis, but there was an exclusion by variable evaluated. Thus, no variable had the total number of teams evaluated per module and per cycle.

The associations of the studied variables (outcomes) and the independent variable (cycles) were performed using the chi-square test ($p<0.05$). Among the variables whose answer options were 'Yes' or 'No', although the tables only present the category 'Yes', the category 'No' was also considered in the analysis. The Kolmogorov-Smirnov normality test was used for the evaluations related to the scores attributed by the PCt, showing a non-normal distribution ($p<0.001$), and, therefore, there was a comparison by the Mann-Witney test, with a significance level of 5%.

Results

Among the PCt evaluated, a total of 29,649 (97.1% of the PCt evaluated) were analyzed in

the 2nd cycle and a total of 37,350 (96.1% of the PCt evaluated) in the 3rd cycle. Regarding FHSC, there was a participation of 1,774 (97.8% of the evaluated FHSC) in the 2nd cycle and 4,031 (98.1% of the evaluated FHSC) in the 3rd cycle of the PIAQ-PC.

Regarding management activities, it was noticed that there was a better proportion in relation to the 'debate between management and the PCt about the professionals who should make up the FHSC' between the 2nd (61.5%) and 3rd cycle (68.6%) (p<0.001). The 'presence of a person in charge of the FHSC in municipal management' was 93.2% in the last cycle, with no significant difference in relation to the previous cycle (p=0.415). In addition, there was an improvement in the proportion of 'FHSC who have meetings with the municipality's coordination' (82.2% to 94.8%) (p<0.001) (*table 1*).

Table 1. Comparison between 2nd and 3rd cycle of the Program for Improving Access and Quality of Primary Care (PIAQ-PC) for management variables. Brazil, 2013-2018

	2nd Cycle (2013-2014)		3rd Cycle (2015-2018)		
Variables	**n**	**%[1]**	**n**	**%[1]**	**p-value**
The municipal manegement debated with the PCt[2] about who should make up the FHSC[3] (N=40,500)[4]					
Sim	9,698	61.5	16,985	68.6	<0.001
There is a person in charge of the FHSC3 in municipal manegement (N=5,805)[5]					
Sim	1,642	92.6	3,755	93.2	0.415
Frequency of meetings between FHSC3 and the coordination (N=5,397)[6]					
Sim	1,349	82.2	3,560	94.8	<0.001

Source: Own elaboration.

[1]Percentual (rounding fractions to one decimal place): In reference to the total number of teams from each cycle.

[2]PCt: Primary Care teams.

[3]FHSC: Family Health Care Expanded Support Centers.

Each variable comes with the 'N' equals to the sum of answering teams from 2nd and 3rd cycles:

[4]Variable answered by professional from PCt that receives support from the FHSC;

[5]Variable answered by professional from FHSC; and

[6]Variable answered by professional from FHSC that said 'Yes' in the previous question.

It is noteworthy that in the 3rd cycle there was a higher proportion of 'PCt attended by matrix support in complex cases', with 97.9%, of which 74.5% are 'carried out by FHSC'. Regarding the FHSC work process, from the perspective of the PCt, there was an improvement in almost all items. Of these, the most performed are: 'case discussion' (93.4%) and 'the demand for individual care to be provided by FHSC professionals is organized' (89.7%) (p<0.001). And the least performed are: 'the PCt schedules appointments directly in the FHSC professional's agenda' (72.9%) and 'management of referrals and/or waiting lists for specialists between the PCt and the FHSC' (67 .7%) (p<0.001). There was a reduction in only three items, two of which were dichotomous: 'the FHSC action schedule is carried out with your PCt' (85% to 80.9%) and 'in unforeseen situations, your PCt gets support from the FHSC' (99% for 96.7%) (p<0.001) (*table 2*).

In both cycles, the 'average time to respond to the PCt request by FHSC' is 'two to seven days' (53.2% and 59.4%), with an increase in the proportion also in 'one day' (10.1% to 12.1%) (p<0.001). And the majority of PCt stated 'always' to be 'assisted by the FHSC in an adequate time', with an increase from 43.2% to 52% (p<0.001). Regarding the 'frequency of

meetings between FHSC professionals with the PCt', there was a reduction in the proportion of PCt who claimed to be 'weekly' (38.9% to 32.5%) and an increase in the 'monthly' frequency (24.5% to 34.9%) between the 2nd and 3rd cycle (p<0.001) (*table 2*).

Table 2. Comparison between 2nd and 3rd cycle of the Program for Improving Access and Quality of Primary Care (PIAQ-PC) for variables in the process of the Family Health Care Expanded Support Centers (FHSC) in Primary Care teams's perspective. Brazil, 2013-2018

	2nd Cycle (2013-2014)		3rd Cycle (2015-2018)		
Variables	**n**	**%[1]**	**n**	**%[1]**	**p-value**
PCt[2] attended by matrix support in complex cases (N=66,999)[4]					
Yes	27,463	92.6	36,547	97.9	<0.001
FHCS[3] professionals carry out matrix support (N=64,010)[5]					
Yes	17,157	62.5	27,213	74.5	<0.001
PCt requests FHCS's support with written referrals (N=44,370)[6]					
Yes	10,565	61.6	20,992	77.1	<0.001
PCt requests FHCS's support with case discussions (N=44,370)[6]					
Yes	11,680	68.1	22,505	82.7	<0.001
PCt requests FHCS's support with shared consultations (N=44,370)[6]					
Yes	7,759	45.2	20,477	75.2	<0.001
PCt performs appointment scheduling directly in the FHSC professional's agenda (N=44,370)[6]					
Yes	9,510	55.4	19,849	72.9	<0.001
The FHSC schedule is made with its PCt (N=43,356)[7]					
Yes	13,727	85	22,017	80.9	<0.001
You know the activities schedule of the FHSC with its PCt (N=44,370)[6]					
Yes	14,256	83.1	24,336	89.4	<0.001
All professionals from FHSC have guaranteed periodic activities with the PCt (N=43,902)[7]					
Yes	13,062	77.2	23,577	87.4	<0.001
PCt and FHSC have criteria for FHSC care and referrals to other care points (N=43,586)[7]					
Yes	12,955	77.4	24,122	89.8	<0.001
There are criteria between your team and the FHSC to trigger support in unforeseen situations (out of schedule or urgency) (N=43,517)[7]					
Yes	12,031	72	23,917	89.2	<0.001
In unforeseen situations, your team gets the support of the FHSC (N=39,244)[7]					
Yes	11,912	99	26,305	96.7	<0.001
Shared consultations happen between PCt and FHSC (N=44,370)[6]					
Yes	10,821	63.1	23,923	87.9	<0.001
Case discussion takes place between PCt and FHSC (N=44,370)[6]					
Yes	11,867	69.2	25,429	93.4	<0.001
Management of referrals and/or waiting lists for specialists between the PCt and FHSC (N=44,370)[6]					
Yes	9,376	54.6	18,415	67.7	<0.001

Table 2. (cont.)

	2nd Cycle (2013-2014)		3rd Cycle (2015-2018)		
Variables	**n**	**%[1]**	**n**	**%[1]**	**p-value**
the demand for individual care to be provided by FHSC professionals is organized (N=44,370)[6]					
Yes	12,304	71.7	24,412	89.7	<0.001
Discussion of topics takes place/permanent education actions between PCt and FHSC (N=44,370)[6]					
Yes	11,824	68.9	21,904	80.5	<0.001
The definition of access criteria, prioritization of cases and assignments of each professional takes place between the PCt and the FHSC (N=44,370)[6]					
Yes	11,165	65.1	21,901	80.5	<0.001
Monitoring and evaluation of results of shared care between PCt and FHSC take place (N=44,370)[6]					
Yes	10,261	59.8	20,608	75.7	<0.001
On avarage, the FHSC respont to a PCt in how many days (N=44,370)[6]					
1 day	1,729	10.1	3,302	12.1	
2 a 7 days	9,123	53.2	16,156	59.4	
8 a 15 days	4,200	24.5	5,271	19.4	<0.001
16 a 30 days	1,644	9.6	1,928	7.1	
Over 30 days	461	2.7	556	2	
The FHSC responds to requests for support in a timely manner (N=44,370)[6]					
Always	7,414	43.2	14,148	52	
Most of the times	6,985	40.7	9,983	36.7	
Sometimes	2,185	12.7	2,514	9.2	<0.001
Rarely	421	2.5	439	1.6	
Never	152	0.9	129	0.5	
What is the frequency of meetings between FHSC professionals and PCt (N=44,369)7					
Weekly	6,673	38.9	8,842	32.5	
Biweekly	2,520	14.7	4,297	15.8	
Monthly	4,210	24.5	9,503	34.9	<0.001
Over 30 days	-	-	816	3	
No defined periodicity	3,753	21.9	3,755	13.8	

Source: Own elaboration.

[1] Percentual (rounding fractions to one decimal place): In reference to the total number of teams from each cycle

[2] PCt: Primary Care teams.

[3] FHSC: Family Health Care Expanded Support Centers.

Each variable comes with the 'N' equals to the sum of answering teams from 2nd and 3rd cycles:

[4]Variable answered by the professional of all the PCt analyzed;

[5] Variable answered by professional from PCt that receives matrix support;

[6] Variable answered by professional from PCt that receives support from the FHSC; and

[7] Variable answered by the PCt professional that receives FHSC support ('N' lower than 44.370 because of the inclusion of 'Does not apply'.

In relation to the grades given by the PCt for the activities carried out by the FHSC, high grades were verified – average and median above 7 for all evaluated items –, both in the 2nd and 3rd cycle. The items with the highest scores in both cycles were: 'the support your team receives from the FHSC', 'improvement in the health indicators of the cases shared between your team and the FHSC' and 'FHSC's contribution to deal with problems considered difficult'. The items with the lowest score in the 2nd and 3rd cycles were: 'FHSC's contribution to the reduction of unnecessary referrals to specialized care' and 'improvement of health indicators for the population in the territory'. In addition, there was an improvement in the score for all items evaluated by the team, in relation to the work of the FHSC (p<0.001) (*table 3*).

Table 3. Average, Standard Deviation, median and interquantile range between the grades attributed by the Primary Care teams (PCt) and the work process of the Family Health Care Expanded Support Centers (FHSC) on 2nd and 3rd cycles of the Program for Improving Access and Quality of Primary Care (PIAQ-PR). Brazil, 2013-2018

	2nd Cycle (2013-2014) (N=17,157)[1]					3rd Cycle (2015-2018) (N=27,213)[2]					
Variable	**Average**	**SD**	**Median**	**IR25**	**IR75**	**Average**	**SD**	**Median**	**IR25**	**IR75**	
How PCt assesses FHSC's contribution to solving user needs (N=44,370)											
Numerical	7.82	1.57	8	7	9	8.52	1.35	9	8	10	<0.001
How PCt assesses FHSC's contribution to the reduction of unnecessary referrals to specialized care (N=44,370)											
Numerical	7.51	2.08	8	7	9	8.29	1.69	9	8	9	<0.001
How PCt assesses the contribution of the FHSC in qualifying referrals											
Numerical	7.82	1.9	8	7	9	8.46	1.6	9	8	10	<0.001
How PCt assesses the FHSC's contribution to deal with problems considered difficult											
Numerical	8.04	1.76	8	7	9	8.61	1.46	9	8	10	<0.001
How PCt assesses the FHSC's contribution to the improvement of health indicators for the population in the territory											
Numerical	7.68	1.91	8	7	9	8.34	1.61	9	8	9	<0.001
How PCt assesses the FHSC's contribution in the improvement of the health situation of shared cases											
Numerical	7.92	1.81	8	7	9	8.76	1.39	9	8	10	<0.001
How the PCt assesses the contribution of the FHSC in expanding the actions offered at the Basic Health Unit and the population's access											
Numerical	7.84	1.86	8	7	9	8.59	1.49	9	8	10	<0.001
Evaluation of the support your PCt receives from the FHSC (N=44,370)											
Numerical	8.13	1.72	8	7	9	8.76	1.42	9	8	10	<0.001

Source: Own elaboration.

[1]'N' common in the 2nd cycle of all the variables.

[2]'N' common in the 3rd cycle of all the variables.

SD: Standard Deviation.

PCt: Primary Care team.

IR: Interquantile Range.

FHSC: Family Health Care Expanded Support Centers.

BHU: Basic Health Unit.

Regarding the work process from the perspective of the FHSC itself, in the 3rd cycle it was found that the most performed activities were: 'FHSC actions articulated with the planning of the PCt' (98.7%) and 'identification of the main demands for support from the teams' (98.1%). There was an improvement in the proportion of actions performed for most items, with the exception of those in which there was a high proportion in the 2nd cycle and close to the percentages in the 3rd cycle, which sought to know if the FHSC 'performs therapeutic groups' (p=0.126) and 'health education activities' (p=0.160) (*table 4*).

Table 4. Comparison between the 2nd and 3rd cycles of the Program for Improving Access and Quality of Primary Care (PIAQ-PC) for variables in the work process in FHSCs own perspective. Brazil, 2013-2018

	2nd Cycle (2013-2014)		3rd Cycle (2015-2018)		
Variables	**n**	**%[1]**	**n**	**%[1]**	**p-value**
The FHSC[2] identifies the main demands to support PCt[3] (N=5,805)[4]					
Yes	1,394	78.6	3,953	98.1	<0.001
FHSC[2] actions articulated with the planning of the PCt[3] (N=5,805)[4]					
Yes	1,485	83.7	3,978	98.7	<0.001
The FHSC[2] monitors the indicators related to its work process (N=5,805)[4]					
Yes	1,293	72.9	3,245	80.5	<0.001
The FHSC[2] carried out some self-assessment process in the last 12 months (N=5,805)[4]					
Yes	1,494	84.2	3,629	90	<0.001
The FHSC[2] carries out shared consultations with the PCt[3] (N=5,805)[4]					
Yes	1,609	90.7	3,819	94.7	<0.001
The FHSC[2] conducts therapeutic groups (N=5,805)[4]					
Yes	1,617	91.1	3,722	92.3	0.126
The FHSC[2] carries out health education activities (N=5,805)[4]					
Yes	1,725	97.2	3,891	96.5	0.160
The FHSC[2] registers its actions in medical records common to PCt[3] (N=5,805)[4]					
Yes	1,472	83	3,593	89.1	<0.001
Continuing education is offered to FHSC[2] professionals (N=5,805)[4]					
Yes	1,196	67.4	3,775	93.6	<0.001

Source: Own elaboration.

[1]Percentage (rounding fractions to one decimal place): relation referring to the total of teams in each cycle.

[2] FHSC: Family Health Care Expanded Support Centers

[3] PCt: Primary Care team.

[4] N=5,805 (From the somatory of FHSC: 1,774 from 2nd cycle + 4,031 from 3rd cycle). Common to all the variables.

Discussion

The present study was the first to analyze two modules and two cycles of the PIAQ-PC to qualify the FHSC matrix support in the Brazilian PHC. In this sense, there was an increase in the absolute number of PCt and FHSC teams implemented and with adherence to the PIAQ-PC, as well as an improvement in the management and work process, both in the evaluation of the PCt and the FHSC. Considering that the FHSC work logic goes

beyond the fundamental logic of clinic and health care in the traditional format[13,16], the result can show a constructive process of the actors involved, PCt and FHSC teams, over time, on the attributions of the FHSC and, furthermore, about its role in strengthening PHC, in addition to the maturity of the FHSC work process.

The proportion of PCt that debate with management about the professional categories that should make up the FHSC, according to the needs of the enrolled population, was reported as similar to that observed in other cross-sectional studies[25,26], and only the present study analyzed and verified improvement data. Volponi, Garanhani and Carvalho[26] observed 8 hours of monthly meetings between managers and coordination of BHU, and 20 hours of both with the FHSC, in a large municipality in the state of Paraná. However, despite positive setting aside the of time for meetings with the management, the quality of the debate in search of solutions should be considered, an aspect not evaluated in this study.

A study pointed out that, regardless of the form of management, whether permissive or too authoritarian, discussions need to address the work process with clear objectives and goals to be met, in accordance with health plans[27]. It is known that the low level of dialogue between PCt managers and workers is an additional difficulty for the implementation of policies and programs in the health area[28].

Another study pointed out that, even with a monthly meeting between municipal management and the FHSC coordination, there are still managers not open to discussion[26]. Democratic and participatory management between professionals and managers has a positive impact on strengthening bonds, as well as shared participation and shared accountability[26]. The findings of this study showed a high proportion of the presence of a person responsible for the FHSC within the municipal administration, which may favor more productive debates. However, there is a lack of more accurate data to assess the effective participation of these professionals in management.

Regarding the work process of the FHSC, from the perspective of evaluating the PCt, there was an increase in almost all items analyzed, with better performance than that described in the literature[25,28], where the actions of the FHSC should reflect on the improvement of individual and collective health conditions[25]. In the present study, the highest percentage of FHSC support was in the 'case discussion', and can be explained by the periodicity[29]. The items 'PCt performs appointment scheduling directly in the FHSC professional's agenda' and 'management of referrals and/or waiting lists for specialists between the PCt and FHSC' had less significant increases and, therefore, still show the need for improvements.

In fact, professionals from FHSC, FHt and PCt did not experience adequate training on matrix support and had to learn how to learn during the work process itself[30]. Despite this, the results found in this study even indicate a better work process for the PCt with the support of the FHSC, in relation to the good results described in the state of Paraíba[31], which, as the authors themselves define, is the fourth state with the greatest coverage of FHSC teams, with data from the 2nd cycle of the PIAQ-PC. It is hypothesized that, over time, there may have been a qualification and/or an understanding of the FHSC process by the PCt, or that the interest in improving the performance of the PIAQ-PC itself may interfere with the responses given by the PCt and FHSC teams.

The increase seen in the proportion of 'organization of demand for individual care to be provided by FHSC professionals' may apparently go against the technical-pedagogical action of FHSC, in order to produce educational support with and for the team[32], however, there was also an increase in the proportion of 'shared consultations', which may indicate an improvement and diversification of the FHSC

work process, as it does not reduce fundamental attributes of its work. This demonstrates an understanding of what is the specialist's core knowledge and what is common and shareable knowledge between the PCt and the FHSC[32].

Still on the work process from the perspective of the PCt, the reduction in the 'FHSC action schedule carried out with the PCt' and the reduction in 'weekly meetings with monthly increases' can be explained by Santos, Uchôa-Figueiredo and Lima[16], who state that, due to the very busy schedule of consultations and meetings, there is little time available for unforeseen activities, thus, the results showed that these points need to be reinforced, without an overloaded agenda for professionals at FHSC. Despite this, in this study, there was an increase in 'PCt request assistance' in 'up to one week', which would explain more PCt claiming 'always' to be 'assisted in an adequate time'. Also diverging from the authors, this study found a high frequency of 'FHSC support for PCt in unforeseen situations'. The reduction in the 3rd cycle can be explained by greater adherence and/or expansion of the teams evaluated, a high frequency in the 2nd cycle, or even by qualification and/or understanding of the FHSC process by the PCt.

The high marks given by the PCt for the activities carried out by FHSC in both cycles, and also the significant improvement in the 3rd cycle, are in line with the study by Destéfano, Rocha and Oliveira[9], showing that, among [24] FHSC from 21 municipalities in the central-west region, 54% received the highest score in the classification for performance in the 3rd cycle of assessment of the PIAQ-PC. In this study, the highest scores refer to the 'support that the PCt receives from the FHSC', the 'improvement of the health indicators of the cases shared between its team and the FHSC' and the 'FHSC's contribution to deal with problems considered difficult', positive points that can be explained by the synergistic dimension of matrix support to the concept of permanent education[32]. Despite the high scores and the improvement found in the 3rd cycle, the lower scores in the 'FHSC's contribution to the reduction of unnecessary referrals to specialized care' and in the 'improvement of health indicators for the population in the territory' demonstrate that these points need greater attention. This is because it is known that PHC has the potential to solve most health problems[7].

Regarding the work process from the perspective of evaluating the FHSC itself, almost all items improved in the 3rd cycle. The high percentage can be explained by the fact that these activities have a defined frequency[29]. The study by Brocardo et al.[33], which also used interview data with a 2nd cycle FHSC professional, shows the distribution by Brazilian region, and the good performance in the regions with the highest number of evaluated teams – Southeast and Northeast – may explain the lack of improvement in some items from the 2nd to the 3rd cycle. In addition, they are among the first actions that the FHSC carried out[32], and, due to their high frequency since the previous evaluation cycle, there was no improvement.

This study had the limitation of using secondary data and, therefore, it presents some difficulties, such as, for example, measurement variation and comparison between cycles. In an attempt to improve the understanding of the findings, only adaptable items for comparison were kept in the analysis. In addition, there may be an overestimation of the result, since most of the teams that participated in the PIAQ-PC, upon knowing the items that would be evaluated, may have prepared in advance, thus presenting better results. Although the PIAQ-PC is voluntary, in the present study, the participation of almost all PCt and FHSC teams was verified, which may allow a better understanding and generalization of the results.

Most studies in the literature on FHSC evaluation are primarily qualitative, thus, the PIAQ-PC was a fundamental tool for quantitative study at the national level, either by rethinking practices or by encouraging

performance-based financing instilled in the program[9]. Despite the positive results shown, the PIAQ-PC was replaced, in 2019, by Previne Brasil (Brazil Prevents)[34], in operation since 2020. This new program has been receiving harsh criticism[35] for its simplistic evaluation of performance by result, and for ignoring evaluation indicators of structure and process, in relation to how such a task was carried out in the PIAQ-PC.

The 2017 NPCP does not affect the results of the 2nd and 3rd cycles of the PIAQ-PC[33], as there was no restructuring or reformulation of the data collection instrument that had interfered with the responses of the PCt and FHSC teams evaluated[23]. Thus, with the results still referring to the old name of the program, and using the new one for updating, this study highlights the path of positive results for FHSC and hopes that it will continue along the same path. However, it raises the possibility that such achievements may be lost, because, although the new NPCP also brings benefits with flexibility, it can also be harmful because the MH renounces its coordination responsibility, which is quite risky in a country with such different local and regional realities and a decentralization process that still needs improvement[36].

Conclusions

There was greater implementation and adherence of PCt and FHSC teams in Brazil between the years evaluated, in addition to an improvement in the performance of the verified items, on the management and work process of FHSC, both from the perspective of the PCt as well as from the FHSC itself. The data reinforce the possibility of a maturing of multidisciplinary work and matrix support, with greater understanding of the work process, accountability and division of tasks between the FHSC and the PCt, in addition to the commitment to performance and resoluteness, thus qualifying and strengthening PHC processes in Brazil.

Collaborators

Muller EV (0000-0003-4643-056X)* contributed to the study design, statistical analysis and wrote the scientific article. Stler JLM (0000-0001-5854-4359)* contributed to the preparation of the database and writing of the scientific article. Silva Junior MF (0000-0001-8837-5912)* contributed to the supervision from the study design, statistical analysis of the results and final review of the article. ■

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