

# Family Health Support Center: health promotion, physical activity, and chronic diseases in Brazil – national PMAQ survey 2013\*

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## Abstract

**Objective:** to describe reported health promotion actions directed towards chronic non-communicable disease (CNCD) patients, the support of physical education professionals (PEP) and the implementation of actions to promote body practices and physical activity (BPPA) by the Family Health Support Center (FHSC) teams, according to Brazilian municipality context variables. **Methods:** this was a cross-sectional study, forming part of the 2013/2014 National Primary Health Care Access and Quality Improvement Program (PMAQ), by means of interviews with FHSC professionals. **Results:** the action most reported by the teams was evaluation and rehabilitation of psychosocial conditions (90.8%); promotion of BPPA was the sixth most performed action, and was more prevalent in the Brazilian Southeast region (89.6%), in medium-sized municipalities (88.7%), with medium human development index (HDI) (86.7%); PEP provided support to 87% of the teams. **Conclusion:** FHSC were found to make an important contribution to BPPA.

**Keywords:** Primary Health Care; Health Evaluation; Health Promotion; Chronic Disease.

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## Introduction

The Family Health Support Center (FHSC) is a qualifying addition to Primary Health Care (PHC). In order to break with the traditional fragmented view of health care in Brazil, the FHSCs work in an integrated manner, providing matrix support to family health teams, building their capacity for therapeutic and pedagogical interventions among specific populations such as, for example, in street clinics, in care for riverside communities, or in the Health Fitness/Gym Program. In effect, FHSC work contributes to the population's access to the Family Health Strategy (FHS) multiprofessional team,<sup>1</sup> directing PHC actions towards the development of strategies for health promotion, prevention and rehabilitation among the population.<sup>2</sup>

*PMAQ is a national evaluation of aspects related to PHC organization, structure and work process, enabling broad knowledge of this level of care within the Brazilian National Health System.*

In 2011, the Brazilian Ministry of Health implemented the National Primary Health Care Access and Quality Improvement Program (PMAQ-PHC), with the aim of inducing the expansion of the population's access to health services, improving PHC quality and the development of PHC workers.<sup>3</sup> Municipal health service managers register their PHC and FHSC teams for assessment by PMAQ. After the external evaluation phase, comprised of interviews with health professionals, health managers and PHC service users, the teams are certified in accordance with their assessed performance and, depending on their assessment, they will or will not start to receive financial resources.<sup>3</sup>

Brazil consists of 5,570 municipalities as of 2013. PHC is the point of entry to the Brazilian health care system.<sup>4</sup> In 2012, there was a total of 33,404 PHC teams spread over 95% of the country's municipalities.<sup>3</sup>

PMAQ is a national evaluation of aspects related to PHC organization, structure and work process, enabling broad knowledge of this level of care within the Brazilian National Health System (SUS). One of the PMAQ evaluation indicators is the control of chronic non-communicable diseases (CNCD). This is why this topic is investigated when interviewing

FHSC professionals and why their report is recorded with regard to the development of health promotion and rehabilitation strategies, which include actions to promote body practices and physical activity (BPPA).

In recent decades, characterized by epidemiological transition, CNCD have increased and accounted for 63% of deaths worldwide in 2008.<sup>5</sup> In Brazil, also in 2008, according to data from the National Household Sample Survey (PNAD), carried out by the Brazilian Institute of Geography and Statistics (IBGE), 31.3% of participants reported having at least one chronic disease.<sup>6</sup> In 2013, data from National Health Survey (PNS), conducted by the Brazilian Ministry of Health in partnership with IBGE, revealed CNCD prevalence of 45.1%.<sup>7</sup>

It is estimated that physical inactivity is a determining factor of 6 to 10% of the main CNCDs, and there is evidence that it is responsible for 9% of premature deaths worldwide each year.<sup>5,8</sup> In the face of this reality, increasing the population's physical activity (PA) level has become a SUS goal, and BPPA has become a priority issue under the National Health Promotion Policy (NHPP).<sup>9</sup>

This study aimed to describe reported health promotion actions directed towards patients with chronic non-communicable diseases, the support provided by physical education professionals and the promotion of body practices and physical activity by the Family Health Support Center teams according to Brazilian municipality context variables.

## Methods

This was a cross-sectional study that forms part of the 2013/2014 PMAQ external evaluation, carried out by 41 federal education and research institutions, led by: Instituto Oswaldo Cruz Foundation (Fiocruz), Federal University of Bahia (UFBA), Federal University of Minas Gerais (UFMG), Federal University of Pelotas (UFPEl), Federal University of Rio Grande do Sul (UFRGS), Federal University of Rio Grande do Norte (UFRN) and Federal University of Piauí (UFPI). Data collection occurred between October 2013 and March 2014, and involved approximately 1,000 interviewers and supervisors in all Brazil's Federative Units.

According to Brazilian Ministry of Health data, in 2012 there was a total of 33,404 PHC teams spread over 95% of the Brazilian municipalities.<sup>3</sup>

The data were collected from a health professional indicated by their team members working at each health center where teams had been registered to participate in the PMAQ external evaluation. These teams agreed to answer the questionnaire administered by electronic means using tablets. Their answers were automatically sent to the Ministry of Health central server. Analysis of database consistency was the responsibility of the leader institutions mentioned above, under the coordination of the Ministry of Health's Primary Health Care Department (DAB).

The PMAQ second cycle external evaluation instrument contained four modules:

Module I – Observation of health center structure

Module II – Interviews with health professionals about PHC team work process and verification of documents at Primary Health Care Centers (PHU)

Module III - Interviews with service users at health centers

Module IV - Interviews with FHSC professionals

It should be emphasized that, for this study, we used information from Modules II and IV.

The main outcomes of this study were health promotion actions directed towards people with chronic diseases, as carried out or supported by FHSCs, according to the PHC team reports. The independent variables were:

a) Federative Unit, considering the 26 Brazilian states and Federal District (by geopolitical region: North; Northeast; Midwest; Southeast; South);

b) Municipality size (very small, up to 10,000 inhabitants; small, from 10,001 to 30,000 inhab.; medium, from 30,001 to 100,000 inhab.; large, from 100,001 to 300,000 inhab.; very large, over 300,000 inhab.);

c) Human Development Index (HDI) (very low, up to 0.499; low, from 0.500 to 0.599; medium, from 0.600 to 0.699; high, from 0.700 to 0.799; very high, from 0.800 to 1.000); and

d) FHS coverage in the municipalities (classified in three groups: low, up to 33.30%; medium, from 33.31 to 66.60%; high, from 66.61 to 100%).

To analyze the support provided by physical education professionals (PEP) to PHC teams, we used the Module II question, "Which of the FHSC professionals provide support to your team?", with the following answer options: physiotherapist; physical education professional; veterinary surgeon; social worker; nutritionist; speech therapist; pharmacist; general physician; pediatrician; gynecologist; psychiatrist; art-educator; occupational therapist; psychologist; geriatrician; obstetrician;

occupational health physician; acupuncturist; internist; and homeopathic physician.

Investigation as to health promotion actions directed towards people with chronic diseases, carried out or supported by the FHSCs, was done based on questions retrieved from Module IV:

a) Does the FHSC provide support and develop, with PHC teams, care strategies for people with chronic diseases? (Yes, No); and

b) How does the FHSC give such support?

- evaluation and rehabilitation of motor function;
- evaluation and rehabilitation of cardiorespiratory function;
- evaluation and rehabilitation of psychosocial conditions;
- promotion of strategies for pharmacotherapeutic treatment access;
- carrying out of treatment and rehabilitation of conditions related to food and nutrition;
- carrying out of body practices and physical activity at the Health Fitness/Gym Program centers and/or other places;
- guidelines for harm reduction;
- qualification of referrals to other health care centers;
- monitoring of users being cared for in other health care facilities, according to the proposed Singular Therapeutic Project;
- other.

The database used was provided by the DAB/Ministry of Health. We used the STATA 12.0 statistical package for data analysis. We described the distribution of the variables' relative and absolute frequencies. We applied Pearson's chi-squared test to assess the difference between the proportions, using a significance level of 5%.

The study project was approved by the Ethics Research Committee of the Faculdade de Medicina da Universidade Federal de Pelotas: Protocol No. 38, dated 10 May 2012. All participants of the PHC and FHSC teams signed a Free and Informed Consent Form.

## Results

In 2013, 29,778 PHC teams, distributed over 93.6% of the Brazilian municipalities (n=5,213), joined the PMAQ. The study involved 17,157 PHC teams (57.6% of the total in the country), which received support from 1,773 FHSC teams in their actions (Figure 1). Out of the FHSC teams, 76.7% were FHSC Modality 1, 22.4% were FHSC Modality 2 and 0.9% was FHSC Modality 3.

The FHSC teams were distributed with greater frequency in the states of Minas Gerais (n=295; 16.6%), Bahia (n=170; 9.6%) and São Paulo (n=149; 8.4%). When we checked distribution by Brazilian regions, 46.3% (n=821) of them were in the Northeast region, followed by the Southeast (n=520; 29.3%) and South (n=186; 10.7%) regions (Table 1).

More than half of the FHSC teams were in small (31.9%) and medium sized (26.1%) municipalities, and in municipalities with HDI rated as medium (37.2%) and high (30.8%). More FHSC teams were found in places with high municipal FHS coverage (76.6%) (Table 1). Among the PHC teams, 87.0% (n=14,931) received support from an FHSC team physical education professional.

Of the total FHSC teams, 95.3% reported supporting and developing care strategies for people with chronic diseases together with PHC teams. In this context, we observed that 84.6% of FHSC teams (n=1,430) carried out actions to promote body practices and physical activity: the proportion of FHSC teams carrying out actions to promote BPPA was equal to or greater than 50% in all states participating in the study; we highlight Acre and the Federal District, where 100% of the FHSC teams reported carrying out actions to promote BPPA, besides Minas Gerais (95.4%) and Goiás (95.0%) (Figure 2). Figure 2 shows the number of FHSC teams and the number of teams reporting body practices and physical activity actions.

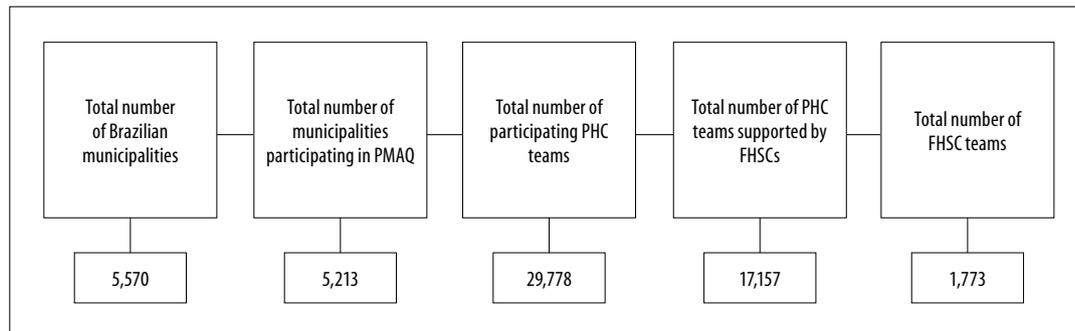
Among the regions, the Southeast had the highest proportion of reports of teams that promote BPPA (89.6%) (p=0.001). Medium-sized municipalities (88.7%) (p=0.005) and those with average HDI (86.7%) (p=0.002) were those that presented the best results regarding BPPA promotion. There was no

difference in reported BPPA promotion regarding Family Health Care coverage in the municipalities (Table 2).

Among all care strategies, the most prevalent action was evaluation and rehabilitation of psychosocial conditions (90.8%), with no significant differences between states (p=0.53), regions (p=0.24), municipality size (p=0.55), HDI (p=0.60) or FHS coverage percentage (p=0.97). The second most frequently reported action was treatment and rehabilitation of conditions related to food and nutrition (89.5%), with significant difference between states (p=0.008), being more prevalent in Amapá, Federal District, Roraima, Sergipe, all four with 100% (Table 3).

According to PMAQ reports, of all the evaluated actions, those to promote body practices and physical activity were the sixth most performed by FHSC teams, with no significant difference between the proportions when observing the context variables: states (p<0.001), Acre and the Federal District with 100%; region (p<0.001), being higher in the Southeast (89.6%); municipality size (p=0.005), higher in medium-sized municipalities (88.7%); and in municipalities with medium HDI (p=0.002) (Table 3).

The three least reported health promotion actions were: (i) evaluation and rehabilitation of cardiorespiratory function, with different prevalence rates between the states (highest in Amapá: 88.5%) (p=0.017) and according to FHS coverage (higher prevalence when FHS coverage high: 70.7%) (p=0.029); (ii) promotion of strategies for pharmacotherapeutic treatment access and (iii) monitoring of users in other health facilities, both having different prevalence rates between states (p<0.05), being higher in the South and Southeast regions, respectively, in very large municipalities, in those with very high HDI and medium FHS coverage percentage (Table 3).



**Figure 1 – Participants in the National Primary Health Care Access and Quality Improvement Program (PMAQ) and in the study on actions to promote health, body practices and physical activity developed and/or supported by Family Health Support Centers (FHSC), Brazil, 2013**

**Table 1 – Description of Family Health Support Center (FHSC) teams (n=1,773) in relation to the contextual variables “state”, “region”, “municipality size”, “Human Development Index (HDI)” and “Family Health Strategy (FHS) coverage”, according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

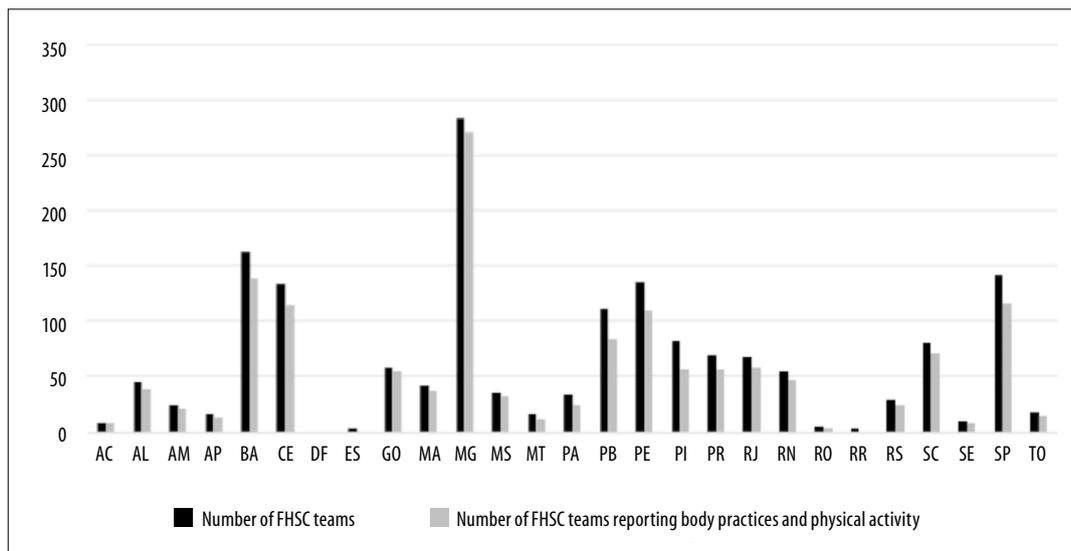
Context variables	FHSC teams (n=1,773)	
	n	%
<b>State</b>		
Acre	9	0.6
Alagoas	54	3.0
Amazonas	29	1.5
Amapá	17	1.0
Bahia	170	9.6
Ceará	141	7.9
Espírito Santo	5	0.3
Goiás	60	3.4
Maranhão	44	2.5
Minas Gerais	295	16.6
Mato Grosso do Sul	38	2.1
Mato Grosso	17	1.0
Pará	38	2.1
Paraíba	116	6.5
Pernambuco	141	7.9
Piauí	86	4.8
Paraná	76	4.3
Rio de Janeiro	71	4.0
Rio Grande do Norte	57	3.2
Rondônia	9	0.5
Roraima	4	0.2
Rio Grande do Sul	31	1.7
Santa Catarina	82	4.6
Sergipe	12	0.7
São Paulo	149	8.4
Tocantins	20	1.1
<b>Region</b>		
North	126	7.1
Northeast	821	46.3
Midwest	117	6.6
Southeast	520	29.3
South	186	10.7

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**Table 1 – Description of Family Health Support Center (FHSC) teams (n=1,773) in relation to the contextual variables “state”, “region”, “municipality size”, “Human Development Index (HDI)” and “Family Health Strategy (FHS) coverage” according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

Context variables	FHSC teams (n=1,773)	
	n	%
<b>Municipality size<sup>a</sup></b>		
Very small	151	8.5
Small	566	31.9
Medium	462	26.1
Large	219	12.3
Very large	375	21.2
<b>HDI<sup>b</sup></b>		
Very low	5	0.3
Low	350	19.7
Medium	659	37.2
High	547	30.8
Very high	212	12
<b>FHS coverage<sup>b</sup></b>		
Low	31	1.7
Medium	384	26.7
High	1,358	76.6

a) Municipality size: very small (≤10,000 inhabitants); small (10,001 to 30,000 inhab.); medium (30,001 to 100,000 inhab.); large (100,001 to 300,000 inhab.); or very large (>300,000 inhab.).  
 b) Human Development Index (HDI): very low (≤0.499); low (0.500 a 0.599); medium (0.600 a 0.699); high (0.700 a 0.799); or very high (0.800 a 1.000).  
 c) Family Health Strategy (FHS) coverage: low (≤33.30%); medium (33.31 to 66.60%); or high (66.61 to 100.00%).



**Figure 2 – Proportion of body practices and physical activity reported by Family Health Support Center (FHSC) teams, by Brazilian states, according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

## Discussion

This study's findings are among the first published from the PMAQ Cycle 2 evaluation on the health promotion actions reported by FHSC teams, considering different context variables. It was evident that little more than half of the PHC teams had the support of FHSC teams, and that the number of FHSC teams is below that recommended by FHSC guidelines. In addition, FHSC teams were found mainly in the Northeast region, in small-sized municipalities, with medium or high HDI. The presence of FHSC teams was proportional to FHS coverage, i.e., there are

more FHSC teams where FHS coverage is higher. The health promotion action most often performed by FHSC teams was evaluation and rehabilitation of psychosocial conditions.

We observed that in 2013, less than 60% of PHC teams had FHSC support, since 29,778 PHC teams participated in the PMAQ. Despite the majority of the FHSC teams being framed in FHSC Modality 1 (76.7%), the average number of PHC teams ( $n=9.7$ ) per FHSC team exceeded that recommended by FHSC guidelines.<sup>10</sup> The guidelines indicate that FHSC Modality 1 can work with 5 to 9 PHC teams, FHSC Modality 2 with 3 to 4 teams and FHSC Modality 3 with 1 to 2 teams.<sup>10</sup>

**Table 2 – Proportion of body practices and physical activity reported by Family Health Support Center (FHSC) teams, by context variables, according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

Context variables	FHSC teams	Body practices and physical activity		
		%	n	P-value
<b>Region (n=1,690)</b>				<b>p&lt;0.001</b>
North	110	79.1	87	
Northeast	785	81.7	641	
Midwest	112	89.3	100	
Southeast	502	89.6	450	
South	181	84	152	
<b>Municipality size<sup>a</sup> (n=1,690)</b>				<b>p=0.005</b>
Very small	141	84.4	119	
Small	525	80.2	421	
Medium	443	88.7	393	
Large	216	83.8	181	
Very large	365	86.6	316	
<b>HDI<sup>b</sup> (n=1,690)</b>				<b>p=0,002</b>
Very low	5	80	4	
Low	325	77.2	251	
Medium	623	86.7	540	
High	528	86	454	
Very high	209	86.6	181	
<b>FHS coverage<sup>c</sup> (n=1,690)</b>				<b>p=0.668</b>
Low	25	84	21	
Medium	374	83.2	311	
High	1,291	85	1,098	
<b>Total</b>	<b>84.6</b>	<b>1,430</b>		

a) Municipality size: very small ( $\leq 10,000$  inhabitants); small (10,001 to 30,000 inhab.); medium (30,001 to 100,000 inhab.); large (100,001 to 300,000 inhab.); very large ( $> 300,000$  inhab.).

b) Human Development Index (HDI): very low ( $\leq 0.499$ ); low (0.500 a 0.599); medium (0.600 a 0.699); high (0.700 a 0.799); very high (0.800 a 1.000).

c) Family Health Strategy (FHS) coverage: low ( $\leq 33.30\%$ ); medium (33.31 to 66.60%); or high (66.61 to 100.00%).

**Table 3 – Proportion of health promotion actions reported by Family Health Support Center (FHSC) teams, by municipality context variables, according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

Context variables	Health promotion actions								
	FHSC teams (n=1,690)	A	B	C	D	E	F	G	H
		Evaluation and rehabilitation of psychosocial conditions	Treatment and rehabilitation of conditions related to food and nutrition	Evaluation and rehabilitation of motor function	Qualification of referrals to other health care centers	Harm reduction guidelines	Evaluation and rehabilitation of cardiorespiratory function	Strategies for pharmacotherapeutic treatment access	Monitoring of users in other health facilities
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
<b>State (n=1,690)</b>									
AC	8	100.0 (8)	62.5 (5)	87.5 (7)	87.5 (7)	62.5 (5)	50.0 (4)	50.0 (4)	75.0 (6)
AL	46	89.1 (41)	89.1 (41)	91.3 (42)	80.4 (37)	89.1 (41)	69.6 (32)	45.7 (21)	53.7 (22)
AM	24	87.5 (21)	91.7 (22)	91.7 (22)	75.0 (18)	66.7 (16)	79.2 (19)	50.0 (12)	61.9 (13)
AP	17	88.2 (15)	100.0 (17)	88.2 (15)	76.5 (13)	88.2 (15)	88.5 (15)	58.8 (10)	86.7 (13)
BA	164	87.2 (143)	89 (146)	83.5 (137)	89.6 (147)	90.2 (148)	59.1 (97)	63.4 (104)	72.7 (104)
CE	135	90.4 (122)	89.6 (121)	95.6 (129)	90.4 (122)	85.2 (115)	78.5 (106)	52.6 (71)	67.2 (82)
DF	1	100.0 (1)	100.0 (1)	100.0 (1)	100.0 (1)	100.0 (1)	0.0	100.0 (1)	100.0 (1)
ES	4	100.0 (4)	75.0 (3)	100.0 (4)	75.0 (3)	100.0 (4)	50.0 (2)	100.0 (4)	0.0
GO	59	88.1 (52)	84.7 (50)	91.5 (54)	83.1 (49)	93.2 (55)	62.7 (37)	66.1 (39)	73.1 (38)
MA	42	90.5 (38)	92.9 (39)	92.9 (39)	83.3 (35)	83.3 (35)	71.4 (30)	59.5 (25)	71.1 (27)
MG	286	94.1 (269)	93.4 (267)	91.3 (261)	91.3 (261)	87.4 (30)	75.2 (215)	80.1 (229)	72.1 (194)
MS	36	88.9 (32)	80.6 (29)	80.6 (29)	80.6 (29)	83.3 (35)	63.9 (23)	63.9 (23)	62.5 (20)
MT	16	87.5 (14)	87.5 (14)	62.5 (10)	37.5 (6)	68.8 (11)	50.0 (8)	68.8 (11)	28.6 (4)
PA	34	88.2 (30)	94.1 (32)	85.3 (29)	76.5 (26)	88.2 (30)	67.6 (23)	41.2 (14)	53.3 (16)
PB	112	88.4 (99)	88.4 (99)	91.1 (102)	91.1 (102)	85.7 (96)	74.1 (83)	54.5 (61)	56.6 (56)
PE	137	93.4 (128)	87.6 (120)	91.2 (125)	88.3 (121)	87.6 (120)	62.8 (86)	69.3 (95)	74.2 (95)
PI	83	84.3 (70)	90.4 (75)	89.2 (74)	86.7 (72)	80.7 (67)	72.3 (60)	49.4 (41)	67.1 (47)
PR	70	92.9 (65)	94.3 (66)	91.4 (64)	87.1 (61)	88.6 (62)	71.4 (50)	72.9 (51)	66.2 (43)
RJ	69	89.9 (62)	89.9 (62)	89.9 (62)	92.8 (64)	89.9 (62)	68.1 (47)	69.6 (48)	67.7 (42)
RN	56	98.2 (55)	96.4 (54)	92.9 (52)	91.1 (51)	87.5 (49)	71.4 (40)	67.9 (38)	65.5 (36)
RO	5	80.0 (4)	40.0 (2)	80.0 (4)	40.0 (2)	60.0 (3)	40.0 (2)	60.0 (3)	50.0 (2)
RR	4	100.0 (4)	100.0 (4)	100.0 (4)	75.0 (3)	100.0 (4)	50.0 (2)	75.0 (3)	100.0 (4)
RS	30	90.0 (27)	86.7 (26)	63.3 (19)	76.7 (23)	83.3 (25)	53.3 (16)	63.3 (19)	70.4 (19)
SC	81	95.1 (77)	90.1 (73)	88.9 (72)	82.7 (67)	84.0 (68)	69.1 (56)	85.2 (69)	63.6 (49)
SE	10	100.0 (10)	100.0 (10)	90.0 (9)	90.0 (9)	90.0 (9)	70.0 (7)	40.0 (4)	80.0 (8)
SP	143	90.2 (129)	83.2 (119)	86.0 (123)	87.4 (125)	90.2 (129)	65.0 (93)	71.3 (102)	86.8 (112)
TO	18	83.3 (15)	83.3 (15)	88.9 (16)	72.2 (13)	77.8 (14)	77.8 (14)	83.3 (15)	60.0 (9)
	P-value	0.53	0.008	0.001	<0.001	0.136	0.017	<0.001	<0.001

a) Municipality size: very small (≤10,000 inhabitants); small (10,001 to 30,000 inhab.); medium (30,001 to 100,000 inhab.); large (100,001 to 300,000 inhab.); very large (>300,000 inhab.).

b) Human Development Index (HDI): very low (≤0.499); low (0.500 a 0.599); medium (0.600 a 0.699); high (0.700 a 0.799); very high (0.800 a 1.000).

c) Family Health Strategy (FHS) coverage: low (≤33.30%); medium (33.31 to 66.60%); or high (66.61 to 100.00%).

Note: Health promotion actions: A, evaluation and rehabilitation of psychosocial conditions; B, treatment and rehabilitation of conditions related to food and nutrition; C, evaluation and rehabilitation of motor function; D, qualification of referrals to other health care centers; E harm reduction guidelines; F, evaluation and rehabilitation of cardiorespiratory function; G, strategies for pharmacotherapeutic treatment access; H, monitoring of users in other health facilities.

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**Table 3 – Proportion of health promotion actions reported by Family Health Support Center (FHSC) teams, by municipality context variables, according to the National Primary Health Care Access and Quality Improvement Program (PMAQ), Brazil, 2013**

Context variables	FHSC teams (n=1,690)	Health promotion actions							
		A	B	C	D	E	F	G	H
		Evaluation and rehabilitation of psychosocial conditions	Treatment and rehabilitation of conditions related to food and nutrition	Evaluation and rehabilitation of motor function	Qualification of referrals to other health care centers	Harm reduction guidelines	Evaluation and rehabilitation of cardiorespiratory function	Strategies for pharmacotherapeutic treatment access	Monitoring of users in other health facilities
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
<b>Region (n=1,690)</b>									
North	110	88.2 (97)	88.2 (97)	88.2 (97)	74.5 (82)	79.1 (87)	71.8 (79)	55.4 (61)	57.3 (63)
Northeast	785	89.9 (706)	89.8 (705)	90.3 (709)	88.7 (696)	86.6 (680)	68.9 (541)	58.7 (461)	60.7 (477)
Midwest	112	88.4 (99)	83.9 (94)	83.9 (94)	75.9 (85)	86.6 (97)	60.7 (68)	66.1 (74)	56.2 (63)
Southeast	502	92.4 (464)	89.8 (451)	89.6 (450)	90.2 (453)	88.6 (445)	71.1 (357)	76.3 (383)	69.3 (348)
South	181	93.4 (169)	91.2 (165)	85.6 (155)	83.4 (151)	85.6 (155)	67.4 (122)	76.8 (139)	61.3 (111)
	P-value	0.24	0.33	0.15	<0.001	0.12	0.26	<0.001	<0.001
<b>Municipality size<sup>a</sup> (n=1,690)</b>									
Very small	141	84.4 (126)	89.4 (126)	90.8 (128)	85.8 (121)	83.7 (118)	70.9 (100)	63.8 (90)	62.4 (88)
Small	525	91.0 (478)	89.1 (468)	89.3 (469)	82.3 (432)	83.4 (438)	67.6 (355)	60.7 (319)	58.5 (307)
Medium	443	92.3 (409)	92.1 (408)	90.5 (401)	87.8 (389)	88.3 (391)	70.2 (311)	61.6 (273)	59.4 (263)
Large	216	91.2 (197)	88.0 (190)	83.3 (180)	88.0 (190)	82.9 (179)	69.4 (150)	70.8 (153)	59.3 (128)
Very large	365	89.0 (325)	87.7 (320)	89.6 (327)	91.8 (335)	92.6 (338)	68.8 (251)	77.5 (283)	75.6 (276)
	P-value	0.55	0.27	0.06	0.001	<0.001	0.9	<0.001	<0.001
<b>HDI<sup>b</sup> (n=1,690)</b>									
Very low	5	100.0 (5)	100.0 (5)	100.0 (5)	100.0 (5)	100.0 (5)	60.0 (3)	60.0 (3)	40.0 (2)
Low	325	90.7 (295)	89.0 (289)	91.4 (297)	85.8 (279)	85.2 (277)	71.4 (232)	56.0 (182)	56.6 (184)
Medium	623	91.5 (570)	91.5 (570)	90.2 (562)	87.2 (543)	83.3 (519)	69.3 (432)	60.5 (377)	60.7 (378)
High	528	89.4 (472)	87.1 (460)	84.8 (448)	84.1 (444)	88.4 (467)	65.5 (346)	71.9 (380)	60.6 (320)
Very high	209	92.3 (193)	89.9 (188)	92.3 (193)	93.8 (196)	93.8 (196)	73.7 (154)	84.2 (176)	85.2 (178)
	P-value	0.60	0.162	0.004	0.01	0.001	0.18	<0.001	<0.001
<b>FHS coverage<sup>c</sup> (n=1,690)</b>									
Low	25	92.0 (23)	92.0 (23)	84.0 (21)	92.0 (23)	96.0 (24)	64.0 (16)	56.0 (14)	48.0 (12)
Average	374	90.6 (339)	88.2 (330)	85.8 (321)	86.4 (323)	88.8 (332)	63.6 (238)	71.9 (269)	69.8 (261)
High	1,291	90.8 (1,173)	89.8 (1,159)	90.1 (1,163)	86.8 (1,121)	85.2 (1,108)	70.7 (913)	64.7 (835)	61.1 (789)
	P-value	0.97	0.63	0.048	0.721	0.129	0.029	0.019	0.003
	<b>Total</b>	<b>90.8 (1,535)</b>	<b>89.5 (1,512)</b>	<b>89.1 (1,505)</b>	<b>86.8 (1,467)</b>	<b>86.6 (1,464)</b>	<b>69.1 (1,167)</b>	<b>66.2 (1,118)</b>	<b>62.8 (1,062)</b>

a) Municipality size: very small ( $\leq 10,000$  inhabitants); small (10,001 to 30,000 inhab.); medium (30,001 to 100,000 inhab.); large (100,001 to 300,000 inhab.); very large ( $> 300,000$  inhab.).

b) Human Development Index (HDI): very low ( $\leq 0.499$ ); low (0.500 a 0.599); medium (0.600 a 0.699); high (0.700 a 0.799); very high (0.800 a 1.000).

c) Family Health Strategy (FHS) coverage: low ( $\leq 33.30\%$ ); medium (33.31 to 66.60%); or high (66.61 to 100.00%).

Note: Health promotion actions: A, evaluation and rehabilitation of psychosocial conditions; B, treatment and rehabilitation of conditions related to food and nutrition; C, evaluation and rehabilitation of motor function; D, qualification of referrals to other health care centers; E, harm reduction guidelines; F, evaluation and rehabilitation of cardiorespiratory function; G, strategies for pharmacotherapeutic treatment access; H, monitoring of users in other health facilities.

The study results suggest the need to increase the number of FHSC teams in Brazilian municipalities, in the face of the relevance for PHC of competent professionals working in different specialties required for caring for the population's health, and the possible impact of FHSC teams on chronic disease prevention and care.

The Northeast region, according to DAB/Ministry of Health data, had the highest proportion of FHS population coverage in 2013 (71.5%),<sup>11</sup> as well as greater prevalence of FHSC teams (46.3%). The region's characteristics and needs, including its shortage of doctors committed to primary health care, may justify the results found in the Northeast.<sup>12</sup>

Although the majority of Brazilian municipalities are considered small,<sup>13</sup> the country's highest population concentration lies in larger municipalities. We found higher prevalence of FHSC teams in small-sized municipalities, possibly because PHC teams need more support, given greater difficulties owing to challenges to health in small towns, compared to larger municipalities: for example, lack of health professionals, including physicians, to occupy the vacancies available in small municipalities. However, the majority of the population lives in large municipalities, which allows this study to conclude that the populations with greater health needs and living in these municipalities do not have the same access to the health promotion activities developed by the FHSCs.

We observed that the more the population is covered by the FHS, the greater the prevalence of FHSC teams. This result is possible to predict, given that FHS and FHSC teams are linked to each other and this relationship is expected to be directly proportional.

FHSC teams are mainly located in municipalities with high and medium HDI (68%). However, it is believed that PHC specialists are lacking more in municipalities where the population has less opportunity to access Supplementary Health sector services, such as municipalities with low HDI.<sup>14</sup> In addition, placing the majority of FHSC teams in municipalities with high and medium HDI may result in more health inequality.

The proportion of health promotion activities for people with CNCD supported or developed by FHSC teams was found to range from 62.8% (for monitoring of users in other health care facilities) to 90.8% (for psychosocial condition evaluation and rehabilitation actions).

Prevalence of common mental disorders (CMD) in Brazil can vary from 17 to 35%,<sup>15</sup> or up to 50%,

depending on the location studied.<sup>16,17</sup> PHC is considered to be a privileged health care level for the development of territorial mental health actions, due to its proximity to the community, and also to its matrix support principle, which is seen as a corner stone for the progress of Psychiatric Reform in the country.<sup>18</sup> When we recognize FHSC teams as multidisciplinary teams supporting PHC teams based on the matrix support principle, we can understand why evaluation and rehabilitation of psychosocial conditions was the most prevalent among health promotion actions supported by the Family Health Support Center. In addition, FHSC action guidelines provide for prioritization of mental health professionals and actions, in view of the sizeable epidemiological data regarding mental disorders cared for by Family Health services,<sup>2</sup> with a possible prevalence of 50% among Primary Health Care Center service users.<sup>17</sup>

In spite of the relevance of mental health, actions to promote all areas of health should be carried out within PHC, in the face of the plural reality of the population's health conditions and its demand for different forms of care. Although there are some differences between the proportions of health promotion actions (with the exception of evaluation and rehabilitation of psychosocial conditions), especially in relation to the state and municipal HDI classification, it is our understanding that each FHSC team should promote its actions according to the needs of the territory under its responsibility with regard to providing support, after considering the local characteristics common or specific to each municipality.

There are regional specificities and particularities which are capable of influencing the differences found. A study based on data from the Family Health Expansion and Consolidation Project (PROESF), conducted in 2005, compared PHC users' demands for services in the Southern and Northeastern regions and demonstrated that the main procedures performed were basic nursing care (38.0%) and medical appointments (17.8%) in the Southern region (while in the Northeast, these proportions were 23.9% and 15.3%, respectively), whereas in the Northeastern region, the main procedure was home visits (35.0%).<sup>19</sup> Such diversity reinforces the idea of territoriality as a relevant multidimensional component to the point of being considered and assimilated in all its intricacies in the work of the FHSC teams.<sup>2</sup>

Also according to the guidelines for FHSC creation, BPPA constitute an essential action to be developed and supported by its teams.<sup>2</sup> In addition to being a determining factor for 6 to 10% of the main CNCD, physical inactivity influences the population's life expectancy.<sup>8</sup> It is estimated that if physical inactivity were eliminated, the life expectancy of the world population would increase by 0.68 years.<sup>8</sup>

Studies that assessed costs related to sedentary habits showed that the lower the physical activity level of the population, the greater the use of and the costs involved with drugs<sup>20,21</sup> medical appointments and hospitalizations.<sup>22</sup> According to information from the Brazilian literature, in 2013 approximately 15% of SUS hospitalization costs were attributable to physical inactivity.<sup>23</sup>

Therefore, it is important to consider the physical education professional as a fundamental part of FHSC teams. Among the PHC teams, 87% (n=14,931) received the support of this professional working as an FHSC team member; and we found that 84.6% of FHSC teams carried out actions to promote body practices and physical activity with patients with chronic diseases.

Medina et al.<sup>24</sup> analyzed data from PMAQ cycle 1 and demonstrated that, among PHC teams in 2012, 42.7% promoted body practices and 61% encouraged physical activity. Despite this data being collected differently in PMAQ cycle 2, with body practices and physical activity being included in the same question, the fact that FHSC teams were more involved with actions to promote BPPA than PHC teams reveals the importance of multidisciplinary teams working in PHC with the participation of a physical education professional. The data presented in this study reinforce promotion of physical activity as a priority, as an FHSC contribution to the 2011-2022 Strategic Action Plan for Tackling Chronic Non-communicable Diseases, and suggest that all PHC teams should develop this kind of action.

Besides benefits at the global level, a qualitative study underscored reports of individuals participating in a physical activity program promoted by a FHSC team, stating its physical, social, psychological and economic benefits.<sup>25</sup> The presence of a physical education professional strengthens FHSC teams in promoting physical activity, which is seen as a non-pharmacological form of treatment capable of preventing the need to use health care services,

reducing expenditure on medication and providing welfare, with no cost to the participants.<sup>25</sup>

In addition to describing Brazilian FHSC team characteristics, this study reveals the proportion of health promotion actions, body practices and physical activity promoted by FHSC teams in the light of contextual variables, and acknowledges the support provided by physical education professionals to PHC teams in developing these initiatives. This was done using data produced by the PMAQ cycle 2 external evaluation.

Among the health promotion actions supported or developed by FHSC teams for CNCD promotion and prevention, the lowest proportion was 62.8% for the monitoring of users in other health facilities, while evaluation and rehabilitation of psychosocial conditions was the most frequent proportion (90.8%). Actions to promote body practices and physical activity were carried out by 84.6% of FHSC teams, and 87% of PHC teams received the support of an FHSC physical education professional. The number of FHSC teams serving PHC teams was below that recommended by FHSC guidelines, pointing to the need to create more teams. In addition, we noted a considerable increase in the prevalence of body practices and physical activity actions with effect from FHSC coming into existence.

Among the possible limitations of this study, is the fact that the teams participating in the PMAQ evaluation were indicated by health service managers, possibly because they were the best teams in the municipality. In this sense, the results presented should be interpreted carefully, since the teams that were not evaluated could face problems different to those faced by teams consulted in the evaluation.

Questions remain about the effects of interventions on health outcomes at the population level, and about the percentage of the population participating in actions developed by the Family Health Support Centers.

### Authors' contributions

Seus TL, Silveira DS, Tomasi E, Thumé E, Facchini IA and Siqueira FV participated in the study's design, data analysis and interpretation, writing and review of the manuscript. All authors approved the final version of the manuscript and declared themselves to be responsible for all aspects of the study, ensuring its accuracy and integrity.

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