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Physical Education Professionals in the Unified Health System: an analysis of the brazilian registry of health institutions between 2013 and 2017

Inserção do Profissional de Educação Física no Sistema Único de Saúde: análise do cadastro nacional de estabelecimentos de saúde entre 2013 e 2017

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ABSTRACT

The objective this study was to describe the distribution of Physical Education Professionals (PEP) registered in the Unified Health System (UHS) between 2013 and 2017 in Brazil. A descriptive study was carried out, based on data from the Brazilian Registry of Health Institutions (BRHI) and from the 2010 Demographic Census. The distribution was analyzed according to Brazilian macro-regions and states, considering the Brazilian Occupational Classification (BOC). A total of 6,797 PEP records were identified, distributed in eight BOC categories, of which 89.0% were registered Physical Education Professionals in Health (PEPH). There was an increase of 140.8% in the number of PEPH in the period analyzed. The largest increase was in the Southern region of the country (229.2%). The most favorable ratio between number of inhabitants and PEPH in 2017 was in the Northeastern region (24,300 inhab/PEPH) and the least favorable one was in the Northern region (46,100 inhab/PEHS). When the same ratio is analyzed according to state, Piauí showed the most favorable figure (16,341 inhab/PEHS) and the Federal District was the least favorable one (303,944 inhab/PEHS). Although the PEP is responsible for the adequate guidance of physical activity practice, clearly beneficial to health when well oriented, the results of this study pointed to an unequal distribution in the different regions and states of Brazil, although an absolute increase was observed in the registry of professionals in the period.

Keywords: Health personnel; Registries; Physical education and training; Public health; Unified Health System; Brazil.

RESUMO

O objetivo deste estudo foi descrever a distribuição dos profissionais de Educação Física (PEF), registrados no Sistema Único de Saúde (SUS), entre 2013 e 2017. Realizou-se um estudo descritivo, com base nos dados do Cadastro Nacional de Estabelecimentos de Saúde (CNES) e dados do Censo Demográfico de 2010. Analisou-se a distribuição de acordo com as macrorregiões e estados brasileiros, considerando a Classificação Brasileira de Ocupações (CBO). Foram identificados 6.797 cadastros de PEF, distribuídos em oito CBO, sendo que 89,0% registrados como PEF na saúde (PEFS). Houve um aumento médio de 140,8% no número de PEFS no período analisado. O maior aumento foi na região Sul do país (229,2%). A relação de habitantes por PEFS mais favorável, em 2017, se deu na região Nordeste (24.300 hab/PEFS) e a menos favorável na região Norte (46.100 hab/PEFS). Ao analisar a mesma relação nos estados, Piauí apresentou a relação mais favorável (16.341 hab/PEFS) e o Distrito Federal a menos favorável (303.944 hab/PEFS). Mesmo sendo o PEF o responsável pela orientação adequada da prática de atividade física, e que a mesma é evidentemente benéfica à saúde quando bem orientada, os resultados do estudo apontaram para uma distribuição desigual nas diferentes regiões e estados brasileiros, ainda que observado um aumento absoluto no cadastro de profissionais no período.

Palavras-chave: *Profissional da saúde; Sistema de registros; Educação física e treinamento; Saúde pública; Sistema Único de Saúde; Brasil.*

Introduction

Physical Education Professionals (PEP) are specialists in physical education in its different forms of expression[1]. Since 1997, in accordance with Resolution 218, they are recognized by the Ministry of Health as higher education health professionals[2]. The National Health Promotion Policy which includes the physical activities/corporal practices as priority actions for the promotion of health; the inclusion of PEP in the Primary Care Centers for Family Health (PCCFH); and the Health Academy Program, which provides structure for health promotion practices; the Work Education

Program for Health and the inclusion of Physical Education in the Brazilian Program for the Reorientation of Health Professional Qualification[3], and the inclusion of PEP in Psychosocial Care Centers (PCC)[4] and in Multiprofessional Residency Programs in Health[5] have consolidated the inclusion of these professionals in the context of the Unified Health System (UHS). The creation of a temporary Brazilian Occupational Classification (BOC) in 2013 is among the results of this development, defined as "Physical Education Professional in Health" [6] (PEPH), which foresees a greater role of health procedures[7].

Studies investigating the performance of PEP in Primary Health Care have been conducted more frequently[8-10]. When the make-up of PCCFH teams was assessed by a study, the presence of PEP was found in 49.2% of these teams, with proportions higher than 75% in the states of Acre and Paraná[8]. Another study analyzed the performance of these professionals in the "Academia da Cidade" (City Gym) Program, included in the Primary Health Care of the city of Recife, observing that 61.5% of them were females, 76.9% were aged between 30 and 39 years, and 67.3% had a specialization[9].

Among the health promotion actions performed by PEP in the PCCFH, the broad and diversified characteristics developed with the team and community were emphasized. The following actions were mentioned: individual services and user guidance, individual physical assessment, group activities, different types of physical activities and exercises, lectures, school interventions, partnerships with institutions, the production of events, and participation in different initiatives conducted by institutions[10].

When the performance of PEP was investigated in the PCC, despite structural problems, the intervention was considered to be important and helpful for mental health care[11]. The evaluation of courses on Multiprofessional Residency in Health in Southern Brazil identified that less than 30% of courses offered vacancies for PEP in 2015. What should be noted is that more than 60% of the public notices did not define an academic level, i.e. students with either a Bachelor's degree or a Teaching degree could take the course[5].

Regarding the qualifications to work in mental health care, of all 24 PEP participating in a municipal health promotion program included in the PCC, 78.3% had never been trained for mental health care[11]. Another study showed an experience that included the discipline of "Physical Activity and Mental Health Care". During this experience, the work performed in the PCC was observed, an aspect that contributed to a deeper debate on this theme and was found to be highly positive in the qualification of students[4].

Although many points deserve to be emphasized, there has been more evidence on an increasingly greater participation of PEP in the UHS. As working with UHS requires the inclusion of such professionals in the Brazilian Registry of Health Institutions (BRHI)[12], this being a Ministry of Health system capable of registering health professionals through the BOC, the present study aimed to describe the distribution of PEP registered with the Unified Health System, between 2013 and 2017, in Brazil.

Methods

A quantitative cross-sectional study was performed, based on secondary data with open access, aiming to describe the distribution of PEP in the UHS, according to Brazilian states and macro-regions, between 2013 and 2017. The data analyzed were obtained from the BRHI[12], Ministry of Health, and the Brazilian Institute of Geography and Statistics (IBGE)[13].

Among the BRHI objectives is the operationalization of Health Information Systems, enabling more efficient and effective management of the UHS, whose functions include the following: automation of the data collection process in the states and cities; open access to information about health service infrastructure and installed capacity; and a connection among UHS[12] systems. The IBGE has attributions associated with geosciences and economic, demographic and social statistics and it is responsible for the development of population estimates and projections in inter-census periods, aiming to feed the database of the Ministries and state and city departments[13].

Based on the BRHI, an exploratory study was conducted, through the BOC related to PEP in 2018, which included the period between 2013 and 2017, with data from December of all years, so that the gap of exactly 12 months between years could be maintained. This search can be found on http://cnes2.datasus.gov.br/. The population estimate of Brazilian states and macro-regions was collected from the IBGE for 2013 to 2017[13].

The sample was also comprised of registration data on PEP in Brazil, including their relationship with the BRHI, except for professionals registered as teachers, who require an employment relationship with a teaching institution, i.e. they are not exclusive of the health system.

The variables analyzed were as follows: the BOC of PEP present in the BRHI (physical evaluator; recreational motor skill professional; athletic trainer; physical trainer; group and individual sports coach except for soccer; sports inspection and laboratory technician; professional soccer coach and physical educator in health); search year (from 2013 to 2017); Brazilian macro-region; Brazilian state; number of PEP and population estimate. The first stage of analysis considered the entire population of PEP identified through their BOC in the BRHI, subsequent analyses were performed with the BOC coded 2241-E1, which refers to PEPH.

The analysis of a descriptive nature assessed the number of PEP according to the BOC, Brazilian state and macro-regions; and the relationship between this number and the population estimate, calculated through the ratio between the number of inhabitants of the region analyzed and the number of PEP, divided by 1,000. Student's T-test was performed for independent samples and comparison of means, aiming to identify the difference between subsequent years (2013 x 2014; 2014 x 2015; 2015 x 2016; 2016 x 2017).

Double entry was used as data were input into Microsoft Excel 2010. Subsequently, these data were transferred to the Stata statistical software, version 12, where analyses were conducted. Figures were constructed in the Microsoft Excel 2010. As this analysis involves a public database, managed and executed by the Ministry of Health and IBGE, with data available without the identification of interviewees, the study proposal was not submitted to the Research Ethics Committee.

Results

Table 1 shows the distribution of PEP registered with the BRHI, according to their BOC, from 2013 to 2017, in Brazil. Data point to an increase in the representativeness of the 2241-E1 category – Physical Education Professional in Health, which varied from 65.7% to 89.0%, and the 2241-30 category – Sports Inspection and Laboratory Technician, which varied from 0.6% to 0.9% in the period analyzed. Additionally, the number of PEP belonging to the BOC 2241-E1 category increased 140.8% (from 2,513 in 2013 to 6,051 in 2017). There was an increase of 77.8% (from 3,823 to 6,797) in the total number of PEP registered with the BRHI in the same period.

The subsequent analyses were aimed at the distribution PEPH, considering the fact that the BOC 2241-E1 category – PEPH – includes 89.0% of the professionals registered with the BRHI and that it is characterized by the BOC as being more aligned with the attributions of professionals working in the UHS, due to its completeness of procedures as foreseen in the "Management System of the Table of Procedures, Medications and OPM of the UHS" (SIGTAP)[7].

Figure 1 shows the distribution according to macro-regions in the five years analyzed. All macro-regions had an increase in the number of professionals registered with the BOC between 2013 and 2017: the Southern region showed the highest increase (229.2%), followed by the Mid-Western (202.3%); Northern (188.1%); Southeastern (129.0%) and Northeastern regions (115.8%). The difference between the subsequent years was tested (Student's T-test for independent samples) and only from 2016 to 2017 there was no difference between means. In absolute terms, the

Table 1 – Distribution of PEP registered with the BRHI, according to professional category, Brazil, between 2013 and 2017.

BOC	Profession	2013		2014		2015		2016		2017	
		n	%	n	%	n	%	n	%	n	%
2241-05	Physical evaluator	945	24.7	627	12.9	488	8.8	466	7.7	392	5.8
2241-10	Recreational motor skill professional	13	0.3	13	0.3	14	0.2	12	0.2	14	0.2
2241-15	Athletic trainer	2	0.1	1	0.0	-	-	1	0.0	1	0.0
2241-20	Physical trainer	251	6.6	242	5.0	229	4.1	216	3.6	225	3.3
2241-25	Group and individual sports coach (except for soccer)	76	2.0	69	1.4	54	1.0	51	0.8	51	0.8
2241-30	Sports inspector and laboratory technician	22	0.6	43	0.9	37	0.7	74	1.2	62	0.9
2241-35	Professional soccer coach	1	0.0	1	0.0	-	-	1	0.0	1	0.0
2241-E1	Physical education professional in health	2513	65.7	3859	79.5	4727	85.2	5262	86.5	6051	89.0
TOTAL		3823	100	4855	100	5549	100	6083	100	6797	100

Source = Brazilian Registry of Health Institutions (BRHI).

Northeastern and Southeastern regions stood out, totaling 2,359 and 2,029 registered PEPH respectively in 2017 (Figure 1).

Figure 2 shows the ratio between the number of inhabitants and the number of PEPH in the Brazilian macro-regions during this period. In all regions, there was a decrease in the number of inhabitants per PEPH in this period. When the differences between means were assessed, Student's T-test confirmed the difference ($p < 0.05$) among all years. The Northern region was the one showing the highest ratio of inhabitants per PEPH, whereas the Northeastern region showed the lowest one. When 2017 was assessed, Northeastern Brazil had the most favorable ratio, 24,300 inhabitants per PEPH, followed by the Southern (33,700), Mid-Western (39,500), Southeastern (42,900) and Northern regions (46,100).

According to Table 2, in absolute numbers, the state showing the highest number of registered PEPH was

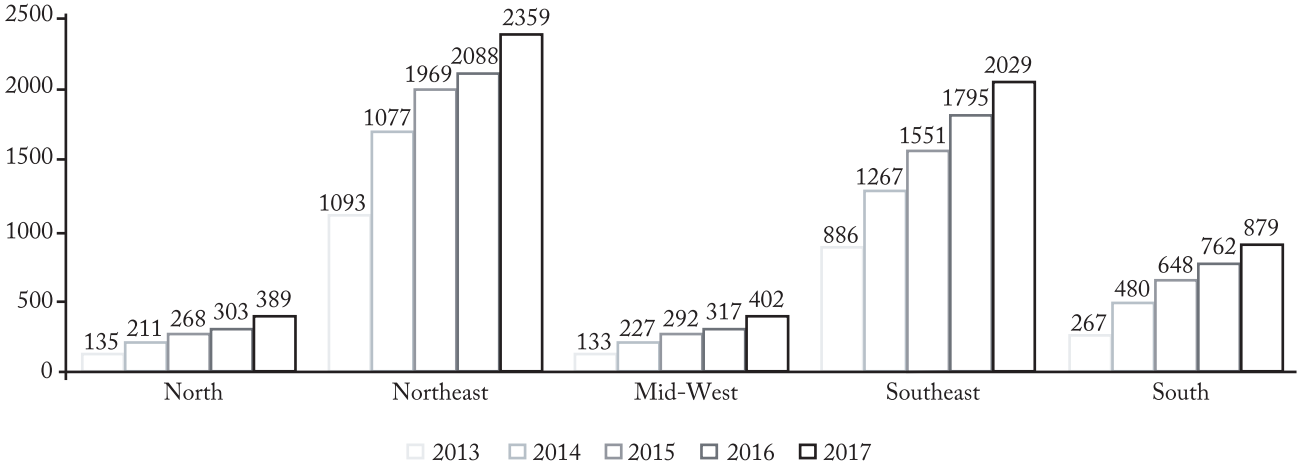

Figure 1 –– Number of PEPH in Health registered with the BRHI, according to Brazilian macro-regions, between 2013 and 2017*.
* Student's T-test for independent samples, assessing the differences between means in the number of PEP by macro-region, in subsequent years. Difference found ($p < 0.05$) between all years (2013 x 2014; 2014 x 2015; 2015 x 2016), except for 2016 and 2017. Source = Brazilian Registry of Health Institutions (BRHI).

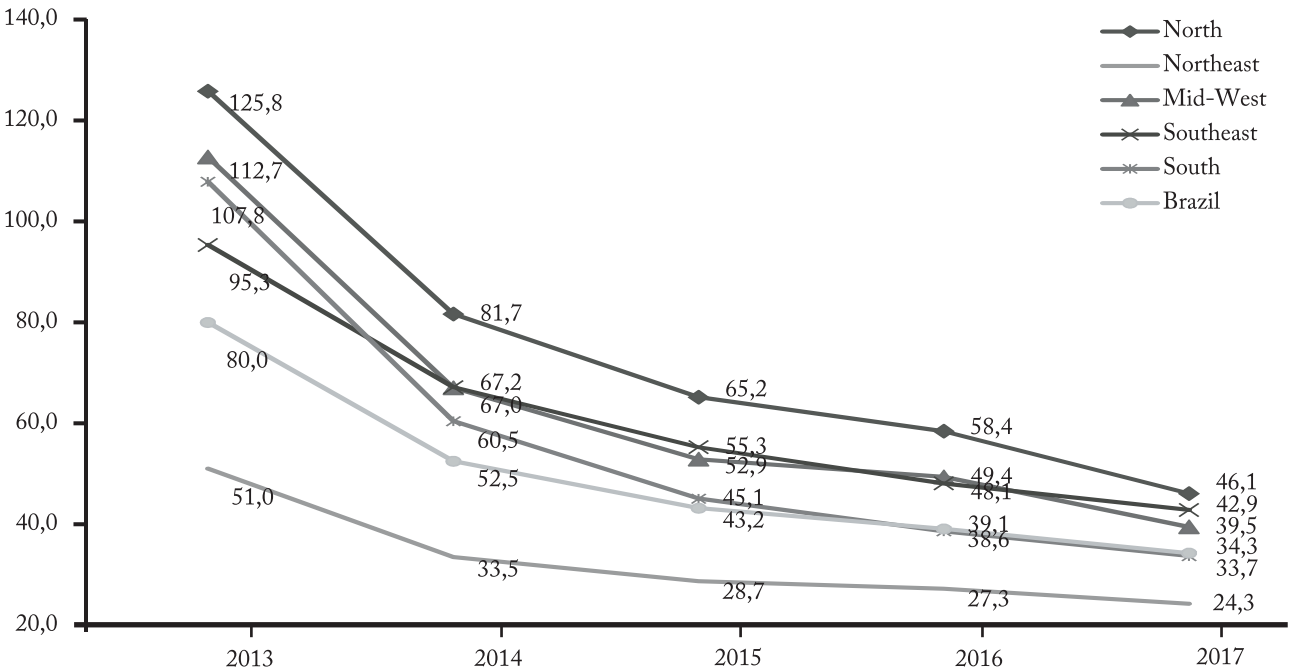

Figure 2 – Ratio between PEPH and number of inhabitants (per 1,000), according to Brazilian macro-regions, between 2013 and 2017*.
* Student's T-test for independent samples, assessing the differences between means in the proportion of inhabitants per PEPH, in subsequent years. Difference found ($p < 0.05$) between all years (2013 x 2014; 2014 x 2015; 2015 x 2016 and 2016 x 2017). Source = Brazilian Registry of Health Institutions (BRHI) and Brazilian Institute of Geography and Statistics (IBGE – Instituto Brasileiro de Geografia e Estatística).

Minas Gerais (n = 916), followed by São Paulo (n = 691) and Pernambuco (n = 501). The states with the lowest number of registered PEPH were Roraima (n = 9), followed by Rondônia (n = 11) and Amapá (n = 35). All states showed a reduction in the ratio of inhabitants per PEPH, except for Distrito Federal. Only the increase from 2016 to 2017 was not statistically significant.

Figure 3 shows states according to the ratio of inhabitants per PEPH: Piauí, Tocantins and Paraíba are the states with the highest ratios, while Distrito Federal, Rondônia and São Paulo are those with the lowest ratios.

Discussion

The present study pointed to an increase of 77.8% in the number of PEP registered with the BRHI in Brazil, from 2013 to 2017. This can be associated with the increasing strategies of the Ministry of Health in which PEP are included as health professionals, namely the PCCFH, Health Academy Program, PCC and other services, in addition to the National Health Pro-

Table 2 – Distribution of PEPH registered with the BRHI and mean of inhabitants per professional, according to Brazilian states between 2013 and 2017*.

Local	2013		2014		2015		2016		2017	
	PEPH	PEPH X Pop	PEPH	PEPH X Pop	PEPH	PEPH X Pop	PEPH	PEPH X Pop	PEPH	PEPH X Pop
Brasil	2,514	79,965	3,862	52,504	4,728	43,243	5,265	39,142	6,058	34,279
Acre	13	59,728	22	35,914	28	28,697	32	25,521	43	19,293
Alagoas	90	36,677	128	25,951	149	22,422	155	21,671	174	19,401
Amapá	12	61,250	19	39,522	21	36,509	23	34,013	35	22,792
Amazonas	26	146,459	40	96,844	48	82,049	53	75,503	67	60,651
Bahia	232	64,845	342	44,229	402	37,821	429	35,610	490	31,315
Ceará	174	50,452	219	40,378	271	32,858	283	31,674	324	27,841
Distrito Federal**					1	2,914,830	5	595,443	10	303,944
Espírito Santo	88	43,629	92	42,229	97	40,515	102	38,958	107	37,536
Goiás	53	121,397	116	56,235	149	44,367	174	38,482	210	32,280
Maranhão	61	111,382	88	77,851	103	67,031	120	57,950	153	45,753
Mato Grosso	24	132,588	33	97,708	50	65,310	48	68,865	71	47,106
Mato Grosso do Sul	56	46,201	78	33,585	92	28,818	90	29,804	111	24,443
Minas Gerais	420	49,032	610	33,990	753	27,715	843	24,908	916	23,056
Pará	41	194,382	64	126,155	79	103,482	99	83,563	133	62,907
Paraíba	146	26,811	202	19,524	224	17,733	225	17,775	232	17,352
Paraná	109	100,894	166	66,757	226	49,394	254	44,263	284	39,862
Pernambuco	141	65,309	362	25,629	427	21,886	437	21,534	501	18,909
Piauí	123	25,888	151	21,157	160	20,025	181	17,747	197	16,341
Rio de Janeiro	173	94,620	205	80,298	225	73,556	274	60,715	315	53,076
Rio Grande do Norte	89	37,910	118	28,886	144	23,904	157	22,134	178	19,702
Rio Grande do Sul	66	169,152	175	64,042	233	48,275	292	38,652	338	33,500
Rondônia	6	288,036	8	218,566	11	160,746	11	162,480	11	164,163
Roraima	1	488,072	5	99,387	11	45,970	13	39,556	9	58,071
Santa Catarina	92	72,111	139	48,397	189	36,080	216	31,993	257	27,242
São Paulo	205	212,994	360	122,320	476	93,270	576	77,690	691	65,260
Sergipe	37	59,342	67	33,128	89	25,202	101	22,433	110	20,801
Tocantins	36	41,060	53	28,243	70	21,645	72	21,290	91	17,035

* Student´s T-test for independent samples, assessing the differences between means in the ratio of inhabitants per PEPH in subsequent years. Difference found ($p < 0.05$) between 2013 x 2014; 2014 x 2015; and 2015 x 2016. ** registered data of professionals not available for 2013 and 2014. Source = Brazilian Registry of Health Institutions (BRHI) and Brazilian Institute of Geography and Statistics (IBGE - Instituto Brasileiro de Geografia e Estatística.

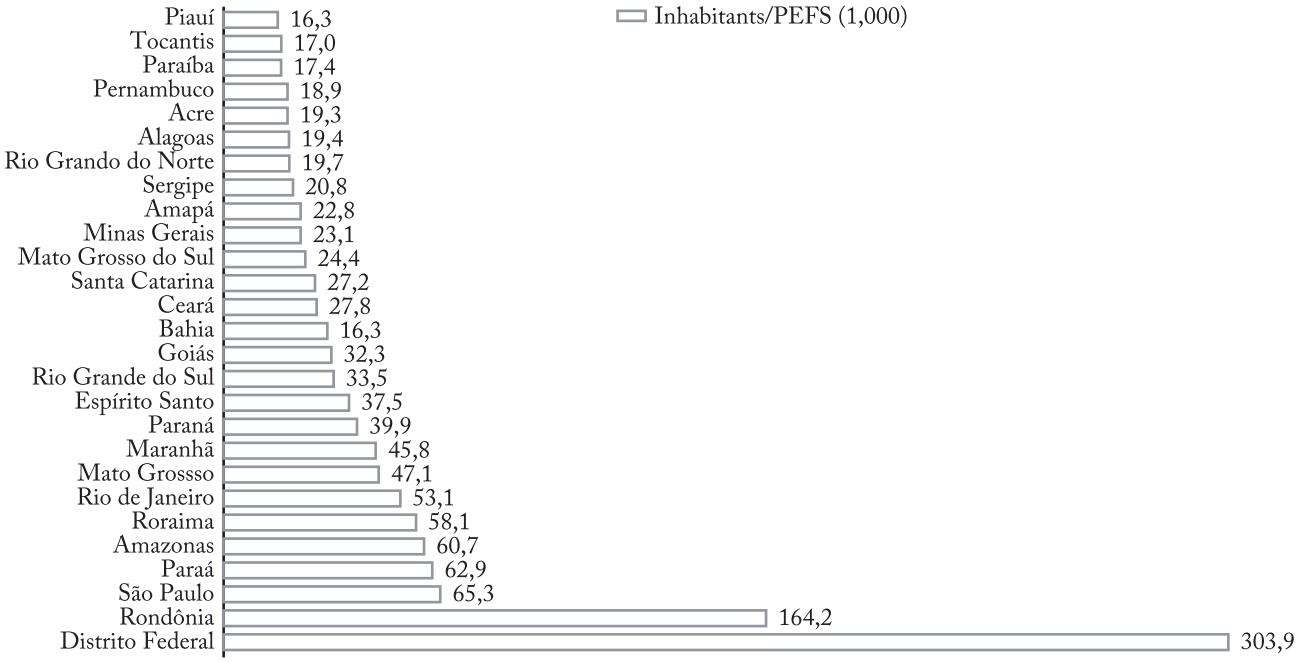

Figure 3 – Mean of inhabitants (/1,000) per PEPH, in Brazilian states, 2017.
Source = Brazilian Registry of Health Institutions (BRHI) and Brazilian Institute of Geography and Statistics (IBGE – Instituto Brasileiro de Geografia e Estatística).

motion Policy itself[3-5,8-11,14]. Global strategies aimed at the promotion of physical activity and healthy behavior could have contributed to this increase[15].

All Brazilian regions showed an increase in the number of PEPH, apart from an improvement in the relationship between the number of inhabitants and PEPH in the period analyzed, suggesting better access to PEP in the context of health. The absolute number of such professionals showed similar behavior when the Northeastern and Southeastern regions and when the Mid-Western and Northern regions were compared in a study that assessed the presence of these professionals in the PCCFH in Brazil[8].

When regional inequalities in health are analyzed in Brazil between 2000 and 2016, a study found that associating regional, economic, and socio-political strategies to increase development with well-being promotion can have a positive impact on health access[16]. In this sense, it should be emphasized that programs such as the "Programa Academias de Saúde" (Health Gym Program) have proved to be useful as they prioritize the social determinants of physical activity, aiming to claim public spaces to promote a new meaning of health and life in the city[14].

However, although the results found show an increase in PEPH offer, the full incorporation of body practices and physical activities in the population depend on other elements. Institutionalization in the public field should be taken into consideration, when this discussion is aligned with social inequalities in health associated with body practices[17]. Considering that the analysis of this scenario is complex and that the reduction in resources aimed at health can affect investments in physical activity promotion, the offer of health services to individuals with diseases and chronic conditions can be compromised. In this sense, it becomes clear that intra- and inter-sectoral interactions are required, considering not only counseling for physical activity practice, but also policies that generate socio-economic development and the guarantee of universal access to health services[18].

The field of intervention and dialogue known as "Physical Education in Health" has been expanding significantly. The institutionalization of contents and actions of Physical Education in different health services is as important as the number of PEPH[19]. An aspect that affects the development of this field is precisely the difficulty to overcome fragmented models whose complex social phenomena are included in ideal closed models[3]. Going beyond the performance of PEP, a study assessed the PCCFH and pointed out difficulties precisely in the perspective of the remaining health professionals, who seek individual clinical actions to the detriment of collective actions to promote health[10].

Likewise, the expansion of institutional policies on behalf of physical activity and body practices is shown to require new dynamics in the spaces for qualification and in the job market of Physical Education, which starts to include public health services. Another point that should be emphasized is the inclusion of benchmarks aimed at expanded health care, following parameters regulated by human and social sciences, which seem to help routine relationships in the health sector to succeed[3].

It should be emphasized that the assessment of the distribution of professionals from the BRHI has been scarcely explored in Physical Education[8,20,21]. Thus, the present study is a pioneer in terms of its coverage. Other professional categories such as dentistry, pharmacy, speech therapy and physiotherapy had their distribution sown in other recent studies[22-25]. One of the limitations of this study was the fact that IBGE data are obtained from population projections, which could cause variation in the proportion between the number of PEPH and that of inhabitants. Underreporting of PEP in the BRHI could also have occurred, even though the present study used data from the Ministry of Health's official source.

Understanding the way the PEPH are distributed can promote the implementation of public health policies aimed at health promotion through body practices and physical activity. In this analysis, the use of socio-demographic, epidemiological and institutional variables, including those associated with the view and practices of PEPH, should be emphasized, aiming to support better planning of these actions. In conclusion, until the year analyzed, there was a steady increase in the number of PEPH included in the UHS in all Brazilian regions. However, the distribution and ratio between the number of inhabitants and that of PEPH was unequally spread among these regions. Future studies should explore other aspects associated with the inclusion of PEPH.

Conflicts of interest

The author declares no conflicts of interest.

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Author contributions

Silva PSC, was responsible for the entire article.

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