

# Distribution of public investment in physical therapy and supplementary health coverage in Brazil: historical series from 2010 to 2015

*Distribuição dos investimentos públicos em fisioterapia e cobertura da saúde suplementar no Brasil: série histórica de 2010 a 2015*

*Distribución de las inversiones públicas en fisioterapia y cobertura de la salud suplementaria en Brasil: serie histórica de 2010 a 2015*

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**ABSTRACT** | This study aims to describe the profile of public investments in physical therapy and to verify the correlation between these investments and the health insurance coverage rate in major Brazilian regions and Federation units, between 2010 and 2015. Data concerning the approved public investments by region and Federation units according to physical therapy attendance were obtained in the Outpatient Information System of the Unified Health System, in the website of the Department of Informatics of the Unified Health System (Datusus). The information corresponding to the health insurance coverage rate was obtained in the Supplementary Health Information sector, available on the National Supplementary Health Agency website. Data were analyzed and the Spearman correlation test was held with a significance level of 5.00% to show a correlation between investment distribution and health insurance coverage rate. The mean per capita application in Brazil, in Brazilian Reais, of financial resources in physical therapy attendances, over the five years analyzed, was R\$ 117.16 ( $\pm 3.52$ ). Among the regions, and for the same period, the South region presented the highest mean per capita (R\$ 129.95 $\pm 5.30$ ), followed in descending order by the Southeast (R\$ 124.22 $\pm 3.69$ ), Northeast (R\$ 118.98 $\pm 7.53$ ), North (R\$ 89.43 $\pm 3.01$ ), and Midwest (R\$ 77.09 $\pm 6.54$ ) regions. The mean coverage by private health insurance varied from 6.20% (Acre) to 43.35% (São Paulo). Apparently, no correlation

exists between private health insurance coverage and public investment in physical therapy services.

**Keywords** | Physical Therapy Specialty; Supplemental Health, Health Economics; Secondary Care.

**RESUMO** | Este estudo tem o objetivo de descrever o perfil dos investimentos públicos em fisioterapia e verificar a correlação desses investimentos com a taxa de cobertura de plano de saúde, nas grandes regiões brasileiras e nas unidades de federação, entre 2010 e 2015. Os dados referentes aos investimentos públicos aprovados por região e unidades de federação do país segundo atendimento em fisioterapia foram obtidos no setor de Sistema de Informações Ambulatoriais do Sistema Único de Saúde, no site do Departamento de Informática do Sistema Único de Saúde (Datusus). As informações correspondentes à taxa de cobertura por plano de saúde foram obtidas no setor de Informações de Saúde Suplementar, disponível no site da Agência Nacional de Saúde Suplementar. Os dados foram analisados, e, para verificar a correlação entre a distribuição dos investimentos e a taxa de cobertura por plano de saúde, realizou-se o teste de correlação de Spearman, com nível de significância de 5,00%. A média de aplicação per capita em reais no Brasil de recursos financeiros em atendimentos em fisioterapia ao longo dos cinco anos

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foi de R\$ 117,16 ( $\pm 3,52$ ). Dentre as regiões e para o mesmo período, a região Sul apresentou a maior média per capita (R\$ 129,95  $\pm$  5,30), seguida em ordem decrescente pelas regiões Sudeste (R\$ 124,22 $\pm$ 3,69); Nordeste (R\$ 118,98 $\pm$ 7,53); Norte (R\$ 89,43 $\pm$ 3,01) e Centro-Oeste (R\$ 77,09  $\pm$  6,54). A média de cobertura de plano privado de saúde variou de 6,20% (Acre) a 43,35% (São Paulo). Parece não haver relação entre a cobertura por plano de saúde privado e o investimento público em atendimento em fisioterapia.

**Descritores** | Fisioterapia; Saúde suplementar; Economia da Saúde; Atenção Secundária à Saúde.

**RESUMEN** | Este estudio tiene el objetivo de describir el perfil de las inversiones públicas en fisioterapia y certificar la correlación de esas inversiones con la tasa de cobertura de seguro de salud, en las grandes regiones brasileñas y en las unidades de federación, entre 2010 y 2015. Los datos referentes a las inversiones públicas aprobadas por región y unidades de federación del país según la atención en fisioterapia fueron obtenidos en el sector de Sistema de Informaciones Ambulatorias del Sistema Único de Salud, en el sitio del Departamento de Informática del Sistema Único de

Salud (Datasus). Las informaciones correspondientes a la tasa de cobertura por seguro de salud fueron obtenidas en el sector de Informaciones de Salud Suplementaria, disponible en el sitio de la Agencia Nacional de Salud Suplementaria. Los datos fueron analizados, y, para certificar la correlación entre la distribución de las inversiones y la tasa de cobertura por seguro de salud, se realizó la prueba de correlación de Spearman, con nivel de significancia del 5,00%. Y el promedio de aplicación per cápita en reales en Brasil de ingresos financieros en atenciones en fisioterapia a lo largo de los cinco años fue de R\$ 117,16 ( $\pm 3,52$ ). De entre las regiones y para el mismo período, la región Sur presentó el promedio más grande per cápita (R\$ 129,95  $\pm$  5,30), luego en orden decreciente por las regiones Sudeste (R\$ 124,22  $\pm$  3,69); Noreste (R\$ 118,98  $\pm$  7,53); Norte (R\$ 89,43  $\pm$  3,01) y Centro Oeste (R\$ 77,09  $\pm$  6,54). El promedio de cobertura de seguro privado de salud varió del 6,20% (Acre) al 43,35% (São Paulo). Parece no haber relación entre la cobertura por seguro de salud privado y la inversión pública en atención en fisioterapia.

**Palabras clave** | Fisioterapia; Salud Complementaria; Economía de la Salud; Atención Secundaria de Salud.

## INTRODUCTION

The Brazilian Unified Health System (SUS) was regulated in 1990, aiming to guarantee the right to health to citizens and make it a State duty<sup>1</sup>. The creation of SUS brought a new proposal, which involves the rupture from an attention model centered on tertiary and secondary attention and on diseases to an integral model, directed to health promotion and disease prevention<sup>2</sup>. The epidemiological transition to a predominant profile of non-communicable chronic diseases (NCD) and the population aging due to longevity increase implies in consequent increments in health expenditure, with increased allocation for primary healthcare and prevention actions<sup>3</sup>.

Another SUS characteristic is the complementarity of the private sector, i.e. private institutions can provide services to SUS patients (1). Currently, the supplementary health presents a national coverage rate of 26% of the population<sup>4</sup>. Physical therapy, in turn, is the science that “studies, prevents and treats the functional kinetic disorders intercurrent in organs and systems of the human body, generated by genetic changes, traumas, and acquired diseases; in basic, medium and

high complexity care”<sup>5</sup>. As the definition itself shows, physical therapists can act at all health care levels<sup>6</sup>. Thus, investments in physical therapy should be the subject of attention to area professionals, public administrators, and the public in general.

The delimitation of investment profile in physical therapy and the verification of its correlation with the health insurance coverage rate might guide the administration, by offering a diagnosis of this type of public investment. This information would also be interesting for policies planning and functional health programs. Besides, it would also work for the design of physical and human resources. To physical therapists, an investment profile could be evidence of states or regions where public investment in physical therapy is more stimulated, leading to possibilities of job market insertion. For SUS patients, the information would be useful to prove payment inequalities in physical therapy services, providing solid elements to investment increment claims in appropriated population services.

Our study aims to describe the profile of public investments in physical therapy and check the correlation of these investments with the health insurance coverage

rate in major Brazilian regions and the Federation units, in the period from 2010 to 2015.

## METHODOLOGY

This was an ecological descriptive study, carried out with data from 2010 to 2015. Data relating to approved public investments for physical therapy services, by region and Federation units, were obtained in the Outpatient Information System of the Unified Health System (SIA/SUS)<sup>7</sup>. The information corresponding to the health insurance coverage rate were obtained in the Supplementary Health Information sector, available on the National Supplementary Health Agency (ANS)<sup>4</sup> website. Population data were obtained according to the 2010 census and population projections by the Brazilian Institute of Geography and Statistics (IBGE)<sup>8</sup>.

The information on physical therapy investment were collected in the Information Access tab – TABNET – Healthcare, of the SIA/SUS website. Within the section “Outpatient Production (SIA/SUS)” the selected option was “Place of residence – from 2008,” and within the section “Geographical Range” the selected option was “Brazil per Region and Federation Unit.” In the section “Line” was selected “Region/Federation Unit”; in the section “Column”, we selected “Procedure subgroup”, and in the option “Content” the “Approved value” was selected. The available period for analysis was from 2010 to 2015. Finally, in the “Available Selections” tab, we opted by the code corresponding to physical therapy (0302), which is under the item “Procedure subgroup.”

Data on health insurance coverage rate was collected on the ANS website, from the tab “Sector Profile – Data and Sector Indicators”. In the item “Beneficiaries of private health plans” we opted for the section “services coverage rate” “Region/State” was selected in the option “Line”; in “Column” we selected “Not active” in the option “Content” “Healthcare” was selected, and in “Available periods” the years between 2010 and 2015 were separately selected. The other items presented in “Available selections” (state, capital, countryside, metropolitan area, region, sex, and age group) remained with the option “All categories” selected.

The mean value spent on each Region and Federation unit was calculated through the division of the total amount spent by the population on each region or Federation unit, then multiplying it by 100.

Data were analyzed and the Spearman correlation test was held with a significance level of 5% to establish a correlation between investment distribution and health insurance coverage rate, in conformity with the non-parametric nature of data, which was tested with the Shapiro-Wilk test. For the comparison of means and investment by region and Federation unit, the confidence interval (95%CI) was calculated.

## RESULTS

Regarding outpatient production, for the period between 2010 and 2015 there was an allocation of little more than R\$ 97 billion. Of this total, 1.45% was destined for physical therapy attendance payments, which corresponds to a gross value of approximately R\$ 1.40 billion, distributing R\$ 68 million to the Midwest region, R\$ 89.50 million to North region, R\$ 221 million to South region, R\$ 384 million to Northeast region, and R\$ 610.50 million to Southeast region.

Over the years, no default behavior was found in the per capita allocation to physical therapy attendances, with reduction to all regions in 2015. The mean per capita application in physical therapy attendances over the period was of R\$ 115.98 ( $\pm 4.30$ ). Among the regions, and for the same period, the South region presented the highest mean per capita (R\$ 130.19  $\pm 4.78$ ), followed in descending order by the Southeast (R\$ 122.63  $\pm 5.17$ ), Northeast (R\$ 116.99  $\pm 8.33$ ), North (R\$ 89.65  $\pm 2.76$ ) and Midwest (R\$ 77.17  $\pm 5.86$ ) regions (Table 1). A statistical difference of the mean investment per capita was found between Brazil and North, South, and Midwest regions. In the North region, there was difference in the states of Acre, Amazonas, Amapá and Tocantins; within the Northeast region: Maranhão, Piauí, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, and Sergipe; in the Southeast, the difference was found in the states of Rio de Janeiro and São Paulo; and in the Midwest region there was difference only in the Federal District (Table 1).

Table 2 informs the health coverage percentage in the regions and states of the nation, between 2010 and 2015. It can be observed, for all major regions, the increased coverage over the years. The highest mean for this percentage is in the Southeast (37.30 $\pm$ 1.09), followed by the South (24.63 $\pm$ 0.80); Midwest (18.98 $\pm$ 2.43);

Northeast ( $11.81 \pm 0.71$ ) and North ( $10.88 \pm 0.67$ ), with national mean of  $24.83 (\pm 0.95)$ . A significant statistical difference can be observed in the distribution percentage between Brazil ( $25.83 - 23.82$ ) and the Midwest ( $16.43 - 21.53$ ), Northeast ( $11.06 - 12.57$ ), North ( $10.17 - 11.58$ ) and Southeast ( $36.15 - 38.44$ ) Regions.

When verifying the relation between public investments in physical therapy and private health plan coverage rate in the major Brazilian regions and Federation units (Table 3), we observed a positive correlation for Pará and Goiás (both  $r = 0.94$ ). On the other hand, Bahia showed a great negative correlation ( $r = -0.94$ )

Table 1. Investment distribution (per 100 people), their means, standard deviations, and confidence intervals, in Reais (R\$), in physical therapy services in different regions and states of the nation, 2010-2015

Region/Federation Unit	2010	2011	2012	2013	2014	2015	Mean	SD	95%CI
<b>North Region</b>	87.80	91.38	89.76	85.27	93.08	90.58	89.65	2.76	86.74 - 92.54
Acre	42.48	44.50	42.27	40.07	44.91	38.26	42.08	2.55	39.39 - 44.76
Rondônia	90.08	76.24	67.95	71.74	108.69	113.32	88.00	19.38	67.66 - 108.34
Amazonas	74.83	83.69	74.79	64.82	52.79	56.45	67.89	11.94	55.35 - 80.43
Roraima	313.11	257.91	212.95	64.16	143.66	123.12	185.82	92.35	88.89 - 282.73
Pará	96.35	103.60	109.31	114.20	121.52	117.81	110.47	9.35	100.65 - 120.28
Amapá	32.14	43.23	38.32	42.60	48.66	44.29	41.54	5.67	35.58 - 47.49
Tocantins	48.61	54.53	54.65	49.75	56.65	46.20	51.73	4.11	47.40 - 56.06
<b>Northeast Region</b>	120.99	125.38	126.43	110.35	111.80	106.96	116.99	8.33	108.24 - 125.72
Maranhão	94.43	92.25	98.71	98.41	95.51	98.70	96.34	2.70	93.49 - 99.17
Piauí	138.95	161.51	166.24	175.46	182.53	193.35	169.67	18.87	149.86 - 189.48
Ceará	124.27	123.95	117.26	94.62	96.79	77.95	105.81	18.89	85.98 - 125.62
Rio Grande do Norte	62.44	64.29	65.08	61.36	70.35	67.37	65.15	3.29	61.68 - 68.61
Paraíba	69.82	78.31	80.28	74.46	70.91	59.77	72.26	7.34	68.21 - 78.83
Pernambuco	80.27	84.75	87.78	94.57	102.39	100.44	91.70	8.86	82.39 - 101.00
Alagoas	175.15	203.16	234.00	218.35	220.21	193.81	207.45	21.13	185.26 - 229.63
Sergipe	75.59	77.41	73.42	73.36	79.17	75.18	75.69	2.27	73.99 - 78.15
Bahia	174.66	175.66	170.84	122.82	119.76	120.42	147.36	28.94	116.99 - 177.72
<b>Southeast Region</b>	122.01	128.52	127.97	121.37	121.49	114.42	122.63	5.17	117.19 - 128.02
Minas Gerais	114.39	111.46	108.95	104.49	98.23	91.55	104.85	8.63	95.78 - 113.90
Espírito Santo	101.22	107.32	115.47	81.72	81.03	72.24	93.17	17.19	75.11 - 111.21
Rio de Janeiro	181.47	204.26	203.59	198.49	207.99	196.14	198.66	9.43	188.76 - 208.55
São Paulo	104.37	109.06	108.76	103.91	103.66	98.45	104.70	3.91	100.6 - 108.80
<b>South Region</b>	120.94	131.10	134.97	130.66	132.08	131.38	130.19	4.78	125.16 - 135.20
Paraná	110.84	117.72	120.80	117.57	117.19	118.33	117.07	3.31	113.59 - 120.55
Santa Catarina	115.15	133.58	140.58	126.79	125.64	120.95	127.12	9.01	117.65 - 136.57
Rio Grande do Sul	134.19	142.73	145.57	145.86	150.68	150.65	144.95	6.12	138.52 - 151.36
<b>Midwest Region</b>	86.22	71.54	70.24	77.19	80.36	77.44	77.17	5.86	71.01 - 83.31
Mato Grosso do Sul	83.79	88.51	94.70	87.11	81.12	73.95	84.86	7.06	77.45 - 92.27
Mato Grosso	180.94	103.26	85.64	92.07	86.79	79.20	104.65	38.23	64.52 - 144.77
Goiás	58.74	65.15	71.17	88.29	102.30	100.65	81.05	18.63	61.49 - 100.60
Federal District	40.87	32.93	26.81	25.43	22.25	26.02	29.05	6.75	21.96 - 36.14
<b>Brazil</b>	116.09	120.69	121.04	113.30	114.82	109.95	115.98	4.30	111.46 - 120.50

SD: Standard Deviation, CI: Confidence interval.

Table 2. Percentage distribution, means, standard deviations and confidence intervals of private health plan coverage in different regions and states of the nation, 2010-2014

Region/Federation Unit	2010	2011	2012	2013	2014	2015	Mean	SD	95%CI
<b>North Region</b>	9.90	10.30	10.90	11.30	11.70	11.20	10.88	0.67	10.17 – 11.58
Acre	6.40	6.20	6.10	6.00	6.30	6.20	6.20	0.14	6.05 – 6.34
Rondônia	10.70	11.10	13.70	11.60	11.60	11.00	11.61	1.07	10.48 – 12.74
Amazonas	13.00	15.10	15.20	16.30	16.10	15.10	15.13	1.17	13.90 – 16.36
Roraima	6.40	6.20	6.90	7.50	8.50	8.10	7.26	0.92	6.29 – 8.23
Pará	9.60	9.50	9.90	10.50	11.30	10.90	10.28	0.73	9.51 – 11.05
Amapá	9.70	9.40	9.60	9.80	10.40	10.20	9.85	0.37	9.45 – 10.24
Tocantins	5.70	6.10	6.70	7.10	7.40	7.50	6.75	0.72	5.99 – 7.43
<b>Northeast Region</b>	10.80	11.20	11.70	12.10	12.60	12.50	11.81	0.71	11.06 – 12.57
Maranhão	5.30	5.80	6.30	6.90	7.30	7.40	6.50	0.84	5.61 – 7.38
Piauí	7.60	7.00	7.50	8.00	8.70	8.70	7.91	0.68	7.19 – 8.63
Ceará	12.00	12.10	12.80	13.50	14.50	14.50	13.23	1.12	12.05 – 14.40
Rio Grande do Norte	15.00	15.40	15.60	16.60	16.50	16.70	15.96	0.72	15.20 – 16.52
Paraíba	9.00	9.30	9.70	10.50	10.90	11.10	10.08	0.87	9.16 – 10.99
Pernambuco	15.10	16.10	16.60	15.90	16.40	15.30	15.90	0.59	15.27 – 16.52
Alagoas	10.20	11.10	11.90	12.60	12.70	12.90	11.90	1.06	10.78 – 13.01
Sergipe	12.10	13.20	13.90	14.20	14.90	15.40	13.95	1.18	12.70 – 15.19
Bahia	10.10	10.40	10.80	11.20	11.70	11.60	10.96	0.64	10.28 – 11.64
<b>Southeast Region</b>	35.90	36.20	37.20	38.30	38.60	37.60	37.30	1.09	36.15 – 38.44
Minas Gerais	24.60	25.10	27.00	27.60	27.60	26.60	26.41	1.28	25.07 – 27.76
Espírito Santo	30.60	31.10	31.50	32.80	32.30	31.60	31.65	0.79	30.81 – 32.48
Rio de Janeiro	35.00	35.40	36.00	37.20	37.60	36.20	36.23	1.00	35.17 – 37.29
São Paulo	42.10	42.30	42.90	44.20	44.80	43.80	43.35	1.08	42.21 – 44.48
<b>South Region</b>	23.80	24.00	24.00	24.90	25.60	25.50	24.63	0.80	23.78 – 25.47
Paraná	23.80	23.90	24.50	26.20	27.20	27.10	25.45	1.57	23.79 – 27.10
Santa Catarina	23.70	24.10	22.10	22.60	23.80	23.80	23.35	0.80	23.98 – 25.18
Rio Grande do Sul	23.90	24.10	24.60	25.00	25.00	25.10	24.61	0.51	24.07 – 25.15
<b>Midwest Region</b>	15.80	16.80	18.40	19.70	21.40	21.80	18.98	2.43	16.43 – 21.53
Mato Grosso do Sul	16.60	17.20	18.40	19.20	21.60	22.00	19.16	2.23	16.82 – 21.51
Mato Grosso	12.70	13.40	15.00	15.80	17.30	17.90	15.35	2.07	13.17 – 17.52
Goiás	13.20	14.10	15.20	16.40	17.40	17.90	15.70	1.85	13.74 – 17.65
Federal District	25.00	26.90	30.10	32.10	35.20	35.30	30.76	4.25	26.28 – 35.31
<b>Brazil</b>	23.60	23.90	24.60	25.40	26.00	25.50	24.83	0.95	23.82 – 25.83

SD: Standard Deviation, CI: Confidence interval.

Table 3. Correlation between per capita expenditure (per 100 people) with physical therapy and private health plan coverage.

Region/Federation Unit	r*	p
<b>North Region</b>	0.25	0.622
Acre	0.55	0.257
Rondônia	-0.63	0.731
Amazonas	-0.55	0.257
Roraima	-0.71	0.110
Pará	0.94	0.004
Amapá	0.60	0.208
Tocantins	-0.02	0.957
<b>Northeast Region</b>	-0.60	0.208
Maranhão	0.77	0.724
Piauí	0.81	0.049
Ceará	-0.89	0.014
Rio Grande do Norte	0.31	0.544
Paraíba	-0.37	0.480
Pernambuco	0.31	0.544
Alagoas	0.25	0.682
Sergipe	-0.08	0.871
Bahia	-0.94	0.008
<b>Southeast Region</b>	-0.08	0.871
Minas Gerais	-0.63	0.173
Espírito Santo	-0.54	0.265
Rio de Janeiro	0.25	0.622
São Paulo	-0.65	0.156
<b>South Region</b>	0.46	0.354
Paraná	0.14	0.787
Santa Catarina	-0.46	0.354
Rio Grande do Sul	0.89	0.014
<b>Midwest Region</b>	0.02	0.975
Mato Grosso do Sul	-0.60	0.208
Mato Grosso	-0.82	0.041
Goiás	0.94	0.004
Federal District	0.82	0.016
<b>Brazil</b>	-0.60	0.208

r\*: correlation coefficient calculated with the Spearman test (non-parametric data).

## DISCUSSION

Regarding the gross value of SUS outpatient production for physical therapy care payment, between 2010 and 2015, we highlight the Southeast region, notable when compared with the Midwest, which featured the smallest investment transfer. In turn, the mean funding application per capita in physical therapy

over these six years was higher in the South Region and smaller in the Midwest. These data diverge from another study<sup>9</sup> that observed outpatient investments in physical therapy from 2000 to 2006, obtaining a larger per capita investment in the Northeast Region and the lowest in the North Region. This information may stand for a change in the investment profile of physical therapy treatment at SUS in the last few years. In addition, smaller investments in the Midwest can be justified by the lower concentration of population in this region when compared with the other. Due to its considerable territorial size, Brazil offers regional diversities in the demographic and economic scope. This aspect influences health status and population profile<sup>10-12</sup>, reflecting directly in resources distribution among regions<sup>10,12</sup>.

According to Giacomelli et al.<sup>13</sup>, financing administration in public health should consider age structure segments and the democratic transition process<sup>13</sup>. The Brazilian population has grown over the years, even though we are in a process of population decrease<sup>8</sup>. Within the period investigated in our study, physical therapy services investments also increased, but the per capita distribution did not grow at the same pace. Concerning this fact, we should reflect if, for this distribution, the differences between Federation units were considered regarding demographic, epidemiological, social and finance profiles<sup>12</sup>, to maintain the equity of service offer. That is because the literature points to the maintenance of a historical conduct, in which the financial resources of the Brazilian public system are based not on the patient necessity, but on service production<sup>12,14</sup>. Thus, a distortion is generated in health care, since the equity advocated by SUS consists in addressing the population needs instead of the service providers' economic interests<sup>13-15</sup>.

Besides, another issue to consider about the differences between the amounts paid to physical therapists in diverse Brazilian regions is the distribution of physical therapists themselves. In the study by Tavares et al.<sup>16</sup>, a research on these professionals' distribution according to the National Register of Health Establishments (CNES)<sup>16</sup> was carried out. The results showed that, of a total of 53,181 physical therapists registered, 50% are in the Southeast Region, 21% in the Northeast, 18% in the South, 7% in the Midwest, and only 4% in the North region. We observed the presence of physical therapists in 76% of Brazilian municipalities, with greater coverage (91%) to Southeast municipalities and smaller coverage (40%) to the Northeast region. The highest

percentage of professionals was found in capitals and big cities<sup>16</sup>. The research major conclusion refers to the investments needed to expand the presence of physical therapy more equitably in all Brazilian regions, and in medium and small size municipalities<sup>16</sup>. Such findings corroborate our research results about the discrepancies of values invested in physical therapy care in distinct Brazilian regions. In Tavares et al.<sup>16</sup>, the South region presented the highest number of physical therapists per 1,000 inhabitants and the highest amount spent on physical therapy per 100 inhabitants<sup>16</sup>. Paradoxically, in our research, the Midwest region presented the smallest amount spent on physical therapy, even being only behind the South and Southeast regions in number of physical therapists per 1,000 inhabitants<sup>16</sup>. Such a result can prove that values spent on physical therapy have other determining factors besides professionals' availability, being, in any case, an indicative of the lack of equity in the distribution of these resources.

On supplementary health, our findings show an increase over the years of private health plans coverage for all Federation units. There was an increase in the number of health plan beneficiaries, perhaps due to economic and employment growth and to the new market rules by health insurance operators<sup>17</sup>, which might justify the results found.

Theoretically, public investments in health and supplementary health coverage are complementary. That is, when the public transfer to health increases, the supplementary health coverage decreases<sup>18</sup>. This pattern is not confirmed in our research, and there is even contradiction in the results of Pará and Goiás, which presented a positive correlation between per capita expenses with physical therapy and private health insurance coverage. This might be generated by attendance duplication: the same individual being benefited by both supplementary health and SUS<sup>17-19</sup>. Furthermore, the population growth in those two states, the implementation of policies, programs and physical resources in health could also explain the results. As an explanatory hypothesis for the data found, there is still the possibility of own resources funding, which is also a current payment mode for health services in our system<sup>20</sup>.

Our research results show the inequalities of Brazilian regions regarding physical therapy expenditures in SUS, in parallel with the non-linearity of such expenditures on supplementary health coverage in the same six-year period. For health public administrators, these results offer a more in-depth look on the need for a

more fair and efficient expense distribution in physical therapy, and the complementarity of supplementary health, encouraging the action development in this sense. Physical therapy professionals should beware of such regional differences, the importance of public expenditure in physical therapy monitoring, and professional union. Overall, for public administrators, physical therapists, area scholars and the population itself, a main point emerges from the research results: the importance of physical therapy actions for the health in Brazil, whether in promotion or disease prevention; and the need to fight for SUS<sup>1</sup> universality and equity principles, seeking to lead, in an equal manner, the entire country and all the Brazilians to physical therapy.

The absence of studies that discuss this content limits a greater scope of discussion. We emphasize the need to encourage new research in this area, given the importance in administrating investments in physical therapy for the planning of policies and functional health programs.

## CONCLUSION

Public investments in physical therapy from 2010 to 2015 varied between Brazilian regions and Federation units. The correlation between the health insurance coverage rate and public investments has a distinct behavior, depending on the state studied, showing no consistent correlation pattern between them.

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