

# Recreational soccer practice among adults, in Brazilian capitals, 2011-2015\*

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## Abstract

**Objective:** to describe the profile of recreational adult soccer players who lived in the Brazilian capitals in the period from 2011 to 2015. **Methods:** descriptive study with a sample of adults interviewed by the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey - VIGITEL (2011 to 2015). **Results:** 11.812 adults (11.375 men and 437 women) pointed to soccer as their main leisure physical exercise, with higher prevalence in the North region (32%) and lower in the South region (10%) of the country; the average reduction of soccer players 3.4% for every 5 years over age (95%CI 2.9;4.1); from 2011 to 2015, there was decrease in the number of soccer players, -1.4% per year (95%CI -0.7;2.2). **Conclusion:** the practice of soccer was predominantly male, presented an inverse relationship with the increase of age, more prevalent in the Northern region and less prevalent in the Southern region.

**Keywords:** Soccer; Recreation; Exercise; Sedentary Lifestyle; Health Promotion.

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## Introduction

The recreational sport is a common form of physical activity (PA) in leisure time.<sup>1</sup> Some systematic reviews<sup>2,3</sup> indicate benefits in several areas of health associated with the practice of recreational sports for men and women, even when practiced in relatively short intervention periods of 12 to 16 weeks.<sup>4</sup>

The participation in the recreational soccer, practiced in leisure-time and with purpose playfulness, is present in the everyday lives of Brazilians. In 2012, in Brazil, the soccer was practiced in amateur mode for 13 million people, contributing to keep 7% of the population active<sup>5</sup> and reduce the rate of early mortality related to physical inactivity that, in 2010, reached approximately 6% of total early deaths in the world.<sup>6</sup>

In the year of 2014, a study involving inactive hypertensive sedentary and pre-menopausal women (35 to 50 years of age) in the Faroe Islands found, after 15 weeks of intervention with recreation soccer of moderate intensity, reduction of systolic and diastolic arterial pressure ( $-12 \pm 3$  mmHg and  $-6 \pm 2$  mmHg, respectively), reduction of body fat mass ( $-2.3 \pm 0.5$ kg), reduction in total cholesterol ( $-0.4 \pm 0.1$ mmol) and reduction of serum triglycerides ( $-0.2 \pm 0.1$ mmol).<sup>7</sup>

*The growth of the participation of adults in PA in leisure-time was only slightly in the period from 2006 to 2013.*

There is evidence that participation in sports activities is more prevalent among young people, beginning in childhood, between 6 and 10 years, with boys preceding the girls. There is a linear decline in the number of practitioners with increasing age in both sexes.<sup>1,2,8</sup> In 2013, the recreational soccer was the main sport practiced by 59.8% of Brazilians, followed by the volleyball (9.7%), swimming (4.9%) and indoor soccer (3.3%).<sup>8</sup>

As age increases, the practice of activities such as walking, cycling and gymnastics are more prevalent. Older people tend to replace their participation in PA by models and configurations of activities not organized (informal) and non-competitive, being more prone to adopt individual practices of physical activity.<sup>8</sup> For adults, the relation among age, sex and

participation in PA is different. A study conducted in 2014 ranked the level of PA of 52,779 Brazilians adults in four categories - Inactive, moderately active, active and very active - and found 52% of inactive individuals in leisure-time, with predominance of physical inactivity among women (60%) and linear increase of inactivity with the advance of age for both sexes.<sup>9</sup> This scenario becomes even more worrying when it is verified that the growth of the participation of adults in PA in leisure-time was only slightly in the period from 2006 to 2013.<sup>10-12</sup>

Another study, this performed in 2010, involving the adult population of 25 Member States of the European Union (n=23,909), showed that in France, Latvia, UK, Belgium, Spain, Netherlands and Greece, men aged 18 to 34 years of age were more likely to participate in recreational sport, when compared to women of the same age and men with 55 years or more.<sup>13</sup> In Australia, in the period from 2001 to 2010, for both sexes, participation in recreational sport was higher among individuals from 15 to 34 years when compared to older age groups.<sup>14</sup>

In general, these surveys have provided evidence that participation in recreational PA decreases with the increase of age. Few studies emphasize the participation of the population in the recreational soccer. It is important to better understand this type of physical activity and recreation and their relationship with age, sex and geographic location, in order to allow the understanding of the phenomenon and serve strategies more secure and effective for research and intervention in stimulating physical activity in leisure-time and consequently, in promoting the health of the population.

The objective of this study was to describe the samples of recreational adult soccer players living in the Brazilian capitals in the period from 2011 to 2015.

## Methods

A descriptive study was carried out with secondary data collected by the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL) relating to cross-sectional surveys carried out in the years 2011 to 2015, in the capitals of the states and the Federal District of Brazil. The methods of the VIGITEL can be found in a previous publication.<sup>15</sup>

In the period from 2006 to 2011, the VIGITEL system establishes a minimum sample size of 2,000 individuals with 18 or more years of age in each city, to estimate, with a confidence level of 95% and a maximum error of about two percentage points, the frequency of any risk factor to health among the adult population. For the years 2012 and 2014, due to technical adjustments related to data collection, the minimum sample size was reduced to 1,600 individuals/city, raising the maximum error of the estimate for approximately three percentage points by reference to the whole population, and to four percentage points in specific estimates.

To select the practitioners of recreational soccer, it was proposed to survey respondents the following question:

*In the past three months, have you practiced some type of physical exercise or sport?*

Affirmative answers led to the next question:

*What is the main type of physical exercise or sport that you practiced?*

The interviewer was responsible to marking the first activity cited by the respondent, within a list of 16 options. Were considered as practitioners of recreational soccer all interviewees who mentioned the soccer as their main type of physical exercise or sport of leisure. The percentage of recreational soccer players was obtained through the calculation of the weighted proportion of reports of soccer as the main type of physical exercise or sport and the reports of PA in the period examined.

The concept 'active in leisure' has been assigned to the participant who claimed to have made any amount of PA in free time at least once per week during the three months prior to the survey.

The variables considered in the sociodemographic composition of the total population and population provided by fixed telephone were 'sex' (female and male), 'region of residence' (by large national regions: North, Northeast, Southeast, South or Midwest), 'age' (expressed in years and grouped into 14 strata, for five seconds: 18-22; 23-27; 28-32; 33-37; 38-42; 43-47; 48-52; 53-57; 58-62; 63-67; 68-72; 73; 78; and 83 or more). The education level was grouped in years of study: 0-8; 9-11; and 12 or more.

Post-stratification weights were considered to extrapolate the results to the population without fixed telephone. The rake method was used to estimate the total population of each capital, based on census data of the corresponding year. We estimated the

frequencies of soccer players under the age ranges (described in the previous paragraph) and respective confidence intervals of the order of 95% (95%CI). The coefficient correlation Pearson was used to measure the degree of linear correlation among the variables of interest, assuming that the values equal to +1 or -1 represent the correlation perfect, positive or negative, among variables. The association among the variables age and 'percentage of practice of recreational soccer' was analyzed by simple linear regression. The statistical significance of the variation in the selected time period was measured by the Poisson regression model, adopting (i) the status of the individual interviewed in relation to the indicator (negative = 0; positive = 1) for the practice of recreational soccer as dependent variable, and (ii) the year of the survey as the explanatory variable, expressed as a continuous variable. In the comparison of the frequencies of reports of practitioners of recreational soccer with age and region of residence, was used the Pearson Qui-squared test. Significant changes in the annual series were indicated when the coefficients of the regression were significantly different from zero and the value of  $p < 0.05$ . All analyzes were performed with Stata®, version 11.

The project VIGITEL was approved by the National Committee for Ethics in Research with Human Beings do Ministry of Health. The Term of Free Consent and Informed was obtained from verbal way, at the time of the telephone contact with the interviewees. The database of the VIGITEL survey, available at ([http://svs.aids.gov.br/bases\\_vigitel\\_viva/vigitel.php](http://svs.aids.gov.br/bases_vigitel_viva/vigitel.php)), precludes the identification of the interviewees. It is, therefore, a study with data available for public access without identification of the subject, why was dismissed from consideration by the Committee for Ethics in Research, in accordance with the Resolution of the National Health Council (CNS) No 510 of 7 April 2016.

## Results

For the VIGITEL surveys for the years 2011 to 2015, initially 576,000 telephone lines were randomly. Based on pre-established criteria, were computed 364,009 eligible lines, of which 247,548 responded to the interview; 94,195 men and 150,200 women granted full interviews (Table 1). The average age of respondents was 47.6 (standard deviation: 17.5 years

The whole of the sample, 125,591 adults (56,072 men and 69,520 women) reported performing some type of physical exercise or sport in their free time; of these, 11,812 adults (11,375 men and 437 women) mentioned the soccer league as the main type of physical activity practiced.

Table 2 shows the frequency of the participants who reported the recreational soccer as the main physical exercise or sport of leisure, in the period from 2011 to 2015. In the whole sample, the proportion of active subjects grew from 48.8% in 2011 to 53.4% in 2015. The percentage growth of active women was 42.8% (2011) for 48.8% (2015). The closure of the period investigated showed men as most active subjects among the interviewees: 61.1%. The percentage of recreational

soccer players was greater in males (97.7%) than in females (2.3%). The proportional variation in the number of recreational soccer players was 5.6 percentage points lower in 2015, as compared to the year 2011.

Table 3 presents the percentage of adults who reported the practice of recreational soccer as the main type of physical exercise or sport of leisure, as the distribution by age groups. This percentage decreased as age increased, in the period from 2001 to 2015. In the set of recreational soccer players, approximately 25% had up to 22 years of age, 70% had up to 37 years, and 92% up to 52 years. Those with 53 or more years, only 8% reported recreational soccer as the main type of physical exercise or sport

**Table 1 – Number of lines drawn, eligible lines, interviews completed, adults active in leisure and recreational soccer players, total and per gender, according to the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL), capitals of Brazilian states and the Federal District, 2011-2015**

Year of the survey	Drawn Lines	Eligible Lines	Interviews			Adults active in leisure			Recreational Soccer Players		
			Total	Male	Female	Total	Male	Female	Total	Male	Female
2011	111,200	80,470	54,144	21,426	32,718	26,406	12,402	14,004	3,293	3,174	119
2012	135,000	70,045	45,448	17,389	28,059	22,778	10,205	12,574	2,336	2,249	87
2013	112,600	74,005	52,929	20,276	32,653	26,591	11,830	14,761	2,330	2,241	89
2014	101,200	62,786	40,853	15,521	25,332	20,877	9,183	11,694	1,787	1,723	64
2015	116,000	76,703	54,174	20,368	32,653	28,939	12,452	16,487	2,066	1,988	78
<b>Total</b>	<b>576,000</b>	<b>364,009</b>	<b>247,548</b>	<b>94,195</b>	<b>150,200</b>	<b>125,591</b>	<b>56,072</b>	<b>69,520</b>	<b>11,812</b>	<b>11,375</b>	<b>437</b>

**Table 2 – Percentage<sup>a</sup> of active adults active in leisure and recreational soccer players, per sex, according to the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (VIGITEL), capitals of Brazilian states and the Federal District, 2011-2015**

Variables	2011 % (95%CI) <sup>b</sup>	2012 % (95%CI) <sup>b</sup>	2013 % (95%CI) <sup>b</sup>	2014 % (95%CI) <sup>b</sup>	2015 % (95%CI) <sup>b</sup>
<b>Active adults<sup>c</sup></b>					
<b>Total</b>	48.8 (43.4;53.2)	50.1 (45.5;56.1)	50.2 (45.2;56.6)	51.1 (44.9;56.6)	53.4 (47.4;57.9)
Male	57.9 (52.2;63.8)	58.7 (53.1;64.1)	58.3 (54.0;63.9)	59.2 (53.3;66.1)	61.1 (52.9;67.3)
Female	42.8 (38.1;48.2)	44.8 (40.9;49.1)	45.2 (41.1;49.6)	46.2 (40.8;51.0)	48.8 (42.9;54.3)
<b>Recreational soccer players</b>					
<b>Total</b>	12.4 (10.2;15.1)	10.4 (8.3;12.7)	8.4 (6.8;10.5)	8.3 (6.6;10.9)	6.8 (4.3;8.8)
Male	97.7 (95.8;99.0)	97.7 (96.1;98.9)	97.6 (96.1;98.8)	97.8 (96.4;98.8)	97.7 (96.5;98.7)
Female	2.3 (0.4;6.2)	2.3 (0.3;7.2)	2.4 (0.3;7.0)	2.2 (0.2;6.6)	2.3 (0.4;6.6)

a) Percentage weighted to adjust the sociodemographic distribution of the VIGITEL sample to the distribution of the adult population projected for the city in each year analyzed.

b) 95%CI: 95% confidence interval.

c) Adult active: Adults interviewed who reported practice of some type of physical exercise and/or sport in the free time during the week, in the last three months of the interview.

**Table 3 – Percentage<sup>a</sup> of adults (≥ 18 years) who reported the recreational soccer as their primary physical activity, by age, according to the Surveillance System for Risk and Protective Factors for Chronic by Telephone Survey (VIGITEL), capitals of Brazilian states and the Federal District, 2011-2015**

Age (in years)	Year of the survey										Average (2011-2015)	
	2011		2012		2013		2014		2015		%	Σ%
	%	Σ%	%	Σ%	%	Σ%	%	Σ%	%	Σ%		
18-22	26.2	26.2	26.3	26.3	24.2	24.2	26.0	26.0	27.9	27.9	26.1	26.1
23-27	17.9	44.1	17.8	44.1	16.7	40.9	16.3	42.3	15.4	43.3	16.8	42.9
28-32	14.8	58.9	14.6	58.7	14.8	55.7	13.4	55.7	12.3	55.6	14.1	57.0
33-37	11.5	70.5	11.9	70.6	10.5	66.2	13.4	69.1	11.0	66.6	11.7	68.7
38-42	10.1	80.5	10.1	80.7	10.7	76.9	9.3	78.4	9.5	76.1	10.0	78.7
43-47	8.2	88.7	8.1	88.8	7.4	84.3	7.6	86.0	7.8	83.9	7.5	86.2
48-52	5.9	94.6	5.0	93.8	6.6	90.9	5.6	91.6	6.8	90.7	6.1	92.3
53-57	2.7	97.3	2.8	96.6	4.5	95.4	4.1	95.7	3.6	94.3	3.6	95.9
58-62	1.8	99.1	1.5	98.1	2.2	97.6	2.0	97.7	2.7	97.0	2.0	97.9
63-67	0.4	99.5	0.8	98.9	1.5	99.1	1.0	98.7	1.4	98.4	1.0	98.9
68-72	0.2	99.7	0.7	99.6	0.7	99.8	0.6	99.3	1.1	99.5	0.6	99.5
73-77	0.2	99.9	0.2	99.8	0.1	99.9	0.3	99.6	0.4	99.9	0.2	99.7
78-82	0.1	100.0	0.1	99.9	–	–	0.3	99.9	0.1	100.0	0.2	99.9
≥83	–	–	0.1	100.0	0.1	100.0	0.1	100.0	–	–	0.1	100.0

a) Percentage weighted to adjust the sociodemographic distribution of the VIGITEL sample to the distribution of the adult population projected for the city in each year analyzed.

b) Σ%: Relative frequency accumulated.

95%CI - 95% confidence interval.

at leisure. For the whole sample, there was a reduction in the average percentage of recreational soccer players of 3.4% for each 5 more years in age (95%CI 2.9;4.1); from 2011 to 2015, there was a decrease in the number of recreational soccer players, -1.4% year (95%CI -3,6;0,12).

Table 4 shows the average percentage of adults who reported the recreational soccer as the main type of physical exercise or sport practiced by them, in accordance with the age range, by region of residence. The Northern region had the greatest percentage of reports this practice as the most adopted (32%), and the Southern region the lowest (10%). The frequency of reports of participation in recreational soccer tended to be lower with the increase of age, in all regions of the country.

Table 5 presents the results of the analysis of the simple linear regression and shows that the variable 'age' has been able to predict, so significant, the variation in the frequency of respondents who reported being the recreational soccer the main type of physical activity practiced in leisure of interviewed. The values

of the coefficients of regression ( $\beta$ ) were negative for all years of the historical series from 2011 to 2015, indicating a decrease in the number of recreational soccer players as age increased.

## Discussion

The practice of recreational soccer was confirmed as a predominantly male modality. The majority of the practitioners interviewed by the VIGITEL System mentioned age equal or less than 37 years. Were observed a reduction in the number of participants with the increase of age. For the set of 27 cities-object of investigation, the frequency of recreational soccer players was higher among individuals aged less than 22 years of age. There was a reduction of 50% in the percentage of practitioners with age up to 37 years, and for participants with up to 52 years, only 20% reported the soccer as their main activity.

The inverse relationship among the number of active individuals in leisure-time and age is consolidated in the literature.<sup>16-18</sup> Study of Lima,<sup>9</sup> dated 2014, found

**Table 4 – Percentage<sup>a</sup> average of adults (≥ 18 years) who reported the recreational soccer as their primary physical activity, by age, according to the Surveillance System for Risk and Protective Factors for Chronic by Telephone Survey (VIGITEL), Brazil, 2011-2015**

Age (in years)	North	Northeast	Midwest	Southeast	South
	% (95% CI) <sup>b</sup>	% (95% CI) <sup>b</sup>	% (95% CI) <sup>b</sup>	% (95% CI) <sup>b</sup>	% (95% CI) <sup>b</sup>
18-22	27.3 <sup>c</sup> (24.3;31.2)	26.9 <sup>c</sup> (22.5;30.2)	24.5 (20.2;28.5)	24.3 (20.3;29.1)	20.5 (16.4;25.5)
23-27	16.5 (12.1;22.3)	16.1 (11.7;21.8)	14.3 <sup>c</sup> (10.3;18.6)	18.5 (14.4;23.5)	16.4 (11.2;21.5)
28-32	14.2 (10.3;18.7)	13.6 (9.8;17.2)	12.1 (9.1;16.9)	12.3 (9.4;15.8)	12.3 (9.5;16.0)
33-37	12.2 (8.8;6.7)	14.6 (10.8;18.5)	13.2 (9.8;17.5)	14.4 (10.5;19.0)	11.7 (7.3;15.6)
38-42	11.0 (7.1;15.3)	7.1 <sup>c</sup> (4.4;11.8)	11.7 (7.4;16.1)	10.3 (6.5;14.3)	8.2 (4.9;12.3)
43-47	8.4 (4.1;12.5)	8.0 (4.3;12.5)	7.0 (3.5;11.4)	5.8 (2.9;9.9)	8.8 (4.6;12.2)
48-52	5.0 (3.8;7.3)	6.2 (4.9;8.8)	4.7 (3.1;8.1)	5.3 (3.9;7.7)	8.2 <sup>c</sup> (6.8;10.4)
53-57	2.9 (1.8;4.1)	4.3 (2.2;6.9)	3.9 (2.3;5.4)	4.5 (2.6;6.8)	7.6 <sup>c</sup> (5.5;9.9)
58;62	1.0 (0.4;2.5)	2.1 (1.1;3.6)	3.9 <sup>c</sup> (2.2;6.7)	1.2 (0.5;3.1)	2.9 <sup>c</sup> (1.8;6.7)
63-67	1.4 <sup>c</sup> (0.8;3.6)	0.6 <sup>c</sup> (0.1;3.7)	1.6 <sup>c</sup> (0.5;4.9)	2.8 (1.1;5.6)	2.3 (1.4;4.9)
68-72	0.1 <sup>c</sup> –	0.4 (0.1;4.8)	0.4 (0.1;4.2)	0.4 (0.1;4.9)	0.6 (0.2;4.3)
73-77	0.1 –	0.2 –	–	–	1.7 (0.1;6.2)
78-82	–	0.2 –	–	–	0.6 –
≥83	–	–	–	–	–

a) Percentage weighted to adjust the sociodemographic distribution of the VIGITEL sample to the distribution of the adult population projected for the city in each year analyzed.

b) 95%CI:95% Confidence Interval.

c) test of Pearson's Chi-square.

**Table 5 – Results of simple linear regression for the frequency of adults who reported the recreational soccer as its main physical exercise or sport of leisure activities in relation to age, according to the Surveillance System for Risk and Protective Factors for Chronic by Telephone Survey (VIGITEL), Brazil, 2011-2015**

Year of the survey	Test F <sup>a</sup>	Coefficient $\beta$ <sup>b</sup>	p-value <sup>c</sup>	95%CI <sup>d</sup>
2011	63.54	-0.911	<0.001	-1.15;-0.66
2012	56.56	-0.902	<0.001	-1.16;-0.64
2013	82.62	-0.930	<0.001	-1.15;-0.70
2014	65.61	-0.914	<0.001	-1.16;-0.70
2015	50.63	-0.892	<0.001	-1.15;-0.62

a) test for comparison of the variables 'age' and 'frequency of recreational soccer players'.

b) standardized coefficient of simple linear regression.

c) p-value (level of significance).

d)95% Confidence Interval.

44% of inactive individuals in leisure-time among the younger (18 to 24 years of age), and 66% among older ( $\geq 65$  years), in addition to pointing out, as one of the causes of that inverse relationship, the functional limitation inherent to aging. Curiously, this phenomenon establishes a vicious circle in which the functional limitation reduces the level of physical activity, which, in turn, aggravates the functional limitation.<sup>9,19</sup>

This functional continence by age does not seem to apply universally. According to this study, the decrease in the number of recreational soccer players was also present in early age, in which, in a general way, functional limitations are not strongly installed to restrict the physical capacity and justify the abandonment of the sport.

A study conducted with data from 1981 to 2008, whose purpose was to analyze the behavior of early sports specialization in children and adolescents of countries of eastern Europe, found not only few individuals in elite sport as well as a tendency to abandon the practice of sports at the age of 15 to 25 years. In Brazil, a study conducted in 2009 in the municipality of Belo Horizonte, MG,<sup>20</sup> examined the history of behavior and sports practice of 500 students of both sexes. In this study, there was a reduction of the practice of sport, in volume and diversity, to the extent that the young people approaching adulthood. Another study developed in Europe, involving 857 students in the province of Granada (Spain) in the year 2008,<sup>21</sup> showed that the lack of time, the preference for other activities in their free time and motivation were the main causes of interruption of physical and sports practice.

The Ministry of Sport has developed a survey called the National Diagnosis of Sport, in the period from 2010 to 2014. In 26 state capitals and the Federal District, were applied face to face interviews with 8,902 participants of both sexes, athletes and non-athletes under the age of 14 to 75 years.<sup>9</sup> The study revealed that the percentage of interruption of the practice of sport in the country was 26.8% at 15 years old, 45% among 16 and 24, 18% to 25-34, and 6.1% among 35 and 44 years.

In countries like Brazil, where soccer is widely experienced, interventions for the adequacy of public places to practice recreational soccer should be reconsidered before being reimplemented. There is

reasonable evidence that different social strata have different levels of acceptance to certain areas. In addition, to relate the temporal dimension of leisure with soccer, both as others were affected by the constant transformation of spaces and customs in a given space and/or time period.<sup>22</sup>

According to the report of the diagnostic research on the practice of the sport in Brazil, from 35 years of age, only 10% of the athletes remained active in main modalities. In the present study, the percentage of recreational soccer players has reached 90% of abandonment from 58 years. In addition, the recreational soccer players were in more advanced age when compared to practitioners of other sports.<sup>9</sup>

One of the few studies on population data to describe the characteristics of recreational soccer players in Brazil was developed in the year 2011. Based on data from 54,369 interviews by telephone survey of the VIGITEL system applied in the year of 2006, this survey revealed 77.4% of recreational soccer players under the age of 35 years and schooling up to 8 complete years of study.<sup>23</sup> The results of this study corroborate this trend of reduction in the number of recreational soccer players with advancing age. An fact to emphasize, however, was the reduction observed the option of recreational soccer as the main physical activity in leisure-time, from 15.1% in 2006 to 6.8% in 2015. The National Diagnosis of Sport<sup>9</sup> also pointed out the lack of time as the main justification for the abandonment of the practice of sports and/or physical activity, cited by approximately 70% of interviewed. In this sense, it is consistent to assume that the time dedicated to activities related to work, to study and to the family may have contributed to the reduction in the number of practitioners of recreational soccer in the last decade.

In the international sphere, the shortage of data stocks on the profile of the age of recreational soccer players in activity limits the comparison of the results of this study with others. The majority of studies involving recreational soccer players has focused on the behavior of young athletes (dropout)<sup>24,25</sup> or professional players.<sup>26</sup>

The study showed the recreational soccer as physical activity of a large male predominance and homogeneity in the territorial distribution by region. The ratio between the female/male, very low (1:45), has not changed among the years of 2011 and 2015,

contrary to the observations of systematic growth of female involvement in soccer described by Goellner<sup>27</sup> to analyze the participation of women in sport throughout the 20<sup>th</sup> century.

To assess the participation of women in the recreational soccer, it is important to emphasize that the relationships of domination and power of gender also manifest in the sport, provided that these relations are social phenomena. Historically, the soccer has emerged as a sport is predominantly male, linked to the virility and to physical effort characteristic of the genre. The participation of women has always been surrounded by cultural prejudices.<sup>28</sup> More recently, widened the access of the female population in the sport, broke some barriers and integrated to this sport people of different sexes, social origins and cultural, religious and racial. However, it can be inferred that this process of change, also evidenced in other studies, does not apply to the female sample in particular, on account of the focus of practice d recreational soccer in Brazil especially.

The investigation of the VIGITEL system does not allow to identify the presence of different activities, concurrently, or if the interruption of the practice of recreational soccer is compensated by another type of PA. The most disadvantageous situation resulting from the interruption of the practice of recreational soccer lies in the possibility of soccer players become inactive. For Malina,<sup>19</sup> The early withdrawal of competitive sports athletes showed that those without experience in youth courts tended to sedentary lifestyle after the closure of their careers. To extrapolate these results to individuals not athletes requires prudence. However, according to the author,<sup>19</sup> it seems plausible to assume that the development of experiences courts in the early stages of life contributes to an existence adulthood physically active when the practice of recreational soccer become unfit.

Some limitations of this study should be considered in the interpretation of their results. The data of the VIGITEL were obtained exclusively by interviews of people with access to fixed telephone line. The use of post-stratified weights sought to minimize possible differences between the total population and population analyzed. However, there is the possibility of selection bias residual. The question about the type of PA in the VIGITEL survey is not a multiple choice question. The non-preference declared the practice

of recreational soccer does not exclude the possibility of this practice be occurring simultaneously to one or more other sports practices. Thus, the possibility of underestimation of the actual number of recreational soccer players need to be considered.

The investigation of the VIGITEL nor differentiates the interviewee athlete of the non-athlete. The National Diagnosis of Sport 9 estimated that in Brazil, approximately 4.2% of sportsmen are formal, athletes may not be appropriate for designation of 'recreational' to soccer practiced for a small portion of the sample of respondents. Due to the low number of women who reported practicing recreational soccer, it is recommended that prudence to extrapolate these results to women.

The strengths of this study are the information about the practice of recreational soccer in a large sample of Brazilians adults residing in state capitals and the Federal District, where living in approximately 25% of the Brazilian population, periodically monitored by the VIGITEL System since the year 2006. Their results represent relevant evidence about the age of the practitioners of recreational soccer in activity in Brazil, especially for professionals in Physical Education and stakeholders in planning and promoting the PA of the population at leisure. The analysis of the age profile of recreational soccer players reinforces the need for actions aimed at ensuring the continuity of physical activity when the age mean a barrier to the practice of football.

Finally, in Brazil, considered the 'country of soccer', in the light of the evidence presented, would be the elaboration and implementation of public policies to encourage the practice of physical activity with the aim of promoting the collective sport, supply and/or suitability of spaces of leisure for the practice oriented recreational soccer, contributing to the promotion of health in the community.

### Authors' contributions

Lima DF was responsible to develop the study, to raise, to analyze and to interpret the data and to write the article. Piovani VGS and Lima LA participated in the study design, data interpretation and critical revision of the article. All authors approved the final version for publication and are responsible for all aspects of the study, ensuring its accuracy and integrity.

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