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Food and Nutrition Surveillance System: temporal trend of coverage and nutritional status of adults registered on the system, Brazil, 2008-2019

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ABSTRACT

Objective: To analyze the temporal trend of Food and Nutrition Surveillance System (SISVAN) coverage and nutritional status of adults undergoing follow-up in the Brazilian Primary Health Care, 2008-2019. **Methods:** This was an ecological time series study using data on Brazilian macro-regions. The annual percent change in the classification of nutritional status and total coverage was estimated using the Prais-Winsten regression model. **Results:** A total of 115,034,534 records were identified in the period. Coverage increased from 5.0% in 2008 to 10.6% in 2019, with an annual change of 8.4%, 95% confidence interval (95%CI 6.7;10.0). Obesity and overweight showed a rising trend between 2008 and 2019, with an annual change of 6.4% (95%CI 5.3;7.3) and (1.8%; 95%CI 1.2;2.5) respectively, while underweight (-7.0%; 95%CI -8.0;-6.1) and eutrophy (-3.8%; 95%CI -4.1;-3.4) decreased in the period. **Conclusion:** There was an improvement in SISVAN coverage, with an increase in overweight and obesity among the population studied.

Keywords: Feeding Behavior; Adolescent; Students; Cross-Sectional Studies.

INTRODUCTION

Food and nutrition surveillance stands out as the third guideline of the National Food and Nutrition Policy (PNAN)[1] and it is a fundamental strategy for monitoring the food and nutritional status of the Brazilian population by the Brazilian National Health System (SUS).[2,3]

In health services, food and nutrition surveillance includes anthropometric assessment and food consumption of individuals undergoing follow-up in Primary Health Care provided by the SUS, especially for the beneficiaries of the Bolsa Família Program (BFP), as they represent the majority of the population who is monitored.[4,5] These data are consolidated on the Food and Nutrition Surveillance System (SISVAN), by means of a tool developed by the Ministry of Health, the SISVAN Web, whose information enables the analysis and better understanding of population health problems, supporting decision-making and setting priorities.[6,7]

The nutritional status of the population is an important health indicator, thus, it is essential the appropriate insertion of data into the system as a basis for measures to prevent diseases and health conditions, and also for health promotion, in addition to establishing health indicators at the national level, such as 'prevalence of underweight' or 'overweight'.[8,9]

SISVAN coverage and underutilization of information by health managers were the object of studies that identified persistent low coverage of a food and nutrition surveillance system that is intended to be universal;[4] information generated by SISVAN has not been used to its full potential, in the planning, management and evaluation of food and nutrition actions within the Primary Health Care in the SUS;[7,10] moreover, there are questions about the percentage of use and coverage of SISVAN Web as a surveillance system.[11]

Knowledge on the distribution of body mass index (BMI) of adults, nutritional status indicators, and SISVAN coverage are of fundamental importance for the implementation of PNAN and optimization of the monitoring of food and nutrition indicators produced by the system.

This study aimed to analyze the temporal trend of SISVAN coverage and nutritional status of adults undergoing follow-up in the Brazilian Primary Health Care, from 2008 to 2019.

Study contribution	
Main results	Brazil and all its macro-regions showed a rising trend of SISVAN coverage between 2008 and 2019. There was an increasing trend of overweight and obesity, and a falling trend of underweight and eutrophy among Brazilian adults.
Implications for services	More efforts are needed to enter data on the system, expanding its total coverage. A higher coverage could help managers in more assertive and effective decision-making process aimed at investments in health and nutrition.
Perspectives	Mixed methods study is suggested, evaluating qualitative and quantitative components of data inserted on the system. In addition, studies evaluating the use of SISVAN and intervention studies focused on increasing coverage should be conducted.

METHODS

This was an ecological time series study using data from SISVAN, collected between 2008 and 2019, across the Brazilian territory. The units of analysis corresponded to Brazil and its five macro-regions: North, Northeast, South, Southeast and Midwest.

Data on nutritional status and total coverage of adults by SISVAN in the five Brazilian macro-regions were used with regard to the total population of the country. Data inserted into SISVAN come from food and nutrition surveillance actions, which in turn are inserted into the e-SUS Primary Care (e-SUS AB). The e-SUS AB migrates data to SISVAN Web. In addition to data inserted into e-SUS AB, the SISVAN database also has monitoring records from SISVAN Web and the Bolsa Família Program Management System. Food and nutrition surveillance recommends the evaluation of nutritional status indicators, obtained from anthropometric indices and food consumption markers, and that professionals, such as nutritionists, nurses, physicians, nursing technicians and community health agents, are responsible for collecting and inserting this information.[2,3] Consolidated reports are publicly accessible, and can be consulted on the SISVAN Web platform (https://sisaps.saude.gov.br/sisvan/relatoriopublico/index), where annual public reports are available, containing the results of the most recent assessment carried out in the current year, considering all types of monitoring recorded. The platform allows you to obtain reports using filters, such as year, reference month, coverage regions, stages of life, along with others. Data were retrieved from that website and extracted in spreadsheet format on December 23, 2020.

In this study, adult individuals aged 20 to 59 years were investigated, with records related to the period.

Classification of nutritional status used by SISVAN is performed according to BMI (kg/m^2), recommended by the World Health Organization (WHO).[12] For the purpose of analyzing the temporal trend of nutritional status, the indicators were classified as follows: underweight (BMI <18.5 kg/m^2); eutrophy (BMI ≥18.5 to <25 kg/m^2); overweight (BMI ≥25 to <30 kg/m^2); and obesity (BMI ≥30 kg/m^2).

To analyze data of nutritional status monitoring, we used the calculations of the total coverage and the percentage use by municipalities.[4,11] The system coverage was obtained by the number of nutritional status records on the SISVAN Web (numerator), divided by the total population of the region (denominator), multiplied by 100. The resident population estimated for non-census years, corresponding to the age group of 20 to 59 years, was retrieved from the Instituto Brasileiro de Geografia e Estatística.[13]

The percentage use of SISVAN by municipalities refers to the percentage of municipalities with at least one record of nutritional status monitoring on the system, and it was evaluated as the result of the ratio between municipalities with at least one record of nutritional status among the adult population on the system (numerator) and the total number of municipalities (denominator), multiplied by 100.

Data obtained from SISVAN Web and the population aged 20 to 59 years, for each reference year and macro-region, were expressed in absolute (n) and relative (%) values. To approach the target population potentially covered by the system,[14] relative values were presented, taking into consideration the data from each region that were inserted (numerator) regarding the total records inserted on SISVAN (denominator), and the population of each region (numerator) regarding the overall Brazilian adult population (denominator).

In order to evaluate the temporal variation of coverage and distribution of nutritional status categories (dependent variable) and 95% confidence interval (95%CI), initially, coverage and prevalence of nutritional status – underweight, eutrophy, overweight and obesity – were calculated according to the region and reference year (independent variable). Prais-Winsten regression models, a recommended approach for ecological studies, were used to control the self-correction of regression residuals among the years analyzed.[15] The average annual coverage change and each category of nutritional status was calculated using the following formula:

$$[-1 + (10^{\beta})]x\ 100$$

In the formula, β is logarithm to base 10, resulting from the Prais-Winsten regression: non-significant p-values (p≥0.05) indicated a trend of stability; while significant p-values (p<0.05) indicated rising or decreasing trend, according to positive or negative annual change, respectively.

The procedures for obtaining data, analyzing and disseminating the results met the National Health Council standards. The study project was approved by the Research Ethics Committee of the Universidade de Fortaleza (Coética/Unifor): Opinion No. 4,348,452, and Certification of Submission for Ethical Appreciation No. 31540320.9.1001.5052.

RESULTS

A total of 115,034,534 records were inserted on SISVAN between 2008 and 2019. Of these, 12.8% were from the North region, 46.4% from the Northeast region, 9.9% from the South region, 5.6% from the Midwest region and 25.3% from the Southeast region. Based on data of percentage use, we observed that among Brazilian municipalities, 96% of them had at least one record in 2008, reaching 100% of the municipalities as of 2015. Table 1 shows the number of adults registered on SISVAN, in the country and by macro-regions, and the comparisons among the population estimates made for each year. It can be seen that, considering all the years analyzed, most of the records come from the Northeast region.

Between 2008 and 2019, the percentage of SISVAN coverage by macro-regions and total for the country showed a rising trend (Figure 1), and there was a rising trend in coverage for all strata analyzed. Coverage in Brazil increased from 5.0% in 2008 to 10.6% in 2019, with an annual change of 8.4% (95%CI 6.7;10.0). The North and Northeast regions showed the lowest annual coverage change, 8.5% (95%CI 5.5;11.5) and 5.5% (95%CI 2.0;9.1) respectively. The annual coverage change for the South, Midwest and Southeast regions were 12.6% (95%CI 9.0;16.3), 9.0% (95%CI 8.0;10.1) and 9.6% (95%CI 8.9;10.3) respectively. The highest national coverage, and for all macro-regions, occurred in 2018.

Tables 2 and 3 show the temporal trend of the prevalence of underweight, eutrophy and overweight. Underweight (-7.0%; 95%CI -8.0;-6.1) and eutrophy (-3.8%; 95%CI -4.1;-3.4) showed a decreasing trend in all Brazilian macro-regions. The prevalence of overweight showed a rising trend. There was an upward trend in the prevalence of obesity among adults, at the national level and in all macro-regions. Nationwide, the percentage of obesity increased from 14.5% in 2008 to 28.5% in 2019, with an annual change of 6.4% (95%CI 5.3;7.5). In the same period, the South, Southeast and Midwest macro-regions showed the highest prevalence of obesity, with an annual change of 4.7%, 6.1% and 4.9%, respectively. The Northeast region reported the highest annual change: 7.3% (95%CI 5.8;8.9) (Table 4).

DISCUSSION

The study showed data related to the temporal trend of coverage and nutritional status of Brazilian adults monitored by SISVAN over 12 years, from 2008 to 2019. Brazil and all its macro-regions showed a rising trend in SISVAN coverage in that period. There was a rising temporal trend in overweight and obesity, and a decrease in underweight and eutrophy among Brazilian adults.

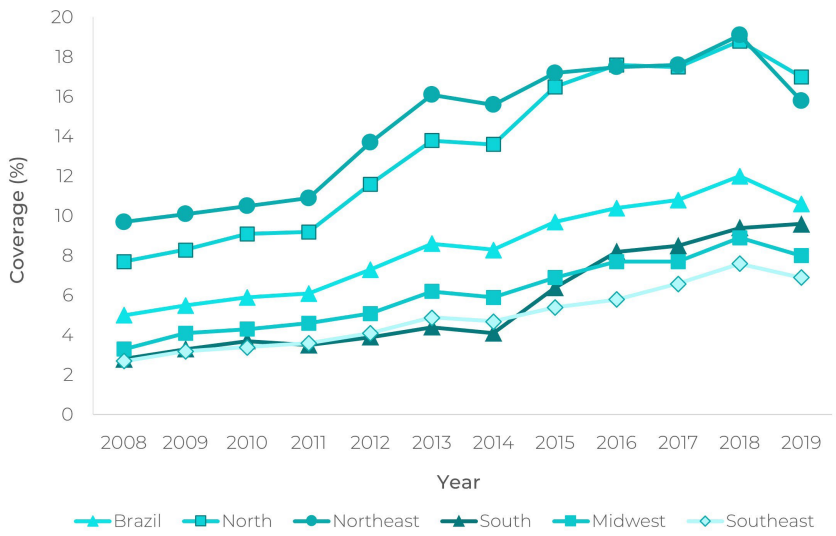
The low coverage of SISVAN and the absence of population-based information have been pointed out as limiting factors for the public policy decision making at the state and municipal levels;[16,17] however, the insertion of data from all Brazilian municipalities, as of 2015, can provide good indicators for managers, especially at the regional and national levels, which is the object of this study.

Some studies point out the reasons for the low coverage of SISVAN, such as the system complexity and the fact that the professionals have difficulties in its operationalization. The low coverage of SISVAN has been pointed out due to problems with the equipment in the health centers, low frequency of team training,

Table 1 – Distribution of registries of adults available on the Food and Nutrition Surveillance System (SISVAN), and the adult population of the country and by macro-region, Brazil, 2008-2019

Year	Total records available[a]					
	Brazil	North	Northeast	South	Midwest	Southeast
	N	n (%)[b]	n (%)[b]	n (%)[b]	n (%)[b]	n (%)[b]
2008	5,247,693	604,802 (11.5)	2,712,431 (51.7)	431,790 (8.2)	253,542 (4.8)	1,245,128 (23.7)
2009	5,904,299	664,086 (11.2)	2,870,176 (48.6)	529,468 (9.0)	324,375 (5.5)	1,516,194 (25.7)
2010	6,368,657	754,001 (11.8)	3,049,285 (47.9)	586,918 (9.2)	348,951 (5.5)	1,629,502 (25.6)
2011	6,681,140	776,196 (11.6)	3,222,480 (48.2)	571,973 (8.6)	383,793 (5.7)	1,726,698 (25.8)
2012	8,131,142	1,004,703 (12.4)	4,083,271 (50.2)	632,485 (7.8)	430,642 (5.3)	1,980,041 (24.4)
2013	9,745,089	1,223,427 (12.6)	4,877,834 (50.1)	720,148 (7.4)	535,784 (5.5)	2,387,896 (24.5)
2014	9,524,380	1,239,230 (13.0)	4,781,309 (50.2)	685,076 (7.2)	519,041 (5.4)	2,299,724 (24.1)
2015	11,253,161	1,536,862 (13.7)	5,357,555 (47.6)	1,074,296 (9.5)	620,814 (5.5)	2,663,634 (23.7)
2016	12,223,606	1,674,147 (13.7)	5,514,786 (45.1)	1,396,231 (11.4)	709,455 (5.8)	2,928,987 (24.0)
2017	12,814,742	1,697,451 (13.2)	5,593,070 (43.6)	1,457,544 (11.4)	720,506 (5.6)	3,346,171 (26.1)
2018	14,328,154	1,862,037 (13.0)	6,144,625 (42.9)	1,625,461 (11.3)	845,357 (5.9)	3,850,674 (26.9)
2019	12,812,471	1,713,373 (13.4)	5,115,328 (39.9)	1,668,118 (13.0)	766,288 (6.0)	3,549,364 (27.7)
Total	**115,034,534**	**14,750,315**	**53,322,150**	**11,379,508**	**6,458,548**	**29,124,013**
Year	**Brazilian adult population and by macro-region[c]**					
	Brazil	North	Northeast	South	Midwest	Southeast
	N	n (%)[d]	n (%)[d]	n (%)[d]	n (%)[d]	n (%)[d]
2008	105,478,071	7,826,671 (7.4)	27,998,237 (26.5)	15,625,410 (14.8)	7,793,984 (7.4)	46,233,769 (43.8)
2009	107,162,218	8,039,590 (7.5)	28,507,535 (26.6)	15,824,639 (14,8)	7,973,259 (7.4)	46,817,195 (43.7)
2010	108,789,565	8,252,230 (7.6)	28,991,195 (26.6)	16,017,771 (14.7)	8,153,452 (7.5)	47,374,917 (43.5)
2011	110,353,332	8,463,861 (7.7)	29,449,668 (26.7)	16,204,389 (14.7)	8,332,549 (7.6)	47,902,865 (43.4)
2012	111,850,510	8,674,210 (7.8)	29,885,857 (26.7)	16,383,253 (14.6)	8,508,712 (7.6)	48,398,478 (43.3)
2013	113,282,357	8,883,447 (7.8)	30,301,281 (26.7)	16,552,895 (14.6)	8,681,939 (7.7)	48,862,795 (43.1)
2014	114,651,442	9,091,776 (7.9)	30,696,900 (26.8)	16,713,165 (14.6)	8,851,970 (7.7)	49,297,631 (43.0)
2015	115,960,472	9,299,026 (8.0)	31,074,584 (26.8)	16,863,509 (14.5)	9,018,354 (7.8)	49,704,999 (42.9)
2016	117,212,002	9,504,265 (8.1)	31,435,993 (26.8)	17,004,004 (14.5)	9,180,140 (7.8)	50,087,600 (42.7)
2017	118,407,546	9,706,576 (8.2)	31,783,898 (26.8)	17,133,723 (14.5)	9,336,496 (7.9)	50,446,853 (42.6)
2018	119,545,473	9,905,001 (8.3)	32,121,150 (26.9)	17,249,071 (14.4)	9,486,219 (7.9)	50,784,032 (42.5)
2019	120,622,838	10,098,207 (8.4)	32,448,873 (26.9)	17,346,738 (14.4)	9,627,582 (8.0)	51,101,438 (42.4)

a) Data on adults registered on SISVAN, retrieved from the consolidated reports on SISVAN Web; b) The percentages were calculated considering the data entered in each region (numerator) related to the total records entered on SISVAN (denominator); c) Resident population estimated in non-census years, aged 20 to 59 years, made available by the Instituto Brasileiro de Geografia e Estatística; d) The percentages were calculated considering the population data of each region (numerator) related to the overall Brazilian adult population (denominator) for each reference year.



Note: Brazil and Macro-regions present p<0.05, obtained using Prais-Winsten regression, showing a rising trend.

Figure 1 – Percentage of national coverage of nutritional status among adults, with information available on Food and Nutrition Surveillance System (SISVAN) related to the adult population of the country and by macro-region, Brazil, 2008-2019

Table 2 – Temporal trend of the prevalence of eutrophy and underweight among adults, with information available on the Food and Nutritional Surveillance System (SISVAN) related to the adult population of the country and by macro-region, Brazil, 2008-2019

Year	Brazil	North	Northeast	South	Midwest	Southeast
	Underweight prevalence (%)					
2008	5.8	5.5	6.4	3.9	5.4	5.1
2009	4.4	4.3	4.8	3.9	4.0	4.2
2010	4.6	4.6	5.2	3.7	3.9	3.9
2011	3.9	4.0	4.2	3.4	3.5	3.5
2012	3.5	3.5	3.8	2.6	3.3	3.2
2013	3.6	3.7	3.8	2.7	3.4	3.3
2014	3.4	3.7	3.5	2.7	3.4	3.2
2015	2.8	2.8	2.9	1.9	3.0	2.7
2016	2.8	2.9	3.1	2.0	2.7	2.7
2017	2.6	2.5	2.8	1.8	2.6	2.6
2018	2.4	2.4	2.7	1.6	2.4	2.4
2019	2.5	2.5	2.9	1.6	2.4	2.4

To be continued

Continuation

Table 2 – Temporal trend of the prevalence of eutrophy and underweight among adults, with information available on the Food and Nutritional Surveillance System (SISVAN) related to the adult population of the country and by macro-region, Brazil, 2008-2019

Year	Brazil	North	Northeast	South	Midwest	Southeast
	Underweight prevalence (%)					
Annual change (%)[a]	-7.0	-6.9	-7.0	-8.8	-6.1	-6.1
95%CI[b]	-8.0;-6.1	-7.8;-6.0	-8.2;-5.7	-9.8;-7.8	-7.4;-4.8	-7.2;-4.9
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trend	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**
Year	**Eutrophy prevalence (%)**					
2008	51.4	53.1	54.4	44.0	49.1	47.3
2009	50.7	52.7	54.2	43.2	48.2	46.4
2010	49.3	52.1	52.5	42.0	48.3	44.8
2011	47.5	50.6	50.8	40.0	45.8	43.0
2012	44.7	47.4	47.6	37.9	42.2	40.2
2013	43.1	46.1	45.7	36.2	41.0	38.7
2014	41.2	44.3	43.3	35.1	39.5	37.5
2015	38.6	40.7	41.2	32.3	36.2	35.4
2016	38.2	41.0	40.9	32.4	35.7	34.9
2017	37.2	40.1	39.7	31.1	34.7	34.8
2018	35.6	37.9	37.9	30.0	33.7	33.7
2019	34.5	36.9	36.9	29.3	32.4	32.7
Annual change (%)[a]	-3.8	-3.5	-3.7	-3.9	-4.0	-3.4
95%CI[b]	-4.1;-3.4	-3.9;-3.1	-3.7;-4.1	-4.2;-3.6	-4.5;-3.5	-4.0;-2.7
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trend	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**

a) Values obtained using Prais-Winsten regression; b) 95%CI: 95% confidence interval.

Table 3 – Temporal trend of the prevalence of overweight among adults, with information available on the Food Surveillance System (SISVAN) regarding the adult population of the country and by macro-region, Brazil, 2008-2019

Year	Brazil	North	Northeast	South	Midwest	Southeast
	Overweight prevalence (%)					
2008	28.4	28.6	27.7	30.8	28.9	28.9
2009	29.3	29.4	28.7	30.9	29.5	29.7
2010	29.7	29.6	29.1	31.4	29.3	30.2
2011	30.6	30.4	30.4	31.6	30.2	30.9
2012	31.8	31.9	31.8	32.1	31.5	31.7
2013	32.4	32.3	32.6	32.1	31.6	32.1
2014	33.0	33.1	33.5	32.1	32.2	32.4
2015	34.0	34.8	34.7	33.3	32.5	33.0
2016	33.9	34.4	34.5	33.6	32.9	33.1
2017	34.3	35.2	35.0	33.8	33.6	33.0
2018	34.7	36.1	35.5	33.9	33.8	33.3
2019	34.5	36.1	35.2	34.0	33.6	33.2
Annual change (%)[a]	1.8	2.3	2.3	1.0	1.5	1.3
95%CI[b]	1.2;2.5	2.0;2.6	1.4;3.1	0.8;1.2	1.2;1.8	0.7;1.9
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trend	**Increasing**	**Increasing**	**Increasing**	**Increasing**	**Increasing**	**Increasing**

a) Values obtained using Prais-Winsten regression; b) 95%CI: 95% confidence interval.

lack of knowledge about the use of these data, communication and collaboration difficulties between the spheres of government, and a system of little interactivity and intelligence.[18,21]

The North and Northeast regions showed higher system coverage when compared to the other regions, despite similar annual change. This fact may be associated with the priority actions aimed at the two northernmost macro-regions in the country, taking into consideration their particularities, such as the highest poverty rates and, consequently, the highest coverage of the Bolsa Família Program. It is worth highlighting that SISVAN is part of this conditional income-transfer program, that is, the system is an important instrument for monitoring family members assisted by the Bolsa Família Program.[22] The increase in SISVAN coverage over 12 years (2008-2019) suggested better nutritional status monitoring in adults. Notwithstanding the rising trend of coverage, its percentages are far below the ideal for the production of health quality indicators. Results obtained with data from SISVAN, retrieved between 2008 and 2013,[4] revealed a persistent low coverage of a system that is intended to be universal. However, there is a positive correlation between SISVAN coverage, in that period, and the community health agents and Family Health Strategy teams coverage.[4]

Regarding data coverage, e-SUS AB data have been available on SISVAN Web since October 2016. This data migration may have contributed to the increase in its coverage. Further analyses on the impact of this data migration are suggested, given that the analyses performed did not allow such verification, possibly because this impact

Table 4 – Temporal trend of prevalence of obesity among adults, with information available on the Food and Nutrition Surveillance System (SISVAN) related to the adult population of the country and by macro-region, Brazil, 2008-2019

Year	Brazil	North	Northeast	South	Midwest	Southeast
	Obesity prevalence (%)					
2008	14.5	12.8	11.6	21.4	16.6	18.8
2009	15.6	13.6	12.4	21.9	18.3	19.7
2010	16.5	13.7	13.3	22.9	18.5	21.1
2011	18.0	15.0	14.6	25.0	20.5	22.6
2012	19.9	17.2	16.7	27.4	23.1	24.9
2013	21.0	17.8	17.9	29.0	24.1	25.9
2014	22.4	19.0	19.7	30.1	25.0	27.0
2015	24.6	21.7	21.2	32.5	28.4	28.9
2016	25.0	21.7	21.5	32.0	28.8	29.3
2017	25.9	22.2	22.5	33.3	29.1	29.6
2018	27.2	23.6	24.0	34.4	30.1	30.5
2019	28.5	24.5	25.0	35.1	31.6	31.6
Annual change (%)[a]	6.4	6.4	7.3	4.7	6.1	4.9
95%CI[b]	5.3;7.5	5.3;7.5	5.8;8.9	3.5;6.0	4.9;7.4	3.6;6.2
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trend	**Increasing**	**Increasing**	**Increasing**	**Increasing**	**Increasing**	**Increasing**

a) Values obtained using Prais-Winsten regression; b) 95%CI: 95% confidence interval.

occurred, in its fullness, only in 2017. We have not found any studies, prior to this publication, that have tested the impact of that migration on the coverage data.

The increase in the population overweight indicators, monitored by SISVAN, corroborates findings of studies nationwide, suggesting that, despite the low coverage, greater detection of nutritional risk situations is being achieved among the population studied. Therefore, surveillance should be incorporated into routine care and the monitoring of nutritional status of each user, aiming to detect risk situations and implement actions that enable prevention.

The results of this research corroborate those of other studies conducted at the national level, such as a time series study using data from the Chronic Diseases Risk and Protective Factors Surveillance Telephone Survey (Vigitel),[23] which found an increase of 3.8%, per year, in the number of obese individuals in Brazil, from 11.8% in 2006 to 20.3% in 2019.[24] Between 2003 and 2019, data from the national health survey indicated that the proportion of Brazilians aged 20 years and older, diagnosed with obesity, ranged from 12.2% to 26.8%.[25]

The increase in the prevalence of overweight among the Brazilian population, which characterizes the nutritional transition, strengthens the importance of the quality of the information inserted on the databases that has been used, either for the expansion of actions to prevent and control obesity in primary health care, or for the optimization of SUS resources.[26]

One limitation of this study is the fact that SISVAN data do not characterize the overall Brazilian population. The literature has shown the greatest representation of people belonging to lower socioeconomic status, assisted by social programs such as Bolsa Família,[4] a conditional income transfer program, which has actions such as food and nutritional surveillance included among the requirements related to health that need to be met in order for them to receive the benefits of the program. SISVAN data correspond to people who possibly seek health service more frequently and, as they may present nutritional disorders and deficiencies, they would be evaluated more frequently, impacting the prevalence estimates presented. It is also worth noting that the increase in obesity found probably occurs among the poorest people, who are more vulnerable to the health complications resulting from this condition.

SISVAN, despite the challenges presented, is not only a good source of data for food and nutrition surveillance. The system has advanced over time, both in coverage and data quality, being an important tool for public policy management and verification of the list of evidence on the subject.

Taking these results, it can be concluded that the temporal trend of coverage, overweight and obesity among adults, registered on SISVAN, who were monitored over the years, showed an upward trend. However, future studies and interventions are needed to sensitize the service, with regard to the collection and effective use of data, in order to support public policies and plan health promotion actions in primary health care. Despite the rising trend, the low coverage of the system still persists, generating underreporting and impairment of the quality of results. These facts show that measures should be taken to obtain more accurate and robust records, in order to support better decision-making aimed at health and nutrition of the population studied.

Finally, as SISVAN is a tool that guide decision-making process in the public policy formulation, more efforts are needed to enter data on the system, expanding its total coverage. A higher coverage of the nutritional status of adults could help managers in more assertive and effective decision- making process, allocation of resources for health and nutrition, equipment and materials, and health training courses. This study can support similar studies, contributing to the improvement of SISVAN.

AUTHORS' CONTRIBUTION

Silva RPC collaborated with the discussion and interpretation of the results, drafting and reviewing of the manuscript. Vergara CMAC and Sampaio HAC collaborated with the discussion and interpretation of the results, and approved the final version. Vasconcelos Filho JE, Strozberg F, Ferreira Neto JFR, Mafra MLP and Garcia Filho C collaborated with data collection, analysis and interpretation, and approved the final version of the manuscript. Carioca AAF collaborated in planning the study, analyzing and discussing the results, and reviewing the manuscript. All authors have approved the final version of the manuscript and declared themselves to be responsible for all aspects of the work, including ensuring its accuracy and integrity.

CONFLICTS OF INTEREST

The authors declared that they have no conflicts of interest.

ASSOCIATE ACADEMIC WORK

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