

# Health indicators in Brazil and Spain: strategies for health promoting universities

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## Abstract:

**Aims:** The study aims to identify and compare health indicators collected by national research in Spain and in Brazil that can generate action strategies for health promoting universities.

**Methods:** This is an epidemiological, descriptive, cross-sectional study that uses the database of the Secretariat of Health Surveillance of the Brazilian Ministry of Health and the database of the National Statistics Institute of Spain. Based on the National Health Promotion Policy, the analyzer axis prioritizes defined themes; percentage of physical exercise, daily smokers, sedentary lifestyle, obesity and self-perception of health status were evaluated. The data were collected from 2014 to 2020.

**Results:** In Brazil, physical exercise is the highest percentage indicator, whereas in Spain, sedentary lifestyle is the highest. Regarding the age group, Brazil presented the lowest prevalence of daily smokers in the age group from 18 to 24, with little increase in older age groups; in Spain, older age groups presented the highest rates of sedentary lifestyle and obesity. In 2020, 4.5% of Brazilians reported a negative self-perception of health and in Spain 6.6%.

**Conclusion:** The indicators 'physical exercise', 'daily smokers' and 'sedentary lifestyle' presented better results in Brazil than in Spain. Brazil presents a better perspective on health when compared with Spain, as the results showed that older ages present higher rates of sedentary lifestyle and obesity. Our study results also show that Brazilians report better self-perception in health, which can be interpreted by health promotion strategies.

**Keywords:** health promotion, universities, health strategies, community networks

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## Introduction

The program of health promoting universities articulates the concept and experience of health practice for students to collaborate in the empowerment of the surrounding communities (1). The transformation into health promoting universities involves the social responsibility of their public

administrators and the perception that health promotion actions can positively influence the living and health conditions of the academic community (2).

Health promoting universities organize themselves as health generator communities that provide a healthy environment, support the healthy personal and social development of the people involved, and develop community links. When implemented, the

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university program must prove the extent to which health has been integrated into culture, structure and processes of the university and the monitoring of the university community members (3,4).

Approaches focused on health promotion in educational institutions show improvements on indicators such as body mass index, physical activity, physical condition, and students' fruit and vegetable intake, in addition to reducing tobacco use. Health promoting universities can directly improve students' lives as key beneficiaries and contribute to the benefit of individuals, communities and society in the medium and long term (5).

Suárez-Reyes *et al.* (6) studied how 54 universities in 25 countries implement the program of health promoting universities through different actions. The search and construction of indicators using data from national health surveys are an appropriate alternative to contribute to evaluation processes, allowing the planning of strategies in specific actions.

Brazil and Spain have similarities between the National Health System (SNS) of Spain and the Unified Health System (SUS) of Brazil, both free universal public systems, and also are countries with important public health issues with high risk of chronic diseases which are strongly affected by lifestyle; a comparative study provides additional information that can be used to assist policies to prevent deleterious consequences and changes health indicators relevant to better comprehend complex but similar issues arising from different national health systems (7,8). Our study aims to identify and compare health indicators collected by national research in Spain and in Brazil that can generate action strategies for health promoting universities.

## Methods

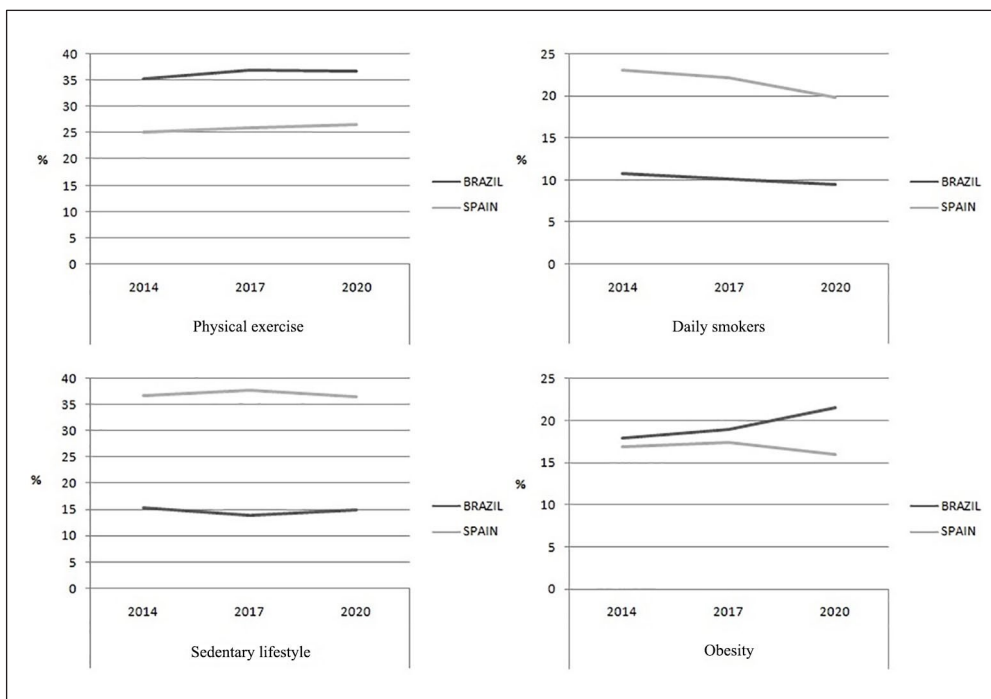
This is an epidemiological, descriptive, cross-sectional study that uses the online database of the Secretariat of Health Surveillance of the Brazilian Ministry of Health (<https://datasus.saude.gov.br/informacoes-de-saude-tabnet>) and the online database of the National Statistics Institute of Spain (<https://www.ine.es>). According to Resolution no. 510, 7 April 2016, it provides that research using publicly accessible information will not be registered or evaluated by the Ethics Committee in Research-Brazil system (9).

VIGITEL is part of the Surveillance System for Risk and Protective Factors for non-communicable chronic diseases (NCDs) of the Brazilian Ministry of Health, applied to estimate the health situation of the population, which is the first step to plan actions and programs that reduce the occurrence and severity of NCDs, improving the population health. The VIGITEL survey is conducted by the Secretariat of Health Surveillance of the Ministry of Health. The phone interviews are conducted annually on samples of the adult population ( $\geq 18$  years) living in households with a landline.

The weight initially attributed to each individual interviewed by VIGITEL in each of the 26 capitals and in the Federal District considers two factors: the high probability that selected individuals owned more than one landline in their household was corrected through the reverse number of fixed landlines in the interviewee's household; and the second factor was the number of adults in the interviewee's household, which corrects the lower chance that individuals from households inhabited by more people had to be selected for the sample. These two factors provide a sample weight that allows reliable estimates for the adult population with a landline in each locality. The final weight attribution of each individual interviewed by the VIGITEL system, called post-stratification, aims at the statistical inference of the system results for the adult population of each municipality. The use of this weight should equal the sociodemographic composition estimated for the adult population with telephone (from the VIGITEL sample in each city) with the estimated total adult population of the same city in the same year of the survey.

The National Statistics Institute of Spain is an autonomous body of administrative nature, with legal character and its own assets, linked to the Ministry of Economy and Digital Transformation through the Secretary of State for Economics and Business Support. The Law 12/1989, of May 9, 1989, on the Statistical Civil Service regulates statistical activity for state purposes, of exclusive competence of the State, and by the Statute approved by Royal Decree 508/2001 of 11 May.

This study is a summary publication and the collection of data corresponds to the various surveys and statistics that serve as a source of information for indicators. Once the corresponding statistical information source is published, the indicators are



**Figure 1.** Prevalence of health indicators in Brazil and Spain.

updated. National and European statistical information is also reviewed, as well as the latest publications on quality of life indicators that can add information of interest to each indicator.

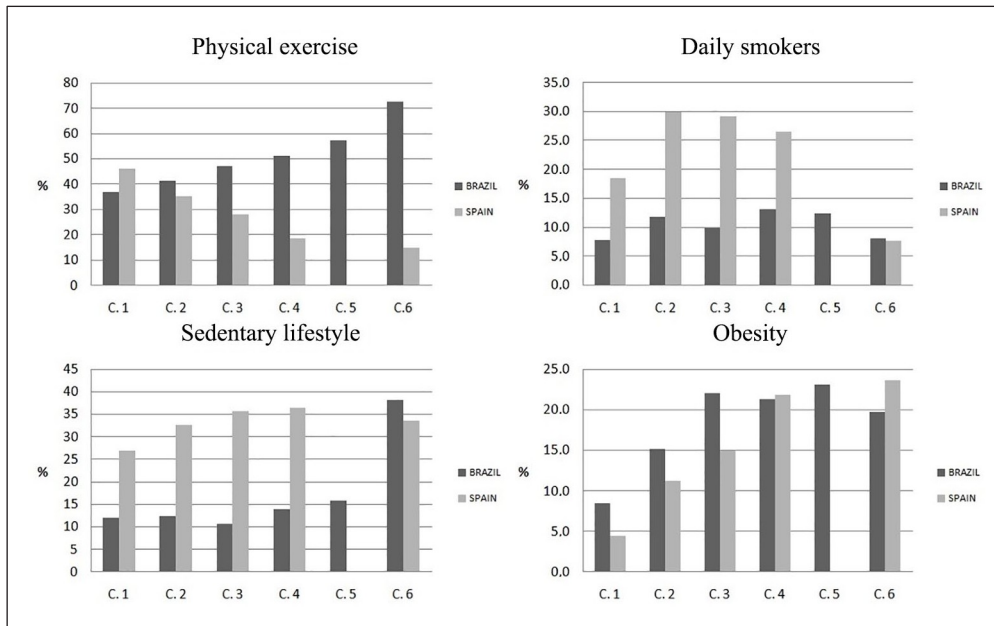
Based on the National Health Promotion Policy, the analyzer axis prioritizes three themes defined by the policy: a) use of tobacco and its derivatives; b) alcohol abuse; c) physical practices and activities (10). Thus, reference values provided by the World Health Organization (WHO) (11–13) were used for determining the percentage of physical exercise (adults who engage in equivalent physical activities in their free time of at least 150 min of moderate-intensity activity per week), daily smokers (number of smokers), sedentary lifestyle (adults who did not practice any physical activity in their free time in the last three months and who did not make intense physical efforts at work), obesity (individuals with body mass index  $\geq 30$  kg/m<sup>2</sup>) and negative health self-perception (adults who rated their health status as poor or very poor) were evaluated. The data were collected from 2014 to 2020 (last disclosure of Spain).

## Results

In Brazil, physical exercise is the highest percentage indicator, whereas in Spain, sedentary lifestyle is the highest. Regarding the age groups, Brazil presented the lowest prevalence of daily smokers in the age group from 18 to 24, with little increase in older age groups; in Spain, older age groups presented the highest rates of sedentary lifestyle and obesity. The comparisons are represented in the Figures below.

In 2020, Brazil presented an increased obesity percentage, with a higher percentage compared with Spain, and a decrease in daily smokers. In Spain, smoking and sedentary lifestyle showed higher prevalence when compared with Brazil (Figure 1).

In 2020, 4.5% of Brazilians reported a negative health self-perception, in which the frequency of this condition tended to increase with age from 35 years and strongly decreased with the increase in education level, both in men and in women. In 2020, 6.6% of Spanish people reported a negative self-perception health status.



**Figure 2.** Prevalence of health indicators in Brazil and Spain, 2014.

C. 1: classification with the age group 18–24 years in Brazil and 15–24 years in Spain; C. 2: classification with the age group 25–34 years in Brazil and 25–34 years in Spain; C. 3: classification with the age group 35–44 years in Brazil and 35–49 years in Spain; C. 4: classification with the age group 45–54 years in Brazil and 50–64 years in Spain; C. 5: classification with the age group 55–64 years in Brazil; C. 6: classification with the age group over 65 years in Brazil and Spain.

A change of prevalence was noted when countries and health indicators were compared regarding age group. The year 2014 presented an upward curve of physical exercise practice. However, sedentary lifestyle presented higher values among the last age group ( $\geq 65$  years of age). Daily smokers and sedentary lifestyle percentages in Spain remained higher than in Brazil. On the three dates studied, daily smokers and higher sedentary lifestyle showed a greater prevalence in Spain, in which classifications 2 (25–34 years of age), 3 (35–49 years of age) and 4 (50–64 years of age) presented the highest percentages.

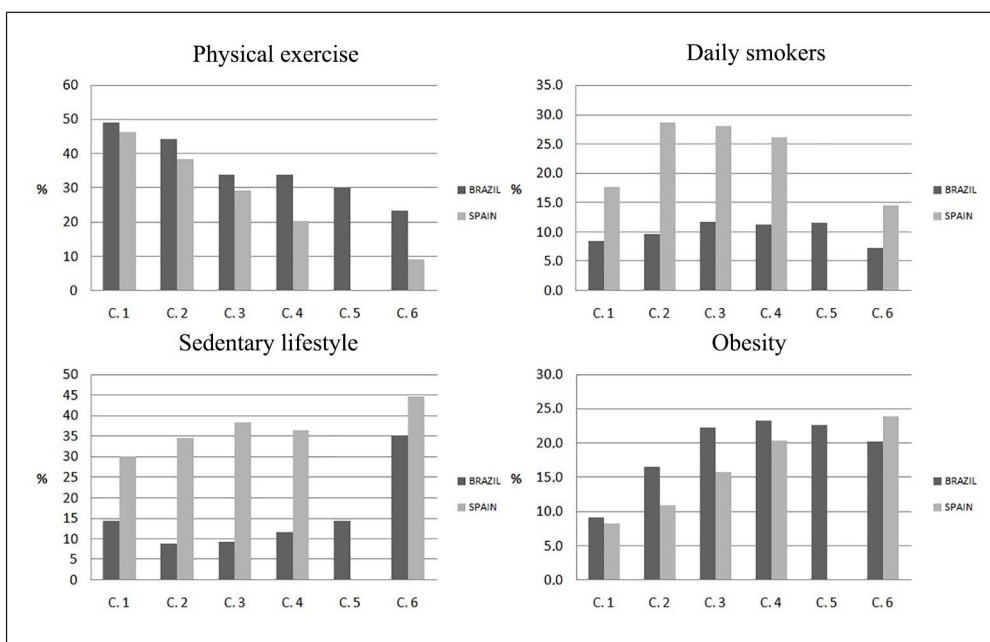
Figures 2, 3 and 4 show prevalence of health indicators in Brazil and Spain in the years 2014, 2017 and 2020.

## Discussion

The indicators 'physical exercise', 'daily smokers' and 'sedentary lifestyle' presented better results in Brazil than in Spain. Brazil presents a better

perspective on health when compared with Spain, as the results showed that older ages present higher rates of sedentary lifestyle and obesity. Prevalence studies indicate trends of relevant health habits and practices in samples obtained from the same source population. VIGITEL and other national population-based research produce data capable of generating strategies based on their results (14). Environmental factors and lifestyle influence health indicators; as an example, exposure to foods rich in fat, salt and sugar increased over the years due to accessibility and availability through urbanization. The intake of these foods becomes permanent when established in the most recent years of life (school/university) (15).

Brazil is a country with social, economic and cultural consequences of colonizing processes, such as social inequality; whereas Spain is a central country, a disseminator of modern rationality (scientific, economic, social and cultural) as a landmark of civilization (16). The countries' contexts have conditioned reforms of health systems and influenced the regional organization and coordination of health



**Figure 3.** Prevalence of health indicators in Brazil and Spain, 2017.

C. 1: classification with the age group 18–24 years in Brazil and 15–24 years in Spain; C. 2: classification with the age group 25–34 years in Brazil and 25–34 years in Spain; C. 3: classification with the age group 35–44 years in Brazil and 35–49 years in Spain; C. 4: classification with the age group 45–54 years in Brazil and 50–64 years in Spain; C. 5: classification with the age group 55–64 years in Brazil; C. 6: classification with the age group over 65 years in Brazil and Spain.

policy, in which programs such as health promoting universities may not be the main focus (17).

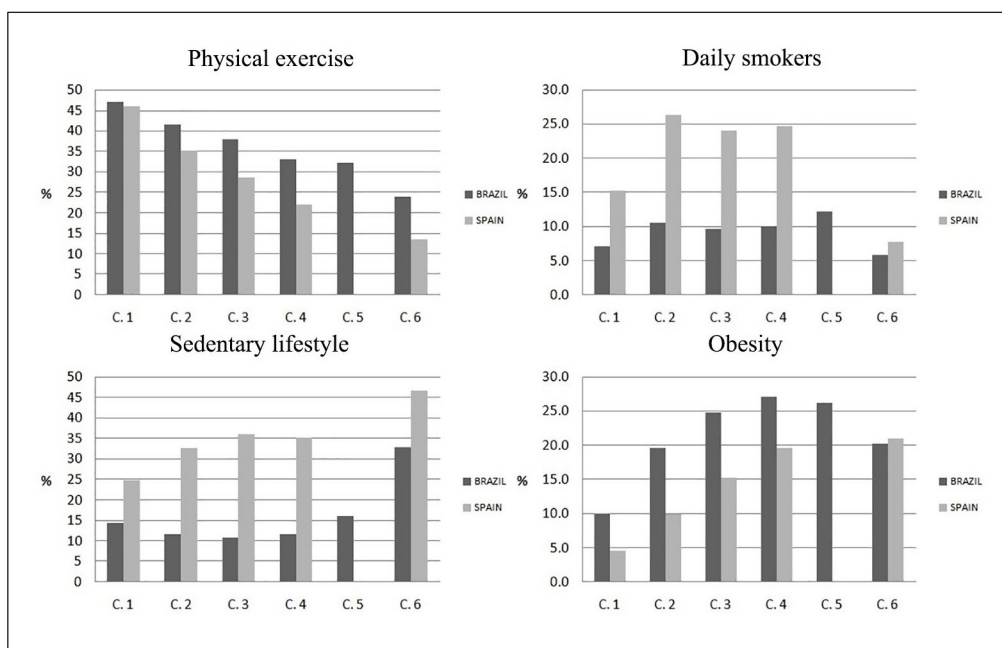
The practice of physical exercise by Brazilians is higher than the percentage in Spain, validating our study results, in which Brazil presents a lower percentage of sedentary lifestyle. The practice of regular physical exercise provides beneficial effects for the most active lifestyles, improving functional capacity and physical autonomy. Individuals practicing physical exercise present self-perception of better health status, as confirmed by this study, in which 4.6% of Brazilians reported negative health self-perception, compared with 6.6% of Spanish (18).

Both Brazil and Spain presented high negative self-perception in health. Stress and depression are concepts of mental health and their associated factors are multiple, with emphasis on habits related to health and economic conditions (19). A recent systematic review with meta-analysis documented the positive effects of physical exercise on depression and self-esteem; however, this practice is higher

among young adults and decreases with age (20), as observed in Brazil and Spain.

The mental and physical well-being of the young adult includes good health and optimal nutrition. The collection and use of better quality data (e.g. indicators) are the support for a country's decisions (21). The member composition of a university presents a floating population of great variability (culture, traditions, beliefs, etc.) that is periodically renewed and integrated, which is an essential element of a health promoting university (22).

A recent publication by Valente and Sanchez evaluated 4030 students in the Educational Program for Resistance to Drugs and Violence (PROERD), a Brazilian initiative adapted from the North American program Drug Abuse Resistance Education (DARE) Keepin' it REAL. The results showed that students increased interest in cigarette use in the future along with the chances of accepting marijuana. The authors attributed this result to the cultural difference, since the Brazilian adaptation dismisses the implementation and cultural adaptation (23).



**Figure 4.** Prevalence of health indicators in Brazil and Spain, 2020.

C. 1: classification with the age group 18–24 years in Brazil and 15–24 years in Spain; C. 2: classification with the age group 25–34 years in Brazil and 25–34 years in Spain; C. 3: classification with the age group 35–44 years in Brazil and 35–49 years in Spain; C. 4: classification with the age group 45–54 years in Brazil and 50–64 years in Spain; C. 5: classification with the age group 55–64 years in Brazil; C. 6: classification with the age group over 65 years in Brazil and Spain.

The concept of health promoting universities should consider factors that transform this initiative into success in different contexts. The role of the academic community is to strengthen the exchange of results to identify good practice models and health standards, in which the university aims to modify a lifestyle (4). From the perspective of lifestyle change, Brazil presents one of the best tobacco control programs in the world, which explains the low percentage of daily smokers in Brazil identified in our study.

The Spanish Agency for Food Safety and Nutrition indicates that 40.6% of the infant population is overweight (24). The promotion of active lifestyles from the earliest ages is a determinant for living standard (25). The results from Brazil indicate a higher prevalence of obesity and sedentary lifestyle compared with Spain. Actions of health promoting universities can lead to changes in the lifestyle of young adults, the main population of universities.

Souza et al. (26) found lower values of adult obesity in countries belonging to the continents of

Asia and Africa; the highest values were distributed among the American and European countries. Obesity shows a multifactorial character, in which the consumption of highly energetic foods and lack of physical exercise stand out for reducing body energy consumption throughout the day, facilitating fat accumulation due to the individual's positive energy balance from calories (27).

A common misconception is that countries with high economic development present better conditions of food supply. However, eating at home is difficult due to the growing problem in the urban transport network caused by urbanization growth and modernization. Modern life encourages the consumption of non-homemade foods, especially fast-foods with their highly caloric offerings (26).

The dissemination of unhealthy behaviors justifies health campaigns that provide individuals with information/resources according to their needs. The notion of prudence can be used to complement existing public engagement policies, which attempt to incorporate different health perspectives (28). In

2018, WHO and UNESCO included the development of global standards for health promoting universities, to initially serve 1.9 billion young people, supported by the United Nations 2030 Agenda for Sustainable Development (29).

In 2017, one of the studied years in this article, a decrease in the number of daily smokers and obesity in Spain started, which was decisive for Europe in the public policy context, as it was an election year in many countries. According to McKee (30) in a comment from *The Lancet Public Health*, the European public health community should prepare for a difficult 2017, as the elections offered a firm basis for what could be 'dark days ahead'. However, that was not the case in Spain, according to the results of this study, despite the negative view of the future scenario.

Public health screening aims to promote a resilient society in which the analysis of data with a different approach to different audiences supports individual changes in collective attitudes and actions (31). Integrated health information allows public administrators to reduce the multiplicative impacts associated with rapid urbanization and globalization, since a healthy population represents reduced health care costs and higher productivity for countries (32–34).

One of the limitations of this study is the sampling method, which, despite being from reliable sources in each country, may present bias regarding the reliability of information, typos and underreporting; another limitation is the lack of statistical analysis and difference in age groups. A strong point of our study is the construction of variables that allow an approach to the measurement and visibility of health indicators in Brazil and Spain that may contribute to future studies on new strategies in health promoting universities. This study is replicable in other contexts and allows longitudinal monitoring of changes in each country, with the possibility of creating alliances between the academic and population sectors, contributing to the change of health policies in each country. Finally, the online survey platform is a strength of this cost and time efficient study.

Identifying the health panorama of a country in different socioeconomic situations evidences a justification of interventions in universities, since an audience of young adults with information and healthy behaviors ensures a better aging through actions aimed at health promotion. The longitudinal perspective on health monitoring allows determining

quantitative effects of health habits. The qualitative analysis is important to identify and number strategies for health promoting universities in the future.

## Conclusion

The indicators 'physical exercise', 'daily smokers' and 'sedentary lifestyle' presented better results in Brazil than in Spain. Brazil presents a better perspective on health when compared with Spain, and the results showed that older ages present higher rates of sedentary lifestyle and obesity. Our study results also show that Brazilians report better self-perception in health, which can be interpreted by health promotion strategies.

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The authors have no conflicts of interest to declare.

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