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Perception of public places for physical activity among beneficiaries and non-beneficiaries of health plans: results of the National Health Survey 2019

Percepção de locais públicos para prática de atividade física entre beneficiários e não beneficiários de planos de saúde: resultados da Pesquisa Nacional de Saúde 2019

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ABSTRACT

This study aimed to evaluate the perception of public places for the practice of physical activity and compare these differences according to health plan beneficiaries and non-beneficiaries. We used data from the 2019 National Health Interview Survey. The outcome was assessed through the following question, "Near your home, is there a public place (square, park, enclosed street, beach) to walk, exercise or play sport?". Descriptive analyses were performed using frequency and 95% confidence intervals (95%CI). The analyses were performed by comparing beneficiaries and non-beneficiaries of health plans and evaluating the results according to sociodemographic variables. The results include data from 20,230 beneficiaries (52.6% women) and 68,301 non-beneficiaries (54.6% women) of health plans, with most of the sample aged between 18 and 39. Overall, 52.1% of non-beneficiaries (95%CI: 51.0 - 53.2) and 67.4% of beneficiaries (95%CI: 65.8 - 68.9) reported having a place near their home for physical activity. We found a dose-effect trend regarding education level and places close to the residence to the practice of physical activity - the higher the level of education, the higher the perception of individuals who reported having adequate places for physical activity. Our findings showed that beneficiaries of health plans have more access to places near their homes to practice physical activity, as well as the most educated.

Keywords: Exercise; Physical activity; Built Environment.

RESUMO

O objetivo deste estudo foi avaliar a percepção de locais públicos para a prática de atividade física e comparar essas diferenças segundo beneficiários e não beneficiários de planos de saúde. Foram utilizados dados da Pesquisa Nacional de Saúde de 2019. O desfecho foi avaliado por meio da seguinte questão: "Perto de sua casa, existe algum local público (praça, parque, rua fechada, praia) para caminhar, fazer exercícios ou praticar esportes?". Análises descritivas foram realizadas por meio de frequência e intervalo de confiança de 95% (IC95%). As análises foram realizadas comparando beneficiários e não beneficiários de planos de saúde e avaliando os resultados segundo variáveis sociodemográficas. Os resultados incluem dados de 20.230 beneficiários (52,6% mulheres) e 68.301 não-beneficiários (54,6% mulheres) de planos de saúde, ambos com maior parte da amostra com idades entre 18 e 39 anos. No geral, 52,1% dos não beneficiários (IC95%: 51,0 - 53,2) e 67,4% dos beneficiários (IC95%: 65,8 - 68,9) relataram ter um local próximo a sua casa para a prática de atividade física. Encontramos uma tendência dose-resposta em relação à escolaridade e locais próximos à residência para a prática de atividade física - quanto maior a escolaridade, maior a percepção de indivíduos que referiram ter locais adequados para a prática de atividade física. Nossos achados mostraram que os beneficiários de planos de saúde têm mais acesso a locais próximos a suas residências para praticar atividade física, assim como os mais escolarizados.

Palavras-chave: *Exercício; Atividade física; Ambiente Construído.*

Introduction

Physical activity is fundamental for health maintenance and promotes several benefits, including body composition, reduction of cardiovascular risks, and prevention of premature mortality[1–3]. Its practice should start in the first years of life since its benefits begin in the short term[4]. In addition, habits that are started in the early years of life tend to be long-lasting and can carry over into adulthood, providing protection against various health problems[5].

Physical activity can be done in open spaces or gyms. However, not everyone can afford to pay for gym memberships[6], especially in low-income countries[7], and choose to exercise in open spaces. However, most large cities do

not offer public places for all residents to practice physical activity; usually, these places are in some areas of the city that are not easily accessible to everyone, especially those with lower incomes. Squares, parks, and enclosed streets are ideal places to practice physical activity because they usually offer places with terrain, adequate equipment, and wooded areas to perform the exercises.

In Brazil, there are few reports of studies that have assessed the perception of public places for physical activity. Evaluating these data, especially comparing differences between sociodemographic variables, may be essential for decision-making and investment in public places for physical activity[8,9]. In 2022, the Brazilian population is composed of just over 215 million inhabitants (https://www.ibge.gov.br/apps/populacao/projecao/index.html), of which approximately 23.2% have a medical health plan, according to data from the Beneficiary Follow-up Note, number 73 (https://iess.org.br/biblioteca/periodico/nab/73a-nab). However, there are no reports of studies that have evaluated suitable places around the house for physical activity and compared differences among beneficiaries and non-beneficiaries of private health plans. Conducting a study with health plan beneficiaries can help the plans themselves, corporations, and managers to implement actions aimed at encouraging physical activity within the corporate sector. These actions are likely to result in more active beneficiaries with less absenteeism from work and less utilization of health services. Among non-beneficiaries, the results can be used to create public policies aimed at implementing and improving public places for physical activity.

The latest edition of the National Health Survey, conducted in 2019, provides data for beneficiaries and non-beneficiaries of health plans and provides data on places near the respondent's homes to practice physical activity. Thus, the present study aimed to evaluate the perception of public places for the practice of physical activity and compare these differences according to health plan beneficiaries and non-beneficiaries.

Methods

We conducted a descriptive cross-sectional study with microdata from the National Health Survey 2019 (In Portuguese *Pesquisa Nacional de Saúde*) (NHS). The NHS data are public domain and available on the Brazilian Institute of Geography and Statistics (IBGE) website (https://www.ibge.gov.br/).

The IBGE, in agreement with the Ministry of Health, conducted the NHS data collection between June and August 2019. The target population was composed of residents in permanent private households. In the 2019 NHS edition, one resident aged 15 years or older from each household was randomly selected to answer the questionnaire. The sample was selected using the list of residents constructed at the time of the interview. Since our purpose was to evaluate adults and older adults, the sample was restricted to people 18 and older. The 2019 NHS included 108,457 households to ensure acceptable precision for the various estimation domains.

Our outcome of interest was the variable P046 of the NHS 2019 edition: "Near your home, is there a public place (square, park, enclosed street, beach) to walk, exercise or play sport?" The response options were no (0) or yes (1). As exposure factors, or independent variables, we utilized the following variables: Sex (male or female); age (18 to 39, 40 to 59, and 60 or more); education level (no education - incomplete elementary, elementary complete - medium incomplete, high school complete - higher education incomplete, and higher education complete); skin color (white, black, brown, other); and area (urban or rural).

We performed descriptive analysis to evaluate the perception of public places for physical activity stratified by beneficiaries and non-beneficiaries of health plans. The analyses were performed using frequency with 95% confidence intervals (95%CI). The differences were considered statistically significant when the confidence intervals did not overlap. We performed the analyses in the statistical software Stata, version 15.1.

The 2019 NHS data edition was approved by the National Research Ethics Committee/National Health Council under protocol number 3,529,376.

Results

Table 1 shows the sociodemographic characteristics among beneficiaries and non-beneficiaries of health plans. The prevalence of women was 1.8 percentage points higher among the beneficiaries but without statistically significant differences according to the confidence intervals. The sample composed of non-beneficiaries was younger, with 44.2% being 18 to 39 years old and 40.1% of the beneficiaries being that age. Health plan beneficiaries had higher rates of complete higher education, with 38.7% (95%CI: 37.3 - 40.2), while only 7.3% (95%CI: 7.0 - 7.7) of non-beneficiaries had this level of education. The proportion of individuals with white skin color was higher among the beneficiaries. At the same time, the non-beneficiaries had a higher

Table 1 – Sociodemographic characteristics among beneficiaries and non-beneficiaries of health plans (2019). (Beneficiaries, n = 68,301; non-beneficiaries, n = 20,230; total sample = 88,531). NHS 2019.

Characteristics	Non-beneficiaries	Beneficiaries
	Prevalence and 95CI%	Prevalence and 95CI%
Sex		
Male	47.4 46.6 - 48.1	45.4 44.3 - 46.6
Female	52.6 51.9 - 53.4	54.6 53.4 - 55.7
Age		
18 to 39	44.2 43.5 - 44.9	40.1 38.7 - 41.5
40 to 59	34.8 34.2 - 35.5	36.5 35.3 - 37.7
60 or more	20.9 20.4 - 21.5	23.4 22.4 - 24.5
Education level		
No education - incomplete elementary	42.6 41.9 - 43.3	13.6 12.8 - 14.5
Elementary complete - medium incomplete	16.6 16.1 - 17.1	8.8 8.2 - 9.6
High school complete - higher education incomplete	33.5 32.8 - 34.2	38.8 37.5 - 40.1
Higher education complete	7.3 7.0 - 7.7	38.7 37.3 - 40.2
Skin color		
White	37.0 36.3 - 37.8	60.0 58.7 - 61.4
Black	12.6 12.2 - 13.1	8.3 7.7 - 9.0
Brown	48.9 48.2 - 49.7	29.9 28.8 - 31.1
Other	13.8 12.2 - 15.6	1.7 1.4 - 2.1
Area		
Urban	82.2 81.7 - 82.8	96.8 96.5 - 97.1
Rural	17.8 17.2 - 18.3	3.2 2.9 - 3.5
Public place for physical activity		
No	47.9 46.8 - 49.0	32.6 31.1 - 34.2
Yes	52.1 51.0 - 53.2	67.4 65.8 - 68.9

NHS = National Health Survey

prevalence of black, brown, or other (yellow or indigenous) skin color. The proportion of beneficiaries living in urban areas was almost 15 percentage points higher than that of non-beneficiaries. Overall, 52.1% (95%CI: 51.0 - 53.2) of non-beneficiaries reported having a place near their home for physical activity, while 67.4% (95CI: 65.8 - 68.9) of beneficiaries had such a place.

Table 2 – Perception of public places for physical activity among beneficiaries and non-beneficiaries of health plans according to sociodemographic characteristics (2019). (Beneficiaries, n = 68,301; non-beneficiaries, n = 20,230; total sample = 88,531). NHS 2019.

Characteristics	Non-beneficiaries	Beneficiaries
	Prevalence and 95CI%	Prevalence and 95CI%
Sex		
Male	52.7 51.4 - 54.1	68.1 66.1 - 70.0
Female	51.5 50.2 - 52.8	66.8 65.0 - 68.5
Age		
18 to 39	54.0 52.7 - 55.4	67.4 65.0 - 69.7
40 to 59	52.6 51.0 - 54.2	68.9 66.8 - 70.9
60 or more	47.1 45.6 - 48.7	65,1 62.7 - 67.3
Education level		
No education - incomplete elementary	44.4 43.0 - 45.8	56.0 52.7 - 59.3
Elementary complete - medium incomplete	52.9 51.0 - 54.8	64.3 60.3 - 68.0
High school complete - higher education incomplete	58.6 57.1 - 60.1	64.5 62.1 - 66.7
Higher education complete	65.3 62.8 - 67.7	75.0 73.1 - 76.8
Skin color		
White	53.6 52.0 - 55.3	68.9 67.1 - 70.7
Black	55.1 52.9 - 57.3	68.3 64.3 - 71.9
Brown	50.1 48.9 - 51.4	63.8 61.5 - 66.0
Other	51.6 45.2 - 58.1	71.6 62.4 - 79.3
Area		
Urban	58.8 57.5 - 60.1	68.7 67.1 - 70.2
Rural	21.0 19.2 - 22.8	28.6 24.2 - 33.5

NHS = National Health Survey

Figure 1 graphically reflects the differences between beneficiaries and non-beneficiaries concerning places near the home for physical activity according to sociodemographic characteristics. The perception of public places for physical activity was similar between genders (Table 2). The analyses by age group showed a reduction among non-beneficiaries of health plans in the percentage of people who reported having places near their homes to practice physical activity. Approximately 54% of non-beneficiaries aged 18-39 reported an appropriate place to practice physical activity, while among those

aged 60 and over, the perception was 47.1%. Among individuals with health plans, there were no statistically significant differences between the age groups. Increased education level was significantly associated with appropriate places for physical activity; a dose-response effect was found - the higher the education level, the higher the percentage of a suitable place for physical activity. Skin color showed no significant differences in the perception of suitable places for physical activity for both beneficiaries and non-beneficiaries. In contrast, individuals living in urban areas reported a statistically significant higher perception of suitable places for physical activity compared to those in rural areas.

Discussion

The present study evaluated the perception of public places for the practice of physical activity among beneficiaries and non-beneficiaries of health plans. We found that the health plan beneficiaries had a higher perception of public places for practicing physical activity. We also found differences according to age among non-beneficiaries of health plans, which may be explained by the fact that older people evaluate the availability of places for physical activity differently from younger people. Moreover, we found a dose-response effect among education levels, the higher the level, the greater the access to places for physical activity close to home. Individuals living in urban areas also had higher rates of places for physical activity close to home. Our results can be applied to the health area, especially to encourage physical activity, with the help of professionals guiding the residents about places that are suitable for exercise. In addition, it is necessary that the practice of physical activity be supervised by physical educators for the best results and lower chances of injury[10,11]. It is expected that this will result in more physical activity once people have more insight into environments for physical activity in their neighborhoods.

Prevalence of public place for physical activity among beneficiaries and non-beneficiaries of health plans according to sociodemographic characteristics. Brazil, 2019.

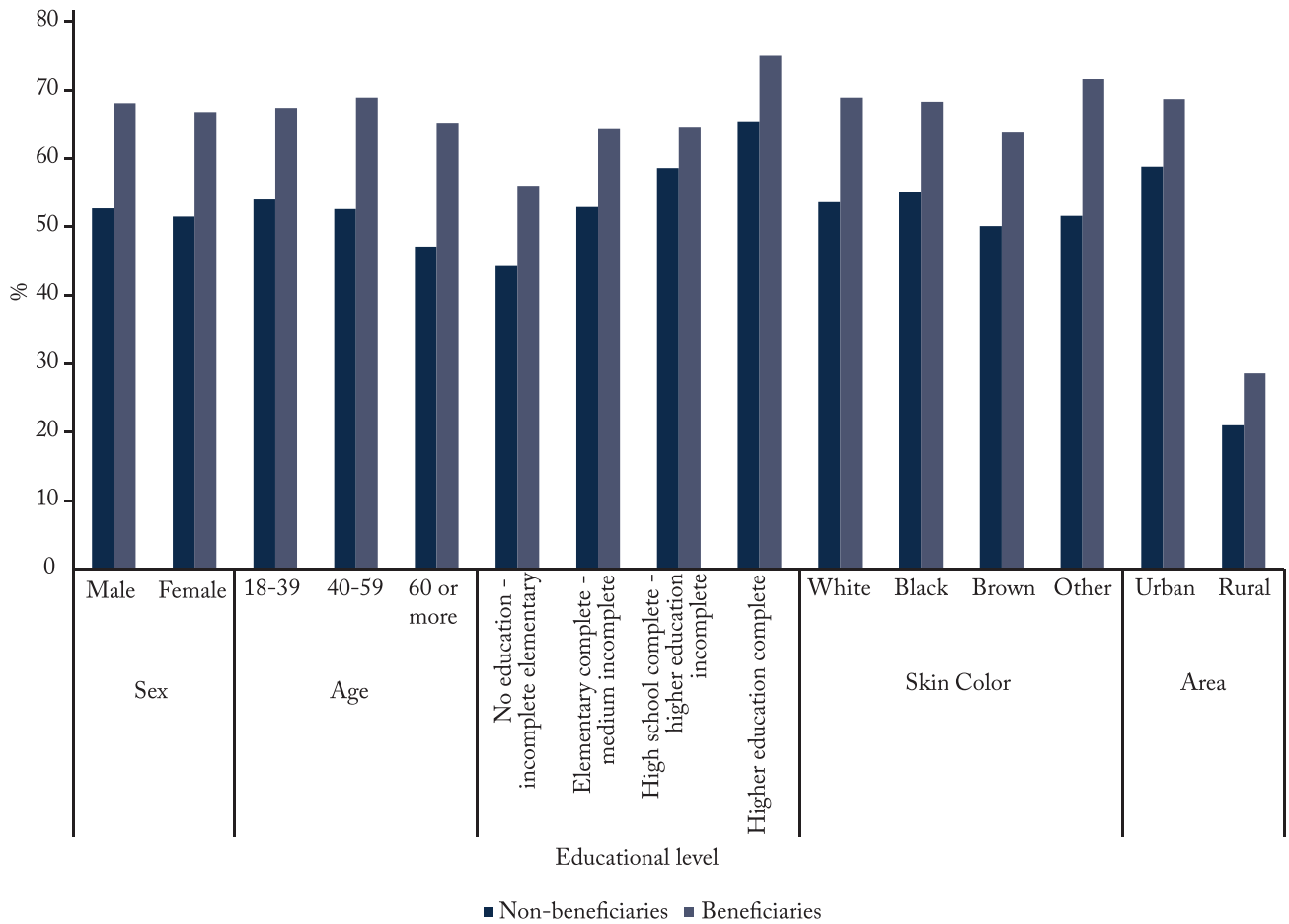

Figure 1 – Perception of public places for physical activity among beneficiaries and non-beneficiaries of health plans according to sociodemographic characteristics. (Beneficiaries, n = 68,301; non-beneficiaries, n = 20,230; total sample = 88,531). NHS 2019.

In Brazil, a study with 820 participants from Santa Catarina showed that approximately 75% of the sample did not meet the minimum weekly physical activity recommendations. Similar to our findings, education was positively associated with physical activity level[12]. An article with 699 adults from Curitiba identified that the proximity and quantity of public spaces for physical activity were associated with higher levels of physical activity[13]. More evidence also showed that living close to places suitable for physical activity results in higher physical activity levels[14]. The neighborhood's income level was also associated with higher levels of physical activity[15]. Therefore, investing in reducing inequalities by building more places for physical activity in lower-income areas is likely to result in higher physical activity levels among the less privileged.

Our findings showed that public places for physical activity seem to be associated with individuals' income since education is an important proxy of income[16], as well as a private health plan. In turn, it has been shown that adults with higher levels of education lead healthier lives compared to their less educated peers, demonstrating that education provides a dual role, as a driver of opportunity but also as a reproducer of inequality[16,17]. Moreover, beneficiaries of health plans are usually people with formal employment[18], through corporate plans, which contributes to higher income and education, while the general population has higher rates of informal employment. Previous studies have already shown that inequalities are important mediators of physical activity, including factors such as older age and health problems[19]. Socioeconomic inequalities have also been pointed out as important indicators regarding physical activity, especially in middle- and high-income countries[20]. Therefore, promoting a reduction in different inequality indices may result in greater adherence and access to places to practice physical activity, adding to reducing physical inactivity, which is already considered a pandemic and is the fourth leading cause of death in the world[21].

Studies conducted in Brazil have identified other types of barriers to physical activity[22,23]. One of them was carried out with elderly women, in which more barriers than facilitators to physical activity were identified. The most reported barriers were physical limitation, lack of disposition, excessive care from the family, inadequate physical exercises, diseases, and lack of safety, among others[22]. In the other study, 222 women were evaluated, and barriers such as lack of companionship, lack of energy, and tiredness or discouragement were found[23]. Approaches that target populations and their differences, as well as the complex interactions between correlates of physical inactivity rather than individual approaches, can be a viable strategy to increase physical activity levels worldwide[21]. Data from Surveillance System of Risk and Protection Factors for Chronic Diseases by Telephone Survey (VIGITEL), indicated that individuals who had health insurance practiced more leisure-time physical activity than those who did not; these results are in line with the findings of our study[24].

Among children and adolescents from Turkey, lack of time has been shown to be a barrier to physical activity[25]. These results may be even more worrisome among adults since most of them have several activities, such as work and caring for the family. Therefore, living near places with support for physical activity can contribute to improving physical activity by reducing the barrier of commuting time. Confirming this hypothesis, in a study with a population aged 55 to 75, it was identified that places near the neighborhood for physical activity could support physical activity intervention, helping to increase the levels of exercise among this population[26].

This study used recent data from the largest population-based survey in Brazil, The National Health Survey 2019, which provides important results for decision-making and improving people's health. Our results provide important findings and may help to design policies aimed to reduce inequalities related to the availability of places for physical activity in places with fewer socioeconomic conditions. However, our outcome was assessed through a question that depends on the resident's knowledge about their neighborhood, which can often be inaccurate because not everyone knows the places around their home. Approaches such as spatial analysis can confirm our findings and provide more accurate results by showing the appropriate areas for physical activity through geographic views. In addition, the study brings only descriptive results and inferential analyses were not performed. This choice was made because the NHS is a cross-sectional study and inferential analyses could infer reverse causality. As strengths of the article, one can highlight the data from the 2019 PNS which includes one of the most recent population-based studies in Brazil. In addition, the division of the sample into beneficiaries and non-beneficiaries of health plans can provide important insights for both the public and private sectors.

In conclusion, our findings showed that health plan beneficiaries have more access to places near their

homes to practice physical activity, as well as the most educated individuals and those who live in urban areas. The construction of public places for physical activity for individuals with less access may result in higher levels of physical activity and, consequently, improvements in health indicators.

Conflict of interest

The authors declare no conflict of interest.

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Author's contributions

Delpino FM, Reis A, Minami B, Lara N and Cechin J participated in manuscript design, data analysis and interpretation.

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