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Social inequalities in the prevalence of indicators of active aging in the Brazilian population: National Health Survey, 2013

Desigualdades sociais na prevalência de indicadores de envelhecimento ativo na população brasileira: Pesquisa Nacional de Saúde, 2013

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ABSTRACT: ***Objective:*** To analyze social inequalities in the prevalence of indicators of active aging in the Brazilian older adult population. ***Methods:*** This is a cross-sectional study with a sample of 11,177 older adults who participated in the Brazilian National Health Survey in 2013. We estimated the prevalence of five domains of active aging (social activities, civic engagement, leisure-time physical activity, paid work, and volunteer work) according to gender, ethnicity, schooling, income, and private health insurance. Prevalence ratios and confidence intervals were calculated using Poisson regression. ***Results:*** The percentage of involvement in organized social activities, civic engagement, and physical activity was 25.1, 12.4, and 13.1%, respectively. Regarding work, 20.7% of the sample had a paid job, and 9.7% participated in volunteer work. Women had a higher prevalence of participation in organized social activities and volunteer work; while civic engagement and paid work were more frequent among men. White people were more likely to participate in social activities, volunteer work, and leisure-time physical activity, explained by their schooling. The strata with a higher level of schooling, income, and who had private health insurance showed a greater incidence of participation in all activities studied. ***Conclusion:*** The five activities analyzed are challenging for the proposed policy of active aging, as they are marked by considerable social inequality.

Keywords: Social inequality. Health status disparities. Aging. Aged.

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RESUMO: ***Objetivo:*** Analisar desigualdades sociais na prevalência de indicadores de envelhecimento ativo na população idosa brasileira. ***Métodos:*** Estudo transversal com amostra de 11.177 idosos que participaram da Pesquisa Nacional de Saúde do Brasil em 2013. Estimaram-se as prevalências de cinco domínios do envelhecimento ativo (atividades sociais, participação cívica, atividade física de lazer, trabalho remunerado e trabalho voluntário) segundo sexo, raça/cor, escolaridade, renda e posse de plano privado de saúde. As razões de prevalência e os intervalos de confiança foram calculados pela regressão de Poisson. ***Resultados:*** O percentual de envolvimento em atividades sociais organizadas, participação cívica e atividade física foi de 25,1; 12,4 e 13,1%, respectivamente. Em relação ao trabalho, 20,7% exerciam trabalho remunerado e 9,7% participavam de trabalho voluntário. As mulheres apresentaram maiores prevalências de participação em atividades sociais organizadas e em trabalho voluntário; e entre os homens prevaleceu a participação cívica e o trabalho remunerado. Entre os brancos, foram observadas maiores frequências de participação em atividades sociais, trabalho voluntário e atividade física de lazer, explicadas pela escolaridade. E os estratos com maior nível de escolaridade, renda e com posse de plano privado de saúde apresentaram maiores prevalências de participação em todas as atividades consideradas. ***Conclusão:*** As cinco atividades analisadas se apresentam como desafiadoras à proposta política de envelhecimento ativo por serem marcadas por considerável desigualdade social.

Palavras-chave: Desigualdade social. Disparidades nos níveis de saúde. Envelhecimento. Idoso.

INTRODUCTION

Currently, one of the most significant social issues we face is how to respond to the irreversible phenomenon of the aging population on a large scale, which has intensified scientific research and development of policies on the subject[1]. Active life is one of the goals for the older adult population and has gained strength after the World Health Organization (WHO) published the Active Ageing: a Policy Framework[2]. WHO aimed at drawing attention to the multidimensional character of active aging in contrast to recurring approaches, which restricted this life stage to the participation in physical or economic activities. The WHO approach defines active aging as participation in social, cultural, intellectual, physical, civic, political, and economical activities[2,3]. In 2015, the International Longevity Center – Brazil revised the mentioned policy framework in response to the emergence of a strong international movement that seeks to strengthen the rights of older adults. The document reinforces the need to examine the aging process in light of important facts such as urbanization, globalization, migration, and the growing social inequality[3].

With respect to this last aspect, the opportunities for enjoying thriving and active aging, in addition to better health and well-being, are unevenly distributed within and among societies[1]. Society faces the challenge of giving opportunities to all groups of older adults to age actively and with dignity, leading to an emphasis on addressing social inequalities in the context of active aging, not only by investigating the distribution of resources among different generations but by paying special attention to social inequalities in old age[1,4].

In Brazil, few studies have explored the knowledge about social inequalities related to the profile of activity engagement, with representative data on the entire Brazilian older adult population[5-7]. Thus, this study aimed to analyze the prevalent demographic and socioeconomic inequalities in indicators of active aging among the Brazilian older adult population.

METHOD

This is a cross-sectional study that used data from the National Health Survey (NHS) held in 2013. NHS is a national household-based survey, conducted by the Ministry of Health, in partnership with the Brazilian Institute of Geography and Statistics[8]. NHS sought to provide data on the health situation and lifestyles of the Brazilian population, as well as health care[9]. In addition, the survey paid special attention to aspects related to the existing inequalities in the Brazilian population[8,10].

NHS was designed to represent Brazil, its main regions, Federation Units (FU), metropolitan areas, and state capitals. NHS used a three-stage cluster sampling, stratified by primary sampling units (PSU). The first stage selected census tracts or sets of units that constituted the PSU; the second stage consisted of choosing the households; and the third stage selected – with equal probability among all adults living in the household – a resident aged 18 years or more to answer the individual questionnaire[8,11].

The NHS sample comprised 64,348 households. A total of 60,202 selected residents were interviewed on their health status, lifestyle, and chronic diseases. The other residents selected (n=4,146) had their data dismissed, as they refused to answer the specific questionnaire or provided inconsistent information[12].

The NHS questionnaire for data collection was subdivided into three parts:

- household;
- relating to all residents of the household;
- individual.

A resident of the household who knew the socioeconomic and health status of all its members answered the first two parts of the questionnaire. The resident selected answered the individual questionnaire, which included several thematic sections, such as work characteristics and social support, perceived health status, accidents and violence, lifestyle, chronic diseases, oral health, and medical care[13]. This study analyzed data about only the residents selected aged 60 years or more, comprising a sample of 11,177 individuals. Other publications[8,11] provide more details on the sampling process and weighting. Trained interviewers collected data using personal digital assistants (PDA)[8].

Regarding the study variables, we selected five indicators of active aging among the questions available, belonging to three dimensions:

- Social dimension – with two variables analyzed:
  a. participation in social activities, investigated by the question: "Do you participate in organized social activities (clubs, community or religious groups, community centers for older adults, etc.)?";
  b. civic engagement, investigated by the question: "In the past 12 months, how often have you participated in meetings of neighborhood or employee associations, community movements, or similar activities?" We considered active the older adults who declared having participated in these activities with any frequency.

- Physical activity dimension – among the older adults who reported practicing physical activity or sports in the three months prior to the interview, we verified if the weekly time practiced met the WHO recommendation[14]. To this end, we adopted a cut-off point of more than 150 minutes per week to classify the individuals as *physically active during leisure time*.
- Work dimension – with two domains assessed:
  a. paid work, estimated based on the question "In the week from 21 to 27 July 2013 (reference week), have you worked or were you an intern for at least an hour, in any paid activity?";
  b. volunteer work, analyzed by the question "In the past 12 months, how often have you participated in unpaid volunteer work?'. We considered active the older adults who declared having participated in these activities with any frequency.

We estimated the prevalence of each indicator of active aging according to the following variables: gender (female and male); ethnicity (white and black, the latter consisting of individuals who declared being black or multiracial); level of schooling (illiterate or with less than one year of study; incomplete or complete elementary school; incomplete or complete high school; incomplete or complete higher education); household income in minimum wages per capita (mwpc) (< 0.5; 0.5 to 1.0; 1.0 to 3.0; > 3.0); and having private health insurance (yes and no).

We analyzed the differences between proportions using Pearson's χ^2 test, considering those with a p-value<0.05 statistically significant. Prevalence ratios (PR) of each indicator of active aging, as well as their respective 95% confidence intervals (95%CI), were calculated using Poisson regression and adjusted for gender, age, and geographic region of residence. Analyses according to gender and ethnicity were also adjusted for level of schooling. We considered the complex sample design effect in all analyses, using the survey module of the software Stata 14.0 (Stata Corp., College Station, United States).

The National Committee for Ethics in Research (*Comissão Nacional de Ética em Pesquisa* – CONEP) of the National Health Council (NHC), Ministry of Health, approved the NHS. The individuals selected for the interview expressed their agreement by signing the Informed Consent Form.

RESULTS

The estimates analyzed in this study are based on responses from 11,177 individuals aged 60 years or more. Considering the appropriate sample weights, 56.4% of the interviewees were females and aged 60 to 69 years, the age of 13.6% was greater than or equal to 80 years, 53.6% declared being white and 44.9%, black or multiracial. Regarding schooling, 32.1% were illiterate or had less than one year of study, while 45.6 and 12.2% had completed at least a year of elementary or high school, respectively. The proportion of older adults with complete or incomplete higher education in the study population was 10.2%. With respect to family income, 43.0% earned less than 0.5 mwpc, 24.2% belonged to the stratum with > 1.0 and < 3.0 mwpc, and the proportion of older adults with 3 or more mwpc was 6.9%. The total of older adults who reported having private health insurance was 32.0%.

Table 1 presents the prevalence of indicators of active aging in the total population and according to gender. The percentage of involvement in social activities was 25.1%, being 30% more prevalent among women, while 12.4% of older adults reported civic engagement, with a higher incidence among men (PR=1.27). Concerning the physical activity dimension, only 13.1% declared practicing leisure-time physical activity within the recommended levels, without differences between genders. The percentage of older adults who stated having

Table 1. Prevalence and prevalence ratio of indicators of active aging according to gender. National Health Survey. Brazil, 2013.

Dimensions/ indicators	n	Total	Gender (%)		p-value*	Adjusted[b] PR[a]	95%CI
			Female (n=6,622)	Male (n=4,555)			
Social							
Social activities	2,751	25.1	28.8	20.3	< 0.0001	0.70	0.62 – 0.79
Civic engagement	1,412	12.4	11.1	14.1	0.0035	1.25	1.07 – 1.47
Physical activity							
Active during leisure time	1,464	13.1	14.0	12.4	0.1582	1.09	0.93 – 1.28
Work							
Paid work	2,282	20.7	13.0	30.5	< 0.0001	2.33	2.03 – 2.64
Volunteer work	1,012	9.7	10.8	8.1	0.0041	0.73	0.60 – 0.88

*χ^2 test; [a]reference category: female; [b]prevalence ratio adjusted for age, region, and schooling; 95%CI: 95% confidence interval.

a paid job was 20.7%, being higher among men (PR=2.34), while 9.7% of the population reported participating in volunteer work, with prevalence 25% higher among women.

In the evaluation according to ethnicity (Table 2), the frequency of participation in social activities and volunteer work was higher among individuals who declared being white, when compared to the black population (RP=1.14 and 1.46, respectively). The frequency of white people considered physically active during leisure time was also higher (PR=1.33). On the other hand, the prevalence of civic engagement and paid work according to ethnicity was similar. After adjustment for level of schooling, all differences found lost their statistical significance.

The analysis of the active aging profile according to level of schooling (Table 3) revealed that all activities investigated were significantly more prevalent in segments with higher schooling, particularly for participation in leisure-time physical activity within the recommended levels and volunteer work, whose prevalence quadrupled compared to the lower stratus (PR=4.42 and 4.43, respectively).

In the analysis according to income (Table 4), interviewees with a higher status (three or more mwpc) showed a higher prevalence of participation in all activities assessed, with differences of greater magnitude for the practice of leisure-time physical activity (PR=4.12) and volunteer work (PR=3.07).

Table 2. Prevalence and prevalence ratio of indicators of active aging according to ethnicity. National Health Survey. Brazil, 2013.

Dimensions/ indicators	Prevalence		p-value**	Prevalence ratio[a]			
	Ethnicity*			PR[b]	95%CI	PR[c]	95%CI
	Black (n=5,701)	White (n=5,314)					
Social							
Social activities	23.2	26.6	0.0264	1.14	1.01 – 1.29	1.03	0.92 – 1.17
Civic engagement	11.6	12.7	0.2599	1.15	0.98 – 1.35	1.01	0.85 – 1.18
Physical activity							
Active during leisure time	10.8	14.4	0.0013	1.33	1.12 – 1.58	0.99	0.84 – 1.17
Work							
Paid work	20.3	20.8	0.7048	1.10	0.98 – 1.24	0.98	0.87 – 1.11
Volunteer work	7.4	11.4	0.0001	1.46	1.19 – 1.80	1.12	0.91 – 1.37

*Asians and indigenous people were excluded due to their reduced representativeness in the sample and the low estimate accuracy; **χ^2 test; [a]reference category: black population; [b]prevalence ratio adjusted for gender, age, and region; [c]prevalence ratio adjusted for gender, age, region, and schooling; 95%CI: 95% confidence interval.

Table 5 presents the prevalence of indicators of active aging according to private health insurance. Older adults with private health insurance had a greater prevalence of involvement in all activities analyzed in this study when compared to those who depended solely on the public health system (*Sistema Único de Saúde* – SUS). The greatest difference between these groups concerned the practice of leisure-time physical activity (PR=2.21).

DISCUSSION

This study presented the NHS results on the prevalence of participation of older adults in five activities relating to social, physical activity, and work dimensions. The findings reveal significant social inequalities in the aging process of the Brazilian older adult population according to gender, ethnicity, level of schooling, per capita household income, and private health insurance.

Regarding the social dimension, the frequency of involvement in organized social activities (25.1%) was higher than that estimated for civic engagement (12.4%), in line with the perspective that the participation rate is lower when a certain activity requires more individual resources and shared skills[15].

Involvement in the social dimension presented significant variations among the social segments analyzed. For instance, we found a clear gender bias, in which women reported

Table 3. Prevalence and prevalence ratio of indicators of active aging according to the level of schooling. National Health Survey. Brazil, 2013.

Dimensions/ indicators	Schooling* (%)				p-value**	Adjusted[b] PR[a] (4/1)	95%CI
	1 n=3,861	2 n=4,671	3 n=1,470	4 n=1,175			
Social							
Social activities	18.5	26.5	29.6	33.7	< 0.001	1.78	1.43 – 2.20
Civic engagement	9.9	10.6	18.3	21.4	< 0.001	1.92	1.48 – 2.50
Physical activity							
Active during leisure time	6.5	11.6	19.3	32.8	< 0.001	4.42	3.35 – 5.84
Work							
Paid work	13.9	19.9	27.1	37.7	< 0.001	1.97	1.63 – 2.38
Volunteer work	4.5	8.6	16.0	23.2	< 0.001	4.43	3.21 – 6.11

*1: illiterate; 2: elementary school; 3: high school; 4: higher education; **χ^2 test; [a]reference category: illiterate; [b]prevalence ratio adjusted for gender, age, and region; 95%CI: 95% confidence interval.

Table 4. Prevalence and prevalence ratio of indicators of active aging according to income. National Health Survey. Brazil, 2013.

Dimensions/ indicators	Income (mwpc) (%)				p-value*	Adjusted PR[a] (d/a)	95%CI
	< 0.5 n=3,883 a	0.5 to < 1.0 n=2,805 b	1.0 to < 3.0 n=3,488 c	≥ 3 n=1,001 d			
Social							
Social activities	17.2	21.7	26.0	31.2	< 0.001	1.78	1.38 – 2.29
Civic engagement	9.1	9.0	12.2	20.5	< 0.001	2.29	1.60 – 3.26
Physical activity							
Active during leisure time	6.5	6.6	12.9	27.7	< 0.001	4.12	2.62 – 6.49
Work							
Paid work	13.7	14.8	20.1	35.7	< 0.001	2.54	1.93 – 3.35
Volunteer work	6.0	5.8	9.0	20.2	< 0.001	3.07	2.02 – 4.68

mwpc: minimum wage per capita; a: < 0.5; b: 0.5 to < 1.0; c: 1.0 to < 3.0; d: ≥ 3.0; *χ^2 test; [a]prevalence ratio adjusted for gender, age, and region; 95%CI: 95% confidence interval.

Table 5. Prevalence and prevalence ratio of indicators of active aging according to private health insurance. National Health Survey. Brazil, 2013.

Dimensions/ indicators	Health insurance		p-value*	Adjusted[b] PR[a]	95%CI
	No (n=7,834)	Yes (n=3,343)			
Social					
Social activities	22.4	30.6	0.0000	1.34	1.19 – 1.51
Civic engagement	10.6	16.3	0.0000	1.59	1.32 – 1.91
Physical activity					
Active during leisure time	9.4	20.8	0.0000	2.21	1.88 – 2.59
Work					
Paid work	19.3	23.6	0.0041	1.29	1.13 – 1.46
Volunteer work	7.2	14.9	0.0000	1.98	1.62 – 2.40

*χ^2 test; [a]reference category: population without health insurance; [b]prevalence ratio adjusted for gender, age, and region; 95%CI: 95% confidence interval.

greater participation in organized social activities, while men were more active in civic engagements. A possible explanation for this contrast is the greater male resistance to engaging in more cultural, educational, and playful activities, which predominate in spaces like community centers for older adults and community groups[16,17]. On the other hand, the under-representation of women in civic engagement, but that also extends to other decision-making areas[18,19], demonstrated in this study reveals, above all, a qualitative injustice, since it signals the precedence of certain topics, groups, and interests in decision-making arenas at the expense of others[18]. These findings indicate that society still strongly differentiates activities and behaviors considered typically feminine and masculine. Several activities are used as a resource in gender structuring and reconstruction, such as social activities, work, domestic chores, and sports[20]. As to social dimension differences according to ethnicity, the results showed that white people participated in organized social activities more often than the black population. This difference was explained by schooling, reinforcing the idea that access to social resources throughout life favors social participation[3]. However, these groups did not differ regarding civic engagement. This finding suggests that ethnicity might not substantially affect the propensity to act politically. In Brazil, socioeconomic factors, such as income and schooling, are clearly more relevant in boosting this type of participation than the direct effect of ethnicity[21]. So much so that higher schooling and income strata were more active in the social dimension, corroborating other studies[4,15].

With respect to the physical activity dimension, the present study analyzed the leisure domain given its more expressive beneficial effects on health compared to physical activity in other domains[22]. The national prevalence of older adults physically active during leisure time (13.1%) is lower than that estimated for the global older adult population (45%) in 2010[23] and the one observed in the population aged 65 years or more who live in Brazilian state capitals (22.3%)[5].

Despite the low prevalence, we emphasize that we found no differences between genders, contrary to findings of a systematic review that identified a higher incidence of leisure-time physical activity among men[24]. This study also showed that the adjustment for schooling explained all differences found between black and white people regarding the practice of physical activity. Also, the magnitude of inequalities in leisure-time physical activity was similar in the variables related to socioeconomic status (schooling and income), suggesting that both effects could be equally important[25]. The causes for inequalities in the involvement in leisure-time physical activity could be associated with the effect of schooling on the knowledge about the positive consequences of this practice for health and/or the financial conditions for this kind of activity[25,26].

Concerning the work dimension, this study revealed that the prevalence of paid work was 20.7%. This estimate could be considered low and follows the decreasing trend that this indicator has been showing in Brazil. In 2005, the occupation level of the Brazilian older adult population was 30.2%, decreasing to 26.3% in 2015[27]. In contrast, 9.7% of the interviewees declared participating in volunteer work, representing twice the percentage

reported in another national survey, which estimated a prevalence of 4.6% for this activity in Brazil, considering the population aged 50 years or more[28].

The work dimension also revealed gender bias. Men were more active in paid work, while women were more involved in volunteer work. The higher frequency of men in the labor market has been mainly associated with the traditional patterns of division of labor and cultural influences[4,19,29]. Another factor that could influence the permanence of older men in the labor market is the need to complement the household income, even after retirement, to meet their own financial demands and those of dependent family members, due to circumstances such as economic crisis, unemployment, divorce, and drug addiction, especially in lower-income strata[30]. On the other hand, gender differences in volunteer work contrast with those found in the literature[4,31] and could be correlated to distinct income levels and work experiences between men and women, besides cultural aspects[4,31]. The work dimension analysis according to ethnicity revealed a difference between white and black people only regarding volunteer work, explained by schooling. The relevance of stratification by ethnicity in studies about volunteer work is related to its potential in identifying differences concerning quality of life measures that make volunteer work possible, such as schooling and income, or revealing the direct effect of racism on the unequal access to this activity[32,33]. With respect to differences in socioeconomic status, the present study indicated that older adults who had higher schooling and income participated more often in paid and volunteer work. A possible explanation for the distinction in paid work is that individuals with lower socioeconomic status usually have worse health conditions and work on more physically demanding and less fulfilling positions, favoring their early exit from the labor market[34]. As to volunteer work, the prevalence found could be considered low when compared to other regions in the world[4,31], suggesting a potential lack of opportunity or incentive to a "volunteering culture"[3].

The study also revealed that the population with private health insurance was more active in the social, physical activity, and work dimensions. This analysis was not adjusted for income or schooling to reveal the profile of involvement in activities among the population who depended solely on SUS. In this scenario, the study confirms, among other aspects, the role and importance of SUS in encouraging social participation, given its potential to promote physical and mental health in older adults[35]. Another characteristic evidenced by the study was the inequality in the practice of physical activity among the population with and without health insurance. This finding emphasizes the need to expand the access to body practices and physical activity with programs such as Health Gym, and the effective action in Family Health Support Centers, considered important allies in reducing physical inactivity among older adults, as well as the inequality in this practice[36,37].

This study has a cross-sectional design, which can lead to survival bias, regarded as a logical error when studying older adults who survived early mortality – more common among people with higher risk exposure throughout life. The strengths of this study are the sample size, which allowed us to estimate most indicators of active aging with a good level of

accuracy in the strata investigated, the quality of the data collected, and the use of indicators less explored in the Brazilian older adult population.

CONCLUSION

The study highlighted five activities that are still challenging for the proposed policy of active aging, both for their low prevalence among Brazilian older adults and for being marked by considerable social inequality. The data showed that participating in different activities in old age could be related to traditional gender roles, assimilated throughout life. The study also identified that older adults with higher levels of income and schooling are more involved in social, physical, and productive activities, reinforcing the importance of fighting educational and income inequality as a way to promote active aging. We also underline the possibilities for SUS to contribute in establishing active aging in Brazil, be it by promoting health-specific actions that favor an active life, or by encouraging the participation of older adults in activities that can improve their health.

These findings strengthen the idea that confronting social inequalities is an important part of the strategy to implement active aging, providing adapted and appropriate solutions for different groups of older adults and avoiding the imposition of less feasible goals.

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