

# DIFFERENCES IN THE SOCIOECONOMIC AND HEALTH PROFILES OF OLDER ADULTS IN RURAL AND URBAN ENVIRONMENTS: 2013 NATIONAL HEALTH SURVEY

## Diferenças no perfil socioeconômico e de saúde de idosos do meio rural e urbano: pesquisa nacional de saúde, 2013

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### ABSTRACT

**OBJECTIVE:** To understand possible sociodemographic, economic and health differences between older rural and urban Brazilians participating in the 2013 National Health Survey (*Pesquisa Nacional de Saúde*). **METHODS:** A cross-sectional study was conducted with a secondary analysis of data from 11,177 elderly individuals. The dependent variable was place of residence (rural or urban), and the independent variables were sociodemographic characteristics (age group [age 60 to 79 or 80 years and older], gender, race, municipality and socioeconomic condition) and clinical characteristics: private health plan, enrollment in the Family Health Strategy program (*Estratégia Saúde da Família*) and self-perceived health. Associations between dependent and independent variables were assessed using the  $\chi^2$  test, with  $p < 5\%$  considered significant. **RESULTS:** Except for age group, all other sociodemographic and clinical characteristics were significantly associated with place of residence ( $p < 0.0001$ ). Rural participants were more frequently: male, mixed race, married, illiterate, non-capital residents, with a lower socioeconomic level, better Family Health Strategy coverage, were less likely to have private health insurance. The self-perceived health of urban elderly was more frequently very good, good or very poor ( $p < 0.0001$ ). **CONCLUSIONS:** Older individuals in rural areas had less favorable sociodemographic and clinical characteristics than those in urban areas, which contradicts international studies. These findings should stimulate further research to fill gaps in the literature regarding the rural elderly. **KEYWORDS:** rural population; urban population; aged; health services research.

### RESUMO

**OBJETIVO:** Compreender as possíveis diferenças sociodemográficas, econômicas e de saúde entre idosos brasileiros rurais e urbanos participantes da Pesquisa Nacional de Saúde (PNS) de 2013. **MÉTODOS:** Estudo transversal, com análise secundária de dados de 11.177 idosos da PNS. A variável dependente foi o local do domicílio (meio rural ou meio urbano), e as demais variáveis (independentes) foram as características sociodemográficas: faixa etária (60 a 79 e 80 anos ou mais), sexo, raça, estado conjugal e escolaridade, cidade e condição socioeconômica; e clínicas: planos de saúde, cadastro na Estratégia Saúde da Família (ESF) e autopercepção de saúde. Tabelas de distribuição da variável dependente e das independentes tiveram suas associações testadas pelo teste  $\chi^2$ , considerando significativo  $p < 5\%$ . **RESULTADOS:** Exceto a faixa etária, todas as outras características sociodemográficas e clínicas foram significativamente associadas com o meio onde moram ( $p < 0,0001$ ). Residentes no meio rural eram, em maior frequência, do sexo masculino, pardos, casados, analfabetos, moradores de cidades interioranas, com maior cobertura pela ESF, nível socioeconômico baixo e menor frequência de plano de saúde. Idosos do meio urbano apresentavam com maior frequência autopercepção de saúde muito boa, boa e muito ruim ( $p < 0,0001$ ). **CONCLUSÕES:** Observamos que idosos do meio rural apresentaram características sociodemográficas vulneráveis e clínicas desfavoráveis quando comparados aos idosos brasileiros do meio urbano, contrariando estudos internacionais. Os achados encontrados estimulam novas investigações para o melhor entendimento das lacunas da literatura sobre o idoso residente no meio rural. **PALAVRAS-CHAVE:** população rural; população urbana; idoso; pesquisa sobre serviços de saúde.

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## INTRODUCTION

The rapid demographic and epidemiological transition that Brazil is undergoing has led to a notable increase in life-expectancy and, consequently, the number of older people in the population. Projections by the Brazilian Institute of Geography and Statistics (IBGE) suggest that by 2030 the proportion of individuals over 65 years of age in the country will be over 13.5%.<sup>1</sup> This proportion, however, is higher in rural areas. The results of international studies on the socioeconomic and health differences between older residents of rural and urban environments are contradictory. Chinese research indicates that the majority of older people living in rural areas consider their health to be good or very good,<sup>2</sup> whereas perceived health in the USA among this group was worse, although the results were not statistically significant.<sup>3</sup>

Considering the lack of Brazilian studies with a representative population sample on the subject, this study explored possible sociodemographic, economic and health differences between older rural and urban population groups based on data from the 2013 National Health Survey (*Pesquisa Nacional de Saúde*).

## METHODS

This cross-sectional study, with a secondary analysis of data from the National Health Survey, was conducted by the IBGE in partnership with the Ministry of Health. Using a population-based sample, this survey was an attempt to describe the lifestyle, health situation and health care of Brazilians.<sup>4</sup> A total of 60,202 people aged 18 or over participated in the 2013 Survey, of which 11,177 were considered elderly (60 years or older). The Survey was approved by the National Commission for Ethics in Research (CONEP) of the National Health Council (*Conselho Nacional de Saúde*) (case 328.159).

The dependent variable in this study was place of residence (rural or urban). The independent variables were: sociodemographic characteristics, municipality, socioeconomic condition, private health insurance, enrollment in the Family Health Strategy program (FHS) and self-perceived health.

The sociodemographic variables were obtained from module C of the 2013 National Health Survey (general resident characteristics): sex (question C6), age (question C8, classified into the following groups: age 60 to 79, i.e., young-old, or 80 years and older, i.e., oldest-old), race (question C9, classified as: white, black, mixed, and other) and marital status (question C10, which classified cohabiting participants as married, and question C11, which classified the other participants as single, widowed or divorced/separated).

Education level was derived from question D1, which considered participants who reported not knowing how to read or write as illiterate. Participant education levels were classified as follows: those in school were classified according to their current level (question D3), while for those not currently in school, classification was based the highest level begun (e.g., high school) (question D9) and whether this level was completed (question D14). Thus, education level was categorized as: illiterate, incomplete middle school, complete middle school, high school, and higher education.

Using Brazilian Association of Research Companies (*Associação Brasileira de Empresas de Pesquisa*) criteria, questions about household information (Module A) and education level were used to calculate the participants' socioeconomic level.<sup>5</sup> This classification system makes inferences about purchasing power, which it categorizes as A (highest), B, C, and D & E.<sup>6</sup>

Health plan coverage (Module I) was investigated in question I1: "Do you have any health insurance (medical or dental), whether private, through a company or through a public agency?" This question could be answered with 1) "yes" or 2) "no".

Household participation in the Family Health Strategy program (Module B: Household visits from the Family Health Team and Endemic Disease Control Agents) was determined with question B1: "Is your household registered with the Family Health Unit?", which could be answered with 1) "yes", 2) "no" or 3) "I don't know".

Municipalities were classified as a state capital, in the interior, a non-capital metropolitan area or part of the *Região Integrada de Desenvolvimento do Distrito Federal e Entornos* (Integrated Development Region of the Federal District and Surroundings), from which Brasília was excluded.

Self-perceived health (module N) was investigated in question N1: "In general, how would you evaluate your health?", which could be answered with: 1) "very good", 2) "good", 3) "average", 4) "poor" or 5) "very poor". However, for calculation purposes, the scale was inverted: "very poor" = 1, "poor" = 2, "average" = 3, "good" = 4 and "very good" = 5.

Distribution tables were created to express the levels of the independent variables in absolute numbers and as a percentage in each level of the dependent variable. The association in each of the tables was tested with  $\chi^2$  in Epi Info™ version 7.0;  $p < 5\%$  was considered significant for two tails.

## RESULTS

Table 1 shows the distribution of National Health Survey respondents aged 60 years or older living in rural and urban

**Table 1** Sociodemographic, economic, health access and clinical characteristics of Brazilians aged 60 years or more who reside in rural and urban areas.

Variables	Rural (n = 2,178, 19.5%)	Urban (n = 8,999, 80.5%)	p-value
Age range (years)			
Young-old (60–79)	<b>1,901 (87.3)</b>	7,778 (86.4)	0.296
Oldest-old (80+)	277 (12.7)	1,221 (13.6)	
Sex			
Feminine	1,012 (46.5)	5,610 (62.3)	< 0.0001
Masculine	<b>1,166 (53.5)</b>	3,389 (37.7)	
Race			
White	804 (36.9)	4,510 (50.1)	< 0.0001
Mixed	<b>1,141 (52.4)</b>	3,511 (39)	
Black	<b>207 (9.5)</b>	842 (9.4)	
Other	26 (1.2)	136 (1.5)	
Marital status			
Married	<b>1,197 (55.0)</b>	3,851 (42.8)	< 0.0001
Divorced	243 (11.1)	1,238 (13.7)	
Single	266 (12.2)	1,094 (12.2)	
Widow(er)	472 (21.7)	2,816 (31.3)	
Education			
Illiterate	<b>1,028 (47.2)</b>	1,763 (19.6)	< 0.0001
Incomplete middle school	955 (43.8)	4,122 (45.8)	
Completed middle school	81 (3.7)	805 (8.9)	
High school	71 (3.3)	1,287 (14.3)	
Higher education	43 (2.0)	1,022 (11.4)	
Municipality			
Capital	136 (6.2)	4,776 (53.1)	< 0.0001
Interior	<b>1,751 (80.4)</b>	2,636 (29.3)	
Metropolitan area (non- capital)	253 (11.6)	1,485 (16.5)	
RIDE (except Brasília)	<b>38 (1.8)</b>	102 (1.1)	
Socioeconomic level			
A	4 (0.2)	300 (3.3)	< 0.0001
B	128 (5.9)	2,099 (23.3)	
C	793 (36.4)	4,189 (46.5)	
D & E	<b>1,253 (57.5)</b>	2,411 (26.8)	
Health insurance			
No	<b>1,971 (90.5)</b>	5,863 (65.2)	< 0.0001
Yes	207 (9.5)	3,136 (34.8)	
ESF			
No	413 (19.0)	3,358 (37.3)	< 0.0001
Yes	<b>1,491 (68.5)</b>	4,712 (52.4)	
Unknown	<b>274 (12.6)</b>	929 (10.3)	
Self-perceived health			
Very good	80 (3.7)	635 (7.1)	< 0.0001
Good	658 (30.2)	3,559 (39.5)	
Average	<b>1,071 (49.2)</b>	3,711 (41.2)	
Poor	<b>312 (14.3)</b>	855 (9.5)	
Very poor	57 (2.6)	239 (2.7)	

RIDE: *Região Integrada de Desenvolvimento do Distrito Federal e Entorno* (Integrated Development Region of the Federal District and its Surroundings); ESF: Enrolled in the *Estratégia Saúde da Família* (Family Health Strategy);  $\chi^2$  test; p significant when < 5%.

Source: Instituto Brasileiro de Geografia e Estatística/Pesquisa Nacional de Saúde (Brazilian Institute of Geography and Statistics/National Health Survey), 2013.

areas with respect to sociodemographic, economic and health characteristics. The data analysis showed that, except for age group, all other characteristics were significantly associated with household location ( $p < 0.0001$ ).

There were no significant differences between the young-old (60-79 years) and oldest-old (80 years or more) populations in rural areas. Among rural participants there was a higher frequency of male, mixed race, married, illiterate residents of towns in the interior whose socioeconomic class was D & E.

Rural participants also had a lower frequency of health insurance, but greater coverage in the Family Health Strategy program. Poor and average self-perceived health prevailed among rural participants, unlike that of the urban elderly, whose frequencies of very good, good and very poor were higher.

## DISCUSSION

The present study sought to explore the potential socio-demographic, economic, clinical and health access differences among Brazilian individuals aged 60 years and over who live in rural and urban areas.

There was a lower frequency of the oldest-old (aged 80 years or older) in rural settings. The increased chronic diseases, functional difficulties, and changes in family composition, that are associated with old age, could explain this finding. Cabral et al.<sup>7</sup> claim that, lack of access to health services and issues related to family and safety, also contribute to rural exodus, which is related to longevity and widowhood. Thus, rural exodus would corroborate our findings of a greater prevalence of the oldest-old in the urban environment and a greater prevalence of married individuals in the rural environment, given that the support of a spouse would promote permanence in the rural environment.

Since men have higher mortality, the probability of a woman becoming widowed is greater. Thus, the migration of women to the urban environment would also be greater. Cabral et al.<sup>7</sup> found an important percentage of elderly women who, although residing in an urban environment, came from rural areas. This study raises the hypothesis that rural exodus was the causal factor for the greater frequency of men in the rural environment. Other research indicates that women's employment opportunities are greater in the urban environment, in addition to greater access to education and professionalization.<sup>8,9</sup> Weisheimer<sup>10</sup> corroborates this observation, claiming that Brazilian migratory processes in the 1960s

account for the greater presence of men in rural environment. Extensive livestock production and mechanized agroindustry have been identified as factors associated with this phenomenon.<sup>8</sup>

This study demonstrated that rural dwellers had a lower socioeconomic level (class D & E). Lower income among the rural elderly was also observed by Dal Pizzol et al.<sup>11</sup> in Rio Grande do Sul and by Tavares et al.,<sup>12</sup> who found that individual income was either minimum wage (48.1%) or retirement income (50.6%). A study by Santos and Assunção<sup>13</sup> in southern Goiás found that the per capita household income of older individuals in the rural environment was twice as low as that of their urban peers. One possible explanation for these findings is that rural dwellers can maintain themselves on a lower income, since their food consumption is, at least partially, derived from their commercial production or can be easily produced. Although there is support for the conclusion that the rural elderly have a lower socioeconomic level, Cesar et al.<sup>14</sup> point out that in rural municipalities with the highest percentage of older people, lower frequencies of televisions and refrigerators (indicative of lower socioeconomic levels), but higher frequencies of radios and cars (ABEP criteria for higher socioeconomic levels) have been reported. Further analysis of the National Health Survey data will determine which consumer goods are related to the differences perceived in the present study.

Our data show that the majority of older rural residents who participated in the National Health Survey have a low education level (i.e., illiterate). Aires et al.<sup>15</sup> made a similar observation, finding that 94.3% of rural dwellers were either illiterate or had not completed middle school, which was similar to the National Health Survey finding of 91%. Tavares et al.<sup>16</sup> accounted for this phenomenon by the early integration of children into agricultural work, geographic isolation and difficulties in transportation access.

It was observed in this study that rural dwellers had less access to private health plans. This could be related to socioeconomic level, as was previously reported in a study analyzing data from the 2003 *Pesquisa Nacional por Amostragem de Domicílios* (National Household Sample Survey), which found proportions of older Brazilians with private health insurance coverage similar to ours.<sup>17</sup> Pinto and Soranz<sup>18</sup> demonstrated that private health insurance is one of a series of factors that create social inequality in access to and use of health services in Brazil. Bós and Bós<sup>19</sup> found a close relationship between family income and private health insurance coverage, concluding that the quality of

care provided by such plans was a determining factor for greater adherence.

The lower health plan coverage in rural environments could be offset by the greater presence of households enrolled in the Family Health Strategy program. Comparing National Health Survey data with the 2008 National Household Sample Survey, Malta et al.<sup>20</sup> also found that the proportion of households enrolled in the Family Health Strategy program was higher in rural environments than in urban peers. This shows that the goals of Brazil's Unified Health System (SUS), such as universal coverage and prioritizing coverage for at-risk populations (individuals with greater vulnerability, lower education, income, etc.) have been achieved, although there are still great weaknesses in a number of places. Thus, it is important to consider the differences in coverage, access and care provided by the Family Health Strategy in different municipalities, as well as the mechanisms of health services management.<sup>20</sup>

Expanding and consolidating primary health care is a fundamental Unified Health System strategy for combatting health inequities, since it is recognized as a key point of the system. Primary health care is where Unified Health System users make their first contact with the system and where health promotion, protection and prevention initiatives should be encouraged, aiming at the prevention of chronic conditions and the appearance of acute episodes of comorbidities, as well as less complex demands, thus helping improve the flow of secondary and tertiary care services.<sup>21</sup>

In our study, the proportion of individuals with average or poor self-perceived health was significantly higher among rural respondents. Corroborating this finding, a study conducted in Portugal found that the rural elderly classified their health as "weak",<sup>22</sup> although older rural Chinese considered their health to be good or very good.<sup>2</sup> A study on older rural Americans found that, the more isolated the environment, the lower the self-perceived health, although the results were not statistically significant.<sup>3</sup>

We observed that despite the greater availability of public health services, rural respondents perceived their health as average or poor, which could be related to the type of health services being offered. Oliveira and Pereira<sup>21</sup> discuss the fragility of the care management system's organization, which could be affecting user quality of life.

Limitations of this study include the fact that the National Health Survey did not question participants about prior places of residence. Such a question could have identified factors related to rural exodus. Our secondary analysis of

the data only allows us to infer that the higher or lower frequency of a given characteristic may have occurred due to migration processes rather than other factors, such as higher mortality. Follow-up studies should be carried out to identify the needs of the elderly in rural areas, and could lead to the development of health policies, aimed at the needs of this population.

Since the 2013 National Health Survey was the first of its kind in Brazil, it is impossible compare its results with earlier data. Nevertheless, we can infer that the rural population evaluated in this study differs from that of past decades, especially regarding life expectancy, the presence of comorbidities and socioeconomic position. Due to the globalization and industrialization processes of the last century, certain social and economic factors have been altered, such as eating habits, food acquisition, planting equipment, workplaces, etc. Nevertheless, despite improvements in health and hygiene conditions and advances in medicine and health services, more pathologies have concomitantly developed, especially cardiometabolic ones.

## CONCLUSIONS

Analysis of the sociodemographic, economic and health difference data from the National Health Survey indicated that in rural areas there was a greater prevalence of young-old (60–79 years) who were predominantly male, married, illiterate, black or of mixed race, of low socioeconomic level (class D & E) and with poor or average self-perceived health.

Although little is known about the permanence of families in rural areas, it is evident that with advancing globalization, the number of individuals in rural areas has fallen considerably, especially among youth and women. Due to frustration with living at the mercy of the weather for satisfactory harvests, and thus family income, rural farmers have strongly encouraged their children to migrate to urban areas in recent decades.

Currently, however, this scenario is changing. Due to the emptying of the countryside, the government and/or related sectors have been encouraging young people and women to remain in an attempt to promote agroindustrial work and value the land. There has also been a trend among farmers to send their children and grandchildren to urban areas for education and professionalization, so that they can later return to work at the farm and improve soil use techniques, which undermines the rural exodus phenomenon by strengthening the role of the rural environment as an economic and social system.



Our findings indicate that the differences between the rural and urban environments can be determining factors for social inequalities that surpass economic aspects or access to services. The promotion of strategic initiatives to reorganize these spaces and minimize the impact of inequalities has become fundamental, as has the need for new research on the conditioning and determining factors of health and illness in order to strengthen the rural environment as a space for socioeconomic development, with opportunities for both genders, access to services and consequent minimization of inequalities *in situ*.

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## CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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