

Gender inequalities in health among older Brazilian adults

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ABSTRACT

Objective. To investigate gender differences among older Brazilians in their health status and their use of health services.

Methods. Participants were individuals aged 60 years and older included in a national household survey conducted in Brazil in 1998. Data were analyzed by multiple logistic regression, taking into account the design effect due to multistage sampling.

Results. There were differences in the health and living conditions of older men and older women that were not explained by age or place of residence. Older women had worse indicators of schooling and personal income but better indicators of housing standards and per capita household income. The older women also reported more chronic diseases, had poorer indicators of independence and physical mobility, sought health services more often, and reported more medical visits in the previous year. Despite their apparent worse health conditions, elderly women in urban areas had lower hospitalization rates in the previous year (odds ratio = 0.89; 95% confidence interval, 0.82–0.96) than did elderly men in urban areas.

Conclusions. Our results indicate that among older Brazilians there are gender inequalities in health that cannot be explained by age and place of residence. The findings raise questions on how health, socioeconomic, and cultural factors influence gender patterns of seeking and using health care in later life in the country. As pressures on health care and health funding increase in Brazil as a result of the aging of the population, there is a need to take a gender perspective into account.

Key words

Age factors; aged; aged, 80 and over; sex factors; health status; socioeconomic factors; Brazil.

The process of rapid aging in developing country populations brings about the need to address how gender

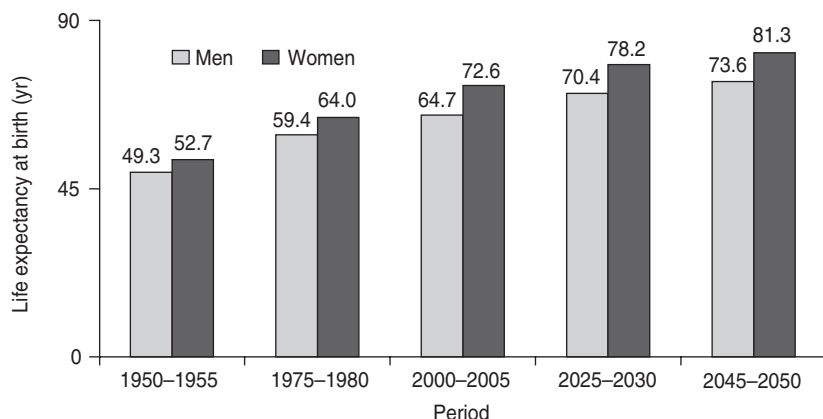
inequalities affect health in later life. Although the gender gap in life expectancy favors women by more than three years in most developed and developing countries, the gender gap in healthy life expectancy is much narrower, with women sometimes presenting lower healthy expectancy than men do (1, 2). In Brazil the gender gap in life expectancy at birth is very high (nearly eight years), but women's

higher life expectancy is offset by their lower healthy life expectancy at almost all ages, particularly among lower socioeconomic groups (3).

In spite of its importance, the gender gap in health in later life remains underresearched, particularly in developing countries. Gender analysis seeks to differentiate the influence of biological, behavioral, and social factors on health and to assess how these factors

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FIGURE 1. Life expectancy at birth according to gender, Brazil, periods of 1950–1955 through 2045–2050

might interact with gender, viewed as the social, cultural, and symbolic construction of femininity and masculinity in any given society (4). In that sense the roots of gender inequalities in health in later life cannot be separated from men's and women's past experiences in all areas that relate to gains and losses in health (5, 6).

Over the last few decades in Brazil, increases in life expectancy have occurred in all age groups, particularly among women. Figure 1 shows, for men and women, the increases in life expectancies at birth in the last 50 years and United Nations projections for the next 50 years. Between 1991 and 2000 the difference in life expectancy at birth between men and women increased from 7.2 to 7.8 years. The underlying excess male mortality occurs in all age groups, but it is greatest among young adults due to young men's unacceptably high risk of death from violence and accidents. The widening of the gender gap in life expectancy in the country is contributing to the relative enlargement of the female contingent among the aged. In the last census (2000), older women (60+ years) outnumbered men by 1.5 million (6.5 million men vs. 8.0 million women). In common with many other countries, female preponderance increases with age, from 54% in those 60–69 years old

to 59% in those 80 and older. Among Brazilian centenarians, there were more than seven times as many women as men in 2000. An inevitable consequence of this preponderance is the increase in the number of elderly women living alone and having to cope with loneliness in later life.

Data from Russia on gender inequalities in longevity clearly indicate that the gender gap can increase in adverse social and economic conditions (7), and Brazil has one of the worst income distributions in the world. The feminization of old age and the trend towards an increased gender gap in health status in the years to come reinforce the need to study gender dimensions of health inequalities in later life in Brazil. The purpose of this study was to investigate gender differences in several aspects related to health and life conditions in a representative sample of the Brazilian population aged 60 years and older.

MATERIAL AND METHODS

The study included all individuals aged 60 years and over who participated in the National Household Survey (*Pesquisa Nacional por Amostra de Domicílios*) that took place in 1998. Conducted by the Brazilian Foun-

ation on Geography and Statistics, each of the annual surveys has a different thematic focus. In 1998 the National Household Survey investigated, through household interviews, several aspects related to population health and health care use in the country. Further details are published elsewhere (8).

Men and women were compared in relation to several characteristics and factors associated with their life conditions, health status, and pattern of using health services. Sociodemographic characteristics included age, urban or rural residence, residence or not in a metropolitan region (the state capital and surrounding towns), position within the household (head of the household or not), schooling, personal income, household income per capita, number of people per bedroom, sanitation (piped water, bathroom in the house, trash collection service), electricity, and color television in the home.

The health indicators studied were: self-rated health, absence from ordinary activities due to a health problem in the previous two weeks, staying in bed some time in the last two weeks because of illness, report of chronic illness, the number of doctor visits during the previous year, the number of hospitalizations in the previous year, and private health plan coverage. In addition, the following indicators of mobility and independence were studied, in terms of difficulties in: eating, bathing, or using the toilet; walking uphill or climbing stairs; stooping down, kneeling, or bending; and walking at least 100 meters.

The data were analyzed using the survey commands of Stata statistical software (StataCorp, College Station, Texas, United States of America). In order to represent the entire population of Brazil, the estimates were weighted using the National Household Survey weights to allow for differences in sampling probabilities of participants. A special algorithm provided by the Brazilian Institute of Geography and Statistics was also incorporated in the analysis process to take into account the sampling design ef-

TABLE 1. Crude proportion and adjusted odds ratio (adj. OR) with 95% confidence interval (CI) of sociodemographic factors by gender (reference group = men) in the older population (60+ years). Brazil, 1998

| | Men (n = 12 757) | Women (n = 16 186) | Adj. OR ^a | 95% CI |
|---|---------------------|-----------------------|----------------------|-----------|
| Age in years | | | | |
| 60–64 | 32.7 | 30.7 | 1.00 | — |
| 65–69 | 26.8 | 25.1 | 1.00 | 0.93–1.07 |
| 70–74 | 18.5 | 19.1 | 1.10 | 1.02–1.19 |
| 75–79 | 11.7 | 11.8 | 1.07 | 0.98–1.18 |
| 80+ | 10.4 | 13.3 | 1.36 | 1.25–1.48 |
| Residence | | | | |
| Urban | 76.3 | 81.4 | 1.00 | — |
| Rural | 23.7 | 18.6 | 0.74 | 0.70–0.78 |
| Residing in metropolitan region ^b | | | | |
| Yes | 28.1 | 32.5 | 1.00 | — |
| No | 71.9 | 67.5 | 0.87 | 0.83–0.90 |
| Schooling (in years) | | | | |
| None | 37.7 | 43.2 | 1.00 | — |
| 1–3 | 23.1 | 21.0 | 0.77 | 0.71–0.82 |
| 4–7 | 23.8 | 23.2 | 0.79 | 0.74–0.85 |
| 8+ | 15.4 | 12.6 | 0.65 | 0.60–0.70 |
| Head of household | | | | |
| No | 10.1 | 58.1 | 1.00 | — |
| Yes | 89.9 | 41.9 | 0.08 | 0.07–0.09 |
| Personal income (R\$) per month ^c | | | | |
| <130 | 36.1 | 66.8 | 1.00 | — |
| 130–200 | 9.3 | 5.4 | 0.31 | 0.28–0.35 |
| 200–450 | 24.6 | 15.8 | 0.33 | 0.31–0.36 |
| >450 | 30.1 | 12.1 | 0.19 | 0.17–0.21 |
| Household income per capita (quintile) | | | | |
| Lowest | 23.0 | 19.6 | 1.00 | — |
| Mid-low | 20.6 | 23.1 | 1.27 | 1.20–1.34 |
| Middle | 17.3 | 17.1 | 1.10 | 1.00–1.18 |
| Mid-high | 19.5 | 20.0 | 1.12 | 1.05–1.19 |
| Highest | 19.6 | 20.3 | 1.10 | 1.03–1.18 |
| Living alone | | | | |
| No | 92.3 | 86.1 | 1.00 | — |
| Yes | 7.7 | 13.9 | 1.89 | 1.70–2.11 |
| Mean number of residents per bedroom | | | | |
| <2 | 86.0 | 88.2 | 1.00 | — |
| 2–3.9 | 13.0 | 11.1 | 0.85 | 0.80–0.90 |
| 4 | 1.0 | 0.7 | 0.74 | 0.60–0.90 |
| Sanitation (piped water, bathroom, or trash collection) | | | | |
| All three | 69.1 | 74.8 | 1.00 | — |
| Any two | 14.4 | 12.1 | 0.84 | 0.78–0.91 |
| Any one | 7.8 | 6.1 | 0.78 | 0.71–0.86 |
| None of the three | 8.7 | 7.0 | 0.85 | 0.77–0.94 |
| Electricity in the household | | | | |
| Yes | 91.7 | 94.0 | 1.00 | — |
| No | 8.3 | 6.0 | 0.85 | 0.78–0.92 |
| Color television in the household | | | | |
| Yes | 73.8 | 77.0 | 1.00 | — |
| No | 26.3 | 23.0 | 0.92 | 0.87–0.97 |

^a All but three of the OR values are adjusted for age and place of residence. The age OR is adjusted for residence. The residence and metropolitan region OR values shown are adjusted for age.

^b Metropolitan region = state capital and surrounding towns.

^c R\$ 1.20 = US\$ 1.00.

fects due to multistage sampling. Existing differences between elderly men and elderly women in relation to the variables included in the study were estimated using Pearson's chi-square and adjusted odds ratios with confidence intervals (Woolf's method), obtained by multiple logistic regression. Results of the analysis on health care use are presented stratified by place of residence (urban or rural) since the availability of and access to services differ between the two areas.

RESULTS

A total of 12 757 men and 16 186 women aged 60 years and above participated in the study. Table 1 shows the distribution of older people according to sociodemographic characteristics. The proportion of women was significantly greater than that of men in age groups 70–74 and 80+ years, and more women lived in urban areas, independently of age. After adjusting for age and place of residence, women remained significantly different from men in the following aspects: lower schooling, less often being the family head, smaller personal income, higher household income per capita, higher proportion living alone, living in lower density residences, and better living conditions (sanitation, electricity, and color television).

In relation to indicators of independence and physical mobility, women presented worse conditions for all indicators, independently of age and urban/rural condition (Table 2). With the reported health conditions shown in Table 2, all illnesses were more common among elderly women except cancer and cirrhosis, which were more frequent among older men, and bronchitis/asthma and renal diseases, which did not show significant gender differences.

Table 3 shows that, after adjustment for age, older women in urban and rural areas sought health services more often than men did, reported more medical visits in the previous year, and were more likely to be covered by private health plans. However, older women in

TABLE 2. Crude proportion and adjusted odds ratio (adj. OR) with 95% confidence interval (CI) of selected indicators of independence, physical mobility, and other health factors, according to gender (reference group = men) in the older population (60+ years). Brazil, 1998

| | Men (n = 12 757) | Women (n = 16 186) | Adj. OR ^a | 95% CI |
|--|---------------------|-----------------------|----------------------|-----------|
| Difficulty in eating, bathing, or using the toilet | | | | |
| No difficulty | 86.7 | 82.9 | 1.00 | — |
| Small difficulty | 7.6 | 9.9 | 1.33 | 1.23–1.43 |
| Great difficulty | 5.7 | 7.2 | 1.22 | 1.10–1.36 |
| Difficulty in walking uphill or climbing stairs | | | | |
| No difficulty | 53.0 | 36.2 | 1.00 | — |
| Small difficulty | 25.1 | 28.8 | 1.71 | 1.62–1.81 |
| Great difficulty | 21.8 | 34.9 | 2.40 | 2.25–2.56 |
| Difficulty in stooping down, kneeling, or bending | | | | |
| No difficulty | 56.9 | 36.2 | 1.00 | — |
| Small difficulty | 24.5 | 28.8 | 1.67 | 1.57–1.78 |
| Great difficulty | 18.6 | 34.9 | 2.15 | 2.01–2.31 |
| Difficulty in walking 100 meters | | | | |
| No difficulty | 85.7 | 75.7 | 1.00 | — |
| Small difficulty | 9.7 | 16.0 | 1.84 | 1.69–2.01 |
| Great difficulty | 4.6 | 8.3 | 1.98 | 1.78–2.20 |
| Self-rated health | | | | |
| Very good/Good | 24.6 | 24.5 | 1.00 | — |
| Regular | 24.8 | 32.7 | 1.34 | 1.24–1.44 |
| Bad/Very bad | 9.0 | 11.8 | 1.32 | 1.20–1.45 |
| Unknown | 41.7 | 31.1 | 0.71 | 0.66–0.77 |
| Interruption of usual activities in previous 2 weeks because of health problem | | | | |
| No | 87.2 | 85.1 | 1.00 | — |
| Yes | 12.8 | 14.9 | 1.17 | 1.09–1.26 |
| Stayed in bed in the previous 2 weeks because of health problem | | | | |
| No | 91.7 | 89.6 | 1.00 | — |
| Yes | 8.3 | 10.4 | 1.24 | 1.14–1.35 |
| Report of chronic health condition | | | | |
| No | 37.8 | 25.5 | 1.00 | — |
| Yes | 62.2 | 74.5 | 1.77 | 1.67–1.87 |
| Illnesses reported | | | | |
| Arthritis/rheumatism | 29.9 | 43.5 | 1.84 | 1.74–1.95 |
| Cancer (any site) | 1.4 | 0.1 | 0.57 | 0.45–0.73 |
| Diabetes | 8.0 | 12.1 | 1.54 | 1.40–1.70 |
| Bronchitis/Asthma | 7.8 | 7.7 | 0.98 | 0.90–1.06 |
| Hypertension | 36.6 | 49.7 | 1.70 | 1.60–1.79 |
| Heart disease | 16.6 | 21.0 | 1.29 | 1.20–1.38 |
| Chronic renal disease | 7.0 | 6.7 | 0.96 | 0.88–1.05 |
| Cirrhosis | 0.5 | 0.2 | 0.49 | 0.33–0.73 |

^a Odds ratio is adjusted by age and place of residence.

urban areas—but not in rural areas—had lower age-adjusted hospitalization rates in the previous year than did older men.

DISCUSSION

We found that older men and older women differed in terms of their socio-

economic conditions. The women had worse indicators of schooling and personal income, but seemed better off than the men regarding housing conditions and household income per capita. In relation to health, our results are consistent with data from developed countries showing that women have worse health indicators, seek medical attention more often than men

do, and report more medical visits, while men report higher hospitalizations rates (9, 10).

The apparent contradiction in socioeconomic indicators, such as personal and household income per capita, may be explained by current as well as past differences in the working lives that men and women have experienced. The usual sources of income for older Brazilians are pensions, paid employment, and financial support from other family members. In our study the total income received by the elderly Brazilian women was on average around half of that of the elderly men (US\$ 110 vs. US\$ 203 per month). This disparity, of around 50%, was close to the country's overall gender gap in income in 1998 (11). In addition, the percentage of men who were economically active in later life as of 1998 was three times as high as the percentage for women (26.8% vs. 8.9%), thus contributing to men's higher average personal income in older age (8). Moreover, income during retirement reflects social and working conditions that prevailed in a person's life before retirement. Empirical evidence shows that the effects of socioeconomic disadvantages are cumulative over the course of an individual's life (10). Most of the older women in the cohorts in our study were housewives and had depended on a husband's income during most of their lives. In 1950, for instance, only 13% of women in Brazil were economically active, so the gender gap in income was probably even larger than it is today.

However, work histories cannot explain women's higher household income per capita and better housing conditions in later life. Part of the explanation may be survival bias, since there are more women living alone and thus not sharing their income with other persons in the house. But it is also possible that these indicators reflect women's positions in family and society (Figure 2). There seems to be no doubt of women's differential role in family care, from childhood up through older ages (12). Data from Brazil from 1970, 1995, and 1999 in-

TABLE 3. Crude proportion and adjusted odds ratio (adj. OR) with 95% confidence interval (CI) of selected health care factors according to gender (reference group = men) in urban and rural older populations (60+ years). Brazil, 1998

| | Men (n = 12 757) | Women (n = 16 186) | Adj. OR ^a | 95% CI |
|--|---------------------|-----------------------|----------------------|-----------|
| Urban | | | | |
| Private health plan | | | | |
| No | 69.4 | 66.4 | 1.00 | — |
| Yes | 30.6 | 33.6 | 1.16 | 1.10–1.22 |
| Sought health services in the previous 2 weeks | | | | |
| No | 79.9 | 74.1 | 1.00 | — |
| Yes | 20.1 | 25.9 | 1.39 | 1.30–1.48 |
| Medical visits in the previous year | | | | |
| No | 31.6 | 20.5 | 1.00 | — |
| Yes | 68.4 | 79.5 | 1.78 | 1.67–1.89 |
| Number of medical visits in the previous year | | | | |
| 0 | 31.7 | 20.6 | 1.00 | — |
| 1 | 14.6 | 12.3 | 1.29 | 1.18–1.42 |
| 2 | 13.5 | 14.0 | 1.59 | 1.47–1.73 |
| 3+ | 40.2 | 53.1 | 2.02 | 1.89–2.16 |
| Hospitalizations in the previous year | | | | |
| No | 85.6 | 86.7 | 1.00 | — |
| Yes | 14.4 | 13.3 | 0.89 | 0.82–0.96 |
| Rural | | | | |
| Private health plan | | | | |
| No | 94.0 | 93.5 | 1.00 | — |
| Yes | 6.0 | 6.5 | 1.09 | 0.93–1.28 |
| Sought health services in the previous 2 weeks | | | | |
| No | 87.7 | 83.7 | 1.00 | — |
| Yes | 12.3 | 16.3 | 1.39 | 1.18–1.63 |
| Medical visits in the previous year | | | | |
| No | 44.3 | 30.3 | 1.00 | — |
| Yes | 55.7 | 69.7 | 1.84 | 1.64–2.06 |
| Number of medical visits in the previous year | | | | |
| 0 | 44.3 | 30.3 | 1.00 | — |
| 1 | 16.3 | 15.8 | 1.42 | 1.20–1.67 |
| 2 | 13.7 | 16.0 | 1.70 | 1.44–2.02 |
| 3+ | 25.6 | 38.0 | 2.18 | 1.91–2.48 |
| Hospitalizations in the previous year | | | | |
| No | 87.8 | 86.5 | 1.00 | — |
| Yes | 12.2 | 13.5 | 1.12 | 0.97–1.31 |

^a Odds ratio is adjusted by age and place of residence.

dicates that elderly women who were widowed, single, or divorced tend to live with close relatives more often than do equivalent older men (13). Women's traditional roles and the type of family ties and other social connections that they make over the course of their lives may result in greater family and social links in later life. One cannot assume, however, that women's greater ability to form strong family bonds compensates for eco-

nomical and social disadvantages in old age. That is because these family connections also generate responsibilities, tensions, and demands that might negatively affect older women's health and quality of life (12). Despite reporting more illnesses, older women continue to have important roles as caregivers for both younger and older family members (14). Furthermore, we do not know how important personal income is, as opposed to household in-

come per capita, for the well-being and health of elderly men and women. The impact of personal income on health may vary across generations and is likely to be mediated by factors such as schooling and the access to and the quality of health and social care available in the country. Other studies are needed to understand these relationships in order to clarify the effect of socioeconomic inequalities in men and women's needs in older age.

This study's findings on the poorer health conditions of elderly women are in line with the results of other studies (9, 10, 15) that indicate women's greater disadvantages and dependency in later life. Health is central to quality of life in older age, and it is the utmost determinant of remaining socially active and independent. Many persons regard dependency as a threat to self-respect, dignity, and satisfaction in life (10). The higher number of medical visits reported by elderly women is probably associated with their poorer health conditions, which are especially due to higher prevalences of chronic diseases that are rarely fatal.

Various factors are likely to explain this gender gap in health condition and health care use (Figure 3). For instance, it is possible that men who survive to old age are healthier than women in the same age group, reflecting men's higher premature mortality. For instance, black men in the United States who reach the age of 75 are apparently healthier than their white counterparts (10). Nevertheless, we found in Brazil that despite their lower consultation rates and apparent better health conditions, urban men are hospitalized more often than are urban women, independently of age. This finding is consistent with men's higher mortality rates but inconsistent with their better health indicators and lower number of medical visits. This apparent gender paradox seems to be related to differences in the prevalence of some illnesses that differ in their risk of causing premature death. For instance, diseases of the musculoskeletal system, which are hardly associated with increased mortality but increase disability and medical visits, are much more common among aged

FIGURE 2. Socioeconomic differentials among elderly men and women in Brazil: possible pathways

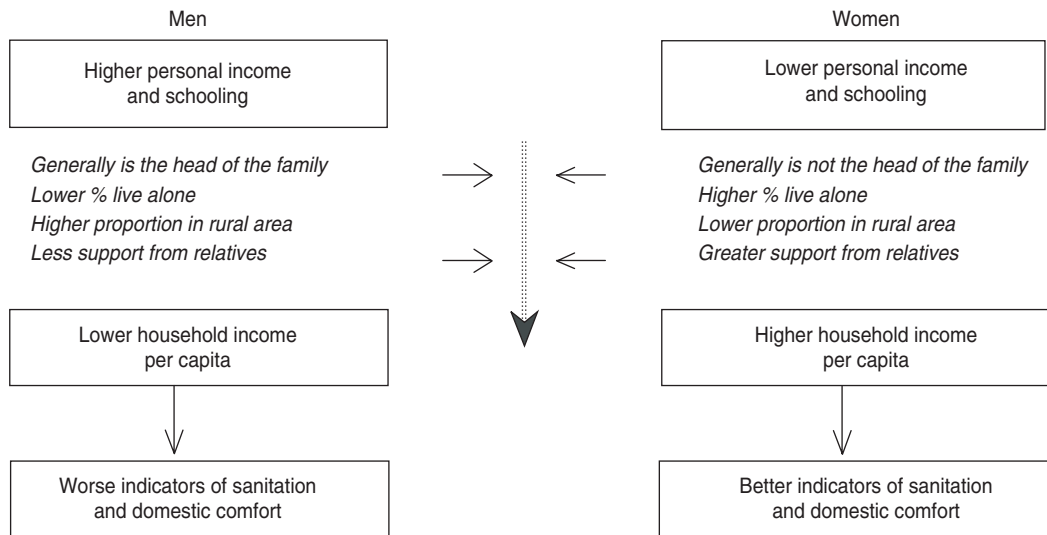
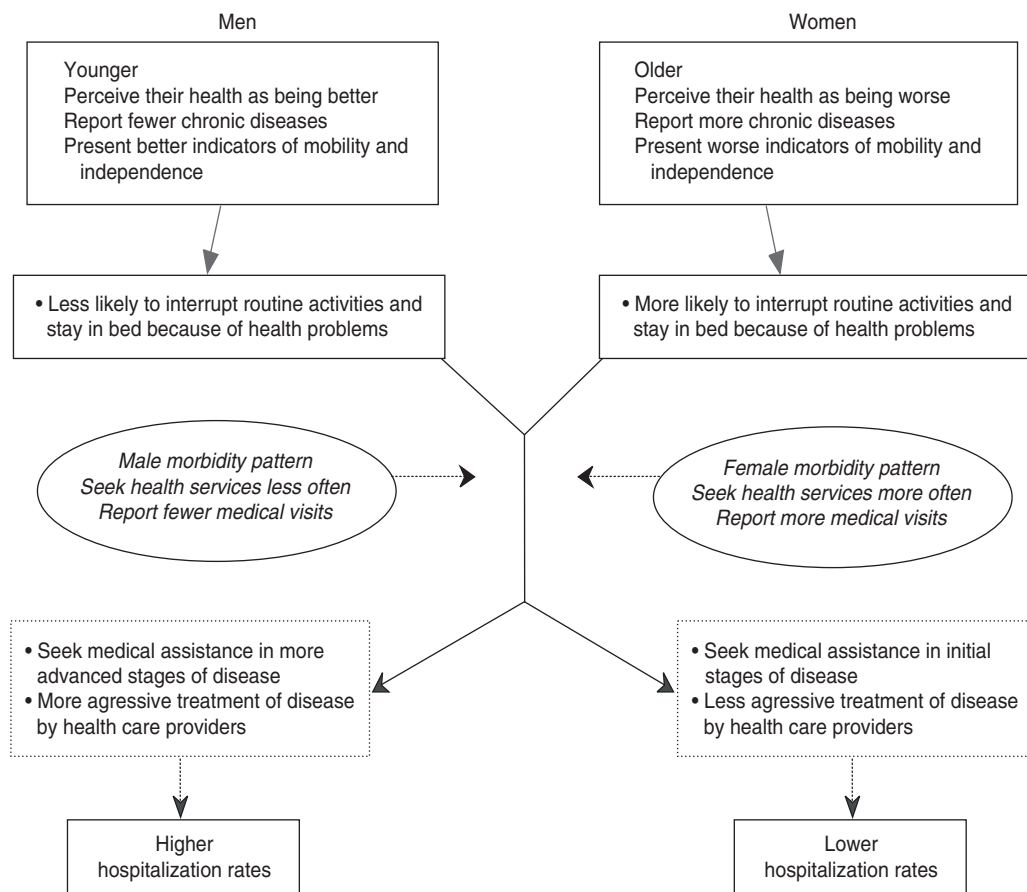


FIGURE 3. Health indicators and health care use of elderly men and women in Brazil: possible pathways



women than among aged men. The differences may also be explained by the fact that men perceive their health differently and seem to have more difficulties in reporting illnesses than do women (5, 6, 16). A review article on the United Kingdom (17) reported that men, independently of income and ethnicity, had more difficulties in talking about their health problems and tended to seek medical care in more advanced and life-threatening stages of disease, explaining in part their higher hospitalizations rates (17). As health care practices are established early during one's life, it is possible that primary health services are more friendly to women than they are to men. For example, most health services are open mainly during daytime hours, when more men than women are at work. Women's reproductive life and motherhood may also make women more apt to make use of health care than is true for men (5). Moreover, discrimination against females by doctors and other health service providers likely contributes to

men's higher hospitalization rates, especially from cardiovascular diseases (18) and medical interventions such as coronary bypass graft (19).

In conclusion, as men and women live and age in different ways, inequalities observed in later life express social and biological advantages and disadvantages accumulated over one's life. The older people included in this study in Brazil belong to cohorts with sizable families. Between 1940 and 1970, when they were in their 20s, 30s, and 40s, total fertility rates in the country were around 6.0 children per woman, and few women were engaged in paid work. Such conditions may help impoverish women, leading to their need for family and social support in old age (10, 20) and negatively influencing their quality of life and health (12). On the other hand, elderly men in this study belong to generations that experienced very unsafe working conditions and drastic changes in the labor market and working processes. These circumstances and the speed at which

they occurred in Brazil are likely to have affected men's health and the way that they perceive and take care of themselves. Between 1990 and 1994, male life expectancy in Russia fell by 6 years, resulting in a gender longevity gap of 13.5 years. This dramatic change has been attributed to men's greater difficulties in coping with socioeconomic uncertainties and turmoil (7).

Our results show that there are gender inequalities in health that cannot be explained by age and place of residence. These findings raise questions regarding how gender interacts with socioeconomic background, health conditions, and health care use in Brazil. In planning for the future, one cannot forget the past. Gender inequalities have to be confronted in all ages, spheres, and social groups if we want to build a future of healthy aged men and women. As pressures on social security and health care provision increase in developing countries as a result of population aging, new policies are needed that take gender perspectives into account.

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RESUMEN**Desigualdades en función del género entre adultos brasileños de edad avanzada**

Objetivo. Investigar las diferencias halladas en función del género en el estado de salud y en el uso de servicios de salud en personas brasileñas de edad avanzada.

Métodos. Los participantes fueron personas de 60 años de edad o más que habían sido incluidas en una encuesta domiciliaria nacional realizada en el Brasil en 1998. Los datos se analizaron mediante regresión logística multifactorial, teniendo en cuenta el efecto del diseño basado en un muestreo polietápico.

Resultados. Entre hombres y mujeres de edad más avanzada se observaron diferencias en el estado de salud y las condiciones de vida que no dependían de la edad ni del lugar de residencia. Las mujeres mayores mostraron peores indicadores en lo referente a escolaridad e ingresos personales, pero tuvieron mejores indicadores en cuanto a los estándares de la vivienda y al ingreso domiciliario per cápita. Las mujeres mayores también notificaron más enfermedades crónicas y peores indicadores respecto de la independencia y movilidad física, acudieron a servicios de salud con más frecuencia y notificaron más consultas médicas durante el año anterior a la encuesta. Aunque parecían estar en peor situación de salud, las mujeres de edad avanzada residentes de zonas urbanas tuvieron menos tasas de ingreso hospitalario durante el año anterior a la encuesta (razón de posibilidades = 0,89; intervalo de confianza de 95%: 0,82–0,96) que los hombres de edad avanzada que vivían en zonas urbanas.

Conclusiones. Nuestros resultados indican que entre las personas de edad avanzada en el Brasil hay desigualdades de salud entre los sexos que no pueden explicarse en función de la edad o del lugar de residencia. Estos hallazgos dan lugar a interrogantes acerca de la influencia de factores sanitarios, socioeconómicos y culturales sobre la forma en que las personas de un sexo u otro en el país buscan y utilizan la atención de salud en etapa avanzada de la vida. A medida que se incrementan las presiones sobre el sistema de atención de la salud y su financiamiento como resultado del envejecimiento de la población, se torna necesario mirar el asunto desde el punto de vista del género.

American Public Health Association Annual Meeting

Dates: 6–10 November 2004

Location: Washington Convention Center
Washington, D.C., United States of America

The theme of the 2004 Annual Meeting & Exposition of the American Public Health Association (APHA) is "Public Health and the Environment." The event provides an opportunity for public health professionals to learn from the experts in the field, hear about cutting-edge research and exceptional best practices, discover the latest public health products and services, and share public health experience with peers.

The environment has long been one of the APHA's priority areas. The 2004 APHA Annual Meeting will focus on the role of public health in addressing environmental issues, sustaining healthy environments, and enhancing research, public awareness, and prevention and treatment of disease caused or exacerbated by environmental factors. The meeting will include general sessions, scientific sessions, poster sessions, an exhibitors' exposition, continuing education institutes, and other events.

The cost of registration for the meeting, if paid by 1 October, is US\$ 515 for persons who are not APHA members and US\$ 355 for APHA members. After that date, the respective costs are US\$ 575 and US\$ 415.

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