SOCIOECONOMIC INEQUALITY AND HEALTH STATUS AMONG THE BRAZILIAN ELDERLY, 1998 AND 2008

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INTRODUCTION

- Since last century, Brazil is in a rapid and accelerated ageing population and in the increase of the population's longevity.

INTRODUCTION

- Life expectancy has increased by 30 years between 1940 and 2000;

- From 37.6 to 64.8 years among men and from 39.4 to 72.6 years among women;

- Life expectancy reached 73.48 years in 2010.

(IBGE, 2010)

INTRODUCTION

- The process of demographic and epidemiologic transition has led to a greater incidence and prevalence of chronic-degenerative diseases (WHO, 2008).

INTRODUCTION

- Socioeconomic status plays a key role in determining the health of individuals.

- Some studies have showed that low socioeconomic status is associated with poor health and high mortality risk (Arber, 1991; Marmot et al., 1997; Porell & Miltiades, 2002; Kaplan et al., 1996).

INTRODUCTION

- Brazil is among those with the highest levels of social inequality in the world (Lima-Costa et al., 2006).

- In Brazil, the past two decades have been marked by important social changes, characterized mainly by reducing inequality and poverty (IPEA, 2011).

- Despite these reductions, significant regional differences are still present (Andrade et al., 2013).

INTRODUCTION

- Healthy life expectancy is a measure that combines morbidity and mortality information into a single index and can observe the health of population trends (Bone et al., 1998; Portrait et al., 2001).

INTRODUCTION

- There is a fair number of studies investigating the healthy life expectancy in Brazil (IBGE, 2004; Baptista, 2003; Romero et al., 2005; Camargos et al., 2005; Camargos et al., 2009; Campolina et al., 2013; Camargos and Gonzaga, 2015).

- There are no studies analyzing the healthy life expectancy for a specific chronic disease according to the socioeconomic status and their evolution over time among the elderly.

HYPOTHESIS

- Our work hypothesis is that income and education cause a different effect.

OBJECTIVE

- The objective of this study was to present and compare estimates of life expectancy with and without a specific chronic disease among older adult population in Brazil, for the years 1998 and 2008, by sex, and socioeconomic status.

MATERIAL AND METHODS: Data Source

- Pesquisa Nacional por Amostra de Domicílios (PNAD – Brazilian National Household Survey) in 1998 and 2008

- Sistema de Informação sobre Mortalidade (MIS - Mortality Information System) in 1998 and 2008

- Instituto Brasileiro de Geografia e Estatística (IBGE - Brazilian Institute of Demographic Geography and Statistcs) in 1998 and 2008

MATERIAL AND METHODS: Variables

- Prevalence of chronic disease (self-reported): hypertension, diabetes, bronchitis/asthma, heart disease.
- Age: 60-64, 65-69, 70-74, 75-79, 80-84, 85 years or more
- Sex
- Household income (80th or more percentile as high income, and 20th percentile or less as low income)
- Level of education (0 to 4 years of study as low education, and 11 or more years of study as high education)

MATERIAL AND METHODS: Method

- We estimated the life expectancy with and without chronic diseases for the Brazilian elderly population in 1998 and 2008;

- Based on the construction of life tables, which combined mortality information and prevalence of chronic diseases;

- Sullivan method (1971).

MATERIAL AND METHODS: Method

- The expected years in healthy state and unhealthy states are calculated by applying the age- and sex- specific cross-sectional prevalence rates of with chronic disease and without chronic disease, respectively, to the person-years lived in different age categories derived from period life tables (Andrade et al, 2014).

MATERIAL AND METHODS: Method

Age	Pop.	Death	M_x	a_x	q_x	l_x	d_x	L_x	T_x	e_x	π_x	(1-πx)*Lx	Σ[(1-πx)*Lx]	HLE
60-64														
65-69														
70-74														
75-79														
80-84														
85 +														

Sullivan method

$$HLE_x = \frac{\sum[1 - n\pi xi]nLx}{l_x}$$

$$LED_x = \frac{\sum[n\pi xi]nLx}{l_x}$$

- **[1- nπx]∗nLx** is a person years lived in age interval without chronic disease
- **[nπx]∗nLx** is a person years lived with chronic disease in age interval x to x+n
- **Σ[1- nπx]∗nLx** is a total years lived without chronic disease from age x
- **Σ[nπx]∗nLx** is a years lived with chronic disease from age x
- **lx** is the numbers surviving to age x

RESULTS

Table 1-Total life expectancy (TLE), healthy life expectancy (HLE) among older adults in Brazil by income: 1998 and 2008

Sex and Age	TLE		HLE							
			Hypertension		Diabetes		Bronchitis/asthma		Heart Disease	
	1998	2008	1998	2008	1998	2008	1998	2008	1998	2008
LOW INCOME										
Total										
60	19.1	21.2	10.0	9.0	16.7	16.9	16.7	18.8	14.9	16.6
80	7.6	8.9	3.4	2.9	5.7	5.8	5.6	6.3	4.7	5.4
Men										
60	17.4	19.4	10.6	9.8	16.0	16.3	15.3	17.5	14.3	15.6
80	6.8	8.0	3.9	3.4	5.6	5.8	5.3	6.0	4.9	5.1
Women										
60	20.8	22.9	9.7	8.5	17.6	17.5	18.1	20.0	15.5	17.4
80	8.2	9.5	3.2	2.7	5.8	5.8	5.9	6.4	4.7	5.6
HIGH INCOME										
Total										
60	19.1	21.2	10.7	9.7	16.3	16.7	17.5	19.0	14.9	16.3
80	7.6	8.9	3.5	3.2	5.4	5.7	5.9	6.4	4.7	4.9
Men										
60	17.4	19.4	10.8	10.0	15.1	15.6	16.0	17.8	14.0	15.1
80	6.8	8.0	4.1	3.5	5.3	5.5	5.4	6.1	4.7	4.6
Women										
60	20.8	22.9	10.7	10.5	17.5	17.8	18.8	20.1	15.8	17.4
80	8.2	9.5	3.2	4.5	5.5	5.8	6.2	6.6	4.7	5.1

Source: PNAD, IBGE, and MRS, 1998, 2008.

Table 2 - Total life expectancy (TLE), healthy life expectancy (HLE) among older adults in Brazil by education: 1998 and 2008.

Sex and Age	TLE		HLE							
			Hypertension		Diabetes		Bronchitis/asthma		Heart Disease	
	1998	2008	1998	2008	1998	2008	1998	2008	1998	2008
LOW EDUCATION										
Total										
60	19.1	21.2	10.0	9.0	16.6	16.8	16.9	18.8	14.9	16.4
80	7.6	8.9	3.4	2.9	5.7	5.7	5.6	6.3	4.8	5.1
Men										
60	17.4	19.4	10.6	10.0	15.9	16.3	15.5	17.5	14.2	15.5
80	6.8	8.0	3.7	3.2	5.5	5.6	5.1	5.9	4.8	5.0
Women										
60	20.8	22.9	9.4	8.2	17.4	17.2	18.2	19.9	15.5	17.2
80	8.2	9.5	3.2	2.7	5.8	5.8	5.9	6.5	4.8	5.2
HIGH EDUCATION										
Total										
60	19.1	21.2	11.8	10.8	16.9	17.2	17.7	19.2	15.2	16.6
80	7.6	8.9	4.1	3.8	5.6	5.8	6.1	6.4	5.0	5.0
Men										
60	17.4	19.4	11.2	10.4	15.4	15.5	16.2	17.9	13.8	15.0
80	6.8	8.0	4.3	3.7	5.2	5.4	5.7	6.1	4.8	4.4
Women										
60	20.8	22.9	12.3	11.2	18.4	18.7	19.0	20.4	16.4	18.0
80	8.2	9.5	4.0	3.7	5.9	6.1	6.4	6.6	5.2	5.6

Source: PNAD, IBGE, and MRS, 1998, 2008.

RESULTS AND DISCUSSION

- For all chronic diseases, there was an increase in average survival with disease between the two periods analyzed and all socioeconomic levels;

- Brazilian elderly are living longer. The current trend is to have an increasing number of individuals living longer and have a greater number of chronic conditions (Chaimowicz, 1998);

RESULTS AND DISCUSSION

- Hypertension was the chronic disease that has caused the greatest influences, followed by heart disease;

- The average number of years lived in good health decreased between the reporting period and in a similar way to income and education;

- Women lived on average longer with hypertension than men, and this difference is more pronounced in the lowest income group (a lower income is still rather more favorable to men's health).

RESULTS AND DISCUSSION

- Higher education increase the average time healthy, being more favorable to women than men, in both years, except for those with the age of 80;

- In the low education group, men had higher HLE than women, both age 60 as the age of 80 and in both periods;

- Education played a much more pronounced effect on blood pressure than income;

RESULTS AND DISCUSSION

- This can be explained by the fact that high blood pressure is directly related to lifestyle and also the reason that lack of adherence to treatment is one of the greatest problems in controlling blood pressure, both directly influenced by the educational level.

RESULTS AND DISCUSSION

- For heart disease, more education level led to a greater increase of HLE compared to the group of high income in both periods among women;

- Women have higher average times of healthy survival than men, in both groups, ages and years;

- The values are larger at higher socioeconomic levels;

RESULTS AND DISCUSSION

- With regards to diabetes, HLE has not changed between the periods for both sexes and there were no important differences between the high and low income groups.

- Socioeconomic inequalities were not very expressive, except for the highly educated group of women for which we found the greater differences towards a longer survival without the disease compared to that found for the high income.

RESULTS AND DISCUSSION

- Respiratory disease was a chronic condition that caused the least effect;
- Respiratory disease showed no significant differences when comparing income and education;
- The schooling also produces the major influences;
- The lower level of education increased the average years of life lived with the disease.

RESULTS AND DISCUSSION

- Higher socioeconomic status increased health;
- The results of this study corroborate with previous research (Arber, 1991; House et al, 1994; Kaplan et al, 1996; Marmot et al, 1997);
- Education was the socioeconomic factor that exercised the greatest influence on healthy life expectancy;
- Education inequalities influence more strongly the HLE than income;
- Higher education longer average life in relation to a lower education and also the lower income.

RESULTS AND DISCUSSION

- Higher education favors access to information and lifestyle modification, the adoption of healthy habits and involvement in activities that prioritize health promotion, especially, the correct follow-up of related guidelines to health (Alves and Rodrigues, 2005);

- Income facilitated access to medical services (Zimmer and Amornsirisomboon, 2001);

RESULTS AND DISCUSSION

- The socioeconomic inequality affects the health women more negatively than men;

- This study reinforces that there is a slight advantage in favor of high education to women's health than income;

RESULTS AND DISCUSSION

- Brazil displays a process of increasing the educational level and the reversal of the gender gap. It was observed that at older ages in all cohorts, men have higher levels of education than women. However, in younger cohorts, women have started to exceed men since the mid-twentieth century (Alves and Corrêa, 2009).

CONCLUSION

- Despite the social changes in Brazil in recent decades with a reduction in inequality and poverty, the effect of socioeconomic inequality in the health status of the elderly in the country it is also evident.

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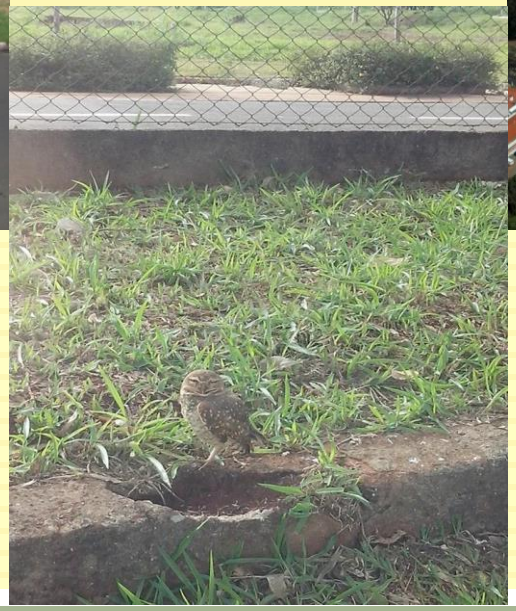

THANK YOU VERY MUCH!

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