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Birth cohort differences in cardiovascular risk factors in a Brazilian population of older elderly: the Bambuí Cohort Study of Aging (1997 and 2008)

Diferenças de coorte e de nascimento nos fatores de risco cardiovascular em idosos mais velhos: Estudo de Coorte de Idosos de Bambuí (1997 e 2008)

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Abstract

The aim of this study was to investigate whether cohort differences exist in the prevalence of cardiovascular risk factors among older elderly from the Bambuí Cohort Study of Aging. Participants were those aged 71-81 years at two points in time a decade apart: 457 in 1997 (earlier cohort) and 553 in 2008 (recent cohort). The prevalence of hypertension (PR = 1.27; 95%CI: 1.19-1.36) and of diabetes mellitus (PR = 1.39; 95%CI: 1.06-1.83) was higher in the recent cohort compared to the earlier one, regardless of sex. The recent cohort had a lower prevalence of smoking (PR = 0.58; 95%CI: 0.42-0.80), and lower total cholesterol/HDL cholesterol ratio level (PR = 0.85; 95%CI: 0.80-0.89). There was a 136% increase in the pharmacologic treatment of diabetes and a 56% increase in pharmacologic management of hypertension in 2008 in comparison with 1997. Overall, the number of cardiovascular risk factors in the recent cohort remained similar to that of the early cohort.

Cardiovascular Diseases; Risk Factors; Aged; Cohort Studies

Introduction

Cardiovascular risk factors are associated with the leading causes of death in the elderly worldwide. Cardiovascular diseases (hypertensive heart disease, ischaemic heart disease and cerebrovascular disease) account for 30% of mortality among those aged 60 and over in high income countries and 42.2% in middle income countries [1]. Projections of the impact of health promotion initiatives and health care services on health outcomes should be sensitive to and thus incorporate assumptions about underlying trends in the prevalence of conventional cardiovascular risk factors, such as hypertension, diabetes mellitus, dyslipidemia, and smoking in a given population [2,3]. Trends of cardiovascular risk factors in old age have received increased attention, particularly in high income countries [4,5,6,7,8].

Nationally representative health surveys in high income countries have shown that the prevalence of smoking among the elderly is declining [5,6,7]. The prevalence of diabetes mellitus – defined by fasting blood glucose levels and/or treatment or by history of a medical diagnosis – increased in the elderly in the United States, Canada and the Netherlands between the decades of 1990 and 2000 [6,7,8]; in Sweden changes over ten years were minimal [9]. In the majority of studies, the prevalence of hypertension has been increasing. In the United States, the prevalence of hypertension, defined as a systolic pressure ≥ 140mmHg and/

or diastolic pressure ≥ 90mmHg and/or treatment, increased between 1988-1994 and 2003-2006 [7]. In Canada and in Sweden, the prevalence of self-reported hypertension among the elderly increased during the same period [6,9]. For dyslipidemia there are few national surveys. In the United States, the prevalence of total cholesterol levels ≥ 240mg/dL decreased sharply among the elderly in the last decade [7]. In Germany, there was a slight increase in total cholesterol levels, which, apparently, is due to an increase in HDL cholesterol levels [5].

Data about trends in cardiovascular risk factors in the elderly, based on surveys of nationally representative samples in middle income countries, are scarce. In South Korea, the prevalence of smoking declined between 1998 and 2005 among men, but not among women. The prevalence of diabetes mellitus and of hypertension (both defined by the mean of biological measures or treatment) increased in both sexes between 2001 and 2005. But the prevalence of dyslipidemia (total cholesterol ≥ 240mg/dL) decreased in the same period [4]. In Brazil, a recent study based on a representative sample of nearly 40,000 elderly participants of the *Brazilian National Household Sample Survey* (PNAD) demonstrated a gradual increase in the prevalence of self-reported hypertension (44%, 49% and 53% in 1998, 2003 and 2008, respectively) and self-reported diabetes (10%, 13% and 16%, respectively). These trends persist, even after adjusted for sex, age and number of physician visits [10].

Recent studies have investigated the existence of cohort differences (i.e., a generation effect) in the prevalence of cardiovascular risk factors in the elderly. In this type of study, the prevalence of risk factors in the recent cohort (in order words, those elderly born most recently) are compared with a similarly aged cohort from an earlier period or vice versa. One example of this type of study was carried out in a rural area in England. Results from two waves of data collection of a cohort study of elderly were used. The earlier cohort was comprised of those who were 65 to 69 years old in 1991-1992 and the more recent cohort comprised those who fell within the same age rage five years later in 1996-1997 (about 600 subjects participated in each wave). No difference in the prevalence of hypertension or of diabetes mellitus between the two groups was observed, indicating the absence of a generation effect in what was only a five year interval [11]. Another study conducted in Finland used a similar approach over 20 years. Data from three waves of a cohort study – each comprised of 200 to 300 elderly participants – for the years 1988, 1996 and 2008 were used. The earliest cohort was comprised of those who were 65 to 69 years old in 1988, and so on. No difference in the prevalence of self-reported diabetes or hypertension among the cohorts was observed [12].

This study sought to examine whether cohort differences exists with regard to the prevalence of cardiovascular risk factors among the older elderly in the Bambuí Cohort Study of Aging.

Methods

Study design and population

The study was conducted as part of the Bambuí Cohort Study of Aging, a population-based study conducted in Bambuí, a municipality with a population of 15,000, located in the state of Minas Gerais, in southeastern Brazil. The Bambuí Cohort Study of Aging procedures and the health profile of baseline participants have been described in detail elsewhere [13,14]. Briefly, the baseline cohort population consisted of all residents who were age 60 and over on January 1st, 1997; they were identified by means of a complete census in the city. Baseline data collection was performed in 1997, including a standardized interview, blood tests, blood pressure measurements and others. The interview was repeated annually and other measures and procedures were repeated in selected years [13,14]. All baseline participants aged 71 to 81 years in 1997 (i.e., born from 1916 to 1926), as well as all participants in the same age range (i.e, born from 1927 to 1937) who participated in the 11th wave – conducted in 2008 – were included in the present analysis.

The Bambuí cohort study was approved by the Ethics Research Committee of the Oswaldo Cruz Foundation (Fundação Oswaldo Cruz). Participants signed an informed consent form in 1997 and again in 2008.

Variables and data collection

Cardiovascular risk factors considered in this study were smoking, diabetes mellitus, hypertension, total cholesterol, HDL cholesterol, triglycerides, blood glucose, and treatment for hypertension or diabetes.

Current smoking information was obtained by face to face interview in the subject's home. Blood pressure was measured at the Bambuí project field clinic in the early morning, after five minutes of rest, and at least 30 minutes after consumption of caffeine and/or use of tobacco. Three blood pressure measures were obtained at least two minutes apart using a standard protocol [15]. All measurements were taken on the right

arm with an appropriate size cuff, using a random zero Mercury sphygmomanometer (Tycos 5097-30; Tycos, Arden, USA) and stethoscope (Littmann Cardiology II, USA). Systolic and diastolic blood pressures were registered using as a reference the first and the fifth Korotkoff sounds, respectively. The first measure was ignored; we considered the blood pressure the average of the second and third measures.

Blood specimens were collected after a recommended 12 hour fast. Blood tests were performed at the project's central laboratory in Belo Horizonte. Serum levels of lipids were determined by enzymatic methods, using standard assay kits (Boehringer Mannhein, Ingelheim am Rhein, Germany). All lipid and glucose measures were performed using an automated analyzer (Eclipse Vitalab; Merck, Schiphol-Rijk, Netherlands). Medications used were verified by examining the packaging and/or the physician's prescription during the home visit. Medications were coded according to the Anatomical Therapeutical Chemical Index (ATC/DDD Index) [16] and were considered antihypertensives if they were classified in groups ATC: C02 – antihypertensives, C03 – diuretics, C07 – beta-blockers, C08 – calcium channel blockers, and C09 – agents that act on the renin-angiotensin system. All diabetes medications were classified in only one ATC group: A10. All measurements in 1997 and 2008 were performed in a similar way. The interviewer and technicians who measured blood pressure were trained and certified by a specialized team. The laboratory tests were supervised by credentialed clinical pathologists.

Current smokers were those who had smoked at least 100 cigarettes in their lifetime and were still smokers. Hypertension was defined by systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg and/or anti-hypertensive treatment [17]. Diabetes mellitus was defined by fasting blood glucose ≥ 126mg/dL and/or treatment [18]. The number of cardiovascular risk factors was defined by the sum (each = 1) of the following: current smoking, hypertension, diabetes mellitus and total cholesterol/HDL cholesterol ratio above the mean (≥ 5). None of the participants had a history of drug treatment for lowering lipids, and none had used these drugs during the period in which patients were evaluated. Thus, drugs for lowering cholesterol were not included in the present analysis.

Statistical analysis

The statistical analysis was based on prevalence ratios (PR) and 95% robust confidence intervals (95%CI) estimated by the Poisson regression. Those aged 71 to 81 years in 1997 (early cohort) were the reference category and those in the same age range in 2008 (recent cohort) were the exposure group. In the initial analysis, men and women were pooled and the PR and 95%CI were adjusted for sex. Subsequent analyses were stratified by sex. Statistical analyses were conducted using Stata 11.0 statistical software (Stata Corp., College Station, USA). All p values were 2-tailed ($\alpha = 0.05$).

Results

Of 492 (1997) and 658 (2008) eligible elderly, 457 and 553 respectively had complete data for all the study variables and were included in the analysis. Exclusions were due to absence of blood pressure measures or blood tests. Study participants and those who were excluded were similar in age in 1997 [mean age (SD) = 75.1 (3.1) and 75.8 (3.4); p = 0.170], and in 2008 [mean age (SD) = 75.0 (3.0) and 74.8 (3.2); p = 0.433]. Males and females participated similarly in both surveys [91% and 94.2% (p = 0.179) and 83.6% and 84.3% (p = 0.821), respectively].

The distribution of cardiovascular risk factors and drug treatment for hypertension and diabetes in 1997 and 2008 are shown in Table 1. Declines from 1997 to 2008 that were statistically significant and independent of sex and age were observed in the prevalence of smoking (PR = 0.58; 95%CI: 0.42-0.80) and in the total cholesterol/HDL cholesterol ratio (PR = 0.85; 95%CI: 0.80-0.89). Conversely, increases were observed from 1997 to 2008 in the prevalence of diabetes mellitus (PR = 1.39; 95%CI: 1.06-1.83), and for hypertension defined by systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg (PR = 1.21; 95%CI: 1.07-1.37), for hypertension defined by blood pressure measurement and/or treatment (PR = 1.27; 95%CI: 1.19-1.36), in the use of hypoglycemic agents (PR = 2.33; 95%CI: 1.59-3.43) and in the use of antihypertensive medications (PR = 1.54; 95%CI: 1.40-1.70). No other measures had differences between the earlier and the recent cohorts that were statistically significant.

Total cholesterol/HDL cholesterol ratios were lower in 2008 than in 1997 both for men (Table 2) (PR = 0.84; 95%CI: 0.77-0.92) and for women (Table 3) (PR = 0.84; 95%CI: 0.79-0.90). The prevalence of current smoking was lower in the recent than in the early cohort for men (Table 2) (PR = 0.41; 95%CI: 0.27-0.62) but not for women (PR = 1.05; 95%CI: 0.60-1.84) (Table 3). Statistically significant increases from 1997 to 2008 were observed in the prevalence of hypertension

Table 1

Distribution of cardiovascular risk factors and drug treatment for hypertension and diabetes by birth cohort. The Bambuí Cohort Study of Aging, 1997 and 2008.

Risk factor	1916-1926 cohort (n = 457)	1927-1937 cohort (n = 553)	Sex adjusted PR (95%CI) *
Current smoking (%)	17.5	9.8	0.58 (0.42-0.80) **
Total cholesterol in mg/dL [mean (SD)]	229.7 (49.3)	203.2 (41.6)	0.99 (0.93-1.05)
HDL cholesterol in mg/dL [mean (SD)]	51.1 (17.3)	49.4 (12.5)	0.98 (0.92-1.05)
Total cholesterol/HDL cholesterol ratio [mean (SD)]	4.9 (1.7)	4.3 (1.3)	0.85 (0.80-0.89) **
Triglycerides in mg/dL [median (IQR)]	127 (93-175)	125 (90-172)	1.00 (0.93-1.06)
Blood glucose in mg/dL [median (IQR)]	98 (90-110)	97 (89-111)	0.98 (0.92-1.05)
Blood glucose ≥ 126 mg/dL (%)	13.4	15.4	1.15 (0.84-1.56)
Diabetes mellitus (blood glucose ≥ 126mg/dL and/or treatment) (%)	14.9	20.8	1.39 (1.06-1.83) ***
Systolic blood pressure in mmHg [mean (SD)]	139.0 (22.9)	142.8 (21.9)	1.00 (0.93-1.06)
Diastolic blood pressure in mmHg [mean (SD)]	81.5 (12.8)	78.9 (11.7)	0.98 (0.92-1.05)
Hypertension (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg)	45.3	55.2	1.21 (1.07-1.37) #
Hypertension (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg and/or treatment)	68.1	87.0	1.27 (1.19-1.36) **
Drug treatment for diabetes (%)	7.0	16.5	2.33 (1.59-3.43) **
Drug treatment for hypertension (%)	50.8	79.0	1.54 (1.40-1.70) **

IQR: interquartile range; SD: standard deviation.

* PR (95%CI): prevalence ratio and 95% robust confidence interval estimated by Poisson regression. The 1916-1926 cohort was the reference group. The prevalence ratios were computed for a 10 percentile unit increment for total cholesterol, total cholesterol/HDL cholesterol ratio, triglycerides, and systolic blood pressure. All other variables compared presence vs. absence;

** $p < 0.001$;

*** $p < 0.05$;

# $p < 0.01$.

defined by the mean of blood pressure measurements and/or treatment for men (PR = 1.37; 95%CI: 1.19-1.57) and for women (PR = 1.22; 95%CI: 1.13-1.32); for the use of hypoglycemic agents by men (PR = 3.64; 95%CI: 1.72-7.70) and by women (PR = 1.92; 95%CI: 1.22-3.00), and for the use of anti-hypertensive medications by men (PR = 1.93; 95%CI: 1.56-2.40) and by women (PR = 1.40; 95%CI: 1.26-1.55). A reduction in the prevalence of smoking and an increase in the prevalence of diabetes mellitus in 2008 compared to 1997 were observed in men but not among women. From 1997 to 2008, the prevalence of diabetes among women increased from 17% to 21.2%, but this difference was not statistically significant.

As shown in Figure 1, 14% of the early cohort and 7.8% of the recent cohort had zero cardiovascular risk factors, while 43.6% and 41.1% had two or more conventional risk factors, respectively. Overall, the number of cardiovascular risk factors did not change significantly in 2008 when compared with 1997 (sex-adjusted PR = 1.02; 95%CI: 0.95-1.09).

Discussion

The results of this study show that the prevalence of hypertension and of diabetes mellitus was higher in the recent cohort than in the early cohort, independent of sex. Conversely, the recent cohort had a lower prevalence of smoking and a lower total cholesterol/HDL cholesterol ratio. Other parameters did not differ significantly between the early and recent cohorts. Analysis revealed a 136% increase in the pharmacologic treatment of diabetes and a 56% increase in pharmacologic management of hypertension from 1997 to 2008, which is consistent with national policies that have expanded access to publicly financed treatment of these two conditions [19].

There was an impressive drop in the prevalence of smoking in the recent cohort relative to the early cohort among men. This finding is consistent with the decrease in the prevalence of smoking in Brazil [20] and in other countries [21,22] as a result of public policies and campaigns to re-

Table 2

Distribution of cardiovascular risk factors and drug treatment for hypertension and diabetes among men by birth cohort. The Bambuí Cohort Study of Aging, 1997 and 2008.

Risk factor	1916-1926 cohort (n = 181)	1927-1937 cohort (n = 199)	PR (95%CI) *
Current smoking (%)	33.2	13.6	0.41 (0.27-0.62) **
Total cholesterol in mg/dL [mean (SD)]	217.8 (48.5)	187.9 (35.1)	0.91 (0.81-1.03)
HDL cholesterol in mg/dL [mean (SD)]	48.3 (18.5)	45.8 (11.8)	0.93 (0.83-1.05)
Total cholesterol/HDL cholesterol ratio [mean (SD)]	5.0 (1.8)	4.3 (1.2)	0.84 (0.77-0.92) **
Triglycerides in mg/dL [median (IQR)]	109 (81-152)	112 (80-154)	1.05 (0.93-1.19)
Blood glucose in mg/dL [median (IQR)]	97 (91-108)	96 (89-112)	0.99 (0.89-1.11)
Blood glucose ≥ 126 mg/dL, %	11.1	15.1	1.36 (0.80-2.32)
Diabetes mellitus (blood glucose ≥ 126mg/dL and/or treatment) (%)	11.6	20.1	1.73 (1.06-2.82) ***
Systolic blood pressure in mmHg [mean (SD)]	137.6 (23.0)	140.9 (20.7)	0.99 (0.88-1.10)
Diastolic blood pressure in mmHg [mean (SD)]	82.3 (13.6)	80.3 (11.4)	1.01 (0.91-1.12)
Hypertension (systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg)	41.4	50.3	1.21 (0.97-1.51)
Hypertension (systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg and/or treatment)	59.1	80.9	1.37 (1.19-1.57) **
Drug treatment for diabetes (%)	4.4	16.1	3.64 (1.72-7.70) **
Drug treatment for hypertension (%)	35.9	69.4	1.93 (1.56-2.40) **

IQR: interquartile range; SD: standard deviation.

* PR (95%CI): prevalence ratio and 95% robust confidence interval estimated by Poisson regression. The 1916-1926 cohort was the reference group. The prevalence ratios were computed for a 10 percentile unit increment for total cholesterol, Total cholesterol/HDL cholesterol ratio, triglycerides, and systolic blood pressure. All other variables compared presence vs. absence;

** $p < 0.001$;

*** $p < 0.05$.

duce smoking. In Brazil the prevalence of smoking in the adult population declined from 35% in 1989 to 22% in 2003 and 16% in 2009 [20,23]. Among the elderly, this decline was even more striking over the same 20 year period: 25%, 15% and 8%, respectively. [20,23].

The increase in the prevalence of hypertension in the recent cohort when compared to the early cohort is consistent with findings of national surveys in various countries [4,6,7,9], and in Brazil [10], suggesting an increase in the prevalence of hypertension in the elderly in recent years. However, it is important to note that these trends may be influenced by what criteria are adopted to define hypertension. In the majority of the above mentioned studies, this increase was observed for self-reported hypertension (i.e., based on the patient reporting a history of a medical diagnosis of hypertension) [6,9,10], that could be influenced by the expanded use of health services resulting in a greater probability of a diagnosis being made. Nevertheless, in the United States [7] and in South Korea [4] a real increase in the prevalence of hypertension (defined by objective measures of blood pressure and/or the use of anti-hypertensive medications) were observed, as was in the present study. A second definition was used in the American study mentioned above. That study, based only on blood pressure measures (systolic pressure ≥ 140mmHg and/or diastolic pressure ≥ 90mmHg), disregarded the use of medication, and found a reduction in the prevalence of hypertension both among "young elderly" and among the "older elderly" from 1988-1994 to 2003-2006 [7]. In the present study, using these same criteria, a greater prevalence of hypertension was observed in 2008 compared to 1997. The majority of national surveys conducted in high income countries [6,7,8] and, more recently, in South Korea [4] and in Brazil [10] have found an increase in the prevalence of diabetes mellitus in the elderly. However, the criteria used to define the presence of diabetes in these studies vary considerably and include self-reported morbidity, blood glucose levels, use

Table 3

Distribution of cardiovascular risk factors and drug treatment for hypertension and diabetes among women by birth cohort. The Bambuí Cohort Study of Aging, 1997 and 2008.

Risk factor	1916-1926 cohort (n = 276)	1927-1937 cohort (n = 354)	PR (95%CI) *
Current smoking (%)	7.3	7.6	1.05 (0.60-1.84)
Total cholesterol in mg/dL [mean (SD)]	237.6 (48.3)	211.8 (42.6)	1.02 (0.95-1.10)
HDL cholesterol in mg/dL [mean (SD)]	52.9 (16.3)	51.5 (12.4)	1.00 (0.93-1.08)
Total cholesterol/HDL cholesterol ratio [mean (SD)]	4.9 (1.7)	4.3 (1.4)	0.84 (0.79-0.90) **
Triglycerides in mg/dL [median (IQR)]	136 (103-183.5)	132 (97-185)	0.97 (0.90-1.04)
Blood glucose in mg/dL [median (IQR)]	99 (90-112.5)	97 (89-111)	0.97 (0.89-1.06)
Blood glucose ≥ 126 mg/dL (%)	14.9	15.5	1.05 (0.72-1.52)
Diabetes mellitus (blood glucose ≥ 126mg/dL and/or treatment) (%)	17.0	21.2	1.24 (0.90-1.73)
Systolic blood pressure in mmHg [mean (SD)]	140.0 (22.8)	143.9 (22.5)	1.00 (0.92-1.09)
Diastolic blood pressure in mmHg [mean (SD)]	80.9 (12.3)	78.2 (11.8)	0.96 (0.88-1.05)
Hypertension (systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg)	47.8	57.9	1.21 (1.04-1.41) ***
Hypertension (systolic blood pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90mmHg and/or treatment)	73.9	90.4	1.22 (1.13-1.32) **
Drug treatment for diabetes (%)	8.7	16.7	1.92 (1.22-3.00) #
Drug treatment for hypertension (%)	60.5	84.5	1.40 (1.26-1.55) **

IQR: interquartile range; SD: standard deviation.

* PR (95%CI): prevalence ratio and 95% robust confidence interval estimated by Poisson regression. The 1916-1926 cohort was the reference group. The prevalence ratios were computed for a 10 percentile unit increment for total cholesterol, total cholesterol/HDL cholesterol ratio, triglycerides, and systolic blood pressure. All other variables compared presence vs. absence;

** $p < 0.001$;

*** $p < 0.05$;

# $p < 0.01$.

of hypoglycemic agents, or the combination of two or more criteria. In the present study, based on a narrower definition of diabetes (fasting glucose and/or treatment), the prevalence of diabetes was 40% higher in the recent cohort relative to the early cohort. As mentioned previously, few national surveys have examined dyslipidemia trends in the elderly population.

Results from the U.S. National Health and Nutrition Examination Surveys found a reduction in the prevalence of high levels of total cholesterol [7]. In Germany, a national survey found a slight increase in total cholesterol in the elderly, which was accompanied by an increase in HDL cholesterol [5]. As lower levels of HDL cholesterol in the elderly are more strongly associated than other lipid parameters with cardiovascular disease [24] and with the incidence of hypertension [25,26], the increase in HDL cholesterol should offset the increase in total cholesterol [5]. In the present study, a significant reduction in the total cholesterol/HDL cholesterol ratio was seen in 2008 relative to 1997.

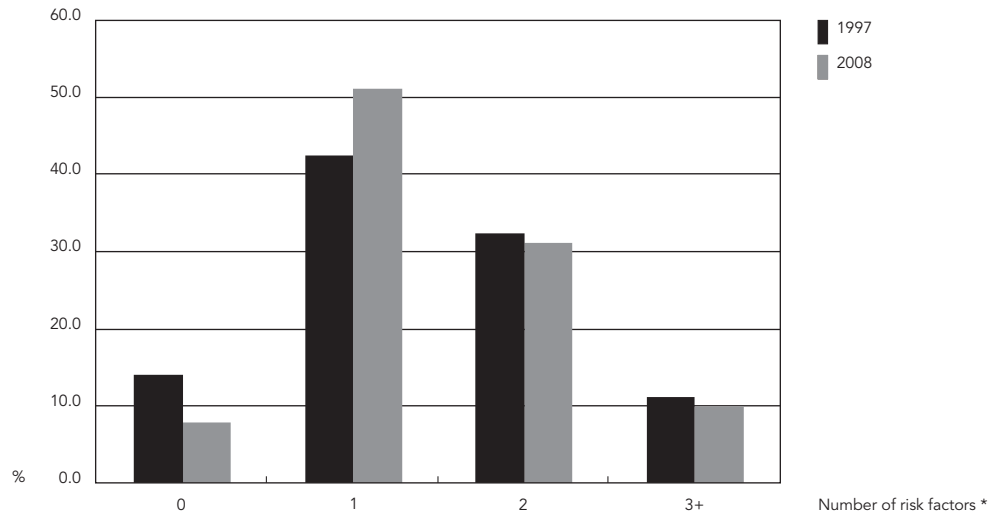
There is evidence from longitudinal studies that the coexistence of risk factors increases cardiovascular risk [27,28,29]. About 40% of both cohorts had at least two concomitant risk factors. Additionally, no differences in the number of cardiovascular risk factors from 1997 to 2008 were observed.

Strengths of this study include the community-based sample, the standardized and systematic measures of parameters at baseline and at the 11th wave. Other strengths include the high response rate at baseline and minimal loss of participants to follow-up [13,14], reducing the likelihood of a selection bias in 1997 or in 2008. It should be noted, however, that this analysis was based on two studies of prevalence and it not possible to know whether the changes observed were due to changes in the incidence of investigated conditions or their duration.

In summary, the results of the present study revealed cohort differences in the cardiovascular risk factors in the population studied. Although some improvements have been observed – mainly

Figure 1

Number of cardiovascular risk factors in the early and recent cohorts. The Bambuí Cohort Study of Aging, 1997 and 2008.



* Cardiovascular risk factors considered were: current smoking, hypertension, diabetes mellitus and total cholesterol/HDL cholesterol ratio above the mean (≥ 5).

the decline in smoking, increased treatment of hypertension and diabetes, and lower total cholesterol/HDL cholesterol ratio – the overall cardiovascular risk of the recent cohort remained similar to that of the early cohort.

Resumo

O objetivo deste estudo foi investigar se existem diferenças de coorte na prevalência de fatores de risco cardiovasculares entre idosos mais velhos do Estudo de Coorte de Idosos de Bambuí. Os participantes foram indivíduos com idade de 71 a 81 anos, em dois momentos do tempo, com o intervalo de uma década: 457 em 1997 (coorte anterior) e 553 em 2008 (coorte recente). A prevalência de hipertensão (RP = 1,27; IC95%: 1,19-1,36) e de diabetes mellitus (RP = 1,39; IC95%: 1,06-1,83) foi maior na coorte recente em relação à anterior, independentemente do sexo. A coorte recente teve menor prevalência de tabagismo (RP = 0,58; IC95%: 0,42-0,80) e nível mais baixo da razão colesterol total/colesterol HDL (RP = 0,85; IC95%: 0,80-0,89). Houve um aumento de 136% no tratamento farmacológico do diabetes e um aumento de 56% no tratamento farmacológico da hipertensão em 2008 em comparação com 1997. No geral, o número de fatores de risco cardiovascular na coorte recente permaneceu semelhante ao da coorte inicial.

Doenças Cardiovasculares; Fatores de Risco; Idoso; Estudos de Coortes

Contributors

M. P. D. Freitas participated in the conception and design, analysis and interpretation of the data, drafting the article, and final approval of the version to be published. A. I. Loyola Filho contributed on the analysis and interpretation of the data; revision of the article; final approval of the version to be published. M. F. Lima-Costa collaborated with the conception and design, acquisition of data, analysis and interpretation of the data, help with drafting the article, revision of the article, and final approval of the version to be published.

Conflicting interests

None declared.

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