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## Men's health: a population-based study on social inequalities

A saúde dos homens: desigualdades sociais em estudo de base populacional

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### Abstract

*This study evaluates social inequalities in health according to level of schooling in the male population. This was a cross-sectional, population-based study with a sample of 449 men ranging from 20 to 59 years of age and living in Campinas, São Paulo State, Brazil. The chi-square test was used to verify associations, and a Poisson regression model was used to estimate crude and adjusted prevalence ratios. Men with less schooling showed higher rates of alcohol consumption and dependence, smoking, sedentary lifestyle during leisure time, and less healthy eating habits, in addition to higher prevalence of bad or very bad self-rated health, at least one chronic disease, hypertension, and other health problems. No differences were detected between the two schooling strata in terms of use of health services, except for dental services. The findings point to social inequality in health-related behaviors and in some health status indicators. However, possible equity was observed in the use of nearly all types of health services.*

*Men's Health; Social Inequity; Health Surveys*

### Introduction

Male excess mortality in practically all age groups, extensively documented in the literature, entails different life expectancies for men and women <sup>1,2,3,4</sup>. In Brazil, this difference is currently some 7.6 years (69.4 and 77.0 years for men and women, respectively), resulting in a significantly smaller male population in the older age groups <sup>5</sup>. Although women report higher diseases prevalence rates, when disease severity is analyzed, men normally present higher rates of chronic diseases with high lethality <sup>6</sup>.

Given this scenario, the Brazilian Ministry of Health took an important step in 2009 when it launched the National Policy for Integral Attention to Men's Health (PNAISH), which aims to promote improvements in the health of the Brazilian male population, contributing to the reduction of morbidity and mortality by means of addressing the risk factors and facilitating access to actions and services for comprehensive health care, with primary care as the gateway preferential of Brazilian Unified National Health System (SUS) <sup>7</sup>.

According to Courtenay <sup>8</sup>, hegemonic masculinity is the socially dominant gender construct that reflects and shapes social relations between men and women and among men. This construct is based on the hegemonic ideals and represents power and authority, necessary attributes for constituting men as such and their health-relat-

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ed beliefs and behaviors, the results of a social construction. In the constant quest for the ideals of manhood, power, and privilege, men are frequently led to adopt harmful health behaviors, with the emergence of relevant risk factors for illness <sup>1,8,9</sup>.

Various studies have analyzed how socioeconomic, ethnic/racial, regional, and gender inequalities impact the morbidity and mortality profile and access and use of health services <sup>10</sup>. However, few studies have focused on men's health and the effects of social inequalities <sup>1,2</sup>. According to Muntaner et al. <sup>11</sup>, measurements of social stratification, including level of schooling, are important predictors of morbidity and mortality patterns, and various studies have assessed the relationship between such indicators and health outcomes. Information on complete years of schooling has advantages over other measures of social stratification because it is universal, easy to collect, and stable over the individual's lifetime <sup>12</sup>.

Based on the above and considering the male population's vulnerability, especially at younger ages, this study aims to evaluate social inequalities in health according to schooling, among men 20 to 59 years of age living in Campinas, São Paulo State, Brazil.

## Methods

This is a cross-sectional, population-based study, the data for which were obtained from the *Campinas Health Survey* (ISA-Camp) conducted in 2008-2009. Data were collected by previously trained interviewers, using a questionnaire organized in thematic sections: morbidity, accidents and violence, mental health, quality of life, use of health services, preventive practices, use of medicines, health-related behaviors, and socioeconomic characteristics.

The survey's sample was obtained by two-stage probabilistic sampling. Initially, 50 census tracts from the urban area of the City of Campinas were selected, with probability proportional to size, defined as the number of households, followed by a field survey to identify the existing private households in the selected tracts.

The households were selected in the second stage, aimed at conducting 20 interviews in each census tract for three population subgroups: adolescents (10 to 19 years), adults (20 to 59 years), and elderly (60 years or older), which constituted the study domains.

Samples of equal sizes were selected, with one thousand individuals for each domain. The number of interviews would allow estimating

proportions of 0.50 with a sampling error of 4 to 5 percentage points for a 95% confidence interval and design effect of 2.

The data analyzed in the current study refer to the male population in the 20-59-year age bracket. For this group, the sampling error would be on the order of 6.2%. According to data from the 2000 Population Census (Instituto Brasileiro de Geografia and Estatística; <http://www.ibge.gov.br>), one thousand adults would be found by visiting 522 households. Providing for refusals and closed households (a total of 20%), 700 households were sampled. The sampling design for the ISA-Camp 2008 survey has been described in detail by Alves <sup>13</sup>.

The variables analyzed in the current study include:

- a) Demographic and socioeconomic: interviewee's level of schooling (complete years of schooling); age; self-reported race/color; birthplace; religion; marital status; number of persons in the household; current occupation; type of worker; number of household assets; monthly per capita family income (in times the minimum wage); private health plan coverage; dental coverage;
- b) Health-related behaviors: alcohol dependence (measured by the *Alcohol Use Disorders Identification Test* – AUDIT, with 8 points or more considered positive for dependence) <sup>14</sup>; frequency of alcohol consumption (< 4 times/week and  $\geq$  4 times/week); current smoker; smoking cessation, defined as the percentage of ex-smokers among those who have ever smoked (current smokers and ex-smokers); passive smoker (non-smoker exposed to cigarette smoke at least 1 hour per day); leisure-time physical activity: active (at least 150 minutes per week, on 3 days of the week), insufficiently active (less than 150 minutes per week or on fewer than 3 days in the week), sedentary (no time devoted to leisure-time physical activity in the week); body mass index (BMI) according to World Health Organization (WHO) guidelines <sup>15</sup> for adults: underweight (< 18.5kg/m<sup>2</sup>), normal weight (18.5 to < 25kg/m<sup>2</sup>), overweight (25 to < 30kg/m<sup>2</sup>), excess weight ( $\geq$  25 kg/m<sup>2</sup>); and obese ( $\geq$  30 kg/m<sup>2</sup>); consumption of fruit, vegetables, leafy vegetables, and milk fewer than 7 days a week; daily soft drink (soda) consumption;
- c) health status: bad or very bad self-rated health; common mental disorder (CMD), defined according to the *Self-Reporting Questionnaire* (SRQ-20), with greater than 8 points defined as presence of CMD <sup>16</sup>; the following diseases reported as having been diagnosed by a health professional, based on a checklist: arterial hypertension (high blood pressure), heart disease, asthma, bronchitis, emphysema, tendinitis, RSI/WRMD, circulatory problems; self-reported health problems

not diagnosed by a health professional: frequent headache or migraine, back pain or problem with spinal column, allergy, emotional problem, dizziness or vertigo, visual impairment (total or partial), use of eyeglasses or contact lenses, and use of dental prostheses; accidents in the previous year;

d) Use of health services: use of health services in the 15 days prior to the interview; hospitalizations in the previous 12 months; surgery any time in life and in the previous 12 months; dental visit in the previous 12 months; consumption of medicines in the previous 3 days; preventive tests for men 40 to 59 years of age: PSA and digital rectal examination in the previous year; routine medical consultation for individuals with arterial hypertension.

The dependent variables were all those related to health behaviors and conditions and use of health services, while the principal independent variable was schooling, categorized as 0 to 8 versus 9 or more years of school. Demographic and socioeconomic variables were used to characterize the study population. The estimated prevalence ratios were adjusted for age, and in the case of use of health services (medical consultations, hospitalization, surgeries, and consumption of medicines), for age and number of chronic diseases, to control for confounding.

Analysis of the associations between dependent and independent variables used the chi-square test with 5% statistical significance, and the crude and adjusted prevalence ratios (PR) and respective 95% confidence intervals (95%CI) were estimated using Poisson regression. Data were analyzed with Stata 11.0 (Stata Corp., College Station, USA), which considers the different weights of individuals comprising the sample, as well as the sample design effect. The study was approved by the Institutional Review Board of the School of Medicine, State University in Campinas (Faculdade de Medicina, Universidade Estadual de Campinas – UNICAMP), under case file 079/2007.

## Results

Data were analyzed from a probabilistic sample of 449 men living in Campinas, ranging from 20 to 59 years of age, with a mean of 37 years (95%CI: 36.02-37.95). In this population, 35.7% (95%CI: 27.9-44.3) reported 0 to 8 years of schooling, while the rest had 9 years or more. Except for religion, the demographic and socioeconomic characteristics showed statistically significant differences ( $p < 0.05$ ) between men from the two schooling strata (Table 1). Men with less schooling showed

higher proportions of non-white individuals, those born in other States, with lower income, and less medical and dental coverage. There were also proportionally more unemployed individuals among those with less schooling. Proportionally more men with more schooling had 15 or more household assets.

As for health-related behaviors (Table 2), there were higher rates of alcohol dependence, alcohol consumption four or more times a week, and smoking among men with less schooling. For leisure-time physical activity, there were proportionally more sedentary men among those with less schooling. Analyzing food consumption, men with less schooling showed a higher proportion of non-daily consumption (less than 7 days of week) of fruit, vegetables, and leafy vegetables.

As shown in Table 3, the male population with less schooling showed a higher prevalence of bad or very bad self-rated health and at least one chronic disease, arterial hypertension, frequent headache or migraine, and backache. Other diseases were not significantly associated with level of schooling. Visual impairment was significantly more prevalent in men with less schooling, who were also less likely to use eyeglasses or contact lenses when compared to men with more schooling. Use of dental prosthesis was also significantly more prevalent in men with less schooling.

Analysis of use of health services only showed a statistically significant difference for dental services in the previous year (men with less schooling were less likely to have used such services, as shown in Table 4). The other variables related to use of health services showed no significant differences between the two schooling strata.

## Discussion

This study's findings point to the magnitude of social inequality among adult men in Campinas; those with less schooling were underprivileged in relation to health-related behaviors, health conditions, and use of dental services.

Men with less schooling were significantly more likely to consume alcohol four or more times a week (PR = 2.97; 95%CI: 1.38-6.41). Another study in Campinas had shown similar results<sup>17</sup>. On the other hand, other studies have shown a higher prevalence of excessive alcohol intake in the social stratum with more schooling<sup>18,19</sup>.

Prevalence of alcohol dependence or abuse, as evaluated by AUDIT, was 15.9%, and men with less schooling showed a 67% greater probability of being alcohol-dependent as compared to those with more schooling. This inverse associa-

Table 1

Socioeconomic and demographic characteristics (%) of the male population 20 to 59 years of age according to schooling. Campinas, São Paulo State, Brazil, ISA-Camp 2008-2009.

Variable	n	Schooling (years)		Total %	p-value
		0 to 8 (n = 166) %	≥ 9 (n = 283) %		
Age bracket (years)					0.0003
20-29	155	23.5	41.7	35.2	
30-39	101	21.6	23.7	22.9	
40-49	98	24.7	19.2	21.2	
50-59	95	30.2	15.4	20.7	
Race/Color					0.0006
White	327	60.4	80.5	73.3	
Non-white	120	39.6	19.5	26.7	
Birthplace					0.0002
Campinas	179	28.8	46.5	40.1	
Other county in São Paulo	136	27.8	31.7	30.3	
Other State of Brazil	134	43.5	21.9	29.6	
Religion					0.4855
Catholic	220	45.1	51.4	49.1	
Protestant	131	32.6	27.0	29.0	
No religion/Other	96	22.3	21.6	21.9	
Marital status					0.0003
Married	208	50.1	43.7	46.0	
Common-law	72	23.7	11.7	16.0	
Divorced/Widowed	36	8.5	7.6	7.9	
Single	133	17.7	37.0	30.1	
Number of persons in household					0.0004
1-2	104	21.6	24.2	23.3	
3-4	226	39.7	56.6	50.6	
≥ 5	119	38.6	19.3	26.2	
Current occupational status					0.0121
Working	383	81.4	87.6	85.4	
Unemployed	33	10.3	5.5	7.2	
Retired/Pensioner	22	7.7	3.0	4.7	
Student/other	11	6.1	3.8	2.7	
Type of worker					0.0074
Wage-earner	310	63.2	75.6	71.1	
Self-employed/Other	126	36.8	24.4	28.9	
Household assets					< 0.0001
< 10	170	60.3	24.5	37.3	
10-14	140	25.3	34.3	31.1	
≥ 15	138	14.4	41.2	31.6	
Family income (minimum wages)					< 0.0001
≤ 1	171	56.0	27.1	37.4	
> 1-3	194	39.1	45.2	43.0	
> 3	84	4.9	27.7	19.6	
Private health plan					< 0.0001
Yes	189	14.3	58.9	43.0	
No	260	85.7	41.1	57.0	
Dental plan					< 0.0001
Yes	88	6.0	27.9	20.1	
No	361	94.0	72.1	79.9	

Table 2

Prevalence (%) and prevalence ratios (PR) for health-related behaviors in the male population 20 to 59 years of age according to schooling. Campinas, São Paulo State, Brazil, ISA-Camp 2008/2009.

Variables	Schooling (years)		p-value *	Crude PR (95%CI)	Adjusted PR (95%CI) **
	0 to 8 (n = 166) %	≥ 9 (n = 283) %			
Alcohol consumption ≥ 4 times/week	17.4	4.3	<b>0.0002</b>	<b>4.06 (1.91-8.62)</b>	<b>2.97 (1.38-6.41)</b>
Alcohol dependence	21.7	12.6	<b>0.0181</b>	<b>1.72 (1.10-2.67)</b>	<b>1.67 (1.03-2.70)</b>
Current smoker	36.7	18.2	< 0.001	1.15 (1.09-1.23)	1.15 (1.08-1.23)
Stopped smoking	29.8	35.5	0.4281	0.84 (0.54-1.30)	0.79 (0.54-1.15)
Passive smoker	18.1	19.2	0.9981	1.00 (0.58-1.72)	1.17 (0.65-2.12)
Sedentary during leisure time	70.9	50.0	<b>0.0004</b>	<b>1.42 (1.20-1.67)</b>	1.33 (1.11-1.59)
Consumption of fruit < 7 days/week	77.7	66.2	<b>0.0118</b>	<b>1.17 (1.04-1.33)</b>	<b>1.25 (1.10-1.42)</b>
Consumption of leafy vegetables < 7 days/ week	68.5	46.7	<b>0.0003</b>	<b>1.47 (1.21-1.78)</b>	<b>1.55 (1.27-1.90)</b>
Consumption of vegetables < 7 days/week	77.1	63.1	<b>0.0028</b>	<b>1.22 (1.08-1.38)</b>	<b>1.27 (1.11-1.45)</b>
Consumption of milk < 7 days/week	54.6	51.7	0.5608	1.06 (0.87-1.28)	1.07 (0.86-1.32)
Consumption of soft drinks 7 days/week	26.5	24.5	0.7027	1.08 (0.71-1.64)	1.69 (0.76-1.80)

\* p-value for chi-square test;

\*\* Age-adjusted PR; reference category: 9 or more years of schooling.

Table 3

Prevalence (%) and prevalence ratios (PR) for health status in the male population 20 to 59 years of age according to schooling. Campinas, São Paulo State, Brazil, ISA-Camp 2008-2009.

Variables	Schooling (years)		p-value *	Crude PR (95%CI)	Adjusted PR (95%CI) **
	0 to 8 (n = 166) %	≥ 9 (n = 283) %			
Bad or very bad self-rated health	10.3	3.1	<b>0.0048</b>	<b>3.34 (1.40-7.99)</b>	<b>2.91 (1.19-7.09)</b>
Common mental disorder	10.4	5.3	<b>0.0422</b>	<b>1.94 (1.02-3.69)</b>	1.74 (0.87-3.45)
Disease in previous 15 days	15.1	14.5	0.8650	1.04 (0.64-1.69)	1.01 (0.62-1.65)
At least one chronic disease	41.6	25.8	<b>0.0018</b>	<b>1.61 (1.20-2.16)</b>	<b>1.36 (1.02-1.79)</b>
Hypertension	19.1	7.3	<b>0.0004</b>	<b>2.60 (1.54-4.39)</b>	<b>1.85 (1.11-3.09)</b>
Heart disease	3.6	2.5	0.4662	1.44 (0.53-3.94)	1.14 (0.39-3.37)
Asthma/Bronchitis/Emphysema	3.0	2.5	0.7343	1.20 (0.41-3.47)	1.33 (0.44-3.96)
Tendinitis/RSI/WRMD	6.2	3.6	0.1533	1.71 (0.81-3.63)	1.57 (0.68-3.60)
Circulatory problems	7.8	3.8	0.0827	2.04 (0.89-4.66)	1.45 (0.63-3.37)
Headache/Migraine	29.6	15.7	<b>0.0031</b>	<b>1.89 (1.26-2.82)</b>	<b>2.01 (1.35-2.98)</b>
Backache/Problems with spinal column	35.4	22.4	<b>0.0084</b>	<b>1.58 (1.14-2.19)</b>	<b>1.44 (1.03-2.01)</b>
Allergy	16.9	26.4	<b>0.0497</b>	0.64 (0.40-1.02)	0.69 (0.43-1.10)
Emotional problem	12.1	11.1	0.7583	1.09 (0.62-1.91)	0.95 (0.54-1.66)
Dizziness/Vertigo	7.1	4.3	0.1347	1.64 (0.85-3.20)	1.47 (0.79-2.75)
Insomnia	12.1	8.2	0.2941	1.47 (0.71-3.06)	1.19 (0.57-2.45)
Excess weight	52.7	47.9	0.4591	1.10 (0.85-1.42)	1.02 (0.80-1.30)
Obesity	13.4	16.6	0.4472	0.80 (0.45-1.43)	0.68 (0.38-1.20)
Visual impairment	17.6	6.6	<b>0.0011</b>	<b>2.67 (1.48-4.80)</b>	<b>2.03 (1.13-3.64)</b>
Eyeglasses/Contact lenses	32.0	39.1	0.1688	0.82 (0.61-1.10)	<b>0.65 (0.51-0.82)</b>
Dental prosthesis	21.0	7.6	<b>0.0001</b>	<b>2.76 (1.70-4.48)</b>	<b>1.93 (1.18-3.16)</b>
Accident(s) in previous year	9.8	9.1	0.8091	1.08 (0.57-2.04)	1.19 (0.62-2.27)

RSI: repetitive strain injury; WRMD: work-related musculoskeletal disorder.

\* p-value for chi-square test;

\*\* Age-adjusted PR; reference category: 9 or more years of schooling.

Table 4

Prevalence (%) and prevalence ratios (PR) for use of health services by male population 20 to 59 years of age according to schooling (in years). Campinas, São Paulo State, Brazil, ISA-Camp 2008-2009.

Variables	Schooling (years)		p-value *	Crude PR (95%CI)	Adjusted PR (95%CI)
	0 to 8 (n = 166)	≥ 9 (n = 283)			
	%	%			
Medical consultation in previous 15 days	11.6	15.4	0.3105	0.75 (0.42-1.33)	0.59 (0.31-1.15) **
Hospitalization in previous year	8.3	5.9	0.2837	1.41 (0.75-2.65)	1.10 (0.58-2.06) **
Surgery in previous year	6.7	11.6	0.2893	0.57 (0.20-1.67)	0.52 (0.18-1.52) **
Use of medicines in previous 3 days	44.8	38.8	0.2327	1.16 (0.91-1.46)	0.90 (0.72-1.12) **
Dental visit in previous year	39.6	62.8	<b>0.0015</b>	0.63 (0.47-0.85)	<b>0.61 (0.45-0.82) ***</b>
PSA (40 to 59 years of age)	41.7	55.4	0.1007	0.89 (0.74-1.07)	0.87 (0.73-1.05) ***
Digital rectal examination (40 to 59 years of age)	26.0	34.3	0.1927	0.94 (0.81-1.08)	0.93 (0.79-1.08) ***
Routine checkup for individuals with hypertension	56.6	75.3	0.2018	0.75 (0.49-1.14)	0.73 (0.48-1.10) ***

\* p-value for chi-square test;

\*\* PR adjusted for age and number of chronic diseases; reference category: 9 or more years of schooling;

\*\*\* Age-adjusted PR; reference category: 9 or more years of schooling.

tion between schooling and alcohol dependence is consistent with the results of health surveys in Campinas in 2003<sup>20</sup>, detected by the CAGE test<sup>21</sup>, and in the city of Rio Grande, Rio Grande do Sul State<sup>22</sup>. There is a lack of consensus concerning the profile for frequent alcohol consumption and alcohol abuse according to different socioeconomic strata, although most studies indicate higher frequency of intake among individuals with higher socioeconomic status, while alcohol dependence is more common in the lower socioeconomic stratum<sup>23</sup>.

The current study showed an association between smoking and level of schooling, with a higher proportion of current smokers among men with less schooling (36.7%). This prevalence exceeds the estimates for socially more vulnerable segments in Brazil (24.2%) and in the city of São Paulo (28%) according to a telephone health survey in 2006, focusing on males 18 years or older<sup>24</sup>. An inverse association between schooling and smoking, as found in the current study, is a consensus in the Brazilian and international literature<sup>18,25,26,27</sup>.

Among men with less education, 70.9% were considered sedentary as defined by lack of leisure-time physical activity, and they were 1.33 times more likely (95%CI: 1.11-1.59) to be inactive as compared to men with more schooling. An inverse association between schooling and sedentary lifestyle was also found in health surveys conducted in the State of São Paulo, considering

men 18 to 59 years of age<sup>28</sup>, and in Greater Metropolitan Belo Horizonte, Minas Gerais State<sup>18</sup>. The high percentage of sedentary lifestyle among men in Campinas suggests a lack of stimuli and adequate locations for practicing physical activities, especially for men with lower socioeconomic status.

Non-daily consumption (fewer than 7 days a week) of fruit, vegetables, and leafy vegetables reached prevalence ratios of 1.25 (95%CI: 1.10-1.42), 1.55 (95%CI: 1.27-1.90), and 1.27 (95%CI: 1.11-1.45), respectively, in the male population with less schooling in Campinas. Similar results have been shown elsewhere in the literature<sup>29,30</sup>.

Bad or very bad self-rated health was found among 10.3% of men with less schooling, and was 2.91 times more frequent (95%CI: 1.97-7.09) than among those with more schooling. Other studies have found an inverse association between schooling and self-rated health<sup>31,32,33</sup>. According to Dachs<sup>31</sup>, age is the single most important factor in self-rated health, but schooling and income show relevant additional contributions to this health dimension.

The presence of one or more chronic diseases was significantly associated with level of schooling; prevalence was higher among men with lower socioeconomic status. Similar results were found in the Brazilian adult population (18 years or older), based on data from the *Brazilian National Household Sample Survey* (PNAD 2008)<sup>34</sup>, and in the population 30 years or older, accord-

ing to the Telephone Survey for the Surveillance of Risk and Protective Factors for Chronic Diseases (VIGITEL 2006)<sup>35</sup>. The same relationship has been published in the international literature<sup>36,37</sup>.

With the exception of allergy, all the chronic diseases and self-reported health problems showed higher prevalence rates among men with less schooling. However, statistically significant differences were only observed for hypertension, frequent headache or migraine, backache, and visual impairment.

Arterial hypertension was associated with level of education, showing higher prevalence in men with less schooling. Similar findings have been observed for Brazilian adults 20 to 64 years of age, pointing to inequality between different social segments (defined by per capita family income)<sup>38</sup> in the population 18 to 39 years of age in the *United States National Health and Nutrition Examination Surveys* (NHANES), conducted from 1999 to 2004<sup>39</sup>, and among American men 20 years and older<sup>40</sup>.

As in the current study, in Portugal<sup>41</sup> and in Pelotas, Rio Grande do Sul State, Brazil,<sup>42</sup> headache and backache were associated with level of schooling, with prevalence inversely associated with schooling, a relationship that was mediated by the greater exposure of individuals with less schooling to heavy work overload, both at home and at work, among other factors<sup>43</sup>.

Visual impairment was associated with level of schooling and was more prevalent in the lower socioeconomic stratum, thus corroborating other studies in four cities in São Paulo State<sup>44</sup>, in Campinas<sup>23</sup>, and in the United States<sup>45</sup>. This inverse association was probably due to the fact that individuals with lower income and less schooling have less access to services that allow detection of their visual impairments or access to eyeglasses and contact lenses. The latter assumption was supported by this study, showing a lower proportion of use of eyeglasses and contact lenses among men with less schooling.

Use of dental prosthesis was more prevalent among men with less schooling. This calls attention to the problem of early tooth loss, a marker for social inequality<sup>46</sup> that reflects less access to quality dental services.

Except for dental care, there were no statistically significant differences between men from different schooling strata in relation to the use of services, which could indicate a tendency toward equity in access in Campinas in terms of use of health services in general. Although the sample size may have prevented the study from detecting statistical differences between the two strata in access to health services, a similar result ap-

peared in the elderly population in Campinas in the same household survey cited in the current study, suggesting that organization of the health system in the municipality is leading to more equitable access<sup>23</sup>.

As for use of dental services, the study's findings are consistent with those of other studies in Brazil that have indicated the presence of socioeconomic inequalities (assessed by income or schooling), whereby individuals from more vulnerable social strata were less likely to use dental services (PR = 0.61; 95%CI: 0.45-0.82)<sup>47,48</sup>. Data from the PNAD 2008 showed some attenuation in socioeconomic inequality over the years in the use of dental services, but still with a persistent degree of inequality<sup>49</sup>. Non-utilization of dental services is associated not only with socioeconomic issues<sup>50</sup>, but also with the scarce supply of public oral health services<sup>51</sup>.

Some limitations to this study should be considered. One was the sample size, sufficient to estimate most of the target prevalence rates, but insufficient for less frequent diseases and events. Another limitation was that the study was based on self-reporting, thus subject to information biases, which can underestimate or overestimate the real prevalence rates, such as those for socially undesirable behaviors, which tend to be underestimated<sup>23</sup>. In addition, the cross-sectional design does not allow establishing causal inferences between the variables. It is also possible that the social inequality shown here in relation to the presence of diseases may be underestimated, considering that individuals with less schooling tend to have less access to quality health services and diagnostic technologies, and thus would tend to underreport this information<sup>34</sup>.

This study is relevant as the first to use health survey data to analyze social inequalities in health in the population of young Brazilian men, the target public for the PNAISH. The study's findings can contribute to the equitable planning of strategic measures as proposed in the National Action Plan under the PNAISH<sup>52</sup> and developed in the SUS, considering the magnitude of social inequalities observed in most of the health-related behaviors, the prevalence rates for some diseases, and the use of dental services. Such studies are necessary to detect and monitor health determinants for men, fostering discussion on the importance of inter-sector actions that extrapolate the health sector and favoring the improvement of health indicators and decreasing early mortality in the male population.



## Resumo

*Este trabalho avalia as desigualdades sociais em saúde, segundo escolaridade, na população masculina. Trata-se de um estudo transversal de base populacional, envolvendo 449 homens, de 20 a 59 anos, residentes em Campinas, São Paulo, Brasil. Realizou-se o teste qui-quadrado para verificar as associações e o modelo de regressão de Poisson para estimar as razões de prevalência brutas e ajustadas. O segmento de menor escolaridade apresentou maiores proporções de consumo e dependência de bebida alcoólica, tabagismo, sedentarismo e de consumo alimentar menos saudável, além de maiores prevalências de autoavaliação da saúde como ruim/muito ruim, pelo menos uma doença crônica, hipertensão, dentre outros problemas de saúde. Não foram detectadas diferenças entre os segmentos com relação ao uso de serviços de saúde, à exceção da utilização de serviços odontológicos. Os achados revelam que há desigualdade social na maioria dos comportamentos relacionados à saúde e em alguns indicadores de estado de saúde. Entretanto, observou-se possível equidade no uso de praticamente todos os serviços de saúde.*

*Saúde do Homem; Iniquidade Social; Inquéritos Epidemiológicos*

## Contributors

T. F. Bastos prepared the proposal, wrote the article, and planned, scheduled, and conducted the statistical analyses. M. C. G. P. Alves supervised the literature review, data analysis, and wrote of the article. M. B. A. Barros collaborated in the literature review and writing of the article. C. L. G. César collaborated in writing the article.

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