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Social determinants of the use of health services among public university workers

ABSTRACT

OBJECTIVE: To analyze the use of health services and socioeconomic status among public university workers.

METHODS: A cross-sectional study with 759 workers at a Brazilian public university who reported health-related restrictions of their usual activities in the previous 14 days, was carried out. Data were supplied by the 2001 cohort of the “*Pró-Saúde Study*” in Rio de Janeiro, Southeastern Brazil. Health services use was assessed with a proxy for “seeking health care” and according to the type of service. The presence of additional variation in morbidity was verified by time restriction. Schooling, income and occupation markers were analyzed, and crude and adjusted proportion ratios of use and types of service were calculated.

RESULTS: The occupation level was the indicator of the greatest inequality in health services use. After adjustments for gender, age and the other socioeconomic status markers, the ratio of the proportion of health care use was 1.31 for manual workers (95%CI: 1.11;1.55) and 1.21 for non-manual workers (95%CI: 1.06;1.37) compared to the reference category of professionals.

CONCLUSIONS: A pattern of social inequality was identified in health services use. Even after an adjustment for health need, the pattern favored individuals with lower socioeconomic status, particularly for the occupation marker. Remaining differences in individual morbidities do not explain this finding. Rather, occupational factors may exert a greater influence on health services use in this population.

DESCRIPTORS: Health Services, utilization. Health Services Accessibility. Socioeconomic Factors. Health Inequalities. Cross-Sectional Studies.

INTRODUCTION

The use of health services is a complex behavior that is determined by a variety of factors.⁵ The relationship between use and its determinants can be better understood with explicative theoretical models. According to the widely employed Behavioral Model developed by Andersen, health services use is a function of predisposing, enabling and need factors in health. Predisposing factors are related to the susceptibility of individuals to use health services, which include demographic characteristics and schooling. Enabling factors are related to health services access, which include income and health insurance. Need factors, which are the most proximate determinants of use, correspond to the health of the individual.¹

Social inequalities in services use are evident when variations in use are determined by socioeconomic status (SES) markers, such as schooling, income and

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occupation, rather than or in addition to demographic characteristics and the individual health needs.^{1,9,13} The effects of such markers might vary according to the local context of types of services and facilities.^{11,a,b}

Studies assessing social inequalities in health services use can guide the formulation of policies that are focused on maintaining the health of the individual. However, there are few such studies that target populations of workers. In a literature review, no Brazilian studies were found that assessed specific populations of workers, and only one such study was found in the international literature.³ This study assessed health services use by SES status (schooling, income and occupation) among workers at a public university.

METHODS

This cross-sectional study uses data from phase 2 of the *Pró-Saúde* Study (2001), a cohort of technical-administrative staff at a public university in the State of Rio de Janeiro (Southeastern Brazil), to investigate the social determinants of the use of health services. Three data collection phases were performed in 1999, 2001 and 2006.⁶

The source population consisted of 3,574 individuals (83% of the eligible population) who reported health-related restrictions of their usual activities in the two weeks prior to the investigation. Participants were asked the following question:

“During the last two weeks, were you prevented from conducting any of your usual activities (for instance, working, studying or performing household chores) due to a health problem you had or still have?”

A total of 812 individuals reported having been prevented from performing their usual activities due to health reasons. Participants were excluded from the research if they failed to provide data on schooling, income, occupation, age or type of health services sought. Individuals older than 70 years old were also excluded. The final sample included 759 individuals.

Health need is a proximate factor for services use and must be taken into account in studies on equity in services use.^{1,9} The control for health need was established on the grounds of activity restriction: only participants who reported health-related restrictions of their usual activities within 14 days of the interview were included. Using the same questionnaire, a previous

study found substantial reliability for the *Pró-Saúde* Study question on the discontinuance of usual activities ($\kappa = 0.73$).¹⁰ The variable “restriction time” was considered to be a proxy for the severity of the reason for the restriction, thus making it a proxy for health need. Restriction time was analyzed according to two categories – short leaves of absence (up to seven days) and long leaves of absence (between eight and 14 days) – to identify remaining variation in individual health states that could influence services use. A seven-day period was established as the cut-off to ensure consistency with previous studies on the same population and for statistical and operational reasons.^{7,10}

“Health services seeking” was used as a proxy for health services use. Health services use was assessed dichotomously (yes/no). The types of health services that were assessed included hospital and medical office visits (private or insured).

Socioeconomic status (SES) was assessed by completed schooling (up to completed elementary school, up to completed secondary school or completed college or more), income (up to three minimum wages [MWs], between three and six MWs or more than six MWs) and occupation markers based on the Erikson Goldthorpe Portocarero classification (manual workers, non-manual workers or professionals).^c

The initial analysis was stratified according to gender. However, because no significant differences were identified between groups, the final analysis included both genders. Proportions of services use, long leaves of absence and female gender were calculated according to SES strata and the corresponding confidence intervals. A chi-square test was applied to the various SES markers to detect trends. A Kruskal-Wallis test was applied for comparisons across ages. Poisson models with robust variance were used to calculate proportion ratios (PRs) of services use according to SES strata markers.² PRs for each SES marker were calculated and adjusted for gender, age and the remainder of the SES markers. The analysis was performed with the statistical software STATA (version 9.1).

RESULTS

A total of 759 participants reported health-related restrictions of their usual activities during the prior 14 days. Most participants who reported restrictions were female (67%) and had an average age of 41 years old

^a Instituto Brasileiro de Geografia e Estatística. Pesquisa nacional por amostra de domicílios (PNAD). Um Panorama da Saúde no Brasil: acesso e utilização dos serviços, condições de saúde e fatores de risco e proteção à saúde 2008. Rio de Janeiro; 2010[cited 2010 Dec]. Available from: <http://biblioteca.ibge.gov.br/visualizacao/monografias/GEBIS%20-%20RJ/panorama.pdf>

^b Instituto Nacional do Câncer. Inquérito domiciliar sobre comportamentos de risco e morbidade referida de doenças e agravos não transmissíveis: 15 capitais e Distrito Federal, 2002-2003. Rio de Janeiro; 2004[cited 2010 Dec]. Available from: <http://www.inca.gov.br/inquerito/docs/completa.pdf>

^c Moreno AB. Mobilidade ocupacional e qualidade de vida entre funcionários de uma universidade do Rio de Janeiro: o estudo pró-saúde [doctorate thesis]. Rio de Janeiro: Instituto de Medicina Social da UERJ; 2004.

(interquartile range: 35-46 years old). Most participants reported having completed college or more (43%), had an income of less than three MWs (40%) and were non-manual workers (72%) (Table 1).

Higher schooling levels were associated with lower median ages ($p < 0.001$); the same pattern was identified for income ($p < 0.001$). Professionals were significantly younger than manual workers ($p = 0.001$). Significant SES differences were observed in the proportion of women: higher schooling levels were associated with higher proportions of women ($p = 0.004$), and the lowest income stratum (less than three MWs) exhibited a lower proportion of women than did the strata of respondents who earned between three and six MWs and of respondents who earned more than six MWs ($p < 0.001$). There was a low proportion of working females with manual jobs, and there was a high proportion of female workers with non-manual jobs ($p < 0.001$) (Table 1).

Higher schooling and income levels were associated with lower proportions of individuals who had taken leaves of absence between 8 and 14 days in length ($p = 0.001$ for schooling; $p = 0.04$ for income) (Table 1).

Health services use was reported by 77.6% of respondents. Significantly higher proportions of services use with a dose-response gradient were found in the lowest schooling level and among manual workers. The income variable did not reveal statistically significant differences. The occupation variable was the SES indicator that exhibited the greatest inequality in health services use. After adjusting for gender, age and the remainder

of the SES markers, the PR of use was 1.31 among manual workers (95%CI: 1.11;1.55) and 1.21 among non-manual workers (95%CI: 1.06;1.37) (Table 2).

A progressive decrease in hospital seeking was observed with increases in schooling level and income. This trend was stronger in professionals than in non-manual workers, and the trend was weakest in manual workers. There was a tendency toward more medical offices seeking (private or insured) with increases in schooling, income and professional autonomy levels, with the exception of occupation (Table 3).

DISCUSSION

Individuals exhibiting the lowest SES markers, with the exception of income, exhibited higher health services use when their usual activities were restricted. This pattern persisted after adjustments for gender, age and the remainder of the SES markers. Occupation exhibited the steepest gradient in this population, and the highest services use level was observed among individuals in lower hierarchical positions.

Travassos et al¹⁴ (2006) performed a study assessing equity in services use with data from the *Pesquisa Nacional por Amostra de Domicílios* (PNAD – National Survey by Residential Sample), in which restriction of usual activities during the prior 15 days was reported. The authors noted opposing results: services use was higher among wealthier and more highly educated participants. Our study did not include individuals

Table 1. Percent female schooling, income and occupation characteristics; proportion of long leaves of absence; and health services use among participants reporting health-related restrictions of usual activities. Pro-Saúde Study. State of Rio de Janeiro, Southeastern Brazil, 2001.

Characteristic	n	Median age in years (IQR)	Percent female (95%CI)	Percent with long leaves of absence (95%CI) ^a	Health services use percent (95%CI)
Schooling					
Completed college or more	327	38 (34;44)**	70.9 (66.0;75.9)*	12.7 (9.0;16.3)*	70.0 (65.0;75.0)**
Completed secondary school	283	40 (35;45)	67.1 (61.6;72.6)	18.6 (14.0;23.3)	82.0 (77.5;86.5)
Completed elementary school	149	47 (42;53)	57.0 (49.0;65.1)	25.8 (18.2;33.3)	85.9 (80.3;91.6)
Per capita household income					
More than 6 MWs	195	40 (33;46)**	72.3 (66.0;78.6)**	14.7 (9.7;19.8)*	77.4 (71.5;83.4)
Between 3 and 6 MWs	258	38 (34;45)	72.9 (67.4;78.3)	14.4 (10.0;18.8)	74.8 (69.5;80.1)
Up to 3 MWs	306	42 (37;48)	58.2 (52.6;63.7)	21.5 (16.7;26.2)	80.1 (75.6;84.6)
Occupation					
Professionals	163	40 (35;45)**	63.8 (56.3;71.3)**	11.3 (6.3;16.3)	65.0 (57.6;72.4)**
Non-manual workers	548	40 (35;46)	71.5 (67.7;75.3)	18.7 (15.4;22.1)	80.3 (77.0;83.6)
Manual workers	48	45 (41;51)	22.9 (10.6;35.2)	22.2 (9.6;34.9)	89.6 (80.6;98.5)
Total	759	41 (35;46)	66.8 (63.4;70.2)	17.3 (14.5;20.1)	77.6 (74.6;80.6)

IQR: interquartile range; MW: minimum wage

^a 37 cases did not report data on restriction time

* $p < 0.05$; ** $p \leq 0.001$

Table 2. Crude and adjusted proportion ratios of health services use by schooling, income and occupation. Pro-Saúde Study. State of Rio de Janeiro, Southeastern Brazil, 2001.

Characteristic	Proportion ratio of use			
	Crude	95%CI	Adjusted ^a	95%CI
Schooling				
Completed college or more	1	–	1	–
Completed secondary school	1.17	1.07;1.28	1.16	1.06;1.28
Completed elementary school	1.23	1.11;1.35	1.16	1.03;1.31
<i>Per capita</i> household income				
More than 6 MWs	1	–	1	–
Between 3 and 6 MWs	0.97	0.87;1.07	0.92	0.83;1.03
Less than 3 MWs	1.03	0.94;1.14	0.92	0.82;1.02
Occupation				
Professionals	1	–	1	–
Non-manual workers	1.23	1.10;1.40	1.21	1.06;1.37
Manual workers	1.38	1.19;1.60	1.31	1.11;1.55

^a Adjustment for gender, age and other socioeconomic status markers
MW: minimum wage

with extreme socioeconomic disadvantages, such as the unemployed, which might partially explain the conflicting findings. A study assessing income inequalities in access in several countries (including Ireland and Belgium) showed a pattern of inequalities that favored poorer participants, even after an adjustment for need. These findings might be explained by financial features, such as co-payment exemption mechanisms and fee reductions for poorer individuals, that stimulated health services use in lower socioeconomic population strata.¹⁵

A study performed in England with a population comparable to the population evaluated in this study (civil servants) did not reveal differences in health services use according to occupational hierarchy status after adjusting for morbidity, which suggests equity in the pattern of use.³ The study based need on disease symptoms and the results of medical examinations, which might have ensured a better measurement of ongoing diseases. Moreover, that study was performed in a developed country, where differences in work relationships might exist; in England in particular, the universal health system is exclusively funded by the government and may favor higher equity in services use.

In this study, there were likely differences across SES levels in the severity of conditions that led to the restriction of usual activities. For example, the proportion of individuals with long leaves of absence was higher among those with less schooling and lower levels of income, and the proportion was higher among manual and non-manual workers than among professionals. This result suggests the occurrence of more severe diseases among the lower socioeconomic levels. Moreover, individuals with a lower SES more frequently used hospital services, whereas individuals

with a higher SES more frequently used medical offices, which reinforces the hypothesis of more severe conditions in the lower SES strata.

Table 3. Proportion of hospital and medical office use (private or insured) by schooling, income and occupation. Pro-Saúde Study. State of Rio de Janeiro, Southeastern Brazil, 2001.

Characteristic	n	Health service type	
		Percent hospital use (95%CI)	Percent medical office ^a use (95%CI)
Schooling			
Completed college or more	327	19.6 (15.2;23.9)	35.2 (30.0;40.4)
Completed secondary school	283	40.6 (34.9;46.4)	32.9 (27.4;38.4)
Completed primary school	149	47.7 (39.5;55.8)	24.2 (17.2;31.1)
<i>Per capita</i> household income			
More than 6 MWs	195	20.5 (14.8;26.2)	39.0 (32.1;45.9)
Between 3 and 6 MWs	258	29.1 (23.5;34.6)	31.8 (26.1;37.5)
Less than 3 MWs ^a	306	44.1 (38.5;49.7)	28.1 (23.0;33.2)
Occupation			
Professionals	163	19.0 (12.9;25.1)	30.7 (23.5;37.8)
Non-manual workers	548	35.9 (31.9;40.0)	33.2 (29.3;37.2)
Manual workers	48	45.8 (31.2;60.5)	25.0 (12.3;37.7)

^a Private or health insurance medical office
MW: minimum wage

Due to the complex and dynamic nature of interactions in services use and its multiple determinants, which is made explicit in the Andersen model, specific occupational characteristics might have exerted an influence on the pattern of use among individuals with a lower SES. The fact that occupation was the SES marker that exhibited the highest gradient suggests that differences in the work-relationship patterns might have influenced the variation in services use across occupational strata. The need to produce a medical certificate to justify work absences might particularly apply to workers with less flexible relationships with their bosses (manual and non-manual workers), which may lead to more services seeking. This pattern might not be the case for individuals with more flexible work relationships. Moreover, the physical proximity of an individual to the university hospital potentially reduces service access barriers and could make this use behavior occur more frequently.

The control mechanism applied (the analysis of individuals who reported health-related reductions in usual activities) may have been insufficient to adjust for SES differences in health needs, which was evidenced by the variation in the proxy for severity need. Conversely, a statistical adjustment for “duration of activities restriction” would not be appropriate because it is an

intermediate variable between the exposure and the outcome, and its control in the regression model could bias the results.^{4,8} Even though the variables related to services use and health needs were analyzed for the same period of time (the prior two weeks, which suggests acute morbidity) and the question on health services use was alluded to as the health reason that caused the restriction, there may have been a substantive correlation between them.¹² A further issue concerns the use of the proxy variable “services seeking” instead of “services use” to represent the construct of interest. Health services seeking may not represent the full dimension of services used. However, the satisfied demand index found in some Brazilian surveys suggests that services seeking sought provide an accurate representation of services used.^{9,13}

Remaining differences in individual morbidities may explain the results of this study. However, it is important to assess whether factors related to different hierarchical relationships and demands among occupational groups, such as the need to produce a medical certificate to justify absences, may influence health services use in this population and other populations of workers and may contribute to the observed SES differences in services use.

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