

# The individual's status in the labor market and health inequity in Brazil

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## Keywords

Work, employment. Unemployment.  
Labor force. Health inequity.

## Abstract

### Objective

To investigate inequalities in personal health conditions and in the utilization of healthcare services according in relation to the individual's status in the labor market.

### Methods

This study was based on 39,925 males aged 15 to 64 years living in 10 Brazilian metropolitan regions, who took part in the 1998 National Household Survey. They were classified as formal labor, informal labor, unemployed or outside of the labor market. Each category was compared with formal labor regarding sociodemographic characteristics, health status indicators and healthcare utilization. This analysis was by means of Pearson's Chi-square test. Multinomial logistic regression was used to investigate independent associations between labor market status, health status indicators and healthcare utilization.

### Results

The classification of the participants' status was that 52.2% were formal labor, 27.7% informal labor, 10% unemployed and 10.2% were outside of the labor market. There were significant differences between these categories with respect to age, schooling, household income, household status and region of residence. Independent of the sociodemographic characteristics, unemployment, informal labor status and, especially, exclusion from the labor market remained associated with poor health status.

### Conclusions

The individual's status in the labor market is expressed through a gradient of inequality in health conditions. These findings reinforce the need to also consider the individual's status in the labor market in studies on healthcare inequalities.

## INTRODUCTION

In Brazil, from the 1990s onwards, restructuring of production systems has caused profound changes in their technical and organizational basis.<sup>5</sup> Both the greater flexibility of production structures and the organization and social division of labor have defined enormous changes in the nature, meaning and content of work. With the new labor configuration, guaranteed social rights are now the privilege of a

restricted group of workers, while precarious contracts have proliferated along with unemployment.

Unemployment is probably the main factor leading to social exclusion.<sup>13</sup> Workers who are excluded from the formal economy are forced to earn their living by means of precarious occupations or, after long periods without work, are stricken by exclusion, descending a slope from inclusion to precarious inclusion and, finally, exclusion. Therefore, it can be said that exclu-

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Received on 10/2/2005. Approved on 25/7/2005.

sion from work is the broadest form of exclusion,<sup>14</sup> and its victims are probably also excluded from the majority of other social networks and are placed on a pathway leading to increasing vulnerability.

Studies have shown the central importance of socioeconomic conditions for determining morbidity-mortality patterns in populations, with a positive association between the socioeconomic level and better health conditions.<sup>8</sup> There are different ways of measuring the extent and magnitude of the associations between socioeconomic inequalities and health: income, schooling, social class and other composite variables. Occupation-based social classes, which are most frequently used in the United Kingdom, identify a gradient between social class and health.<sup>3</sup> "Employment grade" is a health marker with an influence that goes beyond the workplace.<sup>4</sup> Marmot<sup>10</sup> observed that less qualified workers presented higher prevalence of cardiovascular diseases, worse perception of their own health, and differences relating to habits of life, social activities and work characteristics, thus suggesting an agglomeration of potential risk factors. However, such studies do not include people without work. The importance of including individuals without work in these analyses is acknowledged in several studies,<sup>9</sup> either because of the growing numbers of unemployed individuals or because such inclusion would magnify the differences found.

In Brazil, employment/unemployment status is rarely used in investigations regarding health inequities. Therefore, the present study had the objective of investigating the inequalities in personal health conditions and healthcare service utilization in relation to the individual's status in the labor market.

## METHODS

Data from the National Household Survey (*Pesquisa Nacional por Amostra de Domicílios*, PNAD) carried out in 1998 were used in this study. PNAD was conducted between September 20 and 26, 1998, by the Brazilian Institute for Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, IBGE). It was a nationwide population survey designed to be representative of the whole population.<sup>7</sup>

This study included 39,925 men residing in the metropolitan regions of Belém, Fortaleza, Recife, Salvador, Belo Horizonte, São Paulo, Rio de Janeiro, Curitiba, Porto Alegre and the Federal District, with ages ranging from 15 to 64 years.

The dependable variable was the status in the labor market, composed of four independent categories:

formal labor (working with formally signed employment documents and/or making social security contributions); informal labor (working without formally signed employment documents and without making social security contributions); unemployed (not working but seeking work); outside of the labor market (not working and not seeking work). For this classification, the following variables were used: activity status (economically active or not), occupational status (working or not), formally signed employment documents (yes or no), social security contribution (yes or no). Public service workers and military personnel were classified as formal labor. Students who were not working or who were not seeking work were excluded from the analysis.

The sociodemographic characteristics studied were age group (15-24, 25-34, 35-44, 45-54, or 55-64 years); number of years of schooling (0-3, 4-7, 8-10, 11+ years); per capita household income, calculated as the total household income divided by the number of people forming the household, and grouped in quintiles; household status (reference person: yes or no); and the metropolitan region. These regions were grouped according to macro-regions: Southeast (São Paulo, Rio de Janeiro and Belo Horizonte); South (Curitiba and Porto Alegre); Northeast (Fortaleza, Recife and Salvador); North (Belém) and the Federal District.

The health indicators utilized were: self-perception of health, time off any of the usual activities during the last two weeks, time spent bedridden over the last two weeks, and reports of any chronic diseases. Self-perception of health was assessed by the question "In a general manner, do you consider your state of health to be...?" The answers were grouped into three categories: very good/good, regular and bad/very bad. A further category (another informant) was also used in constructing the variable, in which the information was not obtained directly from the individual. This was done because of the subjective aspects of self-perception of health that can only be picked up when the individual himself gives answers in the interview. Time off the usual activities during the last two weeks (yes or no) was assessed by means of the question "During the last two weeks did you fail to perform any of your usual activities for health reasons?" Time spent bedridden over the last two weeks (yes or no) was assessed by means of the question "Have you been bedridden over the last two weeks?" The variable of reports of chronic diseases was obtained from information regarding one or more of the following conditions: arthritis or rheumatism; cancer; diabetes; bronchitis or asthma; hypertension; heart disease;

**Table 1** - Proportional distribution of the male population aged 15 to 64 years living in metropolitan regions, according to their status in the labor market and sociodemographic characteristics. Brazil, 1998.

Variables	Status in the labor market				p value
	Formal labor (N=20,135)	Informal labor (N=11,865)	Unemployed (N=3,814)	Outside of the market (N=4,111)	
Age (years)					p<0.000
15-24	18.9	28.7	50.0	21.0	
25-34	29.8	25.0	21.7	11.5	
35-44	28.3	22.7	15.0	11.2	
45-54	16.8	15.0	9.9	21.3	
55-64	6.15	8.7	3.5	34.9	
Schooling (years)					p<0.000
0-3	11.1	21.8	15.0	27.7	
4-7	26.6	38.0	37.5	36.0	
8-10	21.6	19.2	27.9	15.6	
≥11	40.7	20.9	19.6	20.7	
Reference person in the household					p<0.000
Yes	67.3	57.7	31.7	57.5	
No	32.7	42.3	68.3	42.5	
Per capita household income (in R\$)					p<0.000
≤78.89	10.9	23.0	45.2	30.0	
78.89 — 150.00	18.5	23.0	21.7	20.0	
150.00 — 255.00	20.9	20.1	14.6	19.0	
255.00 — 500.00	23.7	18.2	12.3	16.3	
≥500.00	26.1	15.7	6.2	14.8	
Region of residence					p<0.000
Southeast	68.5	60.0	66.8	66.3	
South	13.06	12.8	9.9	9.4	
Northeast	13.3	20.5	18.5	18.7	
North	1.3	2.8	1.3	2.0	
Federal district	3.9	3.9	3.5	3.6	

p value: Pearson Chi-square test

chronic renal disease; and cirrhosis. These were all transformed into a single dichotomous variable, i.e. presence or absence of chronic disease. The health-care service utilization was assessed by the following variables: medical consultations, by asking "What was the principal health attendance you received?"; the number of medical consultations over the last year, by asking "How many times did you go to the doctor over the last 12 months?"; and the number of hospital admissions over the last year, by asking "Over the last 12 months, how many times were you admitted to hospital?". Coverage by private health insurance plans (yes or no) was also considered.

The associations between status in the labor market and sociodemographic characteristics, health indicators and healthcare service utilization were measured by means of the Pearson Chi-square test and the raw odds ratio with its confidence interval.

Since the dependent variable has three levels, multinomial logistic regression was used in order to investigate the independent associations between status in the labor market and each of the health indicators, and also in relation to the usage of health services included in the study. The reference category for the analyses was formal labor. In the multivariate analyses, each variable of interest was adjusted for age, schooling, per capita household income, reference person status in the household, macro-region of residence, retired status and informant. The variable of self-perception of health was

not adjusted for the informant. Indicators for the usage of services were adjusted for health plans and all other variables listed above.

The Stata software was used for data analysis. A variable was created according to the algorithm supplied by IBGE, in order to correct for the effects of the sampling design. Incorporation of this variable in the analyses enabled better approximations for standard error estimates to be obtained. This procedure was adopted because the standard error is also influenced by the clustering of the units and the stratification derived from the sampling design of the multiple stages of PNAD.

## RESULTS

The proportional distribution according to status in the labor market showed that 52.2% of the men aged between 15 and 64 years living in Brazilian metropolitan regions in 1998 were classified as formal labor, 27.7% as informal labor, 10% as unemployed and 10.2% as individuals outside of the labor market.

In the formal labor category, a minority were individuals aged over 55 years. The majority had 11 years or more of schooling and their greatest concentration was found in categories with higher household income. The informal labor category consisted mainly of younger individuals and those with four to seven years of schooling. Among unemployed

individuals, the majority were young men, and there were low percentages of individuals with 11 years of schooling or more and individuals who were the reference in their household and in the higher household income group. Among those who were outside of the labor market, the majority were older individuals and those with zero to three years of schooling (Table 1).

From the univariate analysis, formal labor status was compared with the other categories, in relation to the sociodemographic characteristics. It was observed that the informal labor category consisted of younger individuals with less schooling, less likelihood of being the reference person in the household and lower per capita household income. Those who were unemployed were also younger, with less schooling and lower per capita household income. They were less frequently the reference person in the household and they more frequently lived in the northeastern region of the country. Those who were outside of the labor market were older, with less schooling and lower per capita household income. They were less likely to be the reference person in the household and less likely to live in the southern region of the country (Table 2).

With regard to health indicators, the highest percentages of indicators of poor health conditions and high usage of healthcare services were observed among individuals who were outside of the labor market (Table 3).

Table 4 shows the results from the analysis of status in the labor market in relation to indicators of health and usage of healthcare services, adjusted for age, schooling, per capita household income, reference person status in the household, region of residence, retired status and informant. The indicators of healthcare service utilization were also adjusted for the existence of a private health insurance plan.

The results showed that, in relation to formal labor status, the individuals in the informal labor category presented worse self-perception of health, were more often bedridden over the last 15 days, and also had attended fewer medical consultations over the last 15 days and during the preceding year. They also less frequently had private health insurance plans.

Those who were unemployed also had worse self-perception of health, were more often bedridden over the last 15 days, and reported higher frequency of chronic diseases than did the individuals with formal status. It was also less frequent for the unemployed individuals to possess private health insurance plans.

Individuals who were outside of the labor market reported worse self-perception of health, were more frequently off their usual activities during the last 15 days, were more frequently bedridden, and reported higher frequency of chronic diseases than did the individuals with formal status. Likewise, they had less coverage by private health insurance plans, had consulted a doctor less frequently during the last 15 days

**Table 2** - Sociodemographic characteristics associated with status in the labor market among the male population aged 15 to 64 years, Brazil 1998 (reference category = formal employment).

Variables	Informal labor OR (95% CI)	Status in the labor market Unemployed OR (95% CI)	Outside of the market OR (95% CI)
Age (years)			
15-24	1.00	1.00	1.00
25-34	0.55 (0.51-0.60)	0.27 (0.25-0.31)	0.35 (0.30-0.40)
35-44	0.53 (0.49-0.57)	0.20 (0.18-0.22)	0.36 (0.31-0.41)
45-54	0.59 (0.54-0.64)	0.22 (0.19-0.26)	1.14 (1.00-1.29)
55-64	0.94 (0.84-1.05)	0.22 (0.17-0.27)	5.11 (4.50-5.80)
Schooling (years)			
0-3	1.00	1.00	1.00
4-7	0.73 (0.67-0.79)	1.04 (0.91-1.19)	0.54 (0.49-0.60)
8-10	0.46 (0.42-0.50)	0.96 (0.84-1.10)	0.29 (0.25-0.33)
≥11	0.26 (0.24-0.29)	0.36 (0.31-0.41)	0.20 (0.18-0.23)
Reference person in the household			
Yes	1.00	1.00	1.00
No	1.51 (1.42-1.60)	4.44 (4.06-4.86)	1.53 (1.41-1.66)
Per capita household income (in R\$)			
≤ 8.89	1.00	1.00	1.00
78.89 —  150.00	0.76 (0.70-0.83)	0.41 (0.36-0.46)	0.55 (0.49-0.61)
150.00 —  255.00	0.55 (0.51-0.61)	0.23 (0.20-0.26)	0.41 (0.37-0.47)
255.00 —  500.00	0.44 (0.42-0.50)	0.16 (0.14-0.18)	0.32 (0.28-0.36)
≥500.00	0.35 (0.32-0.38)	0.07 (0.06-0.09)	0.26 (0.23-0.30)
Region of residence			
Southeast	1.00	1.00	1.00
South	1.13 (1.03-1.24)	0.81 (0.70-0.94)	0.68 (0.59-0.80)
Northeast	1.75 (1.65-1.86)	1.42 (1.30-1.55)	1.45 (1.34-1.58)
North	2.43 (2.17-2.72)	1.05 (0.86-1.28)	1.58 (1.33-1.87)
Federal district	1.15 (1.04-1.27)	0.91 (0.79-1.06)	0.95 (0.82-1.10)

OR (95% CI): Odds ratio (95% Confidence Interval).

and the preceding year, and were admitted to hospital more often and in greater numbers over in the preceding year.

## DISCUSSION

Inequalities in health have been studied in two ways. The first way is in relation to the likelihood of becoming ill, which reflects the unequal distribution of social, cultural, and environmental determinants of diseases. The second way is in relation to the specific access to healthcare services by different social groups.<sup>1</sup>

In the present study, status in the labor market was associated with health conditions and the utilization of healthcare services. Individuals in the formal labor category presented the best health indicators. Individuals who were outside of the labor market showed the worst health conditions and greatest utilization of healthcare services, probably because they were more frequently ill. On the other hand, although individuals in the informal labor category were more frequently bedridden over the last 15 days, in comparison with those with formal status, they reported less utilization of the healthcare services, thus pointing towards a difference in access to healthcare. Those who were unemployed were more frequently bedridden and reported more chronic diseases, but did not present differences in relation to the utilization of

healthcare services. It can be affirmed that there is a gradient in the associations between status in the labor market and the indicators of health and utilization of healthcare services. In this, the extremities are occupied by individuals with formal status and by those outside of the labor market.

Individuals with informal status, unemployed individuals and those who were outside of the labor market more frequently self-assessed their health as regular or bad. Perception of health is a subjective indicator, but studies have consistently pointed towards an association between poor perception and greater use of healthcare services,<sup>11</sup> hospital admittance<sup>6</sup> and mortality.<sup>15</sup> However, a significant percentage (67%) of the participants did not answer this question directly, and this may have influenced the results, although it cannot be estimated in which direction.

The status in the labor market expresses other aspects of the social inequalities. The individuals with formal status had a higher level of schooling, thus pointing towards higher professional qualifications, and they lived in households with higher per capita income. Another matter to be considered is the extremities of the age groups studied. As already identified in studies,<sup>12</sup> younger individuals had higher likelihood of being unemployed, thus showing the difficulty they have in getting into the labor market in the metropolitan regions of Brazil. On the other hand,

**Table 3** - Distribution of the male population according to status in the labor market and indicators of health and healthcare service utilization. Brazil, 1998.

Variables	Status in the labor market			Outside of the market (N=4,111)
	Formal labor (N=20,135)	Informal labor (N=11,865)	Unemployed (N=3,814)	
Self-perception of health				p<0.0001
Good	25.4	26.3	27.7	23.4
Regular	3.9	6.0	5.0	13.1
Bad	0.4	0.8	1.4	4.3
Other	70.2	66.9	65.9	59.3
Time off usual activities during the last 15 days				p<0.0001
Yes	3.9	4.7	4.0	9.8
No	96.1	95.4	96.0	90.2
Bedridden during the last 15 days				p<0.0001
Yes	2.0	2.9	2.7	6.2
No	98.0	97.1	97.3	93.8
Report of chronic diseases				p<0.0001
Yes	17.5	18.0	14.3	35.1
No	82.5	82.0	85.7	64.9
Private health insurance plan				p<0.0001
Yes	51.5	16.4	16.4	27.5
No	48.5	84.6	83.6	72.5
Medical consultation during the last 15 days				p<0.0001
Yes	6.2	4.4	4.7	10.8
No	93.9	95.6	95.3	89.2
Number of medical consultations over the preceding year				p<0.0001
None	47.7	60.5	59.0	43.9
1	17.1	14.3	14.7	11.2
2	13.6	10.0	10.4	10.9
3 or more	21.6	15.2	15.9	34.0
Number of admissions to hospital during the preceding year				p<0.0001
None	96.8	97.1	97.5	91.0
1	2.7	2.5	2.2	6.2
2 or more	0.5	0.5	0.4	2.9

p value: Pearson Chi-square test

**Table 4** - Indicators of health and healthcare service utilization, according to status in the labor market among the male population. Brazil, 1998.

Variables	Informal labor Adjusted OR (95% CI)	Status in the labor market Unemployed Adjusted OR (95% CI)	Outside of the market Adjusted OR (95% CI)
Self-perception of health			
Good	1.00	1.00	1.00
Regular	1.28 (1.18-1.39)	1.26 (1.12-1.40)	1.27 (1.19-1.37)
Bad	1.24 (1.08-1.43)	1.88 (1.45-2.42)	2.01 (1.64-2.45)
Other informant	0.58 (0.50-0.61)	0.43 (0.41-0.45)	0.37 (0.25-0.39)
Time off usual activities during the last 15 days			
No	1.00	1.00	1.00
Yes	1.04 (0.93-1.17)	0.90(0.74-1.09)	2.05 (1.62-2.60)
Bedridden during the last 15 days			
No	1.00	1.00	1.00
Yes	1.36 (1.14-1.63)	1.34 (0.87-2.07)	2.83 (2.04-3.93)
Report of chronic diseases			
No	1.00	1.00	1.00
Yes	1.02 (0.93-1.11)	1.06 (0.95-1.17)	1.41 (1.22-1.63)
Private health insurance plan			
No	1.00	1.00	1.00
Yes	0.21 (0.18-0.24)	0.35 (0.30-0.40)	0.38 (0.33-0.44)
Medical consultation during the last 15 days*			
No	1.00	1.00	1.00
Yes	0.88 (0.80-0.98)	1.08 (0.78-1.50)	1.58 (1.34-1.86)
Number of medical consultations over the preceding year*			
None	1.00	1.00	1.00
1	0.82 (0.75-0.90)	0.95 (0.79-1.15)	0.81 (0.71-0.93)
2	0.81 (0.72-0.91)	0.99 (0.86-1.12)	0.95 (0.80-1.13)
3 or more	0.82 (0.75-0.90)	1.03 (0.83-1.28)	1.57 (1.36-1.79)
Number of admissions to hospital over the preceding year*			
None	1.00	1.00	1.00
1	1.09 (0.93-1.28)	1.02 (0.73-1.43)	2.04 (1.67-2.49)
2 or more	0.98 (0.66-1.46)	0.96 (0.62-1.49)	3.54 (2.27-5.52)

Notes: Reference category: formal labor; Adjusted OR (95% CI): Odds ratio with 95% confidence interval, adjusted for age, schooling, per capita household income, reference person in the household, region of residence, retired status and informant  
\*Adjusted for private health insurance plan, in addition to all the other factors cited.

those who were outside of the labor market were older and, as already discussed, this group presented worse health conditions independently of age, and therefore were more vulnerable to exclusion from the labor market.

The categories relating to status in the labor market utilized in the present analysis did not form internally homogenous groups. Thus, there is still a need to investigate certain characteristics, such as working hours, workplace and occupation, and how these factors are different between workers in the formal and informal labor categories. It is also necessary to investigate the relationship between status in the labor market and women's health. Women participate in the labor market at a clear disadvantage: their occupations are more precarious than men's, they earn less<sup>12</sup> and also have to bear a double workload, taking into account their domestic work.

Because this was a cross-sectional study, the exposure to risk factors and the event of interest were determined simultaneously. It was therefore not possible to establish a temporal relationship between them. Another limitation of questionnaire-based studies is the different mortality rates, i.e. individuals with worse living conditions tend to die earlier. However, the effect of such survival bias made the estimates more conservative. In one cohort of workers, it was observed

that there was a more intense association between low socioeconomic level and morbidity in the segment than on the baseline.<sup>4</sup> The effect of healthy workers represents a selection and survival bias, as observed in occupational epidemiological studies. According to Bartley,<sup>2</sup> the selective and excluding effects of work are influenced by oscillations in the economic situation. During periods of greater economic recession, the group of workers who are most vulnerable regarding health would be excluded from the economically active population, thus reducing the contrast in health between unemployed and employed individuals.

The present study has confirmed that health is influenced by socioeconomic position. This relationship works in several ways that may involve behavior, biological effects or psychosocial factors, or may relate to different resources for treatment, prevention and promotion of health. Unemployment, informal labor status and, most of all, exclusion from the labor market were associated with worse health condition among adult Brazilians. In addition to the differences determined by type of work, there are also the differences regarding gender, age and schooling, among others. The inequalities created in the social structure are reflected in the process of becoming ill.

Thus, when not only the type of work is consid-

ered, but also the differences in status in the labor market, unemployment and exclusion from the labor market are considered in investigations of health inequities, an important aspect of such inequalities is revealed, which few health studies in Brazil have dealt with.

In conclusion, the increase in unemployment and the growth in precarious work contracts and the informal labor market, in which there is no social security or labor law protection, reinforce the need for the status in the labor market also to be considered in studies on health inequalities.

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