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PERSPECTIVES IN REHABILITATION

Physical disability, recent illnesses and health self-assessment in a population-based study in São Paulo, Brazil

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Abstract

Objectives. To investigate health self-assessment and to estimate the prevalence of chronic diseases and recent illnesses in people with and without physical disabilities (PD) in the state of São Paulo, southeastern Brazil.
Study design. A Cross-sectional study comprising two population-based health surveys conducted in 2002 and 2003.
Methods. A total of 8317 persons (165 with PD) were interviewed in the two studies. Variables concerning to health self-assessment; chronic disease and recent illness were compared in the people with and without PD. Negative binomial regression was used in the analysis.
Results. Subjects with PD more often assessed their health as poor/very poor compared to non-disabled ones. They reported more illnesses in the 15 days prior to interview as well as more chronic diseases (skin conditions, anaemia, chronic kidney disease, stroke, depression/anxiety, migraine/headache, pulmonary diseases, hypertension, diabetes, arthritis/arthrosis/rheumatic conditions and heart disease). This higher disease prevalence can be either attributed to disability itself or be associated to gender, age and schooling.
Conclusions. Subjects with PD had more recent illnesses and chronic diseases and poorer health self-assessment than non-disabled ones. Age, gender, schooling and disability have individual roles in disease development among disabled people.

Keywords: *Physical disability, chronic illnesses, health status, health surveys*
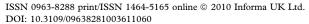
Introduction

People affected by physical disabilities (PD) undergo significant changes in their lives. Routine activities such as grooming and eating become major challenges. Special attention should be paid to their nutritional care, mobility, bowel movements, incontinence, communication with other people, oral hygiene, social life, work, among others [1].

It is also recognised that people with PD are more exposed to associated comorbidities [2]. Dejong [3] reports that a major reason for higher prevalence of comorbidities among people with PD is what the author calls 'thinner margin of health', i.e., a state of more unstable health that together with their disability make them more vulnerable to diseases compared to non-disabled people.

The knowledge on illness occurrence, chronic disease prevalence and health self-assessment can provide insight for guiding health services in the development of programmes and services targeted to this group. The objective of the present study was to investigate health self-assessment and recent illness occurrence and to estimate the prevalence of chronic diseases in people with and without PD in the state de São Paulo, southeastern Brazil.

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Methods

A population-based cross-sectional study was conducted using household interviews. Data were collected in surveys on health and life conditions – the 'Health Survey of the State of São Paulo – ISA-SP' (carried out from April/2001 to March/2002), and the 'Health Survey' of the city of São Paulo – ISA-Capital (carried out from February/2002 to December/2003), – in the cities of Botucatu and Campinas, inland region of the state of São Paulo, and Taboão da Serra, Embu and Itapecerica, in the metropolitan area of the city of São Paulo (Greater São Paulo, GSP). A total of 8317 interviews were carried out and 165 respondents reported some level of physical disability (paralysis or limb loss/amputation).

A cluster-based stratified sampling was carried out. Primary sampling units were census tracts and secondary sampling units were households. Census tracts were grouped into three strata according to the proportion of household heads with college education. They were then evenly divided into eight subgroups by gender and age. People of all ages were included in the study.

In both ISA-SP and ISA-Capital surveys, interviewers were trained by hired specialists before data collection and household interviews were conducted after a free informed consent was signed by respondents or their caregivers. Repeat interviews were carried out in 10% of all subjects for quality control. Detailed information on survey methods are published elsewhere (http://hygeia.fsp.usp.br/isa-sp) [4].

Respondents reporting any PD (paralysis or limb amputations) were included in the study. The great number of interviews, evaluations or tests to confirm the occurrence of PD would imply in time and cost increase. Therefore, the self-related disability was considered.

Subjects' health status was indirectly measured through their own health self-assessment as excellent, very good/good and poor/very poor. This is the first question from SF-36, translated and validated to the Portuguese language [5]. Acute illness occurrence was assessed during a 15-day recall period prior to the interview. Chronic diseases were assessed using a checklist where respondents reported to having a chronic illness or not. The application of specific scale or clinical examinations would increase cost and time, considering the large number of interviews. EpiData software was used for data entry, SPSS program was used for checking database consistency and statistical analyses were conducted using STATA program survey module.

Negative binomial regression model was applied to estimate prevalence ratios (PRs) rather than odds ratios since PRs are easier to interpret [6]. The significance level was set at $p < 0.20$ for a variable to be included in the multiple regression model (t-test) and at $p < 0.05$ for it to remain in the model (F-statistics). The dependent variable was physical disability and independent variables were chronic diseases (hypertension, diabetes, skin conditions, allergy, anaemia, arthritis/arthrosis/rheumatic conditions, chronic kidney disease, stroke, depression/anxiety, migraine/headache, osteoporosis, epilepsy, heart disease, pulmonary diseases); health self-assessment and recent illnesses occurring in the 15 days prior to the interview. All variables were self-reported. The study was approved by Universidade de São Paulo, School of Public Health (FSP-USP) Research Ethics Board.

Results

Table I describes the characteristics of the study sample according to demographic and social and economic variables. Subjects with PD were mostly older males, Black and Mulatto, with income ranging between 1 and 5 minimum wages compared to the entire population studied. The main causes of PD were diseases (like stroke, cardiovascular disease and others), followed by external causes (car crashes, work-related injuries and domestic accidents),

Table I. Demographic and social and economic characteristics of the sample studied, ISA-SP and ISA-Capital, 2002 and 2003.

Variables	Physical disability, % (n)*	Total % (n)*
Area		
GSP	5.5 (45)	4.9 (1787)
Botucatu	0.9 (31)	0.9 (1588)
Campinas	5.3 (22)	8.2 (1585)
São Paulo	88.3 (67)	86.0 (3357)
Gender		
Male	65.9 (110)	47.7 (4139)
Female	34.1 (55)	52.3 (4177)
Age group		
<12	13.9 (16)	19.8 (1862)
12–19	5.4 (12)	15.1 (2036)
20–39	24.3 (12)	33.7 (1207)
40–59	30.7 (18)	21.2 (805)
60 and more	25.7 (107)	10.1 (2407)
Income† (family head)		
<1 mw	80.9 (76)	84.3 (3817)
1 and 4.99 mw	15.0 (67)	8.31 (2635)
5 mw and more	4.1 (16)	7.3 (1832)
Race‡		
White	59.9 (106)	65.3 (5789)
Black/mulatto	39.1 (57)	33.3 (2286)
Others	1.0 (2)	1.4 (146)

*% weighed, (n) non-weighed.
†33 non-responses or losses in non-disabled subjects only.
‡69 non-responses or losses in non-disabled subjects only.

congenital conditions, other unknown causes and ageing, discussed in Ref. [7].

Table II shows the prevalence distribution of health self-assessment, recent illnesses and chronic diseases according to the presence or not of PD. Among subjects with PD, after adjusting by age, gender and schooling, most of them assessed their health as poor or very poor compared to those without PD (PR = 2.3). A higher proportion of recent illnesses was also reported among subjects with PD (PR = 2.4). As for chronic diseases, those with PD reported more skin conditions (PR = 4.5); anaemia (PR = 4.7); chronic kidney disease (PR = 4.0); stroke (PR = 18.3); depression/anxiety (PR = 3.9); migraine/headache (PR = 3.3) and pulmonary diseases (PR = 4.9).

Since there may be an association between chronic kidney disease, anaemia and diabetes, a model was conducted including these three variables adjusted for gender, age and schooling. PRs of 3.6 (95% CI: 1.5–8.9; $p < 0.01$) for anaemia; 2.6 (95% CI: 1.1–6.1; $p < 0.03$) for chronic kidney disease; and 1.1 (95% CI: 0.5–2.7; $p > 0.05$) for diabetes were found.

Discussion

Subjects with PD more often assessed their health as poor/very poor compared to non-disabled ones. In addition, a higher prevalence of recent illnesses (in a 15-day recall) was seen in this group, which corroborates other studies [2]. Skin conditions are a common complication of PD [8]. This fact was corroborated in the present study where subjects with PD reported more skin conditions.

Anaemia was 4.7 times more prevalent in subjects with PD compared to non-disabled ones. A study with institutionalised patients showed that women with PD had twice more anaemia than non-disabled patients [9] which is below the rate found in the present study. In addition, those with PD had four times more chronic kidney disease. After including diabetes and anaemia in the analysis given the recognised association of these three diseases [10] the prevalences remained high. Anaemia and chronic kidney disease were more prevalent in those with PD.

Stroke was more frequently reported among those with PD. However, the association between stroke and PD is well-established and it can sometimes cause different levels of disability [11]. Subjects with PD more often reported suffering from depression/anxiety than non-disabled ones. These data corroborate the association between PD and depression/anxiety reported in the literature [12].

Higher prevalences were seen for headache and migraine in subjects with PD compared to non-disabled ones. Higher prevalences were also found

Table II. Health self-assessment, recent illnesses (during a 15-day recall period) and chronic diseases according to the presence or absence of physical disability, 2002 and 2003.

	Occurrence, % (n)[†]			
	With PD	Non-PD	PR (not adjusted) [95% CI]	PR (adjusted)[§] [95% CI]
Health self-assessment[‡]				
Excellent	2.7 (3)	9.7 (155)	0.2 [0.04–1.20]	0.3 [0.0–1.7]
Very good/good	61.0 (35)	75.3 (1297)	0.8 [0.6–1.10]	0.8 [0.6–1.1]
Poor/very poor	36.3 (24)	15.0 (250)	*2.4* [1.3–4.2]	*2.3* [1.2–4.3]
Recent illnesses	42.1 (48)	27.2 (2293)	*1.9* [0.9–4.0]	*2.4* [1.04–5.4]
Chronic diseases				
Hypertension	31.2 (74)	10.8 (1337)	*3.6* [1.9–6.7]	2.2 [0.9–5.1]
Diabetes	8.9 (23)	3.0 (409)	*3.0* [1.3–6.9]	1.7 [0.6–4.5]
Skin conditions	15.7 (14)	3.7 (364)	*4.5* [1.4–13.8]	*4.5* [1.4–14.3]
Allergy	25.9 (32)	21.0 (1741)	1.3 [0.6–2.6]	1.7 [0.8–3.8]
Anaemia	12.0 (10)	3.2 (307)	*3.9* [1.6–9.3]	*4.7* [1.9–11.5]
Arthritis/arthrosis/rheumatism	10.0 (28)	4.0 (656)	*2.6* [1.1–6.0]	1.2 [0.4–3.6]
Chronic kidney disease	8.0 (13)	1.4 (159)	*5.5* [2.2–13.3]	*4.0* [1.4–11.1]
Stroke	25.4 (51)	0.7 (100)	*29.1* [14.9–57.0]	*18.3* [6.3–52.5]
Depression/anxiety	36.9 (49)	13.7 (1142)	*3.5* [1.6–7.6]	*3.9* [1.5–10.0]
Migraine/headache	31.1 (33)	15.9 (1176)	2.3 [0.8–6.2]	*3.3* [1.1–9.6]
Osteoporosis	2.1 (10)	2.7 (367)	0.8 [0.2–2.4]	0.2 [0.04–1.5]
Heart diseases	12.2 (25)	2.4 (393)	*5.3* [1.7–15.7]	3.4 [0.8–14.0]
Pulmonary diseases	13.9 (18)	5.7 (555)	*3.8* [1.6–8.7]	*4.9* [2.0–12.2]

Values given in italic represent statistical significance.
[†]Prevalences in the weighed sample; (n) number in the non-weighed sample.
[‡]For those aged 60 and more only.
[§]Prevalence ratio adjusted by gender, age and schooling.
*$p < 0.05$.

for pulmonary diseases in this same group. Hypertension, diabetes, heart diseases and arthritis/arthrosis/rheumatic conditions were more frequently seen in those with PD. However, this finding may not be directly related to PD itself but rather to the study sample profile, i.e., age, gender and schooling, since the statistical significance disappeared after adjusting for these variables.

Study limitations and strengths

This study is part of a population-based survey, carried out with a great number of persons. Researches like this are so difficult to conduct because they incur high costs and require a long time for planning. A survey with specific scales to measure the morbidities and the health, as well as a standardised evaluation of disability may corroborate the information founded in this research.

Conclusion

People with PD tended to assess their own health as poor/very poor and report more recent illnesses as well as chronic diseases. Some of these conditions were directly associated to PD (skin conditions, anaemia, chronic kidney disease, stroke, depression/anxiety, migraine/headache and pulmonary diseases) while others were related to age and gender (hypertension, diabetes, arthritis/arthrosis/rheumatic conditions and heart disease). People with PD clearly have a distinctive health profile, evidencing a need for focusing their care on chronic and acute condition management and health self-assessment.

It is reported that in Brazil, in 2000, there were approximately 1.4 million persons with disabilities [13]. This is a relatively large population and the policymakers should consider the information about diseases in association with the phenomenon of disability in the planning and management of the health services. Thus, specific policies and campaigns could be focused on certain diseases, thereby, this population group would be better served and the consequences of the disabling process and of some diseases could be avoided. On the other hand, the professionals who work in the rehabilitation field could be aware of the incidence of specific diseases in their patients, always aiming at prevention.

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