

Impairments and related social inequalities among adults: a population-based study in São Paulo city, Brazil

Deficiências e desigualdades sociais entre adultos:
um estudo de base populacional na cidade de São Paulo, Brasil

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Abstract *The study of the association of social variables with the prevalence of impairments can provide subsidies for more adequate care and health policies for the most needy people by incorporating social aspects. This article aims to estimate the prevalence of diverse types of impairments, the degree of difficulty, limitations, and the need for help they cause and attest whether this prevalence differ by educational attainment in individuals aged 20 years or older. This is a populational cross-sectional study (2015 Health Survey of São Paulo-ISA Capital). Data from 3184 individuals were analyzed via educational attainment as exposure variable and outcome variables related to visual, hearing, intellectual, and mobility impairments. 19.9% of participants had visual, 7.8%, hearing, 2.7%, intellectual, and 7.4%, mobility impairments. Mobility and intellectual impairments limited participants' daily activities the most, 70.3% and 63.3%, respectively; who, thus, needed the most help: 48.9% and 48.5%, respectively. Lower schooling was associated with a higher prevalence of impairments, greater need for help due to visual and intellectual impairments, and greater limitations due to hearing and visual impairments.*

Key words *Health surveys, Low vision, Hearing loss, Mobility limitation, Intellectual disability*

Resumo *O estudo da associação de variáveis sociais com a prevalência de deficiências pode fornecer subsídios para uma atenção e políticas de saúde mais adequadas às pessoas mais carentes ao incorporar aspectos sociais. O objetivo deste artigo é estimar a prevalência de diversos tipos de deficiências, o grau de dificuldade, as limitações e a necessidade de ajuda e verificar se essa prevalência difere por escolaridade em indivíduos com 20 anos ou mais. Trata-se de um estudo transversal populacional (Inquérito de Saúde de São Paulo 2015 – ISA-Capital). Os dados de 3.184 indivíduos foram analisados com a escolaridade como variável de exposição relacionada às deficiências visuais, auditivas, intelectuais e de mobilidade. Dezenove vírgula nove por cento dos participantes apresentavam deficiência visual, 7,8% auditiva, 2,7% intelectual e 7,4% de mobilidade. Mobilidade e deficiência intelectual foram as que mais limitaram as atividades diárias, 70,3% e 63,3%, respectivamente, sendo, portanto, as que mais necessitaram de ajuda: 48,9% e 48,5%, respectivamente. Menor nível de escolaridade mostrou associação com maior prevalência de deficiências, maior necessidade de ajuda por deficiência visual e intelectual e maiores limitações por deficiência auditiva e visual.*

Palavras-chave *Inquéritos epidemiológicos, Baixa visão, Perda auditiva, Limitação de mobilidade, Deficiência intelectual*

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Introduction

The second article of the Brazilian Law for the Inclusion of Persons with Disabilities (Law no. 13.146/2015)¹ establishes that ‘persons with disabilities are those who have long-term physical, mental, intellectual or sensory impairments, which in interaction with one or more barriers, may obstruct the full and effective participation of these persons in society on equal terms with others’; emphasizing the environmental influence on the lives of the persons with disabilities and the possible limitations to their full participation in society, aiming to ensure and promote their fundamental rights, freedoms, the social inclusion, and citizenship. These goals assume the structuring of public policies aimed at equalizing opportunities, contributing to reduce or eliminate the inequalities faced by the persons with disabilities^{2,3}.

The literature has shown associations⁴ and causal links⁵ between socioeconomic strata and disability prevalence, increasing in less developed countries, according to The World Report on Disability (WRD) of the World Health Organization (WHO)³. A 2017 literature review of studies conducted in middle- and low-income countries reinforces this association⁶, showing strong evidence between disabilities and poverty in 81% of the studies analyzed (122/150), with a statistically significant and direct association between these variables; comparatively, poorer countries show a higher disability prevalence than richer countries; a perverse cycle hindering the economic development of these countries and requiring the implementation of public policies to reverse this situation.

Note that, in addition to periodically estimating the prevalence of disabilities and impairments due to their impact on health systems and on people’s lives, we must also monitor the social inequalities prevalent in the occurrence and characteristics of these disabilities and impairments, for social and economic circumstances may enable countries to overcome the barriers to equalizing the conditions for a full life. Moreover, the demographic transition due to the greater proportion of older adults increases the impaired population, requiring public policies that contribute to reducing the possible repercussions these impairments cause on the quality of life of this age group. In view of the magnitude of the socioeconomic inequalities in the city of São Paulo causing about 85% of its population to live in socially excluded areas⁷, the prevalence of impairments according to socioeconomic strata is a central issue. The

present research fills a gap in the literature by collecting prevalence data at the population level from the perspective of social inequalities, since other studies with this objective in the same city are not verified in the current literature.

Thus, we aimed to estimate the prevalence of diverse types of impairments, the degree of difficulty, limitations, and the need for help they cause, and attest whether this prevalence differs according to educational attainment in individuals aged 20 years or older living in the city of São Paulo in 2015.

Methods

Design and population

This is a cross-sectional, population-based study elaborated with data from the 2015 Health Survey of São Paulo (ISA-Capital). In total, 4,043 individuals aged 12 years or older living outside care institutions in the urban area of São Paulo were interviewed. Data from adults aged 20 years of age or above were analyzed. Access to the data is not open and is controlled by the consortium of researchers and the municipal health department of São Paulo.

Based on the 2015 ISA-Capital, our sample is probabilistic, stratified, and was taken in two stages. In its first stage, 150 census tracts were randomly chosen by a probability proportional to the number of households. In its second stage, households were drawn from the selected census tracts. Independently drawn, our sample domains were composed of adults of all genders aged from 12 to 19 years, 20 to 59 years, and ≥ 60 years. A minimum sample size of 4250 individuals was estimated to obtain 50% proportions (the maximum variability of the sample), with a 10% sampling error, and a 95% confidence level, considering a 1.5 design effect. The sampling plan used has already been published⁸.

Variables

Our outcome variables were:

- Visual impairment (yes or no), assessed by the question “Do you have permanent difficulty seeing?” thus explained: “If you require glasses or contact lenses, make your assessment with them.”

- Hearing impairment (yes or no), assessed by the question “Do you have permanent difficulty hearing?” thus explained: “If you require a hearing aid, make your assessment with it.”

- Mobility impairment (yes or no), assessed by the question “Do you have permanent difficulty walking or climbing steps?” thus explained: “If you require prostheses, canes or assistive devices, make your assessment with them.”

These questions could be answered thus: (1) Yes, I cannot at all; (2) Yes, I have a big difficulty; (3) Yes, I have some difficulty; and (4) No, no difficulty. Options 1, 2, and 3 were joined to form the category “Yes, shows impairment”.

- Degree of difficulty of the impaired were assessed by the options above and categorized into total difficulty, big difficulty, and some difficulty.

- Intellectual impairment, assessed by the question “Do you have any permanent mental/intellectual impairment limiting work, study, leisure, etc.?” to be answered either by “yes” or “no.”

- Limitations to work, school or leisure (yes or no) and the need for help with routine activities (cleaning the house, preparing food, shopping, paying bills, going to the bank, etc.) (yes or no) were also analyzed for all impairments.

Our exposure variables for visual, hearing, and mobility impairments were participants’ and heads of families’ (for intellectual impairment) educational attainment in completed years, split into 0 to 7 years, and 8 years or more.

The following variables were used to describe the studied population and some of them to access association with schooling to justify the use of this indicator as proxy of socioeconomic level: age group (20 to 39 years, 40 to 59, and 60 and above); gender; self-reported ethnicity (white, black or mixed – information of indigenous and other race were not showed and were excluded of this analysis, specifically, due to the low number of observations in this population); health insurance (yes/no); family income per capita in quartiles (1, 2, 3, and 4); and number of impairments (0, 1, 2, 3 or more).. Variables with missing data due to non-response were schooling (n = 18), income and number of impairments.

Data analysis

Associations were evaluated by the Rao-Scott chi-square test.

Prevalence, the 95% confidence intervals (95%CI), the percentage of limitations to daily activities, and the need for help with routine activities were estimated according to educational attainment. The prevalence ratios (PR) and 95%CI of each outcome variable were also estimated according to education attainment. Poisson regression models with robust varian-

ces were performed with adjustment for gender and age, variables known to have an influence on the prevalence of impairments⁴ considering a statistical level of 5%. For the inferential analyzes regarding the differences between education, the models used the category of eight years or more of education as a reference. In addition, it is noteworthy that for the analysis of data on people with intellectual impairment, the level of education of the head of the family was used because low education is recorded among people with the impairment studied.

The design weight from the sampling process and the weight of non-response and post-stratification were considered in all analyses. They were conducted in STATA 15.0 svy module. This ISA-Capital project was approved by the Research Ethics Committee of the Faculdade de Saúde Pública FSP – USP, under no. 719.661/2014.

Results

Table 1 shows the socioeconomic and demographic characteristics, and the number of impairments of our sample according to educational attainment. In total, 46.2% of participants were adults under 40 years, 43.5%, black and mixed, 56.5%, lacked private health insurance, 7.5%, lived in precarious houses, and 28.4%, showed one or more impairments. We observed that educational strata showed significant differences in all variables studied, except gender. The less educated show a significantly higher proportion of older, self-reported black and mixed adults with more impairments and lower incomes who lack health insurance and live in precarious homes (Table 1).

Visual impairments were the most prevalent in our group (19.9%), followed by hearing (7.8%) and mobility ones (7.4%), whereas intellectual impairment, the least prevalent (2.7%). Mobility and intellectual impairments hinder work, school or leisure the most, reaching, 70% and 63%, respectively. About half of these participants reported needing help with routine activities (Table 2).

Visual, hearing, and mobility impairments unevenly affect the population, with a significantly higher prevalence (30 to 44%) among the less educated. Due to their small number, we failed to find statistically significant differences among the intellectually impaired according to heads of families’ educational attainment. The intellectually and visually impaired showed a need

Table 1. Population characteristics according to educational strata, adults from 20 years old, ISA Capital, 2015.

Characteristic	Educational attainment (years studied) **						P
	Total		0-7 years old		8 years or more		
	n (3,184)	%	n (1,407)	%	n (1,759)	%	
Age group (years)							< 0.001
20 to 39	1175	46.2	243	25.1	925	57.6	
40 to 59	990	35.3	463	42.0	522	31.7	
≥ 60	1019	18.5	701	32.9	312	10.7	
Gender							0.899
Male	1340	46.3	586	46.2	748	46.5	
Female	1844	53.7	821	53.8	1011	53.5	
Ethnicity*							< 0.001
White	1648	56.5	664	48.7	982	60.8	
Black/Mixed	1321	43.5	640	51.3	675	39.2	
Health insurance							< 0.001
Yes	1277	43.5	407	28.1	867	52.1	
No	1907	56.5	1000	71.9	892	47.9	
Income (quartiles) §							< 0.001
1	733	24.0	341	25.5	389	23.2	
2	683	21.1	362	28.2	314	17.0	
3	772	22.9	382	27.1	384	20.6	
4	883	32.0	275	19.2	606	39.2	
Number of impairments §§							< 0.001
0	2109	71.6	804	61.5	1293	77.1	
1	745	21.1	374	25.3	366	18.7	
2	234	5.7	165	10.2	68	3.3	
3 or +	70	1.6	53	3.0	17	0.9	

* Those who self-reported as 'yellow', 'indigenous' or "others" were excluded and treated as missing due to the low number of observations in this population. (n=215). ** 18 people failed to answer the question about schooling and were treated as missing. § 113 missing cases due to non-response about income. §§ 26 missing cases. ISA Capital: Inquérito de Saúde no Município de São Paulo. % - percentage.

Source: Authors.

Table 2. Percentage prevalence of reported impairments, limitations, and need for help, adults from 20 years old, ISA Capital, 2015.

Type of impairment	n	Prev (95%CI)
Visual	733	19.9 (17.0-23.2)
Limited work, leisure or school activities	183	27.4 (21.7-34.0)
Help required with routine activities	65	7.0 (5.2-9.4)
Hearing	310	7.8 (6.8-9.0)
Limited work, leisure or school activities	98	29.2 (23.4-35.7)
Help required with routine activities	35	8.8 (5.6-13.7)
Mobility	314	7.4 (6.3-8.8)
Limited work, leisure or school activities	223	70.3 (63.1-76.5)
Help required with routine activities	149	48.9 (42.2-55.8)
Intellectual	87	2.7 (2.1-3.4)
Limited work, leisure or school activities	57	63.3 (49.7-75.1)
Help required with routine activities	49	48.5 (36.8-60.3)

ISA Capital: Inquérito de Saúde no Município de São Paulo. Prev - prevalence. 95%CI - 95% confidence intervals.

Source: Authors.

for help with routine activities 5.6 and 3.1 times more prevalent than the more educated, respectively (Table 3).

Comparing both educational groups shows a statistically significant difference in visual impairments, higher in the less (total difficulty: 3.0%; big difficulty: 15.6%) than in the more educated (total difficulty: 0.7%; big difficulty: 9.4%). Though we failed to observe a statistically significant difference between educational strata for mobility impairments, we noted a higher prevalence among the less educated, both for those with big (24.7% x 17.5%), and total difficulty (4.3% x 2.4%) (Table 4).

Table 3. Prevalence and prevalence ratios of impairments, limitations and need for help with routine activities according to educational attainment adults from 20 years old, ISA Capital, 2015.

Type of impairment	0-7 years old		8 years or more		PR*	95%CI
	n = 1,407		n = 1,759			
	n	Prev (95%CI)	n	Prev (95%CI)		
Visual	413	26.5 (22.3-31.2)	317	16.3 (13.6-19.3)	1.30	1.08-1.56
Limited work, leisure or school activities	107	27.3 (21.1-34.5)	75	27.8 (20.4-36.3)	1.03	0.72-1.47
Help required with routine activities	53	11.5 (8.3-15.7)	11	2.9 (1.5-5.7)	3.10	1.47-6.51
Hearing	201	12.5 (10.4-15.0)	109	5.3 (4.2-6.7)	1.44	1.05-1.96
Limited work, leisure or school activities	73	35.0 (27.9-42.9)	25	21.6 (13.8-32.1)	1.56	0.95-2.55
Help required with routine activities	26	11.1 (6.7-17.8)	9	5.9 (2.6-12.9)	1.21	0.44-3.31
Mobility	205	12.1 (10.1-14.5)	107	4.9 (3.8-6.1)	1.34	1.07-1.68
Limited work, leisure or school activities	145	68.2 (59.6-75.7)	76	72.7 (62.1-81.3)	0.92	0.61-2.10
Help required with routine activities	103	50.8 (43.3-58.2)	45	46.3 (35.3-57.7)	1.04	0.79-1.36
Intellectual**	76	3.1 (2.4-4.0)	11	1.6 (0.7-3.3)	2.00	0.82-4.86
Limited work, leisure or school activities	52	67.3 (52.5-79.4)	5	43.9 (13-80.5)	1.67	0.75-3.73
Help required with routine activities	46	56.5 (44.1-68.2)	3	9.5 (2.4-30.7)	5.63	1.62-19.60

* PR adjusted for gender and age using 8 or more years of schooling as a reference category. ** The analyses of intellectual impairment considered the schooling of heads of families. ISA Capital: Inquérito de Saúde no Município de São Paulo. Prev – prevalence. 95%CI – 95% confidence intervals. PR – Prevalence rate.

Source: Authors.

Table 4. Degree of difficulty, according to impairment and educational attainment adults from 20 years old, ISA Capital, 2015.

Impairment: type and degree of difficulty	Total % (95%CI)	Educational level		p-value
		0-7 years old % (95%CI)	8 years or more % (95%CI)	
Visual				0.0152
Total difficulty	1.8 (0.9-3.3)	3.0 (1.5-5.9)	0.7 (0.2-2.3)	
Big difficulty	12.9 (10.3-16.0)	15.6 (12.0-20.0)	9.7 (6.2-14.8)	
Some difficulty	85.3 (82.0-88.1)	81.4 (76.5-85.4)	89.6 (84.4-93.2)	
Hearing				0.5179
Total difficulty	1.2 (0.4-3.3)	0.8 (0.2-3.3)	1.7 (0.4-6.8)	
Big difficulty	14.5 (10.4-19.7)	16.1 (11.2-22.6)	12.3 (6.9-21.1)	
Some difficulty	84.4 (79.0-88.6)	83.1 (76.6-88.1)	86.0 (76.9-91.8)	
Mobility				0.2814
Total difficulty	3.8 (1.9-7.2)	4.3 (1.9-9.1)	2.4 (0.5-10.0)	
Big difficulty	21.6 (16.9-27)	24.7 (18.3-32.5)	17.5 (11.6-25.6)	
Some difficulty	74.7 (9.1-79.6)	71.0 (63.3-77.7)	80.1 (71.2-86.8)	

ISA Capital: Inquérito de Saúde no Município de São Paulo. % – percentage. 95%CI – 95% confidence intervals.

Source: Author.

Discussion

Our results show that visual impairment is the most prevalent of the four impairments studied, and that intellectual and mobility impairments cause the most intense limitations and need for

help. They also indicate that the less educated show a higher prevalence of all impairments, needing more help with daily activities if visually or intellectually impaired, in which the former suffers with bigger difficulty.

Impairment prevalence

Our comparison of the prevalence of visual impairment in this study with the literature required consideration of data collection strategies. We asked participants to wear optical aids when assessing their disabilities, and 19.9% of our sample self-reported such impairment. However, if we had considered only those with 'total or big difficulty to see', we would have found a 2.9% prevalence. Thus, the prevalence of more severe visual impairments (low vision and blindness) would be a more appropriate comparison with other studies which used clinical tests following WHO evaluation parameters rather than self-reported data. A 2013 systematic review used data from several countries over the last 20 years, finding a visual impairment prevalence of about 3.3%⁹, whereas a 2015 study conducted in China found a 6.1% prevalence¹⁰. On the other hand, a Brazilian study evaluating blindness and low vision used data from the 2013 National Health Survey (PNS) and self-reported data, finding a 3.6% prevalence¹¹. The lower prevalence of more severe visual impairment in São Paulo, when compared to Brazil, may be due to several factors, such as greater access to health services, corrective devices (glasses, lenses, etc.), and better socioeconomic indices.

We found a 7.8% prevalence of hearing impairment. Emphasizing its importance as a global health problem¹², the WHO estimated its global prevalence to be 5.3% in 2012, and the literature, assorted values. A 2020 study estimated a 15.6% global prevalence of this impairment via a digital application. Pakistan (37.8%), Bangladesh (32.2%), and India (28.5%) ranked highest, and Taiwan (9.6%), Finland (9.8%), and South Korea (10.2%), the lowest. Brazil showed a 14.2% prevalence¹³. Another study analyzed four locations in the state of São Paulo and found a 5.2% prevalence¹⁴. The variations verified for this prevalence may originate from the lack of standardization of the collection process, greater exposure to environmental noise, older age, and iatrogenic factors. But the important thing to highlight is that the city now has reliable data for the generation of health indicators and subsequent implementation of public policies in this field.

In our study, 7% of the interviewees reported mobility impairments. Data collected by telephone during the 2016 US Behavioral Risk Factor Surveillance System (BRFSS) used the same questions as us and showed a 13.7% overall prevalence among adults in USA¹⁵. Another

study used the Survey of Income and Program Participation – SIPP and found that 10.4% of the adults interviewed struggled with walking three blocks in this same country¹⁶. A 2014 study conducted in India asked if interviewees struggled, even with assistive devices, to walk around their homes in the previous six months, finding a 4.7% impairment prevalence¹⁷. Despite these outcomes, identical collection strategies may vary due to population, cultural, and environmental sample characteristics. Therefore, it is clear that for the effective implementation of policies to improve this prevalence, factors such as environment and culture must also be considered.

We found a 2.7% prevalence of intellectual impairment. A study using 2013 PNS data found a 0.8% prevalence of intellectual impairment in Brazil¹¹. The findings of a study from USA ranged from 0.52 to 0.79% among adults in 1995¹⁸. The scarcity of studies dealing with the subject makes it difficult to compare data across studies.

The use of comparable questions by these studies would have facilitated the comparison of populations and demographic subgroups.

Comparing the prevalence of the impairments analyzed with the literature was a complex task due to factors such as: a) different definitions of 'impairment', b) distinct data collection strategies (self-reported versus clinical tests or digital applications); and c) differently-aged samples influence outcomes since some impairments intensify with age; making it difficult to compare the real differences in the prevalence obtained in the studies analyzed. Therefore, we must consider these aspects when interpreting the findings and we hope specialists make recommendations for future studies toward overcoming them.

Inequalities in the prevalence of impairments and the limitations they cause

We found that impairments were more prevalent among the less educated, as did international studies. Studies conducted in the United Kingdom¹⁹, China²⁰, and Korea²¹ report the relation between visual impairment and educational attainment; higher educational attainment related to a lower prevalence of visual impairment, in proportions of 99%, 30%, and 60%, respectively. Similarly, a study conducted in Mexico²² found a 130% greater prevalence among the illiterate than the literate. The higher prevalence of visual impairment among the less educated may be due to differences in the search for ophthalmologic care²³, perhaps deriving from lower income or a

poorer understanding of the need for care. The less educated may also show a worse behavior toward eye health throughout their lives²⁴.

Studies show the same trend for hearing impairment. The National Health and Nutrition Examination Survey (NHANES), conducted in the USA, found a 320% greater chance of that impairment among the less educated²⁵, as did the English Longitudinal Study of Ageing (ELSA), in which less educated men and women showed an 87% and 138% higher prevalence for that impairment²⁶. A 2003 survey conducted in Brazil showed that the less educated are 292% more likely to suffer from hearing impairments than the more educated²⁷. Greater exposure to excessive noise while working²⁸; lower hearing screening in families²⁹; lower adequate use of assistive devices; and less knowledge about specific programs for hearing health³⁰ among the less educated could explain this inverse association.

Educational attainment also showed an inverse relation to mobility impairment, perhaps due to unfavorable environmental characteristics³¹; greater access to assistive walking devices among the more educated³²; worse health, and lower frequency of walking as a physical activity among the less educated³³.

We found that heads of families' lower educational attainment related to a greater need for help with routine activities, corroborating the literature³⁴, perhaps due to poorer living conditions and care knowledge, greater struggle accessing services³⁵; lower mobility, and bigger difficulty with feeding, bathing, and dressing; among others³⁶.

The literature attests to the overall higher prevalence of impairments in lower socioeconomic strata. A study conducted in 26 European countries showed a 15-year (2002 to 2017) increase in the unequal prevalence across socioeconomic strata³⁷. An European study with data from 15 countries showed an association between greater age, impairments, and lower educational attainment³⁸. A study conducted in 15 European countries using the Global Activity Limitation Indicator (GALI) found the more educated to have a higher life expectancy without impairments³⁹. Analyzing their cohort by questions on vision, hearing, cognition, and mobility impairments, a Dutch study conducted with 24,883 adults of all genders found that the less educated could show an impairment prevalence about 20% higher than the more educated⁴⁰.

An Australian study conducted with data from 2013 and 2014 with almost 16,000 males showed that impairments related to unemploy-

ment, budget restrictions, lower income, and poor and rented housing in socioeconomically excluded areas⁴¹. A study conducted in Brazil with data from the 2013 PNS showed that the prevalence of limitations due to chronic diseases and visual, hearing, intellectual or motor impairments was higher in less educated lower socioeconomic strata⁴².

Studies often analyze the social inequalities in the prevalence of impairments by educational attainment; a social determinant of health. Its influence lies in the fact that it gives access to material and immaterial resources such as knowledge, skills, income, safety or healthy lifestyles, all protective factors to health. Moreover, the information is relevant throughout people's lives, easy to collect, and usually shows low non-response rates⁴³. In view of the discussion developed in this study, it is clear, therefore, that for the design of policies to reduce impairments; its limitations and dependence on aid, policies that consider investment in improving the population's educational level are important strategies that could be adopted.

One of the limitations of this study is the reliance on participants' self-reports to assess the occurrence of impairments. Population studies have adopted different definitions of impairment and instruments over time. Thus, they have used the Washington Group on Disability Statistics (WG) and its five questions on vision, hearing, displacement, cognition, communication, and self-care⁴⁴; the Global Activity Limitation Indicator (GALI) and its single question on the impairment of normal activities in the last six months⁴⁵; and the WHO via the Model Disability Survey (MDS), designed to collect population data on disability. In addition to collecting data on visual, physical, hearing, mental, and intellectual disabilities, it also gathers data on diseases to assess the prevalence of mild, moderate or severe disabilities according to capacity and performance variables⁴⁶. These dissonances in the literature may be due to relation of the construct 'impairment' with personal, environmental, and contextual factors⁴⁷. Discussing the results showed the need for standard indicators of the several types of impairments to facilitate comparisons between findings and ensure the greater accuracy of their results, as the literature has already suggested⁴⁸. The WHO Global Action Plan 2014-2021 aims to strengthen comparable data collection on disability among its member countries⁴⁹.

The higher prevalence of impairments among the less educated in São Paulo alerts us to their

poorer living and housing conditions, and lower access to health and rehabilitation services, hindering the care of impaired people. Thus, health policies aimed at the impaired should reinforce their focus on social health determinants, especially socioeconomic factors, such as educational attainment.

We should mention that this study is the result of a household-based survey conducted in the largest Brazilian city to be used in the municipal management of health services. In addition, it is worth highlighting as a strong point the fact that the survey's sampling process guarantees internal and external validity, allowing to infer information with population representativeness for the city of São Paulo, the largest in Latin America.

Conclusion

The results of the present study showed that visual impairment was the most prevalent and intellectual impairment was the least prevalent among the participants. In addition, people with mobility difficulties were the ones who had the greatest difficulty, the most activity limitations, and the most need for help.

Our results show that the prevalence of impairments is significantly higher among the less educated, reinforcing the need for interventions, and intersectoral and health policies prioritizing

the reduction of inequalities. They also highlight the need for evaluating current policies to expand the access to qualified care, and articulating and integrating health services (primary, specialized, and hospital care) and other national resources for the care of the population, especially of its most socially vulnerable segments. Standardizing data collection on disability and impairments is also a pressing objective in better comparing and monitoring the prevalence of disabilities to satisfactorily implement health and equity policies.

Collaborations

CLG Cesar, M Goldbaum, MBA Barros: coordination, conception, methodological design; supervision of collection and approval of the final version of the manuscript. KC Bassichetto, MG Lima: writing and approval of the final manuscript. SS Castro: data analysis, writing and approval of the final manuscript.

Funding

Research funded by the Municipal Health Department of São Paulo.

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Article submitted 21/10/2022

Approved 23/06/2023

Final version submitted 25/06/2023

Chief editors: Romeu Gomes, Antônio Augusto Moura da Silva