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Self-reported discrimination against adults with hearing loss in Brazilian health services: results of the National Health Survey

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Abstract *This article aims to estimate the prevalence of self-reported discrimination against people with hearing loss in Brazilian health services and analyze associated factors. We conducted a cross-sectional population-based study using data from the 2013 National Health Survey. The final study sample comprised 1,464 individuals with self-reported hearing loss. Poisson regression was used to calculate crude and adjusted prevalence ratios (PR) and respective 95% confidence intervals. The overall prevalence of discrimination was 15%. Prevalence was higher among black people and respondents who reported experiencing limitations in activities of daily living. Prevalence of discrimination in Brazilian health services was highest in black people with limitations in activities of daily living. The implementation of policies and actions to address this problem is recommended, including strategies during the education and training of health professionals.*

Key words *Hearing loss, Prejudice, Social discrimination, Unified Health System, Cross-sectional studies*

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Introduction

According to the World Health Organisation, it is estimated that 1.1 billion people worldwide are at risk of hearing loss[1,2]. In Brazil, 1.1% of the population have some degree of hearing loss and it is estimated that 21% of people with hearing loss experience severe or very severe limitations in activities of daily living[3]. Hearing loss in adults is associated with cognitive decline, depression, and reduced functional status, especially among individuals who have not received proper assessment or rehabilitation. Hearing impairment can have a particularly deep social impact when compared to other handicaps[4].

Hearing loss can restrict participation in social activities, often leading to far-reaching social consequences such as social exclusion[5]. Social exclusion can be understood as discrimination, as the latter can be understood as exposure to a social experience that has a discriminatory effect on a person leading to stress. Based on this assumption, it can be understood that discrimination is a social construct that reflects the idea of injustice[6].

Social discrimination is a process by which a member of a socially defined group is treated differently because he/she is part of this group[7]. It can be viewed as the act of making *unjustified distinctions* between different groups of people or implicit bias toward a person. With regard to health services, discrimination is generally expressed in the form of appointment delays, inappropriate communication, refusal to provide treatment, hostile attitudes to a patient, and even harassment[8]. People may be discriminated against because of their sex, age, physical appearance, race, skin color, ethnicity, and social class, among other socially ascribed characteristics[6]. Within this context, discrimination against individuals with hearing loss is an important research topic and one that is underexplored in the literature.

Understanding the context underlying discrimination in health services and that personal traits or characteristics such as hearing impairment can either enhance or be a barrier to health care access is important for health professionals, managers, and researchers alike. The aim of this study was therefore to estimate the prevalence of discrimination against people with hearing loss in health services in Brazil and analyze possible associated factors.

Methods

We conducted a cross-sectional study using secondary data from the 2013 National Health Survey (NHS)[9]. Conducted by the Ministry of Health in partnership with the Brazilian Institute of Geography and Statistics (IBGE), the aim of the NHS is to assess population health status, lifestyles, health service access and utilization, preventive actions, continuity of care, and health care funding[9].

The NHS uses a three-stage stratified cluster sampling design, where the primary sampling units (PSU) are census tracts or tract clusters, the secondary units are households, and the tertiary units are household members. One household member is selected to answer a questionnaire from a list of members aged 18 years and over using simple random sampling[10]. Sampling weights were defined for the PSU, households and all household members, and the selected member. The weighting for the latter was calculated based on the weight of the corresponding household and probability of selecting the member, adjusted for non-response by sex, and calibrated to the population by sex and age group, estimated using the weight of all household members[11]. The survey interviewed 60,202 adult household members. The final sample of the present study was 1,464 individuals with hearing loss.

The questionnaire was divided into three parts: household characteristics; socioeconomic and health status; and individual questions.

The present study analyzed data from household members who reported having hearing loss, focusing on the following sociodemographic variables: sex (male and female); age (18-29; 30-44; 45-64; > 65 years); color/race (white, black, other – brown, yellow, and indigenous); marital status (married/cohabiting, separated, widowed, single); education level (illiterate, secondary education, degree or post-graduate degree).

The hearing loss variables were as follows: 1) Type of hearing loss (congenital or acquired) based on the following questions: "Were you born with hearing loss?" (yes/no); or "Was it acquired?" (yes/no). The individuals who answered yes to these questions were considered to have hearing loss; 2) Degree of hearing loss, classified as follows: total deafness; deafness in one ear and normal/hearing loss in the other ear; and hearing loss in one or both ears; and 3) Activities of daily living limitations, based on the following question: "Do you experience any limitation in activities of daily living?" ("Does hearing loss limit your activities of daily living?") (yes/no).

We calculated absolute and relative frequencies and performed the chi-square test. A test was performed to detect multicollinearity using the variance inflation factor (VIF). C**ut-off** was adequate (close to one 1), indicating that multicollinearity was not present. Poisson regression with robust variance estimates was used to calculate crude and adjusted prevalence ratios for discrimination in health services. The outcome was derived from the following question: "Have you ever felt discriminated against or treated worse than other people in health services by a doctor or other health professional because of your hearing impairment?". A "yes" answer indicated a positive outcome for discrimination in health services. Confidence intervals were computed for means and proportions of the outcome of interest. The association between the outcome and socioeconomic and hearing loss variables was tested adopting a significance level of 0.05 and adjusted to the sample weights from the complex sample of the population survey. The variables with a p-value of < 0.10 were included in the adjusted model. Goodness of fit was measured using the Hosmer -Lemeshow test. The data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows, version 19.0 (Chicago: SPSS Inc).

The NHS was approved by the National Research Council's ethics committee in June 2013 (approval number 10853812.7.0000.0008). All survey participants signed an informed consent form. Ethical approval was not required for the present study because it used secondary data in the public domain that does not reveal the identity of the respondents. The present study was conducted in accordance with the ethical norms and standards set out in National Research Council Resolution 466/2012.

Results

Table 1 shows the prevalence of self-reported discrimination in health services and distribution of the sociodemographic and hearing loss variables. Of the 1,464 respondents with hearing loss, 15% (n = 219; p = 0.150; 95%CI: 0.132-0.168) reported having felt discriminated against in health services. The prevalence of discrimination was higher among women aged 30-44 years (19%), black people (22.1%), people who were single (18.6%), and individuals who had completed secondary education (15.4%). Most of the respondents who reported having felt discriminated against had congenital hearing loss, deafness in one ear and normal/hearing loss in the other ear, and reported that hearing loss limited activities of daily living.

Prevalence of self-reported discrimination was 58% higher in black people (PR = 1.58; 95%CI: 1.06-2.34) than in white people and 52% higher in respondents who reported having limitations in activities of daily living (PR = 1.52; 95%CI: 1.15-2.00) than among those without limitations n9, as shown in Table 2.

Discussion

The prevalence of self-reported discrimination was 15% and prevalence was higher among black people and respondents who reported experiencing limitations in activities of daily living. Social discrimination is reproduced among people with hearing impairment, meaning that this group needs special attention[4,5]. Limitations in activities of daily living among people with hearing impairment may be associated with daily-life fatigue from coping with this problem[12].

A cost-effective subjective measure, self-reporting is influenced by personal, cultural and socioeconomic factors. It is commonly used to measure real health status, being an important predictor of morbidity and mortality, health service utilization, and the health status of different populations, including people with disabilities[1]. Self-report data has been widely used around the world for different populations. An important population-based survey estimated that the prevalence of hearing loss among the Spanish population was 22.5%[13].

A study investigating social discrimination against people with different disabilities found that people with hearing impairment mainly reported barriers to participating in leisure activities and feelings of helplessness, supporting the findings of the present study regarding limitations in activities of daily living[14]. A study in Spain with ~~494~~ people with different disabilities reported that 60% of the respondents said they had suffered discrimination at some time in their lives and 15% mentioned that they had experienced it often. Most of the respondents (60%) believed that discrimination was directly related to the fact that they had a handicap and in 34% of cases discrimination was associated with inadequate conditions in environments of daily living for performing daily activities[15].

The International Classification of Functioning, Disability and Health (CIF) establishes that activity limitations are assessed according to ac-

Table 1. Proportion of discrimination in health services and hearing characteristics. Brazil, 2013.

Characteristics		Discrimination in health services					
		Total	Yes		No		p-value *
		%	n	%	n		
Sex	Male	742	13.7	102	86.3	640	0.187
	Female	722	16.2	117	83.8	605	
Age	18-29	76	15.8	12	84.2	64	0.204
	30-44	210	19.0	40	81.0	170	
	45-64	475	15.6	74	84.4	401	
	<65	703	13.2	93	86.8	610	
Color/sace	White	701	13.0	91	87.0	610	0.025
	Black	122	22.1	27	77.9	95	
	Others	641	15.8	101	84.2	540	
Marital status	Married/Living together	613	13.5	83	86.5	530	0.096
	Divorced	127	16.5	21	83.5	106	
	Widower	342	12.9	44	87.1	298	
	Single	382	18.6	71	81.4	311	
Educational level	Iliterate	352	14.5	51	85.5	301	0.649
	Up to high school	991	15.4	153	84.6	838	
	Undergraduate or graduate	121	12.4	15	87.6	106	
Type of hearing impairment	Congenital	139	18.0	25	82.0	114	0.293
	Acquired	1325	14.6	194	85.4	1131	
Degree of hearing loss	Total deafness	123	15.4	19	84.6	104	0.153
	Deafness in one ear and normal/ reduced in the other	342	18.1	62	81.9	280	
	Reduced hearing in 1 or 2 ears	999	13.8	138	86.2	861	
Limitation of daily activities	No	537	11.4	61	88.6	476	0.003
	Yes	927	17.0	158	83.0	769	
Total		1464	15.0	219	85.0	1245	

*Chi-square test.

Source: Authors.

cepted population standards and may range from a slight to a severe deviation from the population norm, having a negative effect on quality of daily activities. It also states that the use of devices can reduce limitations and help improve daily functioning for people with disabilities[2]. The present study showed that the prevalence of discrimination was higher in respondents who reported having limitations in activities of daily living, revealing that, in addition to the negative effects of hearing loss on daily living, these individuals are more likely to be discriminated against in health services.

The perception of prejudice and rejection has a negative impact on well-being and can also affect the physical health of members of stigmatized groups. Emotional and behavioral consequences include reduced self-esteem, psychological suffering, and loneliness[16,17]. These consequences can also be found in individuals with hearing impairment, given that it can severely impair communication, restricting social interaction and activities of daily living. It is known that hearing loss, which is substantially underestimated and untreated[18], can often lead to lifelong disability and severely affect the development of *speech*, *language, and cognitive skills*, depending on the severity and vocal frequency affected[19].

Institutional or social discrimination against people with self-reported hearing impairment and access to health services has been underexplored worldwide and in Brazil. Brazil's public health system, the Sistema Único de Saúde (SUS) or Unified Health System, seeks to provide universal access to health care and supports policies to promote hearing health. However, the high prevalence of self-reported discrimination reported in the literature suggests that the latter require more research and improvement[16].

Table 2. Prevalence of discrimination in health services in relation to demographic variables and characteristics of hearing loss. Brazil, 2013.

Characteristics		PR Crude		PR Adjusted		p-value *
		RP	CI 95%	RP	CI 95%	
Sex	Male	1	-	1	-	
	Female	1.18	0.92-1.50	1.19	0.93-1.53	0.122
Age	18-29	1	-	1	-	
	30-44	1.21	0.67-2.17	1.23	0.69-2.22	0.877
	45-64	0.99	0.56-1.72	1.04	0.58-1.85	0.678
	<65	0.84	0.48-1.46	0.98	0.53-1.79	0.676
Color/race	White	1	-	1	-	
	Black	1.70	1.16-2.50	1.58	1.06-2.34	<0.001
	Others	1.21	0.93-1.58	1.14	0.86-1.49	0.546
Marital status	Married/Living together	1	-	1	-	
	Divorced	1.22	0.79-1.89	1.15	0.74-1.79	0.512
	Widower	0.95	0.68-1.34	0.88	0.61-1.29	0.547
	Single	1.37	1.03-1.83	1.21	0.89-1.64	0.499
Educational level	Iliterate	1	-	1	-	
	Up to high school	1.07	0.79-1.43	1.09	0.81-1.47	0.489
	Undergraduate or graduate	0.86	0.50-1.46	0.92	0.52-1.62	0.546
Type of hearing impairment	Congenital	1	-	1	-	
	Acquired	0.81	0.56-1.19	0.96	0.65-1.46	0.598
Degree of hearing loss	Total deafness	1	-	1	-	
	Deafness in one ear and normal/ reduced in the other	1.17	0.73-1.88	1.21	0.75-1.95	0.441
	Reduced hearing in 1 or 2 ears	0.89	0.57-1.39	0.93	0.60-1.46	0,798
Limitation of daily activities	No	1	-	1	-	
	Yes	1.50	1.14-1.98	1.52	1.15-2.00	<0.001

*All variables in the table were included in the final fit model.

Source: Authors

The findings show that prevalence of self-reported discrimination was higher among women, which is a reality in various countries. Gender issues in health should be mainstreamed into global health policies[17]. Studies point to several different issues, including health care-seeking[18], with gender having a significant effect on access to care, dismissal of women's health problems by certain health professionals, and stereotypes[19] and stigma, which can hinder help-seeking and lead to delays in certain types of diagnosis, adversely affecting health outcomes[20]. In addition to prejudice, women with hearing loss often suffer from stigmas surrounding disability due to hearing aid use[21].

Our findings show that more than half of the respondents who reported having felt discriminated against were women. To the best of our knowledge, this is the first study to explore this issue in health services in Brazil. Other studies show that hearing loss can affect the incidence of dementia in women in association with other variables and that women with some type of disability are more likely to report humiliation and discrimination[22,23].

Self-report data reveal that being black was associated with discrimination in health services. Racism can be said to be the assignment of negative characteristics to certain social groups and is reinforced on a daily basis by the relationships established between individuals and in the organization and functioning of institutions[24]. Regarding health, it is important to highlight that institutional discrimination based on skin color can be a cause of inequality in the distribution of services, benefits, and opportunities[25].

A study showed that one tenth of the Brazilian population reported feeling discriminated

against in health services and that non-white people are more likely to feel discriminated against[26]. Black people therefore face disparities in the quality of health care, which can contribute significantly to social injustice in health care.

The debate surrounding racial health inequalities has concentrated on innate genetic differences, disparities in the distribution of health behavior (cultural traits such as diet, exercise and smoking), and the overrepresentation of certain racial groups in lower socioeconomic status groups, suggesting that these factors are the leading causes of racial inequalities in morbidity and mortality[27,28]. Alternative perspectives that can help explain this type of health inequality include structural-constructivist and psychosocial stress models[29]. The former emphasizes the intersection of racially stratified social structures and the cultural construction of goals and aspirations, while the latter focuses on experience of racism and discrimination, suggesting that they are important factors, but not the only contributors to racial health inequalities[27,38,30].

Our findings and the pressing nature of this problem suggest that there is a need to explore intersecting factors when studying hearing loss discrimination. It is important to examine the correlation between discrimination and variables such as color, gender and socioeconomic characteristics, as it is known that discrimination is likely to disproportionately affect black people, women, and socioeconomically vulnerable groups[6]. In some cases, these factors may intersect and overlap to create unique effects in certain individuals.

One of the limitations of this study is that it did not assess income and the combined effect of the other study variables. However, it is important to highlight that despite this limitation this study has a strong element of originality. Another limitation is that we did not assess hearing aid use. The use of a hearing aid can be an important factor influencing daily living, facilitating the performance of activities of daily living and potentially influencing discrimination. This opens the opportunity for new studies including these variables and using different models of analysis. It is important to stress however that the findings raise important issues that need to be discussed, such as the possibility of institutional racism and gender differences in discrimination in health services in Brazil. In addition, the results also reinforce the existence of socioeconomic inequalities in health care access and utilization related to individual characteristics.

Conclusion

Our findings show that the prevalence of discrimination against adults with hearing loss was 15% and that prevalence was higher among black people and respondents who reported experiencing limitations in activities of daily living.

The implementation of policies and actions to address this problem is recommended, including strategies during the education and training of health professionals. In addition, actions should be implemented to empower patients in order to ensure equitable access to health services. Further, more in-depth research into how discrimination occurs and how to prevent this problem should also be conducted.

Collaborations

All authors participated effectively in all the processes to be included: conception, planning, analysis, interpretation and writing of the work. All authors approved the final version sent.

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