

## EPIDEMIOLOGICAL PROFILE OF HOSPITAL ADMISSIONS FOR GLAUCOMA IN THE STATE OF RIO GRANDE DO SUL

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**Abstract:** Glaucoma is characterized by anatomical and functional changes which result in progressive loss of retinal ganglion cells and damage to the optic nerve. This optic neuropathy represents a silent threat to visual health, often triggering irreversible damage before it is even detected. Due to the impact that this disease has on both society and public health, it was considered extremely relevant to identify the epidemiological profile of hospital admissions resulting from glaucoma in the state of Rio Grande do Sul. A cross-sectional descriptive study was carried out based on data from the Department of Informatics of the Unified Health System (DATASUS). Data were collected regarding the number of deaths, sex, age group and race of patients hospitalized for glaucoma between the years 2011 and 2020. In total, 808 hospitalizations due to glaucoma were recorded in the state, with the highlight being the years of 2018 and 2019, with 176 (21.78%) and 195 (24.13%) hospitalizations. Of these cases, 429 were female, representing 53.09% of the total. Regarding the age group, the group between 60 and 69 years old had the highest number of hospitalizations, equivalent to 27.72% of visits, while the group between 20 and 29 years old had the lowest, with less than 5% of visits. Regarding color/race, 176 records did not contain information and of the available records, the largest portion affected was Caucasian with 504 cases respectively. The findings suggest a continued need for surveillance and public health strategies to address this disease, particularly in older populations. The need for tracking the disease and carrying out more detailed studies was identified so that diagnoses can be made early so that, by monitoring the progression of the disease, a better quality of life can be guaranteed for patients.

**Keywords:** Glaucoma, Epidemiological profile.

## INTRODUCTION

Glaucoma, an optic neuropathy, represents a silent threat to visual health, often triggering irreversible damage before it is even detected. Characterized by anatomical and functional changes that result in the progressive loss of retinal ganglion cells and damage to the optic nerve, glaucoma is a serious public health problem. Its association with high intraocular pressure (higher than 21 mmHg) (AGIS, 2000) and heredity highlights the importance of regular surveillance, especially in individuals with a family history of the disease.

Early diagnosis plays a crucial role in preserving vision, as significant visual field loss often only becomes evident in advanced stages of the disease (THAM et al., 2014). This insidious condition is responsible for irreversible visual loss and can result in significant costs for healthcare systems.

Glaucoma has no cure, being a chronic disease and therefore requiring continuous treatment. Considering the relevant morbidity of the disease, the present study aimed to identify the profile of hospital admissions that occurred in the state of Rio Grande do Sul, during the period between 2011 and 2020.

## METHODOLOGY

Descriptive, cross-sectional, retrospective study with a quantitative approach carried out in the database of the Department of Informatics of the Unified Health System (DATASUS). Data were collected regarding the number of deaths, sex, age group and race/color of patients hospitalized for glaucoma in the state of Rio Grande do Sul between the years 2011 and 2020, with the purpose of analyzing the pattern of hospitalizations. The data was presented in a descriptive and quantitative way through tables.

## RESULTS

According to data from DATASUS, between 2011 and 2020, 808 hospitalizations due to glaucoma were recorded in the state of Rio Grande do Sul. The years 2018 and 2019 stood out, with 176 (21.78%) and 195 (24.13%) hospitalizations, respectively (**Table 1**).

Year Service	Hospitalizations
2011	55
2012	41
2013	27
2014	54
2015	64
2016	63
2017	127
2018	176
2019	195
2020	111
<b>Total</b>	<b>808</b>

**Table 1:** Number of hospitalizations for glaucoma according to year.

The majority of hospitalizations were female, totaling 429 cases, which represents 53.09% of the total, followed by 379 male cases (**Table 2**).

Sex	Hospitalizations
Masculine	379
Feminine	429
<b>Total</b>	<b>808</b>

**Table 2:** Hospitalizations according to sex.

In relation to the age group, we observed that the group between 60 and 69 years old had the highest number of hospitalizations, accounting for 27.72% of the visits, while the group between 20 and 29 years old had the lowest, with less than 5% of the cases. services (**Table 3**).

Age Range	Hospitalizations
20-29 years old	37
30-39 years old	54
40-49 years old	88
50-59 years old	185
60-69 years old	224
70-79 years	163
80 years and over	57
<b>Total</b>	<b>808</b>

**Table 3:** Hospitalizations by age group.

Regarding color/race, 176 records did not contain this information. Of the available records, glaucoma was more prevalent in white individuals, with 504 cases, followed by black (105), brown (22) and yellow (1), respectively. (Table 4).

Color/Race	Hospitalizations
White	504
Black	105
Brown	22
Yellow	1
Not declared	176
<b>Total</b>	<b>808</b>

**Table 4:** Hospitalizations by color/race.

No deaths related to the disease were recorded during the specific period.

## DISCUSSION

This study highlighted the prevalence and demographic profiles of hospitalizations for glaucoma in the state of Rio Grande do Sul in the period between 2011 and 2020. Analysis of data from DATASUS revealed a significant increase in hospitalizations in 2018 and 2019, indicating a possible improvement in diagnostic conditions or identification of risk factors associated with the population. The results obtained corroborate the existing literature that identifies glaucoma as one of the main causes of irreversible blindness in the world (Musch DC, Gillespie BW, Niziol LM,

et al. Prevalence of glaucoma in a population undergoing cataract surgery. *BMJ Open* 2022). This study provides unprecedented data on the quantification of hospitalizations resulting from glaucoma specific to a Brazilian region, where previous studies are limited.

After analyzing the collected data, it was evident that Caucasians were more affected by the disease, data also found by OLIVEIRA, et al., 2022. This result can be attributed to the fact that the majority of the population resides in the state of Rio Grande do Sul region is made up of Caucasian individuals, according to data from the latest demographic census (IBGE, 2022). It was also found that the number of hospitalizations tends to be higher at older ages, which is in line with the results previously obtained in the study by Matos, et al. which evaluated glaucomatous patients seen in their first consultation, when they were diagnosed (MATOS, et al., 2023). It was evident that glaucoma was more prevalent in women, representing 53.09% of cases, which had already been found by other authors (ARAÚJO, et al., 2020; COSTA, et al., 2013; PÓVOA, et al., 2001). However, some studies demonstrated a higher prevalence in men, corroborating the data obtained in the systematic review by RUDNICKA, et al., 2006 and the study by OLIVEIRA, et al., 2022.

Although the study provides important data, it has limitations. The main one is the dependence on administrative data that may not encompass all glaucoma cases, especially those managed on an outpatient basis without the need for hospitalization.

Furthermore, the lack of details about disease stage or severity in DATASUS records limits the depth of analyses. Compared to other national (SAKATA, et al., 2007) and international (KAPETANAKIS, et al., 2007) studies, the findings of this work are in line with the observed trend of an increase in the prevalence of glaucoma associated with

population aging. However, methodological differences, such as criteria for hospitalization and study design, may influence the direct comparison of results.

The findings suggest a continued need for surveillance and public health strategies to address glaucoma, particularly in aging populations, as they are the most affected by this disease. Effective strategies may include improvements in screening and early diagnosis, along with increasing awareness of the disease among the general population and healthcare professionals. This study emphasizes the importance of monitoring glaucoma hospitalizations as an indicator of morbidity. Future research must focus on developing interventions to reduce the need for hospitalization through effective glaucoma

management and improving data quality to facilitate more detailed analyses.

## CONCLUSION

In summary, it is concluded that glaucoma is a potential contributor to the causes of irreversible blindness in the world. Given the findings discussed, early monitoring must therefore be carried out to analyze and progress the disease, aiming to reduce the incidence of disorders, thus guaranteeing a better quality of life for patients. There is also a need for more in-depth studies on the subject, as well as constant updating of outpatient and inpatient information systems, to better elucidate the epidemiological profile of this pathology.

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