

# Analysis of variables that can interfere with clinical outcomes of patients presented with vocal or swallowing complaints

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## ABSTRACT

**Purpose:** to analyze sociodemographic variables that may interfere with the clinical outcome of patients with voice or swallowing complaints.

**Methods:** a descriptive, retrospective, cross-sectional, observational study in which the medical records of patients above 18 years old treated at the Voice Clinic of the Speech-Language-Hearing Service of the Rio de Janeiro University Hospital between 2010 and 2018, were analyzed, including 81 medical records – 47 from females and 34 from males. Patients were divided according to three types of outcomes, namely: discharge, dismissal, and abandonment. The sociodemographic variables were sex, marital status, education level, income, whether they were occupational voice users, and the main complaint. The relative and absolute frequencies were calculated to analyze the results, and the Pearson's chi-square test was used for inferential analysis (significance level of 5%).

**Results:** sociodemographic variables were not significantly associated with the outcomes when the type of complaint (voice or swallowing) was not considered, separately. The study found a significantly higher frequency of patients with voice complaints who were discharged from speech-language-hearing therapy ( $p = 0.020$ ). The higher frequency of such patients who abandoned therapy was significantly associated with an income of up to one minimum wage ( $p = 0.041$ ). People with swallowing complaints were not significantly associated with sociodemographic variables.

**Conclusion:** the most frequent outcome was treatment abandonment. In this study, low family income was associated with treatment abandonment by patients with voice complaints. Patients with swallowing complaints had a lower frequency of treatment abandonment and discharge than patients with voice complaints.

**Keywords:** Unified Health System; Health Services; Outpatient Clinics, Hospital; Outpatients; Speech, Language and Hearing Sciences



## INTRODUCTION

The path of patients in a health service, from access to the end of treatment<sup>1-3</sup>, is marked by a series of factors that can influence adherence to the therapy that has been proposed<sup>4</sup>. Adherence is a dynamic process that strongly influences the continuity of the therapeutic process, however, despite the efficiency of speech-language-hearing (SLH) rehabilitation, there is still a high rate of abandonment or absences that lead to dismissal<sup>5</sup>. Hence, the understanding of factors that may be related to better adherence to SLH therapy is paramount<sup>6</sup>.

SLH pathology is a health area encompassing individual and collective actions aimed at promoting, protecting, and recovering health. SLH areas that address voice and swallowing include direct and indirect interventions<sup>7</sup>, aiming to provide functional modifications and adaptations through the continued practice of exercises and other procedures to which the patient's cooperation is essential, so as to achieve the therapeutic goal<sup>8</sup>. Thus, discharge depends on the patient's adherence to the therapeutic process and requires their dedication and active participation<sup>5,6,9</sup>.

SLH pathologists must work in joint effort with the patient throughout the therapy process. Understanding the reasons why individuals maintain or not their treatment can help plan actions for effective therapy, approaching each patient differently in their uniqueness and experiences<sup>10</sup>. Considering patients treated in a public health service at a university hospital, with various social realities and numerous factors that can influence their path until SLH discharge, it is important and necessary to carry out research focused on variables that can interfere with the outcomes of the therapeutic process and the patient's continuity in the health service.

It is hypothesized that variables related to the patient and care may influence the SLH therapeutic process in cases regarding voice and swallowing. Thus, this study aimed to analyze the sociodemographic variables that may interfere with the outcome of clinical cases of patients presented with voice or swallowing complaints.

## METHODS

This descriptive, retrospective, cross-sectional, observational study was approved by the Research Ethics Committee of the Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil (CAAE no. 17269319.4.0000.5257 and evaluation report no.

3.480.643). The study followed the ethical recommendations of Resolution 466/12 of the National Research Council (CONEP).

The sample for this study was selected from the medical records of patients treated at the Voice and Swallowing Clinic of the SLH Service of the Clementino Fraga Filho University Hospital at the Universidade Federal do Rio de Janeiro, RJ, Brazil. The study included records of patients over 18 years old, literate, of both sexes, treated from 2010 to 2018 and excluded records with incomplete information, of patients who were still undergoing therapy, and who died during the treatment.

The research was carried out in a medium- and high-complexity university hospital. Despite the great demand for SLH care, the service only hires temporary SLH pathologists, restricting services to the university academic period. The study analyzed physical records.

Therefore, the sample of this study had 81 individuals, that is, 47 females and 34 males. It approached discharge, dismissal, and abandonment as clinical outcomes. Discharge refers to patients who completed the treatment, dismissal occurred when the patient had three unjustified absences, and abandonment is related to patients who stopped attending the service without justification.

Information on the patients' sex, marital status, education level, income, and whether they were occupational voice users was collected to analyze their sociodemographic variables. The study also collected data on the voice or swallowing complaint and the professional who referred the patient to analyze care variables.

The data were analyzed descriptively and inferentially. The descriptive analysis approached nominal qualitative variables using absolute and percentage frequencies. The Pearson's chi-square test was used for inferential analysis of the association between the groups and the nominal qualitative variables. The significance level was set at 5%.

## RESULTS

Regarding the clinical outcome of care, 11 (13.6%) patients were discharged from therapy, 63 (77.8%) abandoned treatment, and seven (8.6%) were dismissed. There was no association between the clinical outcome and the patients' sociodemographic variables (Table 1).

The care variables showed a significantly higher frequency of patients with voice complaints who were discharged from SLH therapy, as seen in Table 2.

**Table 1.** Association between clinical outcome and variables related to patients with voice and swallowing complaints

Variable	Category	Clinical outcome			p-value	
		Dismissal	Abandonment	Discharge		
Sex	Females	n	5	33	9	0.142
		%	71.4%	52.4%	81.8%	
	Males	n	2	30	2	
		%	28.6%	47.6%	18.2%	
Marital status	Married	n	2	24	2	0.613
		%	28.6%	38.1%	18.2%	
	Single	n	2	20	6	
		%	28.6%	31.7%	54.5%	
	Widow(er)	n	2	12	3	
		%	28.6%	19.0%	27.3%	
	Divorced	n	1	7	0	
		%	14.3%	11.1%	0.0%	
Education level	Middle school	n	3	43	7	0.149
		%	42.9%	68.3%	63.6%	
	High school	n	2	8	4	
		%	28.6%	12.7%	36.4%	
	Higher education	n	2	12	0	
		%	28.6%	19.0%	0.0%	
Income	Up to 1 minimum wage	n	4	53	7	0.070
		%	57.1%	84.1%	63.6%	
	2 to 5 minimum wages	n	1	8	2	
		%	14.3%	12.7%	18.2%	
	More than 6 minimum wages	n	2	2	2	
		%	28.6%	3.2%	18.2%	
Occupational voice user	Yes	n	5	35	5	0.557
		%	71.4%	55.6%	45.5%	
	No	n	2	28	6	
		%	28.6%	44.4%	54.5%	

Pearson's chi-square test

Captions: n = relative frequency; % = percentage frequency

**Table 2.** Association between clinical outcome and variables related to care in patients with voice and swallowing complaints

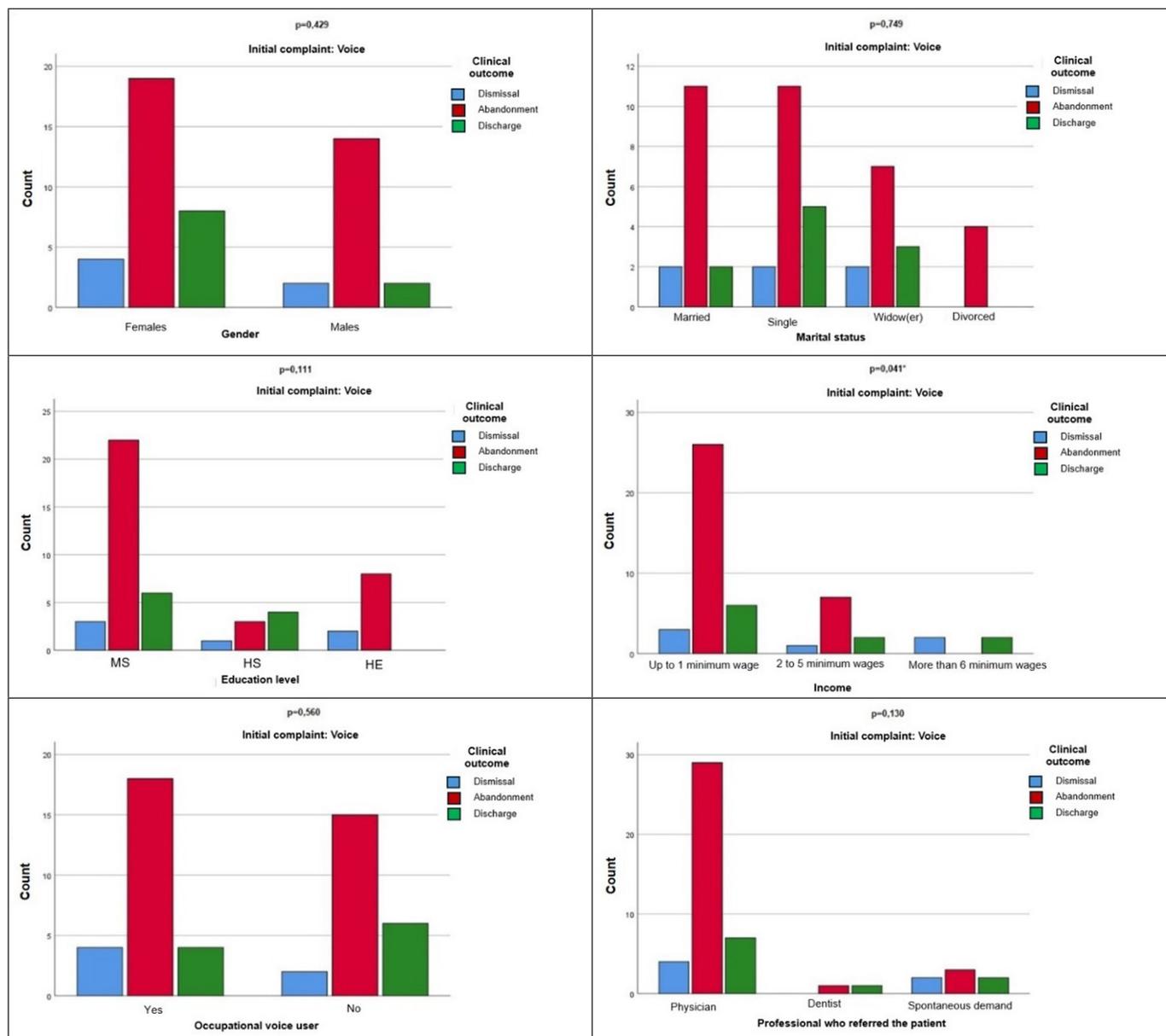
Variable	Category	Clinical outcome			p-value	
		Dismissal	Abandonment	Discharge		
Complaint	Voice	n	6	33	10	0.020*
		%	85.7%	52.4%	90.9%	
	Swallowing	n	1	30	1	
		%	14.3%	47.6%	9.1%	
Professional who referred the patient	Physician	n	5	55	8	0.441
		%	71.4%	87.3%	72.7%	
	Dentist	n	0	2	1	
		%	0.0%	3.2%	9.1%	
	Spontaneous demand	n	2	6	2	
		%	28.6%	9.5%	18.2%	

Qui-Quadrado de Pearson

Legenda: n=frequência relativa; %=frequência percentual

Of the 81 patients, 49 had complaints related to their voice and 32 to swallowing. Regarding patients with voice complaints, 10 (20.4%) were discharged, 33 (67.4%) abandoned therapy, and six (12.2%) were

dismissed. There was a significantly higher frequency of patients who abandoned therapy and had an income of up to one minimum wage (Figure 1).

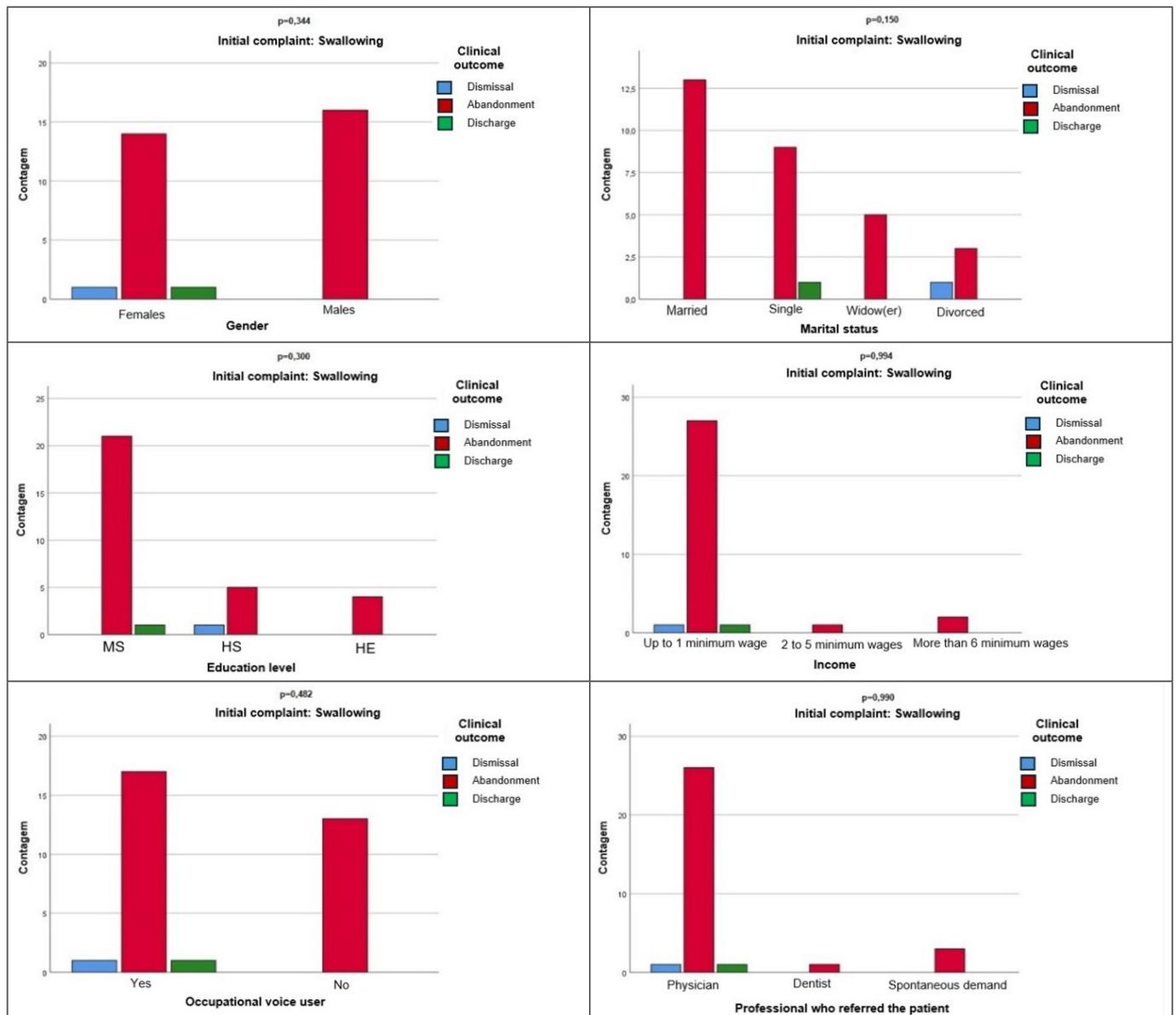


Pearson’s chi-square test  
 Captions: MS = middle school; HS = high school; HE = higher education

**Figure 1.** Association between clinical outcome and variables related to patients and care in individuals with voice complaints

Of the patients with swallowing complaints, one (3.1%) was discharged, 30 (93.8%) abandoned therapy, and one (3.1%) was dismissed. No association was

found between the clinical outcome and the patients’ sociodemographic variables (Figure 2).



Pearson's chi-square test

Captions: MS = middle school; HS = high school; HE = higher education

**Figure 2.** Association between clinical outcome and variables related to patients and care in individuals with swallowing complaints

## DISCUSSION

This study investigated sociodemographic variables that influence the discharge, dismissal, and abandonment of patients with voice or swallowing complaints treated at a university hospital. Knowing these variables can help take measures to ensure not only the patients' access to the public health system but also their continuity until discharge.

SLH therapy is highly demanded in the public health system<sup>11</sup>. On the other hand, few studies in the literature focus on the outcome of SLH services, making it difficult to predict treatment time for each condition and

the factors associated with abandonment or dismissal from services.

This study found low adherence to treatment, as there was a very high rate of abandonment and dismissals from the service. The World Health Organization (WHO)<sup>12</sup> points out that low adherence to treatment is a global problem, more common in treatments that involve behavioral changes, such as dysphonia and dysphagia therapies. Studies detailing the severity of cases and the outcome of abandonment and dismissal may be useful to verify how factors inherent to the clinical condition affect treatment

adherence. In a recent study<sup>13</sup>, the self-perceived greater severity of the health condition increased the probability of attending voice therapy in patients with hyperfunctional dysphonia.

University health programs have historically provided services to society, as interns provide care either in their teaching clinics or in units of the Public Health System (*Sistema Único de Saúde - SUS*). However, since services are provided in educational settings, their maintenance during academic recess and vacation must be discussed. Interrupting care at least twice a year can discourage patients, hinder the evolution of cases, and, consequently, lead to treatment abandonment.

When patients were not divided according to the main complaint (voice or swallowing complaints), no association was found between the clinical outcome and the patients' variables (sex, marital status, education level, income, and whether they were occupational voice users). In this regard, although studies indicate that women generally seek health services more<sup>14</sup>, differences between sexes are small when it comes specifically to the demand/use rate of curative health services<sup>15</sup>. Hence, this may justify the lack of influence of sex on the outcome of care in this study.

In general, most participants in this research only had primary education and an income of up to one minimum wage, which suggests that, as it is a public service, it assists people in greater social vulnerability. However, when analyzing only people with voice complaints, an income of up to one minimum wage was associated with greater treatment abandonment, suggesting that socioeconomic conditions were an important factor in such outcomes. The same relationship was not found in participants with swallowing complaints, which can be justified by population homogeneity, as almost all of them had an income of up to one minimum wage, making it impossible to detect an association through the statistical test.

Corroborating this finding, a study that used the results of the 2013 National Health Survey and whose objectives included outlining the sociodemographic profile of both users and non-users of the Unified Health System observed the predominance of SUS users among people with low income<sup>16</sup>.

The type of complaint in this study was associated with the outcome of care. There was a significantly higher frequency of patients with voice complaints who were discharged from SLH therapy – i.e., they

completed the entire therapeutic process, which did not occur in patients with swallowing complaints. This may be related to the duration of voice therapy until discharge, being shorter than the time needed in swallowing therapy. Another hypothesis for these findings is that swallowing problems, even if not more serious, are secondary to underlying pathologies that may hinder patients from going to outpatient rehabilitation services weekly.

An American study found a strong association between time variables (frequency of therapy and number of sessions) and voice therapy completion<sup>3</sup>. The duration of voice therapy until discharge was 4.8 sessions on average<sup>3</sup>, whereas no studies were found that specifically analyzed time variables related to dysphagia therapy discharge. However, a study that analyzed the outcome of SLH dysphagia therapy after a stroke observed that an intensive therapeutic approach with five training sessions per week was more effective in the acute phase of dysphagia<sup>17</sup>, corroborating the hypothesis that dysphagia therapy requires longer intervention due to its greater complexity.

The type of dysphonia also seems to influence teachers' adherence to voice therapy, as people with organofunctional dysphonia have a higher rate of therapy abandonment than those with functional dysphonia<sup>5</sup>. The frequency of voice therapy abandonment in this study was higher than reported in the national and international literature<sup>1,3,18</sup>. A national study aimed to investigate adherence to SLH guidelines for municipal teachers treated in a voice outpatient clinic at a University Hospital and found that 46% of patients were dismissed from the outpatient clinic – a much lower percentage than that found in the present study. Although still quite significant, this lower abandonment may be because they were all occupational voice users<sup>18</sup>, whose voices are essential to their work and, possibly, their income.

Although little described in the literature, the specific abandonment rates of dysphagia treatment and low adherence to treatment are also portrayed as important obstacles to achieving therapeutic success, as caregivers and patients have great difficulty in following professional guidelines<sup>19</sup>. There is a broad discussion in the literature about the importance of adhering to the treatment of chronic noncommunicable diseases, but little is said about the importance of adhering to SLH treatment in cases of dysphagia. This condition has a great potential to worsen clinical conditions and

increase mortality among people with neurodegenerative diseases<sup>19</sup>.

This study observed that most referrals for SLH therapy were from physicians. Spontaneous demand is uncommon in tertiary care services, such as the one in this study. Nevertheless, it was the form of access for 10 patients (12.34%). Spontaneous demand increases access to rehabilitation services, especially for those who have difficulty making medical appointments.

Despite the frequent criticism of the lack of access to public rehabilitation health services, studies such as the present one raise questions about the need to provide rehabilitation care opportunities and develop strategies for the patient's continuity until discharge. Effective rehabilitation processes – which, therefore, prevent conditions from worsening – may reduce the financial cost for the health system and the patient's quality of life. The literature presents conceptual models that provide support for clinicians to assess patient adherence, which can contribute to therapeutic success in specific clinical interventions<sup>20</sup>.

One of the limitations of this study, for being retrospective, is that it did not elucidate the causes of SLH treatment abandonment. Furthermore, it was difficult to conduct the study with a larger and more reliable sample due to the lack of data in the medical records. Hence, health professionals need greater awareness not only that medical records are documents but mainly that they have a role in comprehensive care as a form of communication in multidisciplinary teams.

Therefore, further studies should use larger samples and more variables for analysis, adding other participant-related ones, especially regarding low income, transportation conditions, compatibility between opening hours and working hours, children, and time variables related to therapy discharge, dismissal, and abandonment, aiming for a broader understanding of the factors related to adherence to rehabilitative treatments.

## CONCLUSION

The most frequent outcome was treatment abandonment. In this study, low family income was associated with treatment abandonment by patients presented with voice complaints. Patients with swallowing complaints had a lower frequency of treatment abandonment and discharge than patients with voice complaints.

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RBSB, GENG, BFS: Investigation; Writing - Review and editing.

KS, VVR: Data curation; Formal analysis; Writing - Review and editing.