HOSPITALIZAÇÕES RELACIONADAS AO CÂNCER ORAL E FARÍNGEO EM ADULTOS NO SISTEMA PÚBLICOS DE SAÚDE DO BRASIL

Oral and pharyngeal cancer-related hospitalizations of adults in the brazilian public healthcare system

Autores:
Wendson Rafael Souza Barros
Graduando em Odontologia pela Faculdade Uninassau - Petrolina

Luiz Felipe de Carvalho Neves
Graduando em Odontologia pela Faculdade Uninassau - Petrolina

Gustavo Fernandes Lins Almeida
Graduando em Odontologia pela Faculdade Uninassau - Petrolina

Daniella dos Anjos Rodrigues Barauna
Mestranda em Ciências pela Universidade de São Paulo - Ribeirão Preto

Taíssa Cássia de Souza Furtado
Doutoranda em Ciências pela Universidade de São Paulo - Ribeirão Preto

Isaías Queiroz Soares Silva
Mestrando em Ciências pela Universidade de São Paulo - São Paulo

Andressa Cabral Vassilievitch
Graduanda em Medicina pela Universidade Federal de Sergipe - São Cristóvão

Ricardo Barbosa Lima - DDS, PhD
Professor do Colegiado de Odontologia da Faculdade Uninassau - Petrolina
Coordenador do Núcleo de Ensino e Pesquisa em Epidemiologia Aplicada à Odontologia (NEPIO)

Instituição na qual o trabalho foi realizado: Faculdade Uninassau – Petrolina.

Endereço para correspondência: Dr. Ricardo Barbosa Lima, Faculdade Uninassau, Colegiado de Odontologia, Avenida Cardoso de Sá, número 950, Vila Eduardo, CEP: 56328020 - Petrolina, PE – Brasil.
E-mail para correspondência: dentistaricardolima@gmail.com

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

RESUMO

O câncer oral e faríngeo representa um desafio significativo para a saúde pública devido ao seu impacto na qualidade de vida e sobrecarga nos sistemas de saúde. Este estudo teve como objetivo analisar as hospitalizações de adultos devido a essa condição no Sistema Único de Saúde (SUS) do Brasil entre 2015 e 2024. Foi realizado um estudo ecológico, longitudinal e retrospectivo (série temporal). Foram extraídas informações das hospitalizações de pacientes adultos (20-59 anos) com diagnóstico de câncer oral e faríngeo. O nível de significância foi ajustado em 5%. No período avaliado, 119.556 hospitalizações foram registradas, com uma incidência de 98,7 por 100.000 habitantes/ano. As internações foram urgentes em sua maioria (54,6%). O tempo médio de permanência hospitalar foi de 5,6 dias e o gasto total no período analisado atingiu R$ 252.273.101,15. A taxa de mortalidade hospitalar foi de 10,5%. Houve uma tendência decrescente na incidência de hospitalizações, na duração média da internação e nos custos médios por hospitalização nos últimos dez anos (todos os valores de *p* <0,05). Em comparação com outras faixas etárias, os adultos apresentaram uma incidência intermediária de hospitalizações e taxa de mortalidade hospitalar, sendo menores do que as observadas em idosos, mas superiores às de crianças e adolescentes (todos os valores de *p* <0,05). Conclui-se que um número expressivo de internações de adultos por câncer oral e faríngeo foi registrado no SUS nos últimos dez anos, o que difere do padrão observado em outras faixas etárias.

Palavras-chave: Hospitalização; Serviços de saúde pública; Adultos; Neoplasias bucais; Neoplasias faríngeas.

ABSTRACT

Oral and pharyngeal cancer poses a significant public health challenge due to its impact on quality of life and the burden on healthcare systems. This study aimed to analyze hospitalizations of adults due to this condition in the Brazilian Unified Health System (SUS) between 2015 and 2024. An ecological, longitudinal, and retrospective time-series study was conducted. Data on hospitalizations of adult patients (20–59 years) diagnosed with oral and pharyngeal cancer were extracted. The significance level was set at 5%. During the study period, 119,556 hospitalizations were recorded, with an incidence of 98.7 per 100,000 inhabitants/year. The majority of admissions were urgent (54.6%). The average length of hospital stay was 5.6 days, and total expenditures over the study period reached R$ 252,273,101.15. The hospital mortality rate was 10.5%. Over the last

ten years, a decreasing trend was observed in hospitalization incidence, average length of stay, and hospitalization costs (all *p*-values <0.05). Compared to other age groups, adults exhibited an intermediate incidence of hospitalizations and hospital mortality rates, lower than those of older adults but higher than those of children and adolescents (all *p*-values <0.05). These findings indicate that a significant number of adult hospitalizations due to oral and pharyngeal cancer were recorded in SUS over the last decade, which differs from the pattern observed in other age groups.

Keywords: Hospitalization; Public health services; Adults; Oral neoplasms; Pharyngeal neoplasms.

INTRODUCTION

Oral and pharyngeal cancer represents a significant concern to contemporary public health. The development of malignant neoplasms in these anatomical regions exhibits distinct global trends in terms of incidence and survival, varying according to population exposure to risk factors, access to healthcare services dedicated to oncological treatment, and advancements in therapeutic approaches over time. Regardless of the circumstances, oral and pharyngeal cancer can significantly impact quality of life, burden healthcare systems, and require specialized medical care to reduce cancer-related mortality (BOSETTI et al., 2020; FARHADI et al., 2022).

Previous studies have provided relevant epidemiological insights in the Brazilian context. For instance, Perea et al. (2022) demonstrated that between 1983 and 2017, a total of 142,634 deaths from oral and oropharyngeal cancer were recorded in Brazil. Furthermore, they reported that males accounted for 81% of these deaths, with an average mortality rate of 4.5 deaths per 100,000 inhabitants. Additionally, Perea et al. (2021) found that the South and Southeast regions exhibited the highest mortality rates, in contrast to the North, Northeast, and Central-West regions. These findings highlight significant mortality patterns that warrant further investigation (PEREA et al., 2021; PEREA et al., 2022).

In this context, it is crucial to emphasize that understanding cancer-related outcomes and treatment, particularly in cases of malignant neoplasms affecting the oral cavity and pharynx, is intrinsically linked to patients' experiences with healthcare services. A pertinent example is the analysis of hospitalizations (admissions for inpatient care), as both disease progression and therapeutic interventions frequently necessitate intensive medical care, depending on the

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

severity of symptoms, clinical presentation, and individual patient needs (COSTA et al., 2023; CUNHA et al., 2023).

In Brazil, a recent investigation conducted a comprehensive analysis of hospitalizations due to oral and pharyngeal cancer in pediatric patients, providing valuable insights into hospital care provided by the Brazilian Unified Health System (SUS) (LIMA et al., 2024). However, to the best of our knowledge, no similar investigation has been conducted focusing on adult patients. This type of analysis is essential given the epidemiological significance of this age group in the context of oral and pharyngeal cancer, particularly considering its high incidence and the substantial clinical and social impacts associated with the disease (PEREA et al., 2021; PEREA et al., 2022). Therefore, the objective of this study was to evaluate hospitalizations of adults due to oral and pharyngeal cancer in the Brazilian public healthcare services.

METHOD

STUDY DESIGN

To achieve the proposed objective, an ecological, longitudinal, retrospective, and quantitative investigation was designed, utilizing official data from the Brazilian public healthcare system. This study was based on previous investigations employing a similar methodology (time series) (LIMA et al., 2023; LIMA et al., 2024). The STROBE (*Strengthening the Reporting of Observational Studies in Epidemiology*) checklist items were adapted to structure and enhance this report (MALTA et al., 2010). The study setting was defined as Brazil as the unit of observation, with data covering all five geographic regions (North, Northeast, Southeast, South, and Central-West). No restrictions were applied concerning healthcare services (type or complexity), covering the entire system's productivity. The timeframe was set between 2015 and 2024 (the last ten years).

ETHICAL ISSUE

This investigation was not subjected to ethical review, as this step is waived for register-based approaches, in which population data are aggregated and do not allow for the identification or localization of individuals linked to the Brazilian public healthcare system. There was no direct or indirect contact with users, thereby eliminating the need for an Informed Consent Form. Both considerations align with national regulations governing research practices involving publicly available data (open access) (BRASIL, 2016).

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

DATA ACQUISITION

Data collection was performed using the Hospital Information System (SIH/SUS), managed by the Department of Informatics (DATASUS) (BRASIL, 2025a). The adopted procedure had been previously applied (LIMA et al., 2023; LIMA et al., 2024). The variables of interest in this investigation were extracted from the Hospital Admission Authorizations (AIHs). A trained researcher, experienced in the necessary steps, performed the procedure using the TabNet tool in February 2025. The SIH/SUS was accessed through the DATASUS webpage (https://datasus.saude.gov.br/). After selecting the TabNet tool, the following tabs were chosen: (1) "*epidemiological information and morbidity*" and (2) "*hospital morbidity*".

After this preliminary adjustment, all AIHs were filtered by the request location (where the healthcare service is situated), defining the scope based on the Brazilian geographic regions. Next, the timeframe was adjusted using the "*period*" filter to cover January 2015 to December 2024. The population was refined using the "*age group*" filter, selecting AIHs from users aged 20 to 59 years (adults). Hospitalizations related to oral and pharyngeal cancer were filtered from the morbidity list available in the International Statistical Classification of Diseases and Related Health Problems, tenth edition (ICD-10/C00-C14), which is also accessible through SIH/SUS. The "*content*" filter was applied to retrieve the primary and secondary variables using the same adjustments mentioned above.

VARIABLES

The primary outcome of this study was the number of hospitalizations (AIHs) during the designated timeframe, expressed as person-year incidence (new inpatient admissions relative to the population size for each year, *per* 100,000 inhabitants). The primary outcome consisted of AIHs for adult patients (20 – 59 years old) whose first reason for hospitalization was oral or pharyngeal cancer. The estimated number of inhabitants aged 20 to 59 years during this timeframe was obtained from the intercensal projections provided by the Brazilian Institute of Geography and Statistics (IBGE) (BRASIL, 2025b). This study also examined secondary variables, including the yearly death count, hospital mortality rate (HMR - proportion of deaths among hospital admissions), average length of hospital stay (in days), average expenditure in Brazilian *reais* (R$) – adjusted for inflation using Brazil's National Consumer Price Index (IPCA) from IBGE (BRASIL, 2025b) to mitigate the impact of inflation over time, and admission type (elective or urgent).

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

STATISTICAL ANALYSIS

All statistical analyses were conducted using the JAMOVI software (version 2.4.11, Sydney, Australia) and the PAST package (version 4.03, Oslo, Norway). A significance criterion of 5% ($\alpha = 0.05$) was established for inferential tests, with *p*-values below this value indicating statistical significance. Prior to statistical analysis, the data were imported and systematically organized into spreadsheets. Initially, a descriptive analysis of the variables was conducted, including absolute and relative frequencies, measures of central tendency and dispersion, as well as minimum and maximum values.

To assess temporal trends, the Durbin-Watson test (DW statistic) was used to check for first-order serial autocorrelation, and the Prais-Winsten regression was applied for correction. Following a logarithmic transformation (*log*10) of the datasets (dependent variables), the angular coefficients (β_1) were estimated along with their 95% confidence intervals (95% CI) using the formula: $[(\beta_1) \pm \{t\text{-critical value} \times \beta_1 \text{ standard error}\}]$. The Annual Percent Change (APC - %) was derived from β_1 values, including its confidence limits, using the formula: $[\{-1 + 10^{(\beta_1)}\} \times 100]$. If the *p*-value was not statistically significant, the trend was classified as stationary. When significant, a positive or negative β_1 value indicated an increasing or decreasing trend, respectively (ANTUNES & CARDOSO, 2015).

To compare the person-year incidence and other secondary outcomes, the ratios were examined using generalized linear models, applying a flexible approach to account for both underdispersed and overdispersed datasets (using non-robust or robust variance adjustments accordingly). Then, negative binomial regression (for quasi-Poisson distributions) with a logarithmic link function and maximum likelihood estimation (via the *log*-likelihood ratio) were employed to ensure appropriate model fit and inference. Moreover, Spearman's correlation matrix, assessing the *rho* (ρ) coefficient, was used to explore correlations.

RESULTS

In the last ten years, 119,556 AIHs were approved for adults with oral or pharyngeal cancer in the Brazilian public healthcare system, accounting for approximately 47% of the total AIHs across all age groups in this timeframe (254,529). The median number of annual hospitalizations was approximately 12,041 *per* year, ranging from 10,606 (lowest value) to 13,001 (highest value) over the past ten years. Table 1 presents the descriptive analysis of the person-year incidence, and Figure 1 illustrates the variation over time.

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

Table 1. Person-year incidence of inpatient admissions of adults with oral or pharyngeal cancer in the Brazilian public healthcare system from 2015 to 2024 (*per* 100,000 inhabitants) (2025).

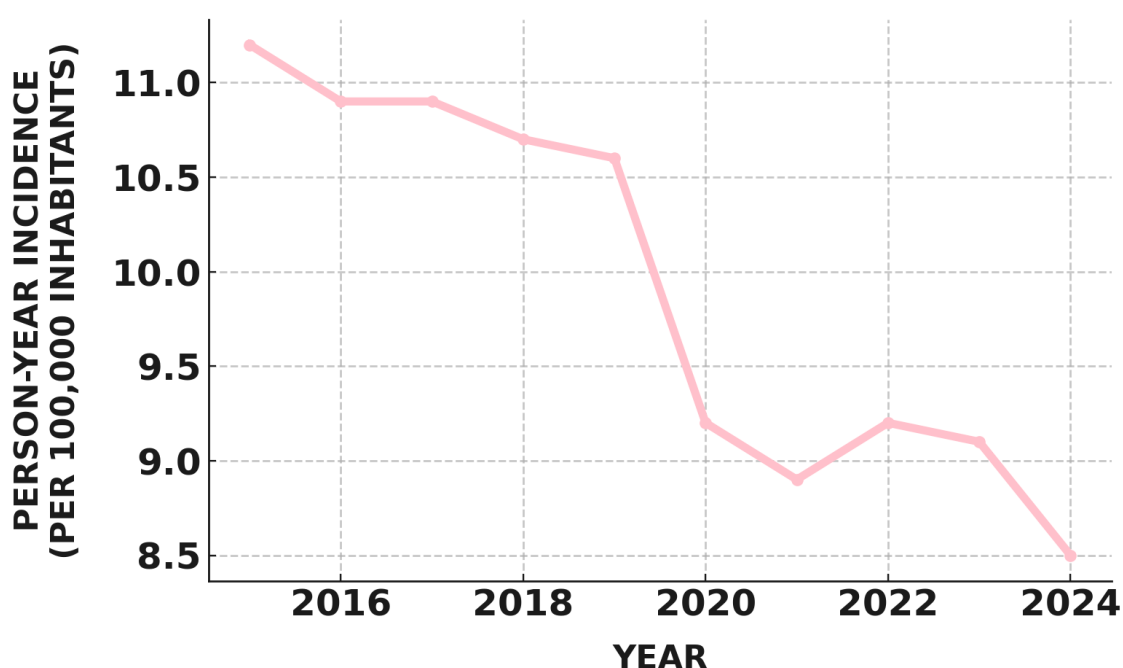| Person-year incidence	Value
Overall	98.7
Median (annual)	9.9
Interquartile range	1.7
Minimum (year)	8.5
Maximum (year)	11.2

Figure 1. Person-year incidence of inpatient admissions of adults with oral or pharyngeal cancer in the Brazilian public healthcare system from 2015 to 2024 (*per* 100,000 inhabitants) (2025).

In addition, Table 2 presents the descriptive analysis of the secondary variables. A total of 252,273,101.15 R$ were spent on AIHs related to oral or pharyngeal cancer among adults over the past ten years in the Brazilian public healthcare system. It was observed that the majority of hospitalizations were urgent in all evaluated years between 2015 and 2024. Regarding deaths and HMR, the annual average was 1,248 and 10.5%, respectively. A total of 12,480 deaths were recorded. There was a significant, positive and moderate correlation between the average duration (days) and average cost (R$) *per* hospitalization after IPCA adjustment over time (*p*-value = 0.026, ρ = 0.695).

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

Table 2. Secondary outcomes of inpatient admissions of adults with oral or pharyngeal cancer in the Brazilian public healthcare system from 2015 to 2024 (*per* 100,000 inhabitants) (2025).

Variable	Value	Maximum (year)	Minimum (year)
Urgent admission (%)	54.6	55.7 (2020)	53.4 (2017)
Hospital mortality (%)	10.4	11.2 (2015)	8.5 (2024)
Average duration (days)	5.6	6.1 (2013)	5.2 (2021)
Average cost (R$) *per* hospitalization	2,853.50	3,525.00 (2013)	2,401.00 (2023)

Table 3 presents the analysis of the temporal variation (trends) in person-year incidence and its secondary outcomes. It was observed that the frequency of urgent admissions and the HMR remained stationary, showing no significant trend over the past ten years. However, significant declines were observed in person-year incidence, average cost (R$) *per* hospitalization, and average duration (days) of AIHs related to oral or pharyngeal cancer. The level of fit was moderate to high.

Table 3. Temporal trend of the person-year incidence and secondary outcomes of inpatient admissions of adults with oral or pharyngeal cancer in the Brazilian public healthcare system from 2015 to 2024 (2025).

Variable	β_1	R^2	*p*-value	APC (%)	Trend
Incidence (*per* 100,000)	-0.014 [-0.010, -0.016]	0.885	0.001*	-3.17 [-2.28, -3.62]	Decreasing
Urgent admission (%)	0.001 [0.003, -0.001]	0.279	0.112	N/A	Stationary
Hospital mortality (%)	-0.002 [0.001, -0.004]	0.274	0.119	N/A	Stationary
Average duration (days)	-0.005 [-0.003, -0.008]	0.557	0.015*	-1.14 [-0.69, -1.83]	Decreasing

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

Average cost (R$) *per* hospitalization	-0.016 [-0.013, -0.021]	0.919	0.001*	-3.62 [-2.95, -4.72]	Decreasing

β_1: angular coefficient. R^2: coefficient of determination. APC: Annual Percent Change (%). *: *p*-value <0.05 (statistically significant outcome). [ ]: 95% confidence interval. N/A: not applicable.

Ultimately, Table 4 presents the comparison of the person-year incidence and secondary outcomes of inpatient admissions between adults and other age groups. Considering adults as the reference group, children and adolescents had a significantly lower incidence of hospitalizations, whereas older adults exhibited a substantially higher incidence. Additionally, HMR was lower among children and adolescents, while older adults had a higher proportion of deaths following hospitalization. Regarding the average cost *per* hospitalization, children and adolescents had lower hospital expenses compared to adults, whereas older adults had significantly higher costs. However, no statistically significant differences were observed among age groups concerning the length of hospitalization and the frequency of urgent admissions.

Table 4. Comparison of the person-year incidence and secondary outcomes of inpatient admissions between adults and other age groups with oral or pharyngeal cancer in the Brazilian public healthcare system from 2015 to 2024 (2025).

Comparison	Ratio	Limits		*p*-value
		Lower	Upper	
Incidence (*per* 100,000)				
Intercept	8.19	6.64	9.84	<0.001*
Adults	ref			
Children and adolescents	0.13	0.07	0.22	<0.001*
Older adults	4.42	3.47	5.29	<0.001*
Hospital mortality (%)				
Intercept	7.16	6.08	8.32	<0.001*
Adults	ref			
Children and adolescents	0.24	0.15	0.36	<0.001*
Older adults	1.33	1.07	1.72	0.026*
Average duration (days)				
Intercept	5.66	4.85	6.55	<0.001*
Adults	ref			
Children and adolescents	1.07	0.74	1.54	0.710

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ.CEP: 24020-140

Older adults	0.96	0.66	1.40	0.849
Average cost (R$) *per* hospitalization				
Intercept	2,079	2,005	2,157	<0.001*
Adults	*ref*			
Children and adolescents	0.85	0.78	0.93	<0.001*
Older adults	1.11	1.02	1.21	0.032*
Urgent admissions (%)				
Intercept	52.8	50.2	55.4	<0.001*
Adults	*ref*			
Children and adolescents	0.91	0.81	1.03	0.138
Older adults	0.98	0.87	1.11	0.785

*: *p*-value <0.05 (statistically significant outcome). *ref*: reference level (ratio = 1).

DISCUSSION

This study aimed to analyze hospitalizations of adults for oral and pharyngeal cancer in SUS over the past ten years, assessing trends in hospitalization rates, costs, length of stay, and hospital mortality. Exploring the results, it was observed that adults account for nearly half of all hospitalizations for oral and pharyngeal cancer in SUS. It is possible that this outcome is influenced by the incidence patterns of cancer in this age group, including cumulative exposure to risk factors such as tobacco and alcohol consumption, which are well-established etiological factors for oral and pharyngeal cancer. The prolonged and combined use of these substances significantly increases the likelihood of malignant transformation in the oral and pharyngeal mucosa, contributing to the high number of hospitalizations observed among adults (O'SULLIVAN; KABIR; HARDING, 2022; KOYAMA et al., 2024).

Furthermore, it was observed that approximately one in ten (1/10) hospitalized patients progressed to death, in addition to a predominance of urgent hospitalizations. It is known that a previous investigation analyzing mortality data from 2002 to 2013 had already demonstrated the persistence of mortality associated with oral and pharyngeal cancer in Brazil. Despite regional variations, overall mortality was categorized as high (PEREA et al., 2018), which aligns with the hospital mortality observed in this study between 2015 and 2024. In addition, another investigation demonstrated the critical impact of these diseases on years of potential life lost, indicating that many deaths can be considered premature, especially among patients under the age of 60. From 1979 to 2013, for example,

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

107,506 premature deaths due to oropharyngeal cancer were detected in Brazil (PEREA et al., 2019).

Nevertheless, it is important to acknowledge that both aforementioned studies highlight morbidity and mortality patterns associated with sex (with worse outcomes observed among males) and regional disparities across Brazil (PEREA et al., 2018; PEREA et al., 2019). However, these covariates were not examined in the present study. It is also important to emphasize that the SIH/SUS does not record the cause of death or the specific circumstances leading to the patient's demise (BRASIL, 2025a). As a result, variables such as cancer staging, comorbidities, and other clinical aspects are not taken into account.

Moreover, a notable finding of this study was the decline in the incidence of hospitalizations among adults with oral or pharyngeal cancer over the past decade. This trend aligns with global patterns, where reductions in incidence rates have been observed in certain regions, primarily due to decreased tobacco and alcohol consumption, alongside advancements in early detection and treatment strategies for adult patients. However, while incidence has declined in some adult populations, other investigations indicate a rising trend in oropharyngeal cancers, particularly those linked to human papillomavirus (HPV), especially in high-income countries (BOSETTI et al., 2020; DU et al., 2020; GBD 2019 LIP, ORAL, AND PHARYNGEAL CANCER COLLABORATORS).

However, it is reasonable to highlight that the reduction in the incidence of these diseases does not necessarily imply a decreased demand for hospital-based healthcare services. This perspective is reinforced by the predominance of urgent hospitalizations and the significant number of in-hospital deaths, particularly considering that both variables remained stable over time, showing neither an increasing nor decreasing trend. Furthermore, it is essential to acknowledge the inherent complexities of cancer and its treatment. Despite advancements in therapeutic strategies, side effects, adverse events, and other clinical complications frequently necessitate hospitalization (CARDOSO et al. 2023; LIMA et al., 2024). This perspective suggests that, although incidence has declined, the severity of cases requiring hospitalization has remained unchanged, underscoring the ongoing need for timely and specialized medical interventions.

Ultimately, a relevant outcome was the difference between age groups: adults were in a less favorable situation compared to children and adolescents but in a more favorable situation compared to the elderly in terms of incidence, hospital mortality, and costs. In summary, it is reasonable to assume that these differences stem from age-related variations on oral and pharyngeal cancers: comorbidities, recovery potential, susceptibility to side effects and adverse

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

reactions, exposure to disease-modifying factors, and other frailties inherent to human aging (MIRANDA-FILHO et al., 2020; GANGANE et al., 2024; ZITRICKY et al., 2024).

The main limitations of this approach include the inability of AIHs to distinguish between oral and pharyngeal cancers, as well as to determine the specific reason for hospital admission or mortality (*e.g.*, clinical issues or demands related to diagnosis, treatment, or adverse effects stemming from the disease and its management). In addition, considering an ecological approach, there is no detailed information about the subjects. Therefore, there is no data on clinical characteristics, such as disease stage and patient comorbidities. To address these limitations, future studies should integrate administrative data with clinical records to differentiate between oral and pharyngeal cancers and assess disease stage and comorbidities. Hence, observational studies are needed to analyze patient-level characteristics. These approaches will enhance understanding, improve patient care, and inform public health policies.

CONCLUSION

It was possible to conclude that a significant number of hospitalizations of adults for oral and pharyngeal cancer were recorded in SUS over the past ten years. However, a progressive reduction was observed in the annual number of hospitalizations, costs, and duration of these admissions between 2015 and 2024, whereas hospital mortality remained constant. Furthermore, adults exhibited different morbidity and mortality patterns compared to other age groups (children, adolescents, and older adults) regarding the annual number of hospitalizations, costs, and length of stay. Hence, it is essential to enhance strategies aimed at reducing the morbidity and mortality associated with oral and pharyngeal cancer in this age group, with an emphasis on expanding preventive actions, encouraging early diagnosis, and strengthening access to specialized services, ensuring more effective and timely care for these patients.

REFERENCES

1. ANTUNES, J. L.; CARDOSO, M. A. Using time series analysis in epidemiological studies. **Epidemiologia e Serviços de Saúde**, v. 24, n. 3, p. 565-576, 2015. Disponível em: https://doi.org/10.5123/S1679-49742015000300024. Acesso em: 4 mar. 2025.

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

2. BRASIL. Ministério do Planejamento e Orçamento. **IBGE – Instituto Brasileiro de Geografia e Estatística**: Estatísticas - População. 2025b. Disponível em: https://www.ibge.gov.br/. Acesso em: 4 mar. 2025.

3. BRASIL. Ministério da Saúde. **DATASUS – Departamento de Informática do Sistema Único de Saúde**: Sistema de Informações Hospitalares. 2025a. Disponível em: https://datasus.saude.gov.br/. Acesso em: 4 mar. 2025.

4. BRASIL. Ministério da Saúde. Conselho Nacional de Saúde. Resolução nº 510, de 7 de abril de 2016. **Dispõe sobre as normas aplicáveis a pesquisas em Ciências Humanas e Sociais**. Diário Oficial da União: seção 1, Brasília, DF, 24 maio 2016. Disponível em: https://conselho.saude.gov.br. Acesso em: 4 mar. 2025.

5. BOSETTI, C. et al. Global trends in oral and pharyngeal cancer incidence and mortality. **International Journal of Cancer**, v. 147, n. 4, p. 1040-1049, 2020. Disponível em: https://doi.org/10.1002/ijc.32871. Acesso em: 3 fev. 2025.

6. CARDOSO, M. S. N. T. et al. Treatment of clinical complications and intercurrences of cancer patients in the Brazilian Unified Health System. **HU Revista**, v. 49, p. 1-8, 2023. Disponível em: https://doi.org/10.34019/1982-8047.2023.v49.42563. Acesso em: 16 mar. 2025.

7. COSTA, A. A. S. D. et al. Oral and oropharyngeal cancer: time from first symptoms to treatment initiation and associated factors. **Brazilian Oral Research**, v. 37, n. 1, p. e054, 2023. Disponível em: https://doi.org/10.1590/1807-3107bor-2023.vol37.0054. Acesso em: 3 fev. 2025.

8. CUNHA, A. R. D. et al. Hospitalizations for oral and oropharyngeal cancer in Brazil by the SUS: impacts of the COVID-19 pandemic. **Revista de Saúde Pública**, v. 57, suppl. 1, p. 1-12, 2023. Disponível em: https://doi.org/10.11606/s1518-8787.2023057004708. Acesso em: 3 fev. 2025.

9. DU, M. et al. Incidence trends of lip, oral cavity, and pharyngeal cancers: Global Burden of Disease 1990-2017. **Journal of Dental Research**, v. 99, n. 2, p. 143-151, 2020. Disponível em: https://doi.org/10.1177/0022034519894963. Acesso em: 16 mar. 2025.

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

10. FARHADI, K. et al. Trends in lip, oral cavity, and pharyngeal cancer mortality in the United States, 1999-2019. **Journal of Oral Pathology & Medicine**, v. 51, n. 9, p. 763-770, 2022. Disponível em: https://doi.org/10.1111/jop.13345. Acesso em: 3 fev. 2025.

11. GANGANE, N. M. et al. Oral cavity cancer incidence and survival trends: a population-based study. **Journal of Cancer Research and Therapeutics**, v. 20, n. 5, p. 1446–1452, 2024. Disponível em: https://doi.org/10.4103/jcrt.jcrt_2720_22. Acesso em: 16 mar. 2025.

12. GBD 2019 LIP, ORAL, AND PHARYNGEAL CANCER COLLABORATORS. The global, regional, and national burden of adult lip, oral, and pharyngeal cancer in 204 countries and territories: a systematic analysis for the Global Burden of Disease Study 2019. **JAMA Oncology**, v. 9, n. 10, p. 1401-1416, 2023. Disponível em: https://doi.org/10.1001/jamaoncol.2023.2960. Acesso em: 16 mar. 2025.

13. KOYAMA, S. et al. Alcohol consumption and 10-year mortality in oral and pharyngeal cancer. **Cancer Epidemiology**, v. 89, n. 1, p. e102540, 2024. Disponível em: https://doi.org/10.1016/j.canep.2024.102540. Acesso em: 16 mar. 2025.

14. LIMA, R. B. et al. Caries-related hospital morbidity in the Brazilian Unified Health System from 2008 to 2022. **Brazilian Oral Research**, v. 37, n. 1, p. e129, 2023. Disponível em: https://doi.org/10.1590/1807-3107bor-2023.vol37.0129. Acesso em: 4 mar. 2025.

15. LIMA, R. B. et al. Hospitalization of pediatric patients with oral and pharyngeal cancer in Brazil's National Health System from 2008 to 2023. **Revista Brasileira de Cancerologia**, v. 70, n. 4, p. e114857, 2024. Disponível em: https://doi.org/10.32635/2176-9745.RBC.2024v70n4.4857. Acesso em: 3 fev. 2025.

16. MALTA, D. C. et al. STROBE initiative: guidelines on reporting observational studies. **Revista de Saúde Pública**, v. 44, n. 3, p. 559-565, 2010. Disponível em: https://doi.org/10.1590/S0034-89102010000300021. Acesso em: 3 fev. 2025.

17. MIRANDA-FILHO, A. et al. The world cancer patient population (WCPP): An updated standard for international comparisons of population-based survival. **Cancer Epidemiology**, v. 69, n. 1, p. e101802, 2020. Disponível

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140

em: https://doi.org/10.1016/j.canep.2020.101802. Acesso em: 16 mar. 2025.

18. O'SULLIVAN, A.; KABIR, Z.; HARDING, M. Lip, oral cavity and pharyngeal cancer burden in the European Union from 1990–2019 using the 2019 Global Burden of Disease Study. **International Journal of Environmental Research and Public Health**, v. 19, n. 11, p. e6532, 2022. Disponível em: https://doi.org/10.3390/ijerph19116532. Acesso em: 16 mar. 2025.

19. PEREA, L. M. E. et al. Mortality from oral and oropharyngeal cancer: age-period-cohort effect, Brazil, 1983-2017. **Revista de Saúde Pública**, v. 55, n. 1, p. 72, 2021. Disponível em: https://doi.org/10.11606/s1518-8787.2021055003093. Acesso em: 3 fev. 2025.

20. PEREA, L. M. E. et al. Oral and oropharyngeal cancer mortality in Brazil, 1983-2017: age-period-cohort analysis. **Oral Diseases**, v. 28, n. 1, p. 97-107, 2022. Disponível em: https://doi.org/10.1111/odi.13732. Acesso em: 3 fev. 2025.

21. PEREA, L. M. E. et al. Potential years of life lost due to oropharyngeal cancer in Brazil: 1979 to 2013. **Revista de Saúde Pública**, v. 53, n. 1, p. e67, 2019. Disponível em: https://doi.org/10.11606/s1518-8787.2019053001054. Acesso em: 16 mar. 2025.

22. PEREA, L. M. E. et al. Trend of oral and pharyngeal cancer mortality in Brazil in the period of 2002 to 2013. **Revista de Saúde Pública**, v. 52, n. 1, p. e10, 2018. Disponível em: https://doi.org/10.11606/S1518-8787.2018052000251. Acesso em: 16 mar. 2025.

23. ZITRICKY, F. et al. Survival in oral and pharyngeal cancers is catching up with laryngeal cancer in the NORDIC countries through a half century. **Cancer Medicine**, v. 13, n. 1, p. e6867, 2024. Disponível em: https://doi.org/10.1002/cam4.6867. Acesso em: 16 mar. 2025.

Ano XXXIII - Número 70 – Volume 2 – mai/ago - 2026 - Niterói (RJ) – Brasil
Páginas de 82 até 96
Rua Mário Santos Braga, n. 30, Campus do Valonguinho, Centro Niterói – RJ CEP: 24020-140