

IMPACT OF BARIATRIC SURGERY ON THE ORAL HEALTH OF PATIENTS AT A HOSPITAL IN THE CITY OF MONTES CLAROS

IMPACTO DA CIRURGIA BARIÁTRICA NA SAÚDE BUCAL DE PACIENTES DE UM HOSPITAL NA CIDADE DE MONTES CLAROS

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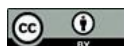
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Abstract

Objective: To evaluate the oral health conditions of individuals who underwent bariatric surgery at a private hospital in Montes Claros, Minas Gerais, Brazil, highlighting the importance of dental follow-up during the postoperative period. **Materials and Methods:** This was a cross-sectional, descriptive study with a mixed-methods approach (qualitative and quantitative). The sample consisted of 22 female patients at 4, 12, 15, and 18 months after surgery. Data

Resumo

Objetivo: Avaliar as condições de saúde bucal de indivíduos submetidos à cirurgia bariátrica em um hospital privado em Montes Claros, Minas Gerais, Brasil, destacando a importância do acompanhamento odontológico durante o período pós-operatório. **Materiais e Métodos:** Este foi um estudo transversal descritivo com abordagem de métodos mistos (qualitativos e quantitativos). A amostra consistiu em 22 pacientes do sexo feminino, 4, 12, 15 e 18 meses



collection involved the administration of a structured questionnaire and a clinical oral examination using a dental mirror and wooden spatula. Data were analyzed using SPSS software, version 29.0, through descriptive statistics. Results: A low occurrence of gingivitis and periodontitis was observed. In contrast, a high prevalence of xerostomia (77.3%) was found, and 68.2% of the patients reported that they had not received medical guidance regarding dental follow-up after surgery. Conclusion: Although bariatric surgery is effective in controlling obesity and associated comorbidities, it may lead to oral changes, especially xerostomia, reinforcing the need for regular dental follow-up. Multidisciplinary integration among dentists, physicians, and nutritionists is essential to ensure the maintenance of oral health and the quality of life of bariatric patients.

Keywords: Bariatric Surgery. Oral Health. Obesity. Dentistry.

após a cirurgia. A coleta de dados envolveu a aplicação de um questionário estruturado e um exame clínico bucal utilizando espelho dental e espátula de madeira. Os dados foram analisados utilizando o software SPSS, versão 29.0, por meio de estatística descritiva. Resultados: Observou-se baixa incidência de gengivite e periodontite. Em contrapartida, constatou-se alta prevalência de xerostomia (77,3%), e 68,2% das pacientes relataram não ter recebido orientação médica sobre o acompanhamento odontológico pós-cirúrgico. Conclusão: Embora a cirurgia bariátrica seja eficaz no controle da obesidade e das comorbidades associadas, ela pode levar a alterações bucais, especialmente xerostomia, reforçando a necessidade de acompanhamento odontológico regular. A integração multidisciplinar entre dentistas, médicos e nutricionistas é essencial para garantir a manutenção da saúde bucal e a qualidade de vida dos pacientes bariátricos.

Palavras-chave: Cirurgia Bariátrica. Saúde Bucal. Obesidade. Odontologia.

1 INTRODUCTION

Obesity is a chronic disease resulting from the combination of environmental, psychological, economic, metabolic, and genetic factors. It is characterized by an excessive accumulation of adipose tissue in the body and is associated with an increased risk of developing conditions such as type II diabetes, cardiovascular disease, and hypertension.¹⁻²

Obesity is associated with physical inactivity and excessive consumption of ultra-processed foods, sugars, and carbohydrates, which contribute to the development of metabolic syndromes. In addition, obesity is also related to an increased prevalence of oral alterations, particularly dental caries and periodontal diseases. Dental caries is linked to high sucrose intake, whereas periodontal diseases are commonly associated with poor oral hygiene and chronic inflammatory processes.³⁻⁵

Bariatric surgery, also known as gastroplasty, is a treatment option for obesity when conventional methods have not been effective. The procedure involves different

surgical techniques that reduce stomach size, thereby promoting weight loss and improving quality of life.⁶

In Brazil, the most commonly used bariatric procedures are sleeve gastrectomy and gastric bypass, the latter being the most frequently performed within the Brazilian Unified Health System (SUS).⁷ According to data from the Brazilian Society of Bariatric and Metabolic Surgery (SBCBM), 391,731 bariatric surgeries were performed between 2020 and 2024, of which 8% were carried out through SUS.⁸

With weight loss, patients undergoing bariatric surgery tend to experience significant improvement in associated comorbidities, such as hypertension, type II diabetes, and cardiovascular disorders. However, despite its benefits, surgery combined with lifestyle changes may also lead to nutritional deficiencies and health-related changes.⁹⁻¹⁰

Nutritional deficiencies are common after bariatric surgery due to reduced food intake and difficulty adapting to a new dietary routine. These deficiencies may result in inadequate levels of essential vitamins and minerals, such as calcium, iron, vitamin B12, and vitamin D. The lack of these micronutrients may cause significant metabolic consequences that negatively affect health and contribute to bone structure loss, which may directly influence tooth loss and changes in cortical bone, thereby compromising oral rehabilitation and implant dentistry.¹¹⁻¹²

Oral alterations resulting from bariatric surgery may be broad and multifactorial, including changes in the oral microbiota, increased incidence of dental caries and periodontal disease, reduced salivary flow (xerostomia), and changes in the hydrogen potential (pH) of the oral cavity, favoring dental erosion. These changes disrupt the balance of the oral environment, increase the risk of infection, and may result in tooth loss, consequently impairing stomatognathic system function and the patient's quality of life.¹³

Although bariatric surgery is effective in the treatment of severe obesity, it may lead to physiological and nutritional alterations that directly impact oral health. Such changes may favor the development of xerostomia, dental erosion, caries, and periodontal disease. Therefore, this study is justified by the need to better understand these effects and to reinforce the importance of preventive and multidisciplinary dental follow-up in promoting health and quality of life among bariatric patients.

This study aimed to evaluate the oral health conditions of individuals who underwent bariatric surgery at a private hospital in Montes Claros, Minas Gerais, Brazil, with the purpose of raising awareness of the importance of appropriate dental follow-up during the pre- and postoperative periods. Additionally, it seeks to contribute to the preservation of oral health, the promotion of quality of life, and the well-being of bariatric individuals, reinforcing the need for an integrated multidisciplinary approach.

2 MATERIALS AND METHODS

This study had a cross-sectional, descriptive design with a mixed-methods approach (qualitative and quantitative). Data were collected from patients who had undergone bariatric surgery at a private hospital in Montes Claros, Minas Gerais, Brazil.

Seventy individuals who had undergone bariatric surgery were invited to participate. Of these, 22 voluntarily agreed to take part in the study and comprised the final sample. Participants were at 4, 12, 15, and 18 months postoperatively.

Data collection involved the administration of a questionnaire containing objective questions and a clinical evaluation of the oral cavity, performed using a dental mirror and wooden spatula in an appropriate environment under direct artificial lighting.

The collected data were organized and tabulated using Statistical Package for the Social Sciences (SPSS), version 29.0 for Windows. Descriptive analyses were performed, and results were presented as absolute and relative frequencies.

3 ETHICAL CONSIDERATIONS

This study was approved by the Research Ethics Committee under Opinion No. 7,788,224.

4 RESULTS

A total of 22 female participants were included in the study. The results are presented in the tables below.

Table 1*Characterization of the sample group (n = 22).*

Variable	Categories	n (%)
Age group	1-19 years	0 (0.0)
	20-39 years	6 (27.3)
	40-59 years	16 (72.7)
	60 years or older	0 (0.0)
Family income	Less than one minimum wage	4 (18.2)
	One minimum wage	11 (50.0)
	Two minimum wages	7 (31.8)
	More than three minimum wages	0 (0.0)
Education level	Elementary school	4 (18.2)
	Incomplete high school	2 (9.1)
	Complete high school	10 (45.5)
	Incomplete higher education	1 (4.5)
	Complete higher education	5 (22.7)
Months since surgery	4 months	3 (13.6)
	12 months	7 (31.8)
	15 months	5 (22.7)
	18 months	7 (31.8)

Source: Prepared by the authors (2025).

According to Table 1, most participants were between 40 and 59 years of age, had a family income of one minimum wage, had completed high school, and had undergone surgery between 12 and 18 months prior to data collection.

Table 2*Findings after application of the research instrument, presented as absolute and relative frequencies (n = 22).*

Question	Categories	n (%)
Underwent dental treatment after surgery	Yes	6 (27.3)
	No	16 (72.7)
Presence of active caries	Yes	13 (59.1)
	No	9 (40.9)
Presence of gingivitis	Yes	3 (13.6)
	No	19 (86.4)
Presence of periodontitis	Yes	2 (9.1)
	No	20 (90.9)
Presence of erosion	Yes, enamel only	1 (4.5)
	Yes, enamel and dentin	4 (18.0)
	Yes, enamel, dentin, and pulp	0 (0.0)
	No	17 (77.3)
Reflux after surgery	Yes, but it stopped	7 (31.8)
	Yes, still present	4 (18.2)
	No	11 (50.0)

Xerostomia	Yes, but it stopped	6 (27.3)
	Yes, still present	11 (50.0)
	No	5 (22.7)
Gingival bleeding	Yes, but it stopped	0 (0.0)
	Yes, still present	3 (13.6)
	No	19 (86.4)
Tooth mobility	Yes	2 (9.1)
	No	20 (90.4)
Tooth sensitivity	Yes	12 (54.5)
	No	10 (45.5)
Tooth loss after surgery	Yes	1 (4.5)
	No	21 (95.5)
Received medical advice to seek dental care after surgery?	Yes	7 (31.8)
	No	15 (68.2)

Source: Prepared by the authors (2025).

As shown in Table 2, most participants did not undergo dental treatment after surgery.

Positive findings included low rates of gingivitis, periodontitis, erosion, reflux, gingival bleeding, tooth mobility, and tooth loss during the period assessed after surgery for most participants.

In contrast, a higher prevalence of xerostomia was observed among participants, a condition often associated with metabolic and nutritional changes resulting from bariatric surgery. In addition, a large proportion of patients reported not having received medical advice regarding the need for dental follow-up after surgery, highlighting a gap in the multidisciplinary management of these individuals.

5 DISCUSSION

Previous studies have shown that approximately 80% of individuals presented reflux, 60% exhibited xerostomia, and 20% showed no changes. Similarly, in the present study, xerostomia was initially observed in 72.3% of participants after bariatric surgery, and 50% of the individuals continued to experience this condition. Xerostomia, characterized by reduced salivary flow, may be aggravated both by decreased salivary secretion and by lower water intake during the postoperative period, contributing to oral discomfort and increased susceptibility to oral alterations.¹⁴

Saliva plays a fundamental role in maintaining oral health by contributing to lubrication, food bolus formation, swallowing, and the initial stages of digestion through the action of the enzyme alpha-amylase. Saliva is also essential for maintaining the balance of the oral microbiota and protecting oral tissues. It has an important buffering function and helps maintain pH balance, as it has a neutral pH that prevents tooth demineralization (dental erosion), dental caries, periodontal disease, and halitosis. It also exerts antimicrobial activity because it contains substances such as lysozyme, peroxidase, lactoferrin, and immunoglobulins, which combat microorganisms and maintain oral microbial balance.¹⁵

In this study, 59.1% of participants presented active caries, 22.5% showed dental erosion, 13.6% had gingivitis, and 9.1% had periodontitis. These conditions are frequently observed in patients undergoing bariatric surgery and may significantly affect oral health. Furthermore, xerostomia may worsen these alterations, since reduced salivary flow compromises oral self-cleaning and favors imbalance in the oral environment.^{14,16}

Another relevant finding was that most participants (68.2%) reported not having received medical guidance regarding the need for dental follow-up after surgery. Similarly, in a study conducted by Reis, 66.7% of participants also stated that they had not received such guidance.¹⁷ This finding highlights a failure in the integration between medical and dental teams, reinforcing the importance of the dentist's role both before and after surgery, through preventive actions and continuous monitoring, in order to minimize potential complications and maintain oral health.¹⁸

Therefore, although the present study demonstrated favorable clinical findings in several aspects, the need for greater awareness of the importance of oral health in the context of bariatric surgery should be emphasized. Follow-up protocols should include regular dental evaluations, guidance on oral hygiene, and xerostomia management strategies, such as adequate hydration, use of artificial saliva, and masticatory stimulation.¹⁴⁻¹⁸

Although bariatric surgery is effective in treating obesity and improving systemic comorbidities, it may negatively affect oral health when appropriate multidisciplinary follow-up is lacking. Thus, including dentists in the healthcare team is essential to promote integrated care and preserve both oral and systemic health in these patients.^{16,17}

6 CONCLUSION

The results of this study show that, although bariatric surgery provides significant metabolic and systemic benefits, the physiological and nutritional changes resulting from the procedure may negatively affect oral health, particularly through the occurrence of xerostomia and the increased predisposition to dental caries and erosion.

It was also found that a considerable proportion of participants did not receive medical guidance regarding the importance of postoperative dental follow-up, which may compromise early diagnosis and prevention of oral complications, reinforcing the need for a multidisciplinary and interdisciplinary approach.

Therefore, periodic dental follow-up should be considered an integral part of the care protocol for patients undergoing bariatric surgery, with emphasis on educational, preventive, and restorative measures aimed at maintaining oral health and improving the quality of life of these individuals.

AUTHORS' CONTRIBUTIONS

Study conception and design: Fillipe Mendes Silva, Lucas Thadeu Nunes, and Rui Fernando Campos.

Data collection: Lucas Thadeu Nunes and Rui Fernando Campos.

Data analysis, interpretation, and manuscript drafting: Fillipe Mendes Silva, Lucas Thadeu Nunes, and Rui Fernando Campos.

Critical revision of the manuscript for intellectual content and final approval: Fillipe Mendes Silva, Lucas Thadeu Nunes, and Rui Fernando Campos.

All authors approved the final version of the manuscript and declared responsibility for all aspects of the work, including ensuring its accuracy and integrity.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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