THE POPULARIZATION OF WEIGHT-LOSS PENS AND THEIR IMPACTS ON PUBLIC HEALTH: THERAPEUTIC BENEFITS, EMERGING RISKS, AND REGULATORY CHALLENGES IN CONTEMPORARY BRAZIL

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Abstract

The popularization of so-called “weight-loss pens,” based primarily on GLP-1 receptor agonists such as semaglutide and liraglutide, has transformed obesity treatment in contemporary Brazil, while also raising important public health issues. This study aims to analyze the therapeutic benefits, emerging risks, and regulatory challenges associated with the growing use of these medications. It consists of a narrative review of the scientific literature and official documents from regulatory and health agencies, with a critical analysis of the available evidence. The results indicate that these drugs show significant efficacy in weight reduction and glycemic control, contributing to the management of obesity and type 2 diabetes. However, an increase in indiscriminate use, self-medication, and easier access for uses outside clinical indications has been observed, which may lead to gastrointestinal adverse effects, risk of pancreatitis, and potential long-term impacts that have not yet been fully clarified. It is concluded that, despite their relevant therapeutic benefits, the popularization of these medications requires the strengthening of health regulation, monitoring of use, and health education strategies to ensure safety and rational use.

Keywords: GLP-1 receptor agonists, Health regulation, Obesity, Public health, Semaglutide.

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INTRODUCTION

Obesity is recognized as a multifactorial chronic disease and one of the main contemporary public health challenges, associated with an increased risk of type 2 diabetes, cardiovascular diseases, and premature mortality. In recent decades, advances in metabolic pharmacotherapy have expanded treatment options, especially with the development of glucagon-like peptide-1 (GLP-1) analogs, such as semaglutide and liraglutide. In the current context, the growing popularization of so-called “weight-loss pens” has been observed, a phenomenon that extends beyond the clinical environment and reaches the social and aesthetic use of these medications.

In this scenario, the research problem of this study may be formulated as follows: in what ways does the popularization of weight-loss pens affect public health in Brazil, considering their therapeutic benefits, emerging risks, and regulatory challenges?

The general objective is to analyze the impacts of the popularization of GLP-1 receptor agonists on Brazilian public health. The specific objectives are: (a) to describe the therapeutic benefits of these medications in the treatment of obesity and type 2 diabetes; (b) to identify risks associated with indiscriminate and unsupervised use; and (c) to discuss the regulatory and health-related challenges associated with access to and commercialization of these drugs in contemporary Brazil.

The justification for this study is based on the epidemiological relevance of obesity and the significant increase in demand for injectable weight-loss medications, often outside formal clinical indications. This phenomenon raises concerns regarding safety, self-medication, and unequal access, requiring critical analysis from the perspective of public health and health regulation.

From a theoretical standpoint, studies indicate that GLP-1 receptor agonists represent a milestone in the treatment of obesity, due to their efficacy in reducing body weight and improving metabolic outcomes. Wilding et al. (2021) demonstrated, in a randomized clinical trial published in the New England Journal of Medicine, that semaglutide promotes significant body weight reduction in adults with

obesity. In addition, Davies et al. (2015) showed the efficacy of liraglutide in glycemic control and weight loss in patients with type 2 diabetes.

However, authors such as Rubino et al. (2022) warn that, despite the clinical benefits, the expanded use of these medications without appropriate medical supervision may increase the risk of adverse effects and encourage inappropriate use, especially in contexts involving the aesthetic medicalization of obesity. In addition, the World Health Organization emphasizes that the irrational use of medicines constitutes an important global public health problem, contributing to health risks and inequalities in access (World Health Organization, 2023).

In Brazil, the National Health Surveillance Agency (ANVISA, 2024) reinforces the need for controlled prescription and professional monitoring, highlighting the importance of safety in the use of these medications and the strengthening of health regulation.

Thus, the growing dissemination of weight-loss pens reveals a tension between therapeutic innovation, improper social use, and regulatory challenges, becoming a relevant topic for scientific analysis and for strengthening public health policies in the country.

METHODOLOGY

TYPE OF RESEARCH

This study is characterized as qualitative research, specifically a narrative literature review, with a descriptive and analytical approach. A narrative review allows for the critical synthesis of previously published scientific knowledge, enabling a broader understanding of complex phenomena related to public health, such as the growing use of GLP-1 receptor agonists and their social and health impacts (Gil, 2019).

SEARCH STRATEGY AND STUDY SELECTION

The selection of bibliographic material was conducted through consultation of recognized scientific databases, such as PubMed, SciELO, and Google Scholar, as well as official documents from regulatory agencies and health institutions. Descriptors such as “obesity,” “GLP-1,” “semaglutide,” “liraglutide,” “weight-loss pens,” and “public health” were used.

Scientific articles published in the last ten years were included, preferably randomized clinical trials, systematic reviews, and institutional documents. Duplicate materials, studies without peer review, and publications without direct relevance to the topic were excluded.

DATA ANALYSIS TECHNIQUES

The data were analyzed using the technique of content analysis, as proposed by Bardin (2016), allowing the findings to be categorized into three main axes: (a) therapeutic benefits of GLP-1 receptor agonists; (b) risks associated with indiscriminate use; and (c) regulatory challenges and implications for public health.

This technique enables the critical interpretation of results, going beyond the description of studies and favoring an understanding of the relationships between the use of these medications and their social and health impacts.

METHODOLOGICAL DISCUSSION AND FOUNDATION

The choice of a narrative review is justified by the topicality and complexity of the subject, especially given the rapid dissemination of so-called “weight-loss pens” and the scarcity of consolidated studies on their long-term impacts on public health. According to Gil (2019), this type of review is appropriate when the aim is to integrate different theoretical and empirical perspectives on an emerging phenomenon.

In addition, the content analysis proposed by Bardin (2016) makes it possible to identify patterns and trends in the reviewed studies, contributing to a deeper interpretation of the risks and benefits associated with the use of these medications. Such an approach is particularly relevant in public health topics, in which clinical, social, and regulatory aspects are complexly interrelated.

Thus, the adopted methodology ensures a critical and well-founded analysis of the literature, contributing to the understanding of the impacts of the popularization of GLP-1 receptor agonists in the contemporary Brazilian context.

RESULTS AND DISCUSSION

The findings of the analyzed literature indicate that the popularization of weight-loss pens, especially those based on GLP-1 receptor agonists such as semaglutide and liraglutide, has promoted important changes in obesity treatment, while also intensifying clinical and public health challenges. Evidence indicates that these medications present consistent efficacy in reducing body weight and improving metabolic control, especially in individuals with obesity associated with type 2 diabetes (Wilding et al., 2021; Davies et al., 2015). However, there is also a growing use outside clinical indications, driven by aesthetic goals and by the widespread promotion of these drugs in contemporary society.

Clinical studies demonstrate that semaglutide promotes significant body weight reduction in patients with obesity, with results superior to placebo in a large-scale randomized trial (Wilding et al., 2021). In addition, liraglutide also proves effective in improving glycemic control and reducing weight in patients with type 2 diabetes, reinforcing its role as a relevant therapeutic tool (Davies et al., 2015).

Table 1

Clinical efficacy of GLP-1 receptor agonists in selected studies

Study	Medication	Population	Main results
Wilding et al. (2021)	Semaglutide	Adults with obesity	Significant reduction in body weight and metabolic improvement
Davies et al. (2015)	Liraglutide	Patients with type 2 diabetes	Improved glycemic control and weight reduction

Source: Author's own work (2026).

These results consolidate GLP-1 receptor agonists as one of the most important recent innovations in the pharmacological treatment of obesity, especially in cases of high metabolic risk.

On the other hand, the literature also highlights risks associated with the indiscriminate use of these medications. Rubino et al. (2022) emphasize that, although effective, these drugs may cause adverse effects such as nausea, vomiting, constipation, and, in rarer cases, pancreatitis. In addition, there is growing concern regarding use without medical supervision, especially when motivated by aesthetic purposes, which increases the likelihood of inappropriate use and early discontinuation of treatment.

Table 2

Main risks associated with the use of GLP-1 receptor agonists

Risk	Description	Potential impact
Use without prescription	Self-medication and aesthetic use	Increase in adverse events
Gastrointestinal effects	Nausea, vomiting, constipation	Discontinuation of treatment
Pancreatitis (rare)	Pancreatic inflammation	Severe complications
Lack of long-term data	Recent and expanding use	Uncertainty regarding prolonged safety

Source: Author's own work (2026).

In the context of public health, the World Health Organization warns that the irrational use of medicines constitutes a relevant global problem, contributing to health risks and inequalities in access to essential therapies (World Health Organization, 2023). In Brazil, the National Health Surveillance Agency reinforces that these medications should be used exclusively under prescription and professional monitoring, due to their safety profile and the need for continuous monitoring (ANVISA, 2024).

However, it is observed that the growing popularization of weight-loss pens has exceeded the boundaries of clinical practice, revealing weaknesses in regulation and in the control of use.

Table 3

Public health impacts and regulatory challenges

Dimension	Identified problem	Consequence
Health regulation	Limited oversight	Irregular use and lack of control
Health education	Low level of public information	Self-medication and misuse
Access	High cost of medications	Inequality in treatment
Social use	Aesthetic medicalization	Deviation from clinical indication

Source: Author's own work (2026).

Thus, the results demonstrate a tension between significant therapeutic benefits and emerging risks associated with the dissemination of these medications. While they represent an important advance in obesity treatment, they also raise concerns regarding the medicalization of body aesthetics, indiscriminate use, and regulatory challenges. Therefore, it is essential to strengthen health education policies, health surveillance, and the rational use of medicines, in order to ensure that the benefits of these drugs are achieved safely and equitably among the population.

CONCLUSION

This study aimed to analyze the impacts of the popularization of weight-loss pens based on GLP-1 receptor agonists in the context of Brazilian public health, considering their therapeutic benefits, emerging risks, and regulatory challenges. Overall, the results show that these medications represent an important advance in the treatment of obesity and type 2 diabetes, especially due to their efficacy in reducing body weight and improving metabolic parameters.

However, it was also identified that the growing popularization of these medications outside the clinical setting has increased significant risks, such as self-medication, aesthetic use without medical

indication, and the occurrence of adverse effects, in addition to uncertainties regarding long-term effects. These factors demonstrate that, despite the therapeutic benefits, inappropriate use may compromise individual safety and generate significant impacts on public health.

Thus, it is concluded that there is a tension between pharmacological innovation and regulatory challenges, which requires the strengthening of health surveillance and the implementation of policies aimed at the rational use of medicines. The actions of regulatory agencies and health professionals are essential to ensure the safe, ethical, and appropriate use of these therapies, reducing risks and promoting greater equity in access.

As a contribution, this study organizes and synthesizes current evidence on the topic, offering an integrated view of the benefits and risks associated with weight-loss pens and their implications for public health in contemporary Brazil. This overview may contribute to understanding the phenomenon and support evidence-based decision-making.

Finally, it is suggested that future research further investigate the long-term effects of these medications, as well as their social, economic, and behavioral repercussions, especially in view of the expansion of use outside formal clinical indications.

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