

Editorial

Therapeutic Boon or Hidden Bane? Semaglutide for Weight Loss in Non- diabetics

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Submitted: August 19, 2026

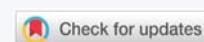
Accepted: August 25, 2026

Published: August 27, 2026

Citation: Sangtiani AK, Qamar I, Shamim H, Siddiqui F.
Therapeutic Boon or Hidden Bane? Semaglutide for
Weight Loss in Non-diabetics. J Community Med Health
Solut. 2026; 7(2): 93-95. Available from:
<https://dx.doi.org/10.29328/journal.jcmhs.1001080>

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Keywords: Glucagon Like Peptide 1 Receptor Agonists;
Weight loss; Diabetes mellitus



Abstract

Semaglutide, a long-acting GLP-1 receptor agonist indicated for type 2 diabetes, has recently been approved by the US FDA for chronic weight management in non-diabetic obese patients. It works on GLP-1 receptors in the gut, pancreas, and hypothalamus to stimulate insulin release, decelerate stomach emptying, and augment satiety.

Results from the clinical trials demonstrate that semaglutide provides a marked weight loss for obesity, approximately 10% of body weight (≈ 10 kg), with an average BMI drop of ~ 3.7 kg/m² and an 8.3cm decrease in waist circumference compared to the placebo. It also improves BP, lipids, and other cardio-metabolic parameters. Of note, Wegovy (semaglutide) is already cleared to lower the risk of major adverse cardiovascular events for overweight and obese patients with heart disease. The most frequent side effects are stomach-related (such as nausea, vomiting, diarrhea); less common, but serious side effects include acute pancreatitis, gallbladder disease, and thyroid C-cell tumors. It is expensive, about \$1200–\$1300 per month, restricting patient access. Semaglutide is beneficial in obesity therapy (a 'boon'), resulting in significant weight loss and metabolic benefits. But its "bane" is tolerability, psychological burden, and costs. To achieve optimal benefit and minimize potential harm, semaglutide should be prescribed as part of an overall strategy for obesity care (with diet, exercise, and behavioral support); this will require careful patient selection and monitoring. Studies of its long-term safety, cost-effectiveness, and psychosocial effects should be a focus of future research and policy to establish that the benefits of semaglutide outweigh its detrimental consequences.

Dear editor,

Semaglutide, a glucagon-like peptide-1 receptor agonist, has been sparking widespread attention. Approved in both subcutaneous and oral dosage forms, it has been expanding options for individual use. GLP-1 receptors are located in the GIT tract. When stimulated by Semaglutide, they lower the postprandial blood glucose level by enhancing insulin secretion and increasing the proliferation of Beta pancreatic cells in order to decrease appetite. It is also known to delay gastric emptying and lower glucagon release to improve glycemic control. Semaglutide also stimulates the GLP-1 receptor of the hypothalamus to promote satiation and appetite suppression.

It is known as a long-acting GLP-1 receptor antagonist which promotes albumin binding to prolong renal clearance and also protects it from degradation by dipeptidyl peptidase-4 (DPP-4) enzyme. The primary use of Semaglutide is to improve glycemic control in T2DM patients, especially when lifestyle modifications and other treatment options are insufficient [1].

Semaglutide was approved by the Food and Drug Administration (FDA) in 2017 for diabetes and in 2021 for weight loss in non-diabetic patients [2]. It has been marketed under three different brand names: Ozempic, which is injectable, was initially approved by the FDA in 2017 for T2DM patients to improve glycemic control. Next, Rybelsus, an oral



substitute for Ozempic, was approved by the FDA in 2019 and is used to treat T2DM patients to improve glycemic control. Most recently, on March 8, 2024, the FDA approved Wegovy, also an injectable, for the treatment of cardiovascular disease risk in people with obesity or overweight. With the sudden rise in its demand and visibility, Semaglutide is considered a game-changer for obesity treatment in the non-diabetic population. Yet as it is becoming increasingly popular in the non-diabetic obese population for weight reduction, significant questions are being raised about the consequences of its long-term usage, ethical considerations, and the high risk of abuse. This has ignited a controversy about Semaglutide being a boon or a bane in Non diabetic obese or overweight patients. Through this review, we aim to assess its efficacy, its mechanisms of action, likely side effects, and health problems. This review will offer a balanced consideration of whether Semaglutide offers a sustained treatment for obesity, or is it just a short-term fix for long-term consequences.

Semaglutide is emerging as a turning point in the field of medicine due to its numerous benefits, but the one that should be highlighted above all is its efficiency in weight loss among non diabetic people. Semaglutide is known for reducing the risk of stroke and cardiovascular diseases [3]. A randomized controlled trial showed that when compared with the test substance, semaglutide gave noteworthy results of weight loss of about 10.09 kg, a huge reduction of body mass index of about 3.71 units, and a decrease in waist circumference of 8.28cm. In a greater number of participants, more than 5% to 20% weight loss was achieved [4].

Although many people take advantage of Semaglutide, some controversies regarding it need to be underlined, like its cost, which can reach up to 1300\$ per month, which limits its access and has potential side effects [5,6]. Click or tap here to enter text.. Another important issue is that using this medication for the sole purpose of weight loss can lead to weight stigma and insecurities, which can lead to mental health problems and eating disorders like anorexia nervosa and bulimia nervosa. People with eating disorders, especially anorexia nervosa, can misuse Semaglutide for weight loss, which can be very risky, as it may increase the probability of undernutrition [7]. Shedding light on the side effects of Semaglutide, the most common side effects of Semaglutide are nausea, vomiting, diarrhea, constipation, and stomach pain. Although less common, there are also serious concerns like allergic reactions, such as fever, breathing problems, swollen lymph nodes, etc, and pancreatitis, hypoglycemia, medullary thyroid carcinoma, diabetic retinopathy, kidney problems, and gall bladder problems like cholecystitis. Semaglutide should only be used on prescription, and health conditions must be discussed with the doctor, in case of appearance of any symptoms mentioned above or taking any supplements or medicines, as Semaglutide may interact with other medicines and supplements, breastfeeding, or pregnancy, or planning to become pregnant, so they can determine if Semaglutide is right for you [8].

Even though people have shown concern regarding the side effects of Semaglutide, it is still being used worldwide by obese people as it has proven to be highly efficient for weight loss in both diabetic and non diabetic people. Semaglutide has also shown benefits other than weight loss, for example, improved cardiovascular health and prevention of stroke. Also, side effects are mild most of the time and are manageable if treated with proper care and precaution, making Semaglutide a breakthrough in the field of medicine for weight loss in non diabetic people.

Semaglutide has revolutionized the approach to obesity, with sustained and significant weight loss and normalization of metabolic co-morbidities, including non-diabetic patients. Its combinatory effect of improving glycemic control and reducing appetite supports this agent as a potential strong gateway therapy for obesity. But this pledge is subject to important caveats. The high prices of the drug, often up to \$1,300 a month, are a barrier to equitable access, and its long-term cost is also uncertain. The most frequently reported side effects are mild (gastrointestinal side effects), but rare serious adverse effects (pancreatitis, diabetic retinopathy, thyroid and biliary disease) have to be carefully monitored. There are also potential concerns about misuse and psychological effects (e.g., disordered eating or weight stigma); thus, the importance of appropriate patient selection and patient education. For maximizing benefit while minimizing harm, Semaglutide should be a component of a comprehensive strategy to treat obesity. This may incorporate linking to nutritional counseling, exercise programs, and behavioral support to maintain changes in lifestyle. Other health policy interventions, like insurance coverage, price negotiation, or subsidy programs, will be necessary to increase affordability and access. Long-term durability of weight loss, cardiovascular outcomes and psychosocial effects should be the focus of future research. Through responsible use under strict guidelines, shared cross-disciplinary support and further investigation, Semaglutide may develop from a quick fix to the treatment for chronic obesity.

Author contribution

All authors contributed to the conception, drafting, and critical revision of the Letter to the Editor. All authors approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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