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(REVIEW ARTICLE)

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# A retrospective chart review of medication deprescribing trends following GLP-1 agonist initiation at the wright center

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## Abstract

**Background**: The prevalence of type 2 diabetes mellitus (T2DM) and obesity in the United States represents a growing public health crisis, disproportionately affecting underserved populations who rely on Federally Qualified Health Centers (FQHCs). Semaglutide, a GLP-1 receptor agonist, has shown efficacy in improving glycemic control and promoting weight loss, potentially reducing the need for multiple medications used to manage comorbidities.

**Objective**: To evaluate whether semaglutide treatment is associated with a measurable reduction in the number of medications required to manage comorbid conditions related to T2DM and obesity.

**Methods**: A retrospective chart review was conducted on 100 randomly selected adult patients with T2DM and obesity (BMI>27) who had been prescribed a semaglutide for at least twelve months. Charts were reviewed using standardized protocols and strict eligibility criteria. A voluntary phone survey was also conducted to assess patients' knowledge of their medications and attitudes toward their effects.

**Results**: Of the 100 charts reviewed, 33 patients met the inclusion criteria of having at least 12 months continuous semaglutide use. Statistically significant improvements were observed in BMI ($p < 0.001$), systolic ($p = 0.001$) and diastolic ($p = 0.002$) blood pressure. Nearly half of patients (48.5%) were deprescribed at least one medication, though this change was not statistically significant ($p = 0.613$).

**Conclusion**: A positive association was identified between prolonged semaglutide use and reduced reliance on polypharmacy, along with improvements in BMI and blood pressure. These findings highlight the need for future studies with larger sample sizes and extended follow-up periods to better understand the long-term impact of GLP-1 agonist-driven deprescribing.

**Keywords:** Semaglutide; Polypharmacy; Deprescribing; Type 2 Diabetes Mellitus; GLP-1 Receptor Agonists; Obesity

## 1. Introduction

The prevalence of type 2 diabetes mellitus (T2DM) and obesity in the United States has become a public health crisis, contributing to rising healthcare costs and increased morbidity [1]. T2DM is a lifelong condition characterized by a progressive decline in insulin secretion and is closely linked to obesity and elevated BMI [2]. Often debilitating with associated cardiovascular disease and kidney failure, addressing this growing epidemic is a daily challenge for clinicians. This crisis is projected to intensify, with a Markov model-based study predicting the number of individuals

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diagnosed with T2DM in the U.S. will triple by 2060 [1].

Effective management of this chronic disease often requires a multi-targeted approach, particularly in underserved populations. These challenges are especially pronounced in communities served by Federally Qualified Health Centers (FQHCs) and FQHC look-alikes, which care for patients facing economic and access-related barriers [3]. FQHC look-alikes are healthcare centers that operate similarly to FQHCs, but without federal designation and eligibility for Section 330 grant support [3].

Glucagon-like peptides (GLP-1) receptor agonists have emerged as highly effective treatments for T2DM and obesity [4]. These agents stimulate glucose-dependent insulin secretion, reduce appetite, slow gastric emptying, and carry a low risk of hypoglycemia [4]. They also offer cardiovascular and renal benefits [4].

Semaglutide, a widely used GLP-1 agonist, has demonstrated significant weight-loss effects and improved glycemic control in individuals with T2DM [5]. By addressing both weight and blood sugar, semaglutide has the potential to reduce the need for additional medications. This process, known as deprescribing, may be particularly beneficial for patients with comorbidities like hypertension and cardiovascular disease.

Given semaglutide's potential to improve quality of life, particularly for populations with limited access to care, assessing its real-world impact is critical. This study applies participatory action research principles to evaluate the clinical outcomes and medication-related changes associated with semaglutide use among adults with T2DM. These individuals receive care at a FQHC in Northeastern Pennsylvania, a region facing a high burden of chronic disease and socioeconomic disadvantage. By examining these outcomes, the study aims to identify opportunities to enhance patient care.

## 2. Methods

A retrospective chart review was conducted on 100 randomly selected adult patients who have been prescribed semaglutide for at least twelve months. Charts were obtained from The Wright Center for Community Health in Scranton, PA, a FQHC look-alike. The charts were sourced through the site's electronic medical record system, MEDENT. All charts were reviewed according to strict eligibility criteria to ensure consistency and relevance to the study objectives. Inclusion criteria included individuals over the age of 18 diagnosed with T2DM and obesity (BMI >27) with comorbid conditions such as hypertension, dyslipidemia, and cardiovascular disease. Exclusion criteria included individuals with no prior T2DM medication history or had stopped semaglutide treatment within twelve months of initiation.

All patient data were de-identified and securely stored. Institutional approval was obtained, and all activities were conducted in compliance with HIPAA regulations to protect patient confidentiality. Patient charts were assigned to researchers, where each followed a standardized protocol to review and document data metrics. This protocol included abstraction of baseline and 12-month values for BMI, blood pressure, HbA1c, and medication lists. Data were extracted from progress notes, medication reconciliation sections, and lab reports to ensure accuracy.

Additionally, a voluntary phone survey component was incorporated, utilizing a standardized script to evaluate patients' knowledge of their prescribed medications and their attitudes toward the medications' effects. The standardized script primarily included Likert-scale questions assessing perceived changes in appetite and energy levels. It also evaluated patients' perceived control over their health, confidence in managing diabetes, overall quality of life, and satisfaction with support from their healthcare team. At the end of the survey, an open-ended question invited participants to share any additional information they felt was relevant to their care management and medication experience. Surveys were administered by research staff during a single phone call lasting approximately 10 minutes.

## 3. Results

Of the 100 randomly selected charts, 67 patients were excluded from the study analysis due to not meeting the 12-month minimum continued semaglutide use criteria. Notably, while the study initially aimed to evaluate multiple semaglutide medications, all 33 eligible patients were prescribed Ozempic specifically. Among the 33 eligible patients who had been on semaglutide for at least 12 months, positive outcomes across key clinical metrics were found. A two-sample t-test revealed statistically significant improvements in BMI ($p < 0.001$), systolic blood pressure ($p = 0.001$), and diastolic blood pressure ($p = 0.002$) after at least 12 months on a semaglutide. After at least 12 months on semaglutide treatment, there were no statistically significant changes in HbA1c levels ($p = 0.095$).

**Table 1** Impact of 1-Year Ozempic Use on Clinical and Metabolic Parameters Using Two-Sample T-Test.

| | N | Before starting Ozempic | | After 1 year on Ozempic | | Difference | | P Value |
|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | Mean | SD | |
| # of medications | 33 | 4.2 | 2.2 | 4.1 | 2.4 | 0.1 | 1.4 | 0.613 |
| BMI | 33 | 42.29 | 9.65 | 39.64 | 8.50 | 2.66 | 2.97 | **<0.001*** |
| Hb1Ac | 33 | 7.58 | 1.58 | 6.99 | 2.02 | 0.58 | 1.95 | 0.095 |
| BP Systolic | 33 | 136.5 | 19.8 | 124.3 | 11.3 | 12.3 | 19.5 | **0.001*** |
| BP Diastolic | 33 | 83.6 | 11.6 | 76.2 | 9.3 | 7.3 | 12.6 | **0.002*** |

Note: Asterisks mark values that are statistically significant (p value <0.005).

**Table 2** Medication Adjustments After 1 Year on Ozempic

| Medication Trends | Frequency | Percent |
|---|---|---|
| Deprescribed 3 medications | 1 | 3.0 % |
| Deprescribed 2 medications | 2 | 6.1 % |
| Deprescribed 1 medication | 13 | 39.4 % |
| No Change | 7 | 21.2 % |
| Prescribed 1 additional medication | 5 | 15.2 % |
| Prescribed 2 additional medications | 4 | 12.1 % |
| Prescribed 3 additional medications | 1 | 3.0 % |

**Table 3** Patient-Reported Outcomes After 1 Year on Ozempic: Perceptions of Health, Confidence, and Support Using a One-Sample T-Test.

| Survey Statements | N | Mean | SD | P Value |
|---|---|---|---|---|
| 2. I feel more in control of my health since starting the semaglutide treatment. | 15 | 4.13 | 1.125 | 0.002* |
| 3. Overall, I feel that my quality of life has improved since starting the semaglutide treatment. | 15 | 3.73 | 1.438 | 0.068 |
| 4. I have more energy and feel more active since starting this medication. | 15 | 3.40 | 1.404 | 0.288 |
| 5. I feel more confident managing my diabetes after starting this medication. | 15 | 4.27 | 1.163 | 0.001* |
| 6. I have noticed a reduction in my appetite or unhealthy eating habits while on this medication. | 15 | 4.07 | 1.163 | 0.003* |
| 7. I am happy with the amount of weight I have lost since I have started the semaglutide. | 15 | 3.47 | 1.642 | 0.290 |
| 8. I am satisfied with the support I've received from my healthcare team regarding my GLP-1 agonist treatment. | 15 | 4.20 | 1.320 | 0.003* |

Note: Mean and SD are calculated based on 1 = Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree. P values are based on a one-sample t-test with null hypothesis: overall mean equals 3 (Neutral) vs alternative hypothesis: overall mean does not equals 3 (Neutral). Questions 2, 5, 6, 8 have a mean response that is significantly different from neutral. Asterisks mark values that are statistically significant (p value <0.005).

Although 48.5% of patients were de-prescribed from at least one medication, this change in medication count was not statistically significant (p = 0.613). Additionally, 21.2% saw no change in their regimen, and 30.3% required an increase in their medications.

Fifteen of the eligible 33 patients responded to the voluntary phone survey. A one-sample t-test showed significant improvements in several subjective areas: increased control over bodily health (p = 0.002), greater confidence in managing diabetes (p = 0.001), reduced appetite and unhealthy eating habits (p = 0.003), and satisfaction with the support from the healthcare team (p = 0.003) since starting semaglutide treatment.

## 4. Discussion

This retrospective chart review suggests that semaglutide may play a meaningful role in deprescribing patterns amongst adults with T2DM and obesity, particularly in populations with multiple comorbidities. Statistically significant improvements were observed in BMI and blood pressure. While reductions in HbA1C and total medication count were not statistically significant, nearly half of the patients were deprescribed from a minimum of one medication; indicating a potential shift in treatment burden.

Patient-reported outcomes further support these trends, with notable improvements in perceived control over health, confidence in managing diabetes, and satisfaction with healthcare support. These insights highlight semaglutide's dual role in enhancing both physiological and psychosocial improvements in chronic disease self-management.

### 4.1. Comparison to Existing Literature

These findings are consistent with existing studies demonstrating the efficacy of GLP-1 receptor agonists in improving cardiometabolic parameters and patient-reported quality of life. Previous literature has identified semaglutide as a key driver of weight reduction and improved glycemic control, which are critical factors in reducing polypharmacy among patients with T2DM and associated comorbidities [4]. This study builds on those findings by evaluating semaglutide's impact in a real-world, underserved patient population, and emphasizes its potential role in supporting deprescribing efforts within primary care settings.

#### *Study Limitations*

This research is subject to several limitations. The retrospective design of this study may limit the reproducibility of results in broader patient populations. In this context, the lack of a control group also hinders the ability to establish causal relationships of the findings. Confounding variables such as patient adherence, healthcare accessibility, concurrent medications, lifestyle modifications, and pre-existing health conditions may have influenced deprescribing trends. A small sample size may have also limited the generalizability of the findings. Although all patients had a minimum of 12 months on semaglutide, the relatively short follow-up period may not fully reflect long-term sustainability of weight loss or medication changes. Lastly, all eligible patients were prescribed Ozempic, which may limit the generalizability of the findings to other semaglutide medications such as Wegovy.

Despite these limitations, statistically significant reductions in BMI and blood pressure were observed, suggesting that semaglutide may offer meaningful clinical benefits. These findings provide useful insight that can inform clinical decision-making and care strategies for similar patient populations.

#### *Implications*

The implications of this study highlights the value of semaglutide beyond its direct metabolic benefits, suggesting a role in promoting holistic, patient-centered care. The study demonstrated the potential of reduced reliance on polypharmacy for patients with T2DM, obesity, and comorbid conditions when using semaglutide. This decrease in medication burden may improve patient adherence, potentially contributing to more sustained health outcomes. Identifying these deprescribing patterns in underserved populations also presents a meaningful opportunity to address the ongoing challenges of treatment burden and limited access to care. Furthermore, these trends offer valuable insights that can help guide the development of future evidence-based deprescribing approaches tailored to individual comorbidities and adherence patterns. Such approaches may help advance a more personalized, patient-centered model for chronic disease management.

## 5. Conclusion

This project identified a positive association between semaglutide use and reduced reliance on polypharmacy. Continued use of semaglutide was also associated with improvements in key clinical metrics, including reductions in BMI and blood pressure.

This retrospective analysis underscores the importance of continued and longitudinal research in the effects of GLP-1 agonists. Future studies with larger sample sizes and extended follow-up periods beyond the duration of this study are warranted to further explore the long-term implications of GLP-1 agonist-driven deprescribing trends. Additionally, the inclusion of a control group and the elimination of confounding variables in future studies is recommended to isolate semaglutide's specific impact on deprescribing trends. Lastly, future research should include and compare outcomes across all semaglutide-based GLP-1 medications to provide a more comprehensive assessment.

## Compliance with ethical standards

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