10-3-2025

Quality Improvement Initiative to Evaluate GLP-1 Medication Effectiveness in Adults Aged 30–50 Years with Type 2 Diabetes

Valantina Awah Nsoh
Walden University

Walden University

College of Nursing

This is to certify that the doctoral study by

Valantina Awah Nsoh

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Diane Whitehead, Committee Chairperson, Nursing Faculty
Dr. Mirella Brooks, Committee Member, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2025

Executive Summary: Quality Improvement Initiative to Evaluate GLP-1 Medication Effectiveness in Adults Aged 30–50 Years with Type 2 Diabetes

by

Valantina Awah Nsoh

Executive Summary Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2025

Summary

This project presents the results of a quality improvement (QI) initiative conducted at a clinic in the Southeast United States, focused on evaluating the effectiveness of GLP-1 receptor agonist (RA) therapy in adults aged 30–50 years old with Type 2 Diabetes Mellitus (T2DM). The project aimed to assess the clinical effectiveness of existing GLP-1 prescribing practices in reducing hemoglobin A1c (HbA1c) levels and weight over six months. The practice problem involved a lack of evidence-based monitoring and outcome tracking for patients on GLP-1 RAs despite the known efficacy of these medications in glycemic control. The project question was: Will HbA1c levels decrease by 0.1% to 0.5% within six months in patients aged 30–50 years with elevated HbA1c levels who receive GLP-1 medications as part of their diabetes management plan? The purpose of the DNP project was to evaluate the clinical outcome data and report the results to the organization. The analytical strategy involved retrospective chart review and descriptive statistical analysis for fifty-five participants. De-identified data were collected pre- and post-initiation of GLP-1 therapy. Results showed a mean HbA1c reduction of 0.82% at 3 months and 1.03% at 6 months, with an average weight loss of 23.6 pounds. Over 70% of patients achieved clinically meaningful improvement. Implications include better alignment with national treatment guidelines and enhanced use of nurse-led tracking protocols. This project highlights the importance of data-driven practice evaluation in supporting high-quality, equitable care. Positive social change is promoted through improved chronic disease outcomes in an underserved population.

Background

The burden of T2DM continues to increase, particularly among underserved populations. GLP-1 RAs such as Rybelsus, Ozempic, and Trulicity are supported by substantial evidence showing improvements in glycemic control and cardiometabolic outcomes (Li et al., 2022). Despite widespread prescribing, the clinic identified inconsistencies in patient follow-up and documentation of outcomes.

The practice gap centered on the absence of outcome evaluation after GLP-1 initiation. This gap has clinical relevance, as failure to monitor HbA1c trends can result in missed opportunities to optimize treatment. The project aimed to close this gap by retrospectively evaluating patient outcomes following routine clinical care.

Evidence Supporting Change

A growing body of literature demonstrates the clinical effectiveness of GLP-1 receptor agonists in managing T2DM, particularly in improving glycemic control and promoting weight loss. Evidence from randomized controlled trials and meta-analyses has consistently shown that GLP-1 therapies such as semaglutide (Ozempic), dulaglutide (Trulicity), and oral semaglutide (Rybelsus) lead to significant reductions in HbA1c ranging from 0.5% to over 1.5% over 3 to 12 months of therapy (AlMutairi, 2025). Wang et al. (2024) reported that in diverse clinical settings, patients on GLP-1 RAs experienced both metabolic improvements and enhanced treatment adherence, even in populations with limited access to care. Additionally, GLP-1 RAs can be used as second-line therapy for T2DM and cardiovascular risk patients, further solidifying their place in contemporary care guidelines (Zhang & Hao, 2025).

The strength of the evidence supporting this QI initiative is high. Most sources represent Level I (systematic reviews, RCTs) and Level II (quasi-experimental) evidence demonstrating consistent reductions in HbA1c and weight over 6–12 months of therapy. The consistency across studies and the alignment with national guidelines reinforced the decision to evaluate GLP-1 use at the clinic. This evaluation enabled the practice to determine whether local patient outcomes matched the expected benefits of broader clinical research, providing a foundation for evidence-based improvements in care delivery.

Project Development

The outcome variables for this QI project were the changes in HbA1c and weight among patients aged 30–50 years with T2DM who were prescribed RAs. These outcome variables were chosen based on their clinical relevance to diabetes management and GLP-1 medication effectiveness. HbA1c change was measured as a continuous variable and reported in percentages, while weight change was noted in pounds.

Patients were selected based on the following inclusion criteria: age between 30 and 50 years, diagnosis of T2DM, initiation of GLP-1 RA therapy during the observation window, and documentation of baseline and follow-up HbA1c and weight. Patients were excluded if they lacked baseline labs or discontinued therapy before the first follow-up point. Data from fifty-five deidentified patient records were entered into a protected Excel tracking tool created for the project, preserving confidentiality. Data collection occurred in two phases: baseline (the date GLP-1 medication was initiated) and follow-up (3 months and 6 months post-initiation).

Results

Fifty-five patients met the inclusion criteria. Results from the retrospective chart review indicated clinically significant improvements in HbA1c and weight reduction outcomes among most patients prescribed GLP-1 receptor agonists (RAs). Among these patients:

- Mean HbA1c reduction at 3 months: 0.82% (range: 0.1%–2.0%)
- Mean HbA1c reduction at 6 months: 1.03% (range: 0.3%–2.1%)
- Percentage of patients achieving ≥0.5% HbA1c reduction: 70.5%
- Average weight loss at 6 months: 23.6 lbs. (range: 10.8–38.5 lbs.)

A breakdown by medication showed that Ozempic users had the highest mean reduction in HbA1c, followed by Trulicity and Rybelsus. Patients on Ozempic for six months demonstrated HbA1c improvements exceeding 1.3% on average. The most substantial reductions were found among those who consistently attended follow-up appointments, had minimal delays in prescription access, and reported adherence to medication instructions (see Table 1). See Figure 1 for HbA1c averages at baseline, 3 months, and 6 months.

Table 1

Clinical Outcomes Among Patients Prescribed GLP-1 Medications (N=55)

Timepoint	Mean HbA1c Before	Mean HbA1c After	Mean Change	% ≥ 0.5% Reduction
3 Months	8.4%	7.6%	0.8%	68%
6 Months	8.3%	7.2%	1.1%	73%

Note: Results are based on data extracted from Sheets 1 and 2 of the GLP-1 datasets.

Figure 1

Bar Charts Showing HbA1c Averages at 3 Months

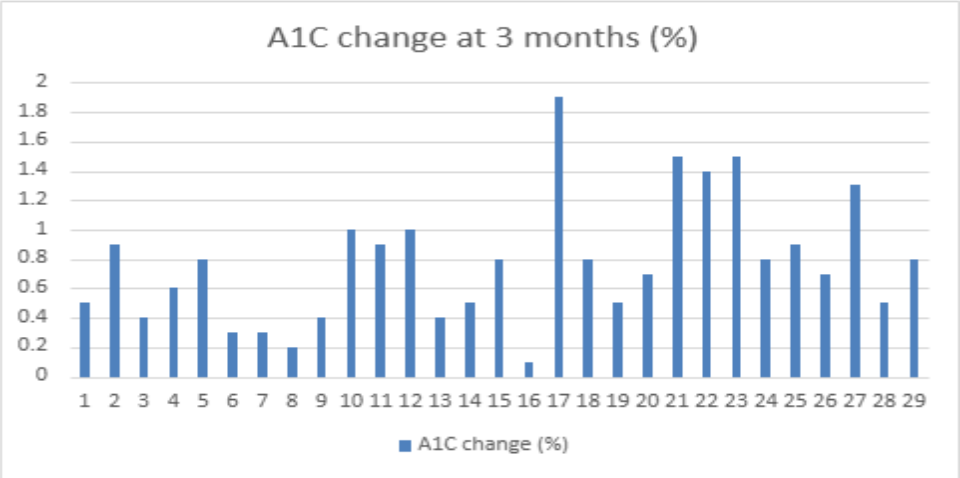
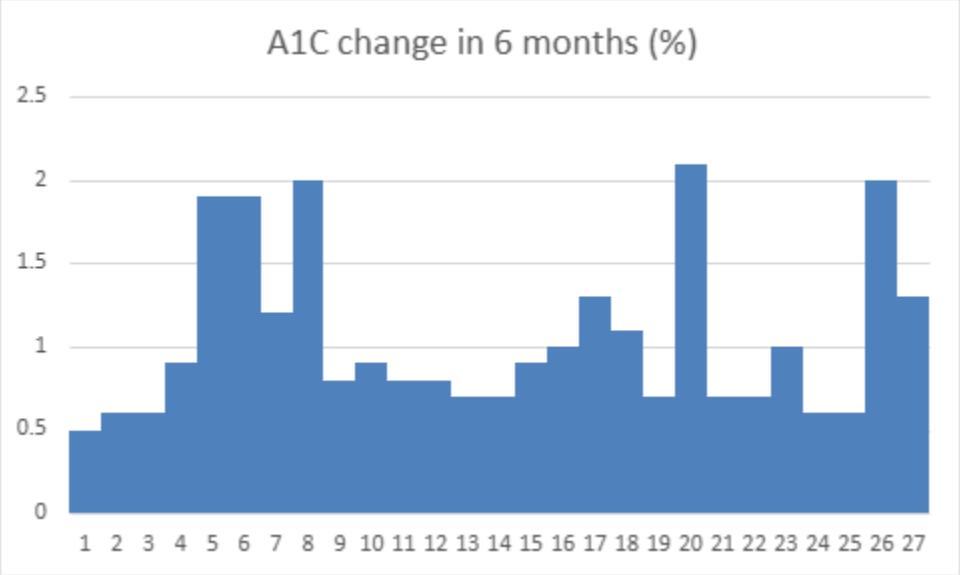


Figure 2

Bar Chart Showing HbA1c Averages at 6 Months



Although weight loss was included in the project question, it emerged as a consistent secondary outcome. Over 90% of patients experienced some degree of weight reduction, further affirming the metabolic benefits of GLP-1 RAs.

Barriers Encountered

Barriers to success included patients experienced insurance delays, leading to interruptions, later starts than expected, or skipped doses in therapy. Inconsistent documentation also posed challenges during data extraction. Additionally, missed follow-ups due to transportation or financial hardship reduced the data available for post-implementation comparison. Despite these setbacks, most tracked cases aligned with existing evidence regarding the effectiveness and tolerability of GLP-1 medications.

Organizational Impact

The results validated current prescribing practices and identified the need for a more formalized follow-up system to ensure continuity of care. This project highlighted the benefit of using internal data to verify whether national standards were being met locally, reinforcing the need for consistent monitoring in chronic disease management.

Conclusions

This QI project confirmed the clinical value of GLP-1 receptor agonists (RAs) in the outpatient management of Type 2 Diabetes Mellitus among adults aged 30–50 years. By leveraging retrospective data, the project validated that the prescribing and monitoring practices currently in place at the clinic in the Southeast United States align with national treatment guidelines and result in positive health outcomes. Patients demonstrated significant improvements in HbA1c levels and experienced meaningful weight reduction across all drug types, with Ozempic yielding the most robust outcomes.

Regarding organizational impact, the project highlighted opportunities to streamline workflow processes and create a more standardized follow-up approach. For example, delays in data collection due to missed labs and medication access issues could be addressed by implementing automated alerts and pharmacy coordination protocols.

Standardizing documentation tools and educating staff on follow-up procedures can enhance the consistency and accuracy of outcome tracking.

From a sustainability perspective, this QI process offers a scalable and replicable model. The implementation of a GLP-1 outcome tracking dashboard, along with regular performance audits, could ensure long-term adherence to evidence-based prescribing. Future efforts may include expanding the QI model to other chronic medications, such as SGLT2 inhibitors or insulin regimens. Additionally, longitudinal evaluation beyond six months could further validate the impact of GLP-1 medication on long-term diabetes complications and cardiovascular risk reduction. Key recommendations for sustainability and spread include:

- Building a permanent GLP-1 tracking feature within the clinic's electronic health record system
- Creating monthly provider reports summarizing patient trends
- Including GLP-1 outcome metrics in quality performance reviews
- Training clinical support staff to assist with lab scheduling and medication follow-up.

This project reinforces the importance of proactive, data-informed care for nursing practice. Nurses are critical in tracking outcomes, managing follow-up coordination, and supporting patients through ongoing medication adherence. As frontline care providers, their active participation in QI initiatives can bridge gaps in chronic disease management and improve equity in care delivery.

This QI initiative contributes to positive social change by equipping healthcare teams with real-world data insights and empowering patients through better disease control, reduced complications, and improved quality of life. Future QI projects should continue to evaluate practice-level outcomes and leverage that data to inform broader system-level changes that benefit vulnerable and underserved populations.

References

Al Mutairi, A. (2025). Impact of GLP-1 Receptor Agonists on Body Weight and Cardiovascular Outcomes: A Systematic Review. Bangladesh Journal of Medical Science, 24, 45–58. https://doi.org/10.3329/bjms.v24i10.79201

Li, C., Luo, J., Jiang, M., & Wang, K. (2022). The Efficacy and Safety of the Combination Therapy With GLP-1 Receptor Agonists and SGLT-2 Inhibitors in Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis. Frontiers in Pharmacology, 13, 1–11. https://doi.org/10.3389/fphar.2022.838277

Wang, S., Wang, S., Wang, Y., & Luan, J. (2024). Glycemic Control, Weight Management, Cardiovascular Safety, and Cost-Effectiveness of Semaglutide for Patients with Type 2 Diabetes Mellitus: A Rapid Review and Meta-analysis of Real-World Studies. Diabetes Therapy, 15(2), 497–519. https://doi.org/10.1007/s13300-023-01520-3

Zhang, Y., Li, Z., & Hao, Y. (2025). Comparative efficacy of GLP-1 RAs/SGLT-2 inhibitors in reducing cardiovascular events in type 2 diabetes according to baseline use of metformin: a systematic review and meta-analysis of randomized controlled trials. European journal of medical research, 30(1), 13. https://doi.org/10.1186/s40001-024-02241-4