Impact of Medication Adherence on Clinical and Economic Outcomes in Type 2 Diabetes: A Scoping Review of Real-World Evidence

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Background

- Adherence to antidiabetic therapies is essential for improving outcomes in type 2 diabetes mellitus (T2DM), a chronic metabolic disease associated with significant morbidity and health care costs.
- Real-world data can be used to evaluate adherence impacts on glycemic control, diabetes- related complications, and healthcare resource utilization outside of controlled clinical trials.
- This scoping review summarizes the current landscape of real-world studies evaluating the association between adherence and clinical and economic outcomes.

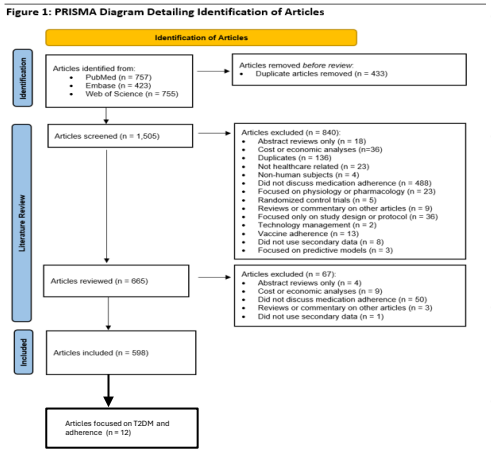
Purpose

- To evaluate the impact of adherence to antidiabetic agents on clinical and other outcomes using real-world data within a scoping review of the literature.

Methods

- A scoping review of studies on medication adherence or persistence using real-world secondary data (administrative claims or electronic medical records).
- Articles were identified from PubMed, EMBASE, and Web of Science using the terms compliance, adherence, administrative claims, real-world, observational.
- Of 1,505 articles retrieved, 598 addressed adherence and were eligible, with 12 focused on the impact of adherence in T2DM. (figure 1)
- These T2DM studies reported associations with glycemic control, diabetes- related complications, and healthcare costs.

Results



- Across multiple real-world datasets, adherence to antidiabetic therapies in T2DM was consistently associated with improved clinical and economic outcomes.
- Patients with high adherence, defined as a proportion of days covered (PDC) of at least 80% had significantly greater reductions in HbA1c levels than those who had PDC<80% (1.17% vs. 0.73% reductions, respectively) and were more likely to achieve HbA1c goals.
- Every 10% improvement in adherence for oral diabetes medications (based upon PDC) was associated with a 0.1% decrease in HbA1c.
- Table 1 presents selected findings from a sample of disease that illustrate the impact of adherence.

Table 1. Studies Examining the Impact of Adherence

Study Focus	Key Findings
Glycemic Control (HbA1c Reduction)	Higher adherence to antidiabetic medications was consistently associated with improved glycemic control. A 10% increase in adherence (PDC) was linked to a 0.1% decrease in HbA1c, while adherent patients (PDC ≥80%) achieved greater HbA1c reductions compared to nonadherent patients (1.17% vs. 0.73%).
Healthcare Resource Utilization (HCRU)	Patients adherent to glucose-lowering agents (GLAs) had lower rates of hospitalization (17.65% vs. 22.71%), fewer emergency department visits (38.47% vs. 45.61%), and shorter hospital length of stay (1.25 vs. 2.16 days) compared with nonadherent patients, indicating reduced healthcare utilization and costs.
Mortality Outcomes	Adherence to oral antidiabetic agents (OADs) was associated with lower mortality rates. A large Swiss healthcare database study demonstrated a 10% reduction in mortality among adherent patients (PDC ≥80%) compared to nonadherent individuals.

Limitations

- Observational real-world designs are subject to bias and confounding.
- Definitions of adherence and persistence varied across studies (e.g., MPR vs PDC).
- Only 12 T2DM-specific studies were identified, highlighting the limited amount of real-world research available in this area.

Conclusion

- Adherence and persistence to medications are consistently linked to improved clinical outcomes and lower healthcare and societal costs. The results are consistent across different therapeutics areas, drug classes, patient populations.
- These findings support the need for continued efforts to enhance adherence across a wide spectrum of health conditions.
- The results also provide valuable real-world evidence to guide payers, providers, and policymakers.

Acknowledgements

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References

1) Rozenfeld Y, Hunt JS, Plauschinat C, Wong KS. Oral antidiabetic medication adherence and glycemic control in managed care. Am J Manag Care. 2008 Feb;14(2):71-5. PMID: 18269302.
2) Buysman EK, Anderson A, Bacchus S, Ingham M. Retrospective Study on the Impact of Adherence in Achieving Glycemic Goals in Type 2 Diabetes Mellitus Patients Receiving Canagliflozin. Adv Ther. 2017 Apr;34(4):937-953. doi: 10.1007/s12325-017-0500-4. Epub 2017 Mar 1. PMID: 28251556.
3) Rozenfeld Y, Hunt JS, Plauschinat C, Wong KS. Oral antidiabetic medication adherence and glycemic control in managed care. Am J Manag Care. 2008 Feb;14(2):71-5. PMID: 18269302.
4) Curtis SE, Boye KS, Lage MJ, Garcia-Perez LE. Medication adherence and improved outcomes among patients with type 2 diabetes. Am J Manag Care. 2017 Jul 1;23(7):e208-e214. PMID: 28850793.

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