

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

Aaron B. Mendelsohn¹, PhD, MPH; Trent Bishop², PharmD/MBA 2028 Candidate; Hannah Evanik³, PharmD Candidate; Shellie Keast⁴, PharmD, PhD; Charron Long⁵, PharmD; Pamala A. Pawloski¹, PharmD; Xintian Wu⁶, PharmD (Candidate), Catherine M. Lockhart¹, PharmD, PhD³

¹AMCP BBCIC/AMCP Research Institute, Alexandria, VA, US; ²UNC Eshelman School of Pharmacy, Chapel Hill, NC, US; ³Temple University, Philadelphia, PA, US; ⁴MedImpact, San Deigo, CA, US; ⁵Astellas, Northbrook, IL, US; ⁶University of Buffalo, Buffalo, NY US



Background

- Adherence to medications is critical for achieving optimal therapeutic benefits.
- Although adherence is recognized as being important, the impact of adherence on outcomes from real-world medical care, including clinical endpoints (e.g., disease progression), healthcare resource utilization (HCRU) and cost, has not been well-characterized.
- This scoping review summarizes the current landscape of real-world studies evaluating the association between adherence and clinical and economic outcomes across a variety of therapeutic and disease areas and medications.

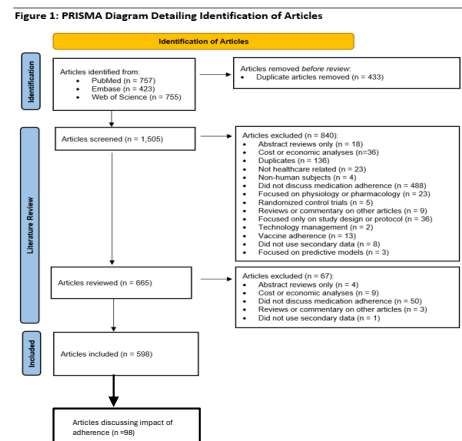
Purpose

- To evaluate the benefit of adherence to medicinal products 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 (e.g., 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, 98 analyzed the impact of adherence for over 30 unique clinical conditions (Figure 1).
- Included articles were reviewed and information extracted on disease area(s), type of adherence measure (e.g., proportion of days covered [PDC], medication possession ratio [MPR], and outcome(s) for which the impact of adherence was assessed.

Results



- The most common diseases for which the impact of adherence was examined included osteoporosis/fractures (n=14), type 2 diabetes mellitus (n=12), cardiovascular disease (n=8), and multiple sclerosis (n=8).
- Across diverse patient populations, settings, and methodological approaches (e.g., adherence measure used), adherence was consistently associated with positive outcomes, including reductions in disease progression/sequelae; lower HCRU (e.g., inpatient, outpatient, emergency department visits); improved survival; and reduced costs.
- Table 1 presents selected findings from a sample of disease that illustrate the impact of adherence.

Table 1. Selected Studies Examining the Impact of Adherence by Disease

| Disease | Selected Findings |
|--------------------------|---|
| Asthma | MPR $\geq 80\%$ for combination inhaled corticosteroid/long-acting beta-agonist therapy was associated with 50% reduction in the odds of asthma exacerbations; 54% reduction in oral steroid use; and significantly lower emergency department visits. ¹ |
| Breast Cancer | 10% increase in mortality risk (hazard ratio (HR)) was found in patients with MPR<80% to tamoxifen ² . Non-adherence to lapatinib was associated with increased outpatient visits in women with metastatic disease (Rate Ratio = 1.26, 95% CI: 1.03-1.54). ³ |
| Cardiovascular Disease | Patients with PDC >80% (vs PDC <20%) to statins had a significant decrease in MACE risk (HR=0.51, 95% CI=0.37-0.71). ⁴ MPR > 80% was associated with lower mortality for multiple drug classes: statins (HR = 0.59 [95% CI, 0.45-0.77]), ACE/ARBs (HR = 0.73 [0.56-0.95]), and dual antiplatelet therapy (HR = 0.68 [0.50-0.91]). ⁵ |
| Multiple Sclerosis | Adherent patients (MPR $\geq 80\%$) to disease-modifying therapies experienced a 29% lower risk of relapse and a 37% lower risk of MS-related hospitalizations. ⁶ |
| Osteoporosis | 32% increased risk for hip/pelvis/femur and 34% increased risk for vertebral fracture was observed in women with MPR <50% (any osteoporosis drug) vs. MPR $\geq 80\%$. ⁷ |
| Type 2 Diabetes Mellitus | Every 10% improvement in adherence for oral diabetes medications (based upon PDC) was associated with a 0.1% decrease in HbA1c. ⁸ |

Limitations

- Observational studies are subject to bias and confounding.
- Adherence/persistence varied across studies (e.g., MPR, PDC)
- Outcomes of interest and definitions of outcomes varied across studies.

Conclusion

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

Acknowledgements

This study was supported by the AMCP Research Institute

References

- Ismaila A, et al. Cur Med Res Opin 2014 (30:7), 1417-1425,
- Tan, et al. . Medicine 2015;94(44):e1071.
- Kartashov, et al. J Clin Oncol 2012;30(15_suppl):e11524.
- May, et al. Quality Care Clin Outcomes 2022;8:352-360
- Huber, et al. Clin Ther 2019;41(1):107-117.
- Tan, et al. Adv Ther 2011;28(1):51-61.
- Keshishian, et al. J Manag Care Spec Pharm 2017;23:1178-1190.
- Rozenfeld, et al. Am J Manag Care 2008;14(2):71-75.

Poster presented at ISPOR, May 17- 20, Philadelphia, PA, US.