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Short communication

Medication adherence assessment in a Macedonian community pharmacy cohort: comparative insights from ADHERE-7 and MARS-10

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Introduction

Medication adherence is a key determinant of therapeutic effectiveness in patients receiving chronic pharmacotherapy (Kengne et al., 2024). Despite the availability of numerous adherence assessment methods, self-reported instruments remain widely used in community pharmacy practice because they are practical, inexpensive and capable of identifying patient-reported barriers to treatment (Rickles et al., 2023). The recently developed ADHERE-7 questionnaire was designed to assess aversion-, comfort- and practical-related barriers to medication adherence (Bužančić Balen et al., 2024), while the Medication Adherence Report Scale (MARS-10) primarily evaluates adherence-related behaviours (Chan et al., 2020). This study aimed to characterize medication adherence in a real-world Macedonian community pharmacy population using ADHERE-7 and MARS-10 and to compare the observed ADHERE-7 profile with findings from the original validation study.

Materials and methods

A real-world observational study was conducted in 50 patients from North Macedonia undergoing pharmacist-led medication therapy assessment in a community pharmacy setting. Demographic, social and therapy-related characteristics were collected, including age, sex, education level, living arrangements, self-rated health status and medication use. Medication adherence was assessed using two self-reported instruments: the 10-item Medication Adherence Report Scale (MARS-10) and the 7-item Attitudes Towards Medication Adherence Questionnaire (ADHERE-7). MARS-10 total scores were calculated by summing item-level responses and categorized as low adherence (0–5), moderate adherence (6–8) and high adherence (9–10). ADHERE-7 was analysed both as a total score and according to its three domains: Aversion, Comfort and Practical non-adherence. Descriptive statistics were used to summarize patient characteristics and adherence scores. Associations between MARS-10 and ADHERE-7 total and domain scores were assessed using Spearman's rank correlation coefficient. Statistical significance was defined as $p < 0.05$.

Results and discussion

The study included 50 community pharmacy patients from North Macedonia undergoing

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pharmacist-led medication therapy assessment. The cohort was predominantly middle-aged and older, with 86.0% of patients aged ≥50 years and 36.0% aged ≥70 years. Women represented 58.0% of the sample. The population reflected a real-world chronic pharmacotherapy cohort with substantial medication burden, with a mean of 6.88 ± 3.35 medicines per patient and polypharmacy (≥5 medicines) present in 80.0% of patients.

The mean ADHERE-7 score was 25.22 ± 3.24 (range 15–28), indicating generally high self-reported adherence. A ceiling effect was evident, with 26.0% of patients achieving the maximum score and 48.0% scoring 27 or 28. In contrast, the mean MARS-10 score was 7.71 ± 1.81. According to predefined categories, 16.3% of patients had low adherence, 42.9% moderate adherence and 40.8% high adherence. These findings suggest that although patients generally perceived themselves as adherent, MARS-10 identified a substantial subgroup with potentially actionable adherence-related behaviours that might otherwise remain undetected. At domain level, mean ADHERE-7 scores were 10.76 ± 1.65 for Aversion, 10.70 ± 1.80 for Comfort and 3.76 ± 0.56 for Practical non-adherence. Compared with the original ADHERE-7 validation study by Bužančić Balen et al. (2024), our cohort demonstrated a slightly lower and more variable total score (25.22 ± 3.24 vs. 26.27 ± 2.41). The Aversion domain was nearly identical to the Croatian validation population (10.76 ± 1.65 vs. 10.89 ± 1.66), suggesting comparable attitudes regarding perceived medication benefit, harm and intentional treatment modification. Similarly, Practical scores were high in both populations, indicating that cost-related or practical barriers were infrequently reported.

The most relevant difference was observed in the Comfort domain, which was lower and more variable in our cohort (10.70 ± 1.80 vs. 11.74 ± 0.83), suggesting more heterogeneous routine-related adherence barriers, including forgetting, missed doses and difficulties managing therapy. This pattern is consistent with a pharmacist-led medication therapy assessment population characterized by older age, chronic pharmacotherapy and high prevalence of polypharmacy, where treatment management may represent a greater challenge than medication aversion or financial constraints.

No significant correlations were observed between MARS-10 and ADHERE-7 total score ($\rho = -0.175$, $p = 0.230$) or its domains (all $p > 0.05$). Unlike the original validation study, where ADHERE-7 correlated strongly with MARS-5, our findings suggest that the two instruments may capture different but complementary dimensions of adherence. MARS-10 appears to better discriminate adherence-related behaviours, whereas ADHERE-7 provides additional insight into patient-perceived barriers and the underlying reasons for non-adherence.

Conclusion

In this Macedonian community pharmacy cohort, ADHERE-7 demonstrated high self-reported adherence and a pronounced ceiling effect, whereas MARS-10 identified a substantial subgroup with low or moderate adherence-related behaviours. The lower and more variable Comfort domain suggests that routine-related barriers may be particularly relevant. Combined use of both tools may support a more comprehensive pharmacist-led adherence assessment.

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