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Short communication

Adherence to therapy, polypharmacy, and herbal product use among patients with diabetes

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Introduction

Type 2 diabetes mellitus is a chronic disease that requires long-term pharmacological treatment and active patient participation in disease management. Medication adherence is essential for achieving optimal glycemic control and preventing diabetes-related complications. However, adherence may be influenced by several factors, including treatment complexity and the use of multiple medications (WHO, 2024; IDF Diabetes Atlas, 2025).

Patients with diabetes frequently have comorbidities that require additional pharmacotherapy, resulting in polypharmacy. The concurrent use of multiple medications may increase the complexity of treatment regimens, potentially leading to difficulties in medication management, confusion regarding administration, and reduced adherence.

In addition, the use of herbal products and dietary supplements is common among patients with chronic diseases. Although these products are often perceived as beneficial, their concomitant use with prescribed medicines may increase the risk of drug–herb interactions and compromise treatment safety. Furthermore, patients do not always inform healthcare professionals about their use, limiting opportunities for appropriate monitoring and counseling (Boulares et al., 2026).

Given the potential impact of medication adherence, treatment complexity, and herbal product use on diabetes management, this study aimed to assess medication adherence, polypharmacy, treatment complexity, and the use of herbal products among patients with type 2 diabetes in a community pharmacy setting.

Materials and methods

An observational cross-sectional study was conducted in June 2026 among patients with confirmed type 2 diabetes mellitus receiving chronic antidiabetic therapy. Adults aged ≥18 years were eligible for inclusion. Patients with other types of diabetes, pregnancy, severe comorbidities, mental disorders, or communication difficulties were excluded. Data were collected using a structured questionnaire. Ethical approval for the study was obtained from the Ethics Committee of the Faculty of Pharmacy, Ss. Cyril and Methodius University in Skopje, North Macedonia (Approval No. 02-284/3, issued on 29 April 2024). Data were entered into Microsoft Excel and analyzed using appropriate statistical software.

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Results and discussion

A total of 20 patients with diabetes participated in the study and completed the questionnaire. Analysis of medication adherence demonstrated generally favorable adherence patterns among the respondents. The majority of patients (80%) completely agreed that they regularly take their therapy according to the prescribed recommendations, while an additional 15% agreed with this statement. Furthermore, 75% of participants completely disagreed that they frequently forget to take their medication. Nevertheless, 15% of respondents admitted that they frequently forget their therapy, indicating the presence of adherence-related challenges in a subset of patients.

Regarding treatment complexity and polypharmacy, respondents reported using an average of 5.1 medications per day, with the number ranging from 1 to 13 medications. Polypharmacy, defined as the concurrent use of five or more medications, was observed in 50.0% of participants. Despite the relatively high prevalence of polypharmacy, most patients (65.0%) reported no difficulties in organizing their medication regimen, whereas 20.0% experienced occasional difficulties and 15.0% reported challenges. Similarly, 68.4% of respondents indicated that they had never been confused about the timing or method of medication administration, while 21.1% acknowledged experiencing such confusion. Furthermore, the majority of patients (70.0%) stated that the number of prescribed medications did not affect their adherence, whereas 30.0% perceived treatment complexity as a factor negatively influencing their regular medication use.

The assessment of herbal product use revealed that 15% of respondents had used herbal preparations, teas, or dietary supplements for diabetes management during the previous three months, whereas 85% reported no such use. When asked about the perceived effectiveness of herbal products, more than half of the participants (55%) believed that herbal preparations and dietary supplements could contribute to diabetes control. In contrast, 25% did not share this opinion, while 20% were uncertain about their effectiveness.

Evaluation of communication with healthcare professionals regarding herbal product use showed suboptimal disclosure practices. More than half of the respondents (55%) reported that they did not inform their physician or pharmacist about the use of herbal products and dietary supplements. Only 25% consistently informed healthcare professionals, while 20% did so occasionally.

Conclusion

The findings of this study suggest that patients with diabetes generally demonstrate a high level of self-reported medication adherence. Nevertheless, polypharmacy was prevalent, affecting half of the study population, and a notable proportion of respondents reported difficulties related to the complexity of their treatment regimens. Although the use of herbal products was relatively uncommon, limited disclosure of their use to healthcare professionals indicates insufficient awareness of potential interactions and the importance of reporting complementary therapies. These findings highlight the need for ongoing patient education, targeted pharmaceutical care, and improved communication between patients and healthcare providers to support safe and effective medication use, particularly among individuals receiving multiple medications.

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