

# Mental health and non-dispensed medications for chronic diseases – a nationwide register study on individuals with type 2 diabetes

Fredriikka Nurminen, Heini Kari, Hanna Rättö and Hanna Koskinen  
Research at Kela, The Social Insurance Institution of Finland



## Introduction

Mental health issues are linked to an increased risk of non-adherence to medication<sup>1</sup>. Previous studies have shown that a substantial share of prescriptions is never dispensed from pharmacies. High medication costs and low income also increase non-adherence<sup>2</sup>. Additionally, there is an association between diabetes and mental disorders, and diabetes, mental health issues and low income have a multidimensional relationship<sup>3–4</sup>. We examined the association between psychotropic medicine use and non-dispensed antidiabetic prescriptions.

## Method

We used a nationwide register of outpatient prescriptions and dispensations in Finland during 2020–2022, recorded in the national Prescription Centre. Prescriptions from 2020 that had not been dispensed within the two-year validity period were defined as non-dispensed.

Individuals with at least one psychotropic prescription (Anatomical Therapeutic Chemical (ATC) classification N05A, N05B, N06A, N06C) and individuals with at least one non-insulin antidiabetic prescription (A10B) in 2020 were identified. Annual income from the national Incomes Register were classified as low, middle and high annual income of the study population. Information on age, sex and morbidity in terms of annual medicine costs (in €), were also collected.

Individuals aged 18 and over with at least one non-dispensed antidiabetic medicine prescription were defined as having non-dispensed prescriptions. Logistic regression was used to compare the non-dispensing of antidiabetics in individuals with and without prescriptions for psychotropics.

## Results

Altogether, 254 472 individuals were prescribed antidiabetics in 2020, of whom 24.7% had also a psychotropic prescription. Among those who had both psychotropic and antidiabetic prescriptions, 11.8% had at

least one non-dispensed antidiabetic prescription. In comparison, among those who did not have prescriptions for psychotropics, 8.8% had at least one non-dispensed antidiabetic prescription. **(Figure 1.)**

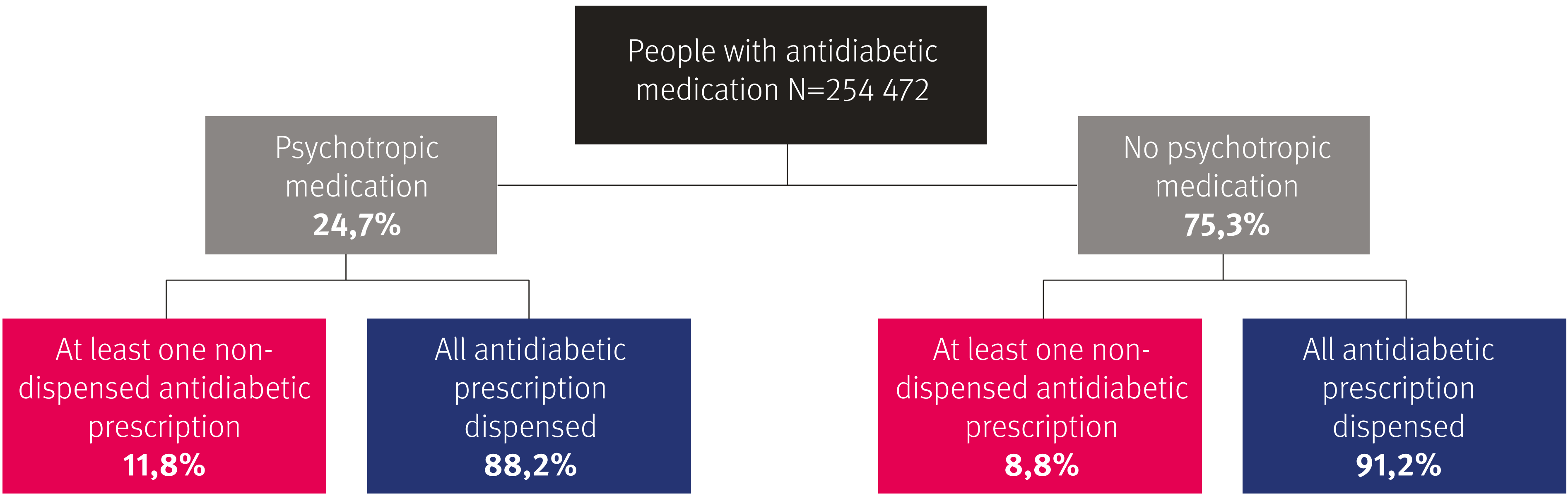
Individuals with psychotropic medication had a higher likelihood of having at least one non-dispensed antidiabetic medicine prescription (OR 1.38; 95% CI 1.34 – 1.43).

Accounting for income and patient characteristics, the likelihood decreases (OR 1.29; 95% CI 1.25–1.34), but remains significant. Compared to lowest income class, the middle-income class had lower odds (OR 0.90; 95% CI 0.89–0.92) of non-dispensing antidiabetic medicine prescription. **(Table 1.)**

## Conclusion

Mental health issues are associated with lower adherence to non-insulin antidiabetic medication, even after controlling for age, gender, annual income and annual medicine expenditures. Pharmacists and other health-care professionals should work in collaboration to support medication adherence in patients who have both psychotropic and antidiabetic medication. Further studies on risk factors for non-adherence in multimorbid patients are needed.

Figure 1. The share of patients with dispensed and non-dispensed antidiabetic medication prescriptions among those with and without psychotropic medications.



All prescriptions prescribed is defined here as having at least one purchase made under it.

Table 1. Results of logistic regression model of non-dispensed non-insulin antidiabetic medicine prescriptions.

Predictors	Model 1			Model 2		
	Odds Ratios	CI	p	Odds Ratios	CI	p
(Intercept)	0.10	0.10–0.10	<0.001	0.16	0.15–0.18	<0.001
Psychotropic medication [yes]	1.38	1.34–1.43	<0.001	1.29	1.25–1.34	<0.001
Low Income Class [<75% of the median] (reference)				1		
Middle Income Class [75–200% of the median]				0.90	0.87–0.93	<0.001
High Income Class [>200% of the median]				0.98	0.92–1.04	0.531
Annual Medicine Expenditures				1.00	1.00–1.00	<0.001
Patient Age				0.99	0.99–0.99	<0.001
Patient Gender [male]				1.02	0.99–1.05	0.205
Observations	202 814	189 786				
R2 Tjur	0.002	0.003				

## References

1) Kane, J. M. et al. (2013). Non-adherence to medication in patients with psychotic disorders: epidemiology, contributing factors and management strategies. World psychiatry: official journal of the World Psychiatric Association (WPA), 12(3), 216–226. 2) Ekenberg, M. et al. (2024). Socioeconomic factors associated with poor medication adherence in patients with type 2 diabetes. Eur. J. Clin. Pharmacol., 80(1), 53–63. 3) Das-Munshi, J. et al. (2007). Diabetes, common mental disorders, and disability: findings from the UK National Psychiatric Morbidity Survey. Psychosomatic medicine, 69(6), 543–550. 4) Lysy, Z. et al. (2013). The impact of income on the incidence of diabetes: a population-based study. Diabetes research and clinical practice, 99(3), 372–379.

## Contact information

Fredriikka Nurminen, Researcher, Research at Kela, fredriikka.nurminen@kela.fi

