PS01-0209 - Pharmacogenetic-guided antidepressant treatment on functional outcome in anxiety and affective disorders: A systematic review and meta-analysis

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Background

Antidepressants are first-line pharmacological treatments for anxiety and major depressive disorders, but individual response and tolerability vary, partly due to genetic factors. Pharmacogenetic (PGx) prescribing aims to improve efficacy, safety, and adherence. While PGx-guided treatment has been widely studied for symptoms and adverse effects, its impact on functional outcomes remains unclear despite their recognised importance in clinical trials.

Objective

To evaluate the efficacy of PGx-guided antidepressant treatment compared to treatment as usual (TAU) on functional disability in adults with anxiety and affective disorders.

Methods

A PRISMA-compliant systematic search was performed in 7 databases up to 26/07/2025 to identify relevant randomised controlled trials (RCTs) published in peer-reviewed journals in any language. PROSPERO registration: CRD42024518683.

A random-effects model was employed, with the between-study heterogeneity variance estimated using the restricted maximum-likelihood estimator (REML).

We applied Hartung-Knapp adjustments to the pooled effect and its confidence interval as sensitivity analysis.

The standardised mean difference (SMD) was used as the effect size.

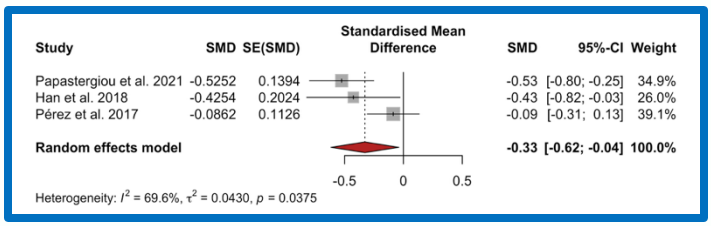
The revised tool for Risk of Bias (RoB2) was used to assess methodological quality of the included studies.

Results

Authors (year)	Country	N	Diagnosis	Instrument	Outcome	Study time frame
Han et al. (2018)	Korea	100	MDD	SDS	Functional disability	8 weeks
Papastergiou et al. (2021)	Canada	213	MDD, GAD	SDS	Functional disability	6 months
Pérez et al. (2017)	Spain	316	MDD	SDI	Functional disability	12 weeks

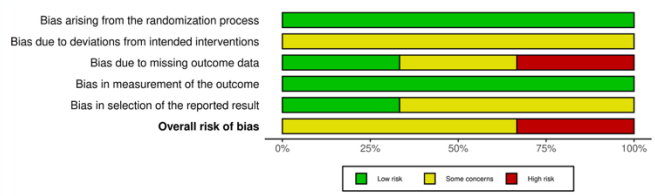
Note: GAD: Generalised anxiety disorder; MDD: Major depressive disorder; SDS: the Sheehan Disability Scale/Inventory

For full findings and further details, please refer to our recent publication: Fares-Otero, N. E., Budde, M., Laatsch, J., Harrer, M., Pelgrim, T., Philipsen, A., Heilbronner, U., Vieta, E., van Westrhenen, R., & the PSY-PGx Consortium. (2025). Efficacy of pharmacogenetic (PGx)-guided antidepressant treatment on functional outcomes and quality of life in adults with anxiety and affective disorders: A systematic review and meta-analysis. *European Neuropsychopharmacology*, 100, 13–23.



PGx-guided antidepressant treatment significantly decreased SDS/I-measured functional disability vs. TAU (SMD = -0.33, SE = 1.15 [95% CI -0.62, -0.04], p = .026), heterogeneity (I2 = 66.8, τ2 = 0.04, p = 0.04).

The results of Knapp-Hartung analyses showed non-significant effect of PGx-guided treatment on functional disability vs. TAU (SMD = -0.33, SE = 1.14 [95% CI -0.93, 0.27], p = .144).



Conclusion

- **Our findings suggest that PGx-guided antidepressant treatment may improve functioning (vs. TAU) in people with anxiety and affective disorders.**
- **Heterogeneity was substantial, and the study time frame varied considerably. The small number of studies may lead to a wide uncertainty in between-study heterogeneity.**
- **Further investigation on the efficacy of PGx-guided antidepressant interventions on both broad and domain-specific functional outcomes (social, leisure, work) is urgently needed.**
- **Further research is warranted to better understand which follow-up time is needed to capture potential benefits of PGx-guided treatment on functional outcomes.**

Acknowledgments

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