

The Importance of Incorporating Drug-Drug Interactions and Lifestyle Factors in Pharmacogenomics-Guided Medication Management for Patients With Major Depressive Disorder in a Randomized Controlled Trial

Feng Cao, PhD,¹ Andrea Hanson, PhD,¹ Robert Cook, PhD¹
¹Castle Biosciences, Friendswood, TX

Background

- › Pharmacogenomic (PGx) testing provides targeted information on drug-gene interactions to improve medication efficacy and tolerability in patients with major depressive disorder (MDD) or other mental illnesses.¹⁻⁴
- › IDgenetix is a next-generation 3-in-1 PGx test that incorporates the results of a multi-gene variant panel with drug-drug interactions and lifestyle factors to guide medication management of mental health.
- › In a previously published randomized controlled trial (RCT), IDgenetix-guided drug recommendations significantly improved remission rates compared to the standard empirical approach.¹
- › Recent meta-analyses of PGx tests with RCTs showed IDgenetix to have the greatest benefit.^{3,4}

Objective

› Evaluate the contribution of drug-gene, drug-drug, and lifestyle factors to IDgenetix-guided medication management for patients with MDD.

Methods

› This study analyzed genotype/phenotype, drug recommendations, clinical adherence, and clinical outcomes (remission rates) for the contribution of drug-drug interactions and lifestyle factors in participants (n=261) with moderate to severe depression (HAM-D17 score ≥20) from a previously published RCT.¹

Results

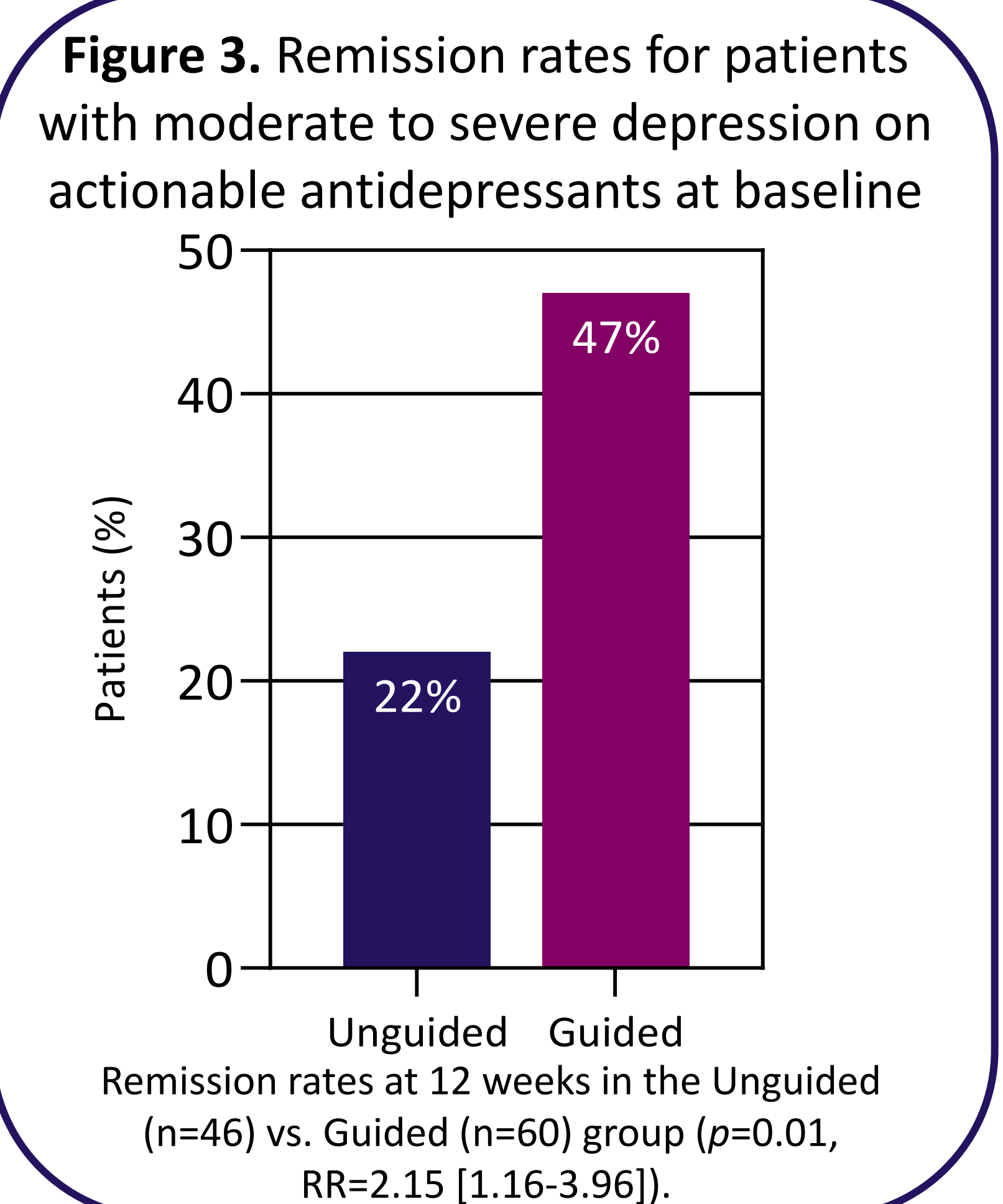
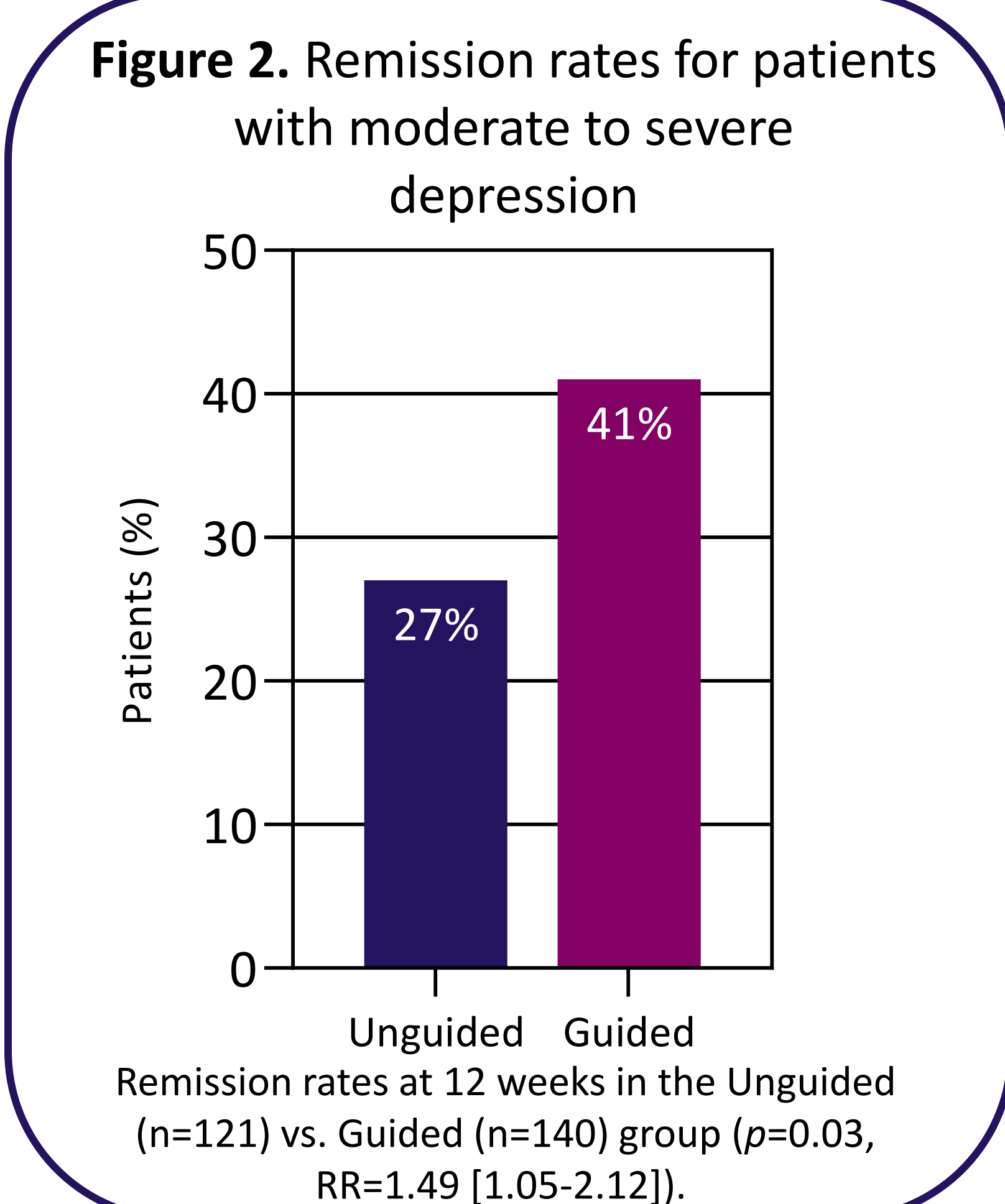
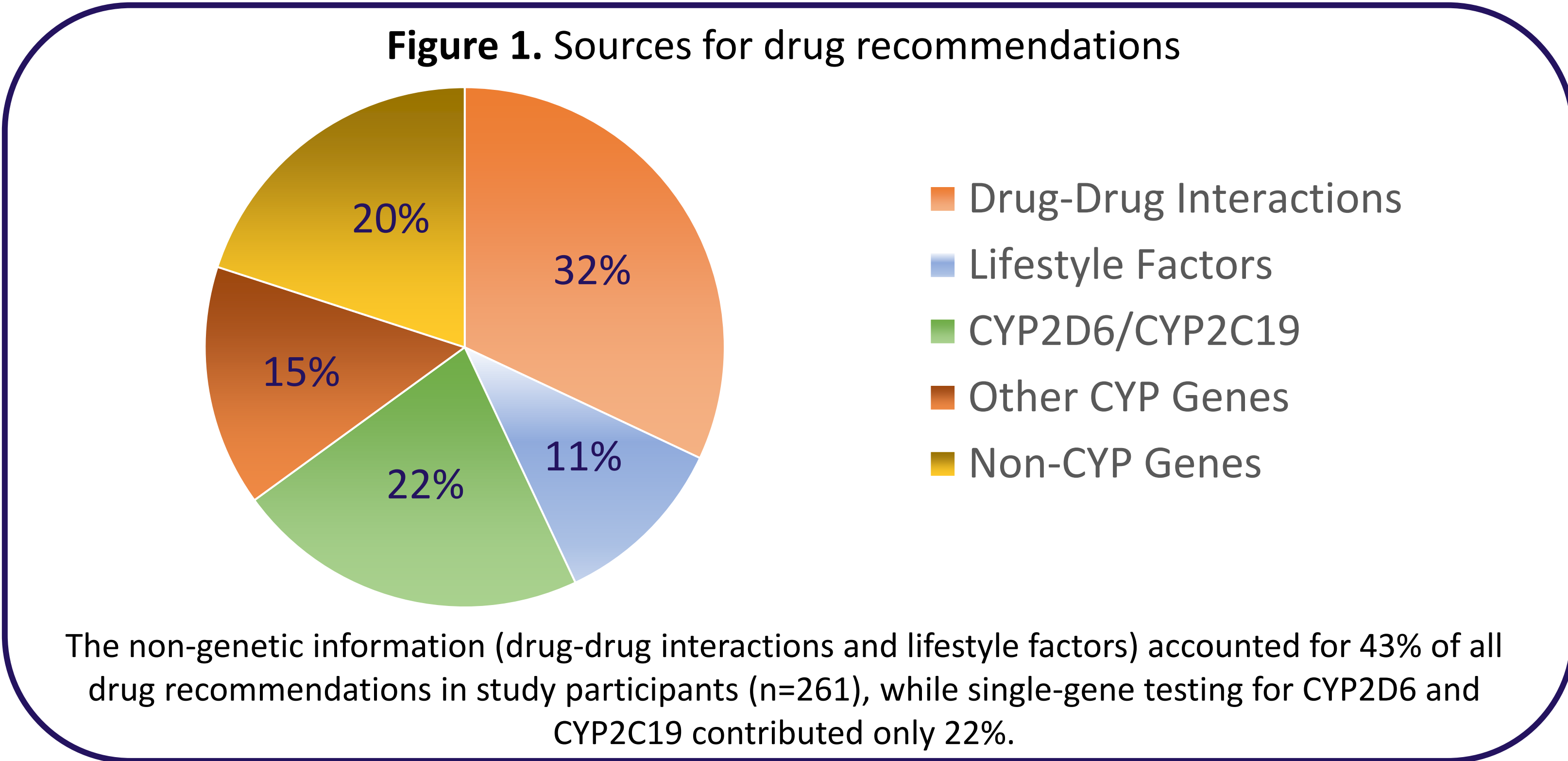


Table 1. Most common concomitant drugs and lifestyle factors that impacted drug recommendations in all study participants

Concomitant Prescription Drugs (% of all drug-drug interactions)	Lifestyle Factors Including OTC (% of all lifestyle factors)
bupropion (18%)	diphenhydramine (27%)
fluoxetine (17%)	grapefruit juice (17%)
duloxetine (13%)	omeprazole (15%)
sertraline (12%)	ginseng (11%)
paroxetine (3%)	cimetidine (8%)

Conclusion

- › IDgenetix is a clinically validated PGx test that combines drug-gene interactions, drug-drug interactions, and lifestyle factors and demonstrates improved outcomes through a published RCT.
- › The addition of drug-drug interactions and lifestyle factors to drug-gene interactions significantly impacted the number of drug recommendations within this study and contributed to improved remission rates for patients with moderate to severe depression.

References

- Bradley et al. *J Psychiatr Res.* 2018.
- Greden et al. *J Psychiatr Res.* 2019.
- Brown et al. *Clin Pharmacol Ther.* 2022.
- Bunka et al. *J Psychiatr Res.* 2023.

Disclosures

FC, AH, and RC are employees and stock/option holders at Castle Biosciences.