The Impact of Combinatorial Pharmacogenomic Testing on Outcomes in Black and Hispanic Patients

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INTRODUCTION

- The clinical utility of combinatorial pharmacogenomic (PGx) testing has been demonstrated across several studies. 1-3 However, a majority of the patient population in these studies has consisted of individuals that self-report as White.
- To date, there have been no direct evaluations of whether combinatorial PGx testing is equally impactful across different races and ethnicities.
- Here, we present data from post-hoc analyses on clinical outcomes from patients enrolled in the Genomics
 Used to Improve DEpression Decisions
 (GUIDED) trial that self-reported as 1)
 Black or non-Black and 2) Hispanic or non-Hispanic.

METHODS

- These two post-hoc analyses included patients enrolled in the GUIDED trial (N=1,167), grouped based on selfreported race (Black, N=165 vs. non-Black, N=1,002) and ethnicity (Hispanic, N=91 vs. non-Hispanic, N=1,076).²
- All patients received combinatorial PGx testing and were randomized into treatment as usual (TAU) or combinatorial PGx-guided (PGx-guided) arms.
- Medications on the test report were categorized based on the predicted level of gene-drug interactions [GDI, (i.e., none, moderate or significant)].
- Outcomes at week 8 were assessed using the HAM-D17 rating scale [symptom improvement (% change from baseline), response (≥50% reduction), remission (score of ≤7)], and were compared between TAU and PGxguided arms.

• At baseline, the proportion of patients taking incongruent medications (at least one significant GDI) was similar between Hispanic and non-Hispanic groups, as well as Black and non-Black groups (Figure 1). Patients taking incongruent medications are expected to derive the most benefit from PGx testing.

• Patients had better outcomes (symptom improvement, response, and remission) in the PGx-guided arm compared to TAU across race and ethnicity groupings (Table 1, Figure 2, Figure 3).

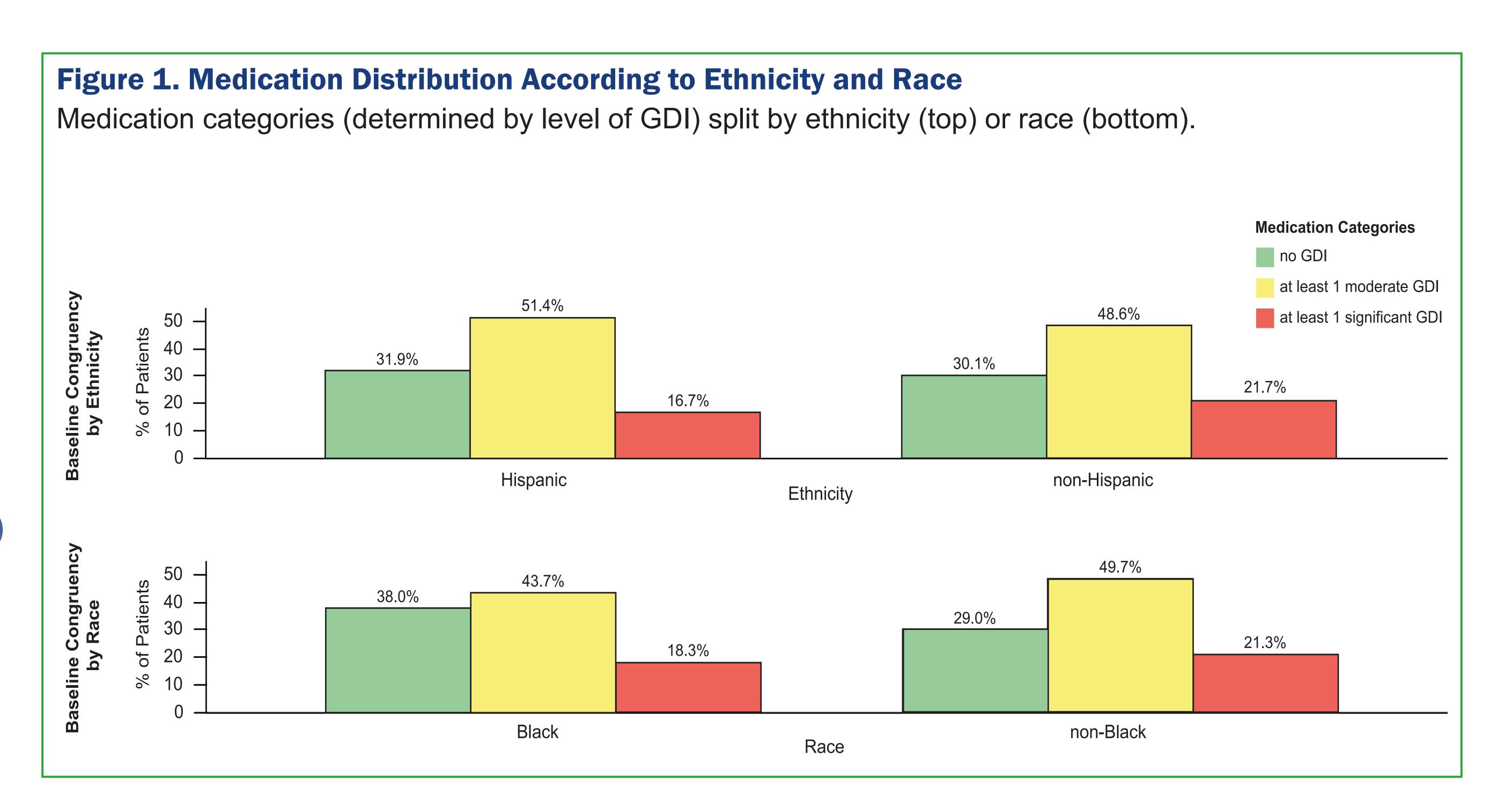


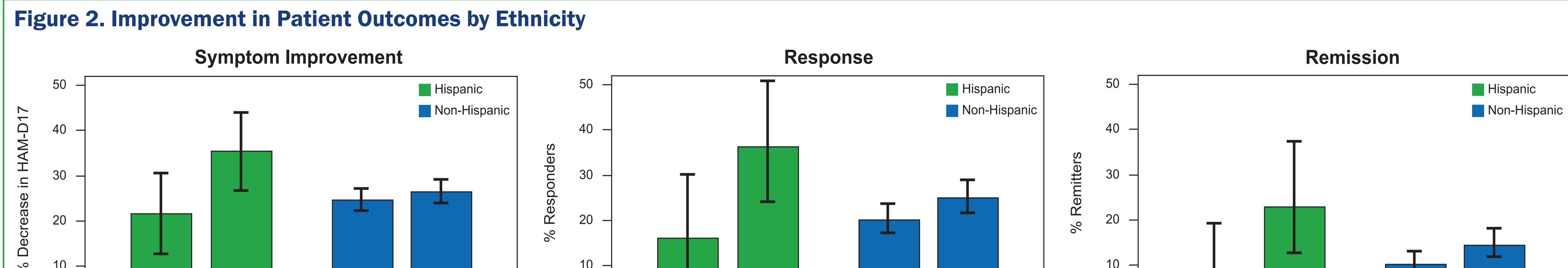
Table 1. Patient Outcomes

Relative improvement in clinical outcomes at week 8 in PGx-guided arm compared to TAU arm; difference (Δ) in percentage change for symptom improvement, odds ratio (OR) for response and remission.

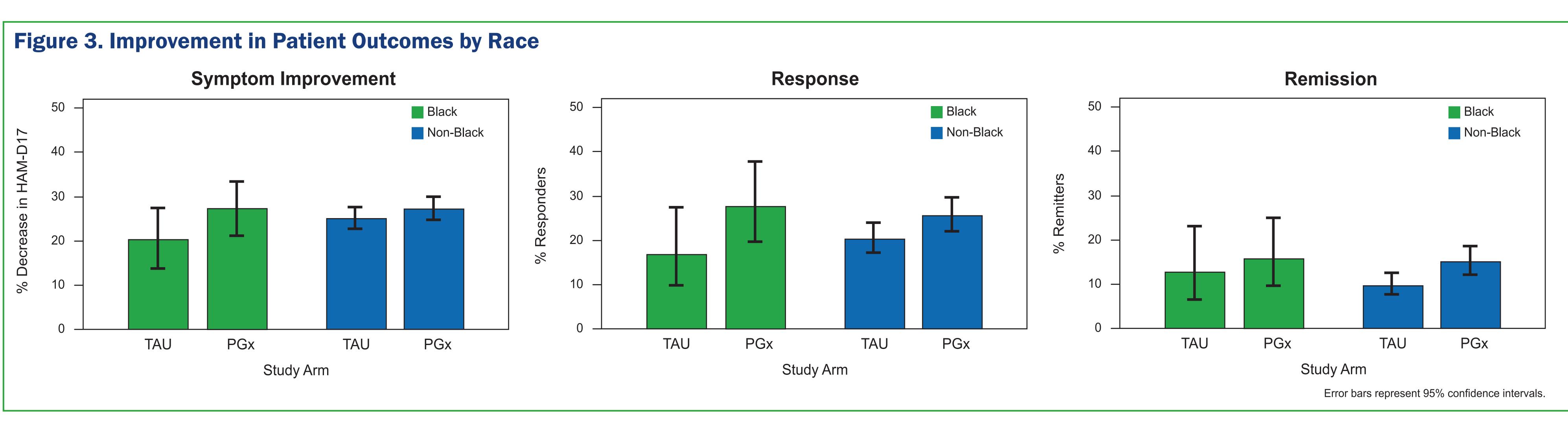
Ethnicity/Race	Variable	Symptom Improvement	Response	Remission
Hispanic	Effect	(Δ) 13.79%	(OR) 2.98	(OR) 4.10
	p-value	0.0297	0.0341	0.0453
non-Hispanic	Effect	(Δ) 1.88%	(OR) 1.74	(OR) 1.66
	p-value	0.3048	0.1951	0.0276
Black	Effect	$(\Delta) 6.78\%$	(OR) 1.91	(OR) 1.28
	p-value	0.1498	0.1001	0.5943
non-Black	Effect	(Δ) 2.31%	(OR) 1.35	(OR) 1.66
	p-value	0.2241	0.0453	0.0076

RESULTS

Study Arm



PGx



Study Arm

CONCLUSIONS

- Similarities in medication incongruency at baseline suggest that there is a similar clinical need for combinatorial PGx testing across patients who self-report as Black, non-Black, Hispanic, and non-Hispanic.
- Additionally, patients who received treatment guided by PGx testing showed improvements in clinical outcomes regardless of self-reported race or ethnicity.
- However, the sample sizes in this post-hoc analysis are small, especially for self-reported Black and Hispanic groups, and statistical significance was not achieved for some comparisons. Future studies with larger sample sizes and more diverse patient populations will be needed to confirm the findings presented here.

REFERENCES

PGx

Error bars represent 95% confidence intervals.

Study Arm

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