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## Background

- 60–75% of adults ≥65 live with multiple chronic conditions
- Chronic disease drives majority of U.S. healthcare spending
- CDSME improves self-management capacity in prior trials
- Large-scale real-world econometric evidence remains limited

## Objective

Estimate CDSME effectiveness on:

- Self-efficacy
- General health
- Loneliness/social isolation

using selection-corrected ANCOVA models applied to national implementation data

## Data Source

Healthy Aging Programs Integrated Database (HAPID®)

ACL-funded CDSME programs

United States

2010–2025

Analytic sample:

N = 19,491

Underlying implementation dataset:

532,000 participants

## Study Population Snapshot

Mean age ≈ 71

Mean chronic conditions ≈ 4

Mean disabilities ≈ 1

≈ 80% female

## Primary Result Panel Self-Efficacy

Completion associated with:

+11.7 percentage-point increase probability of high self-efficacy ( $p < 0.001$ )

Baseline persistence:

+30.3 percentage points

## Secondary Result Panel General Health

Completion associated with:

+3 percentage-point increase probability of reporting good or better health ( $p < 0.001$ )

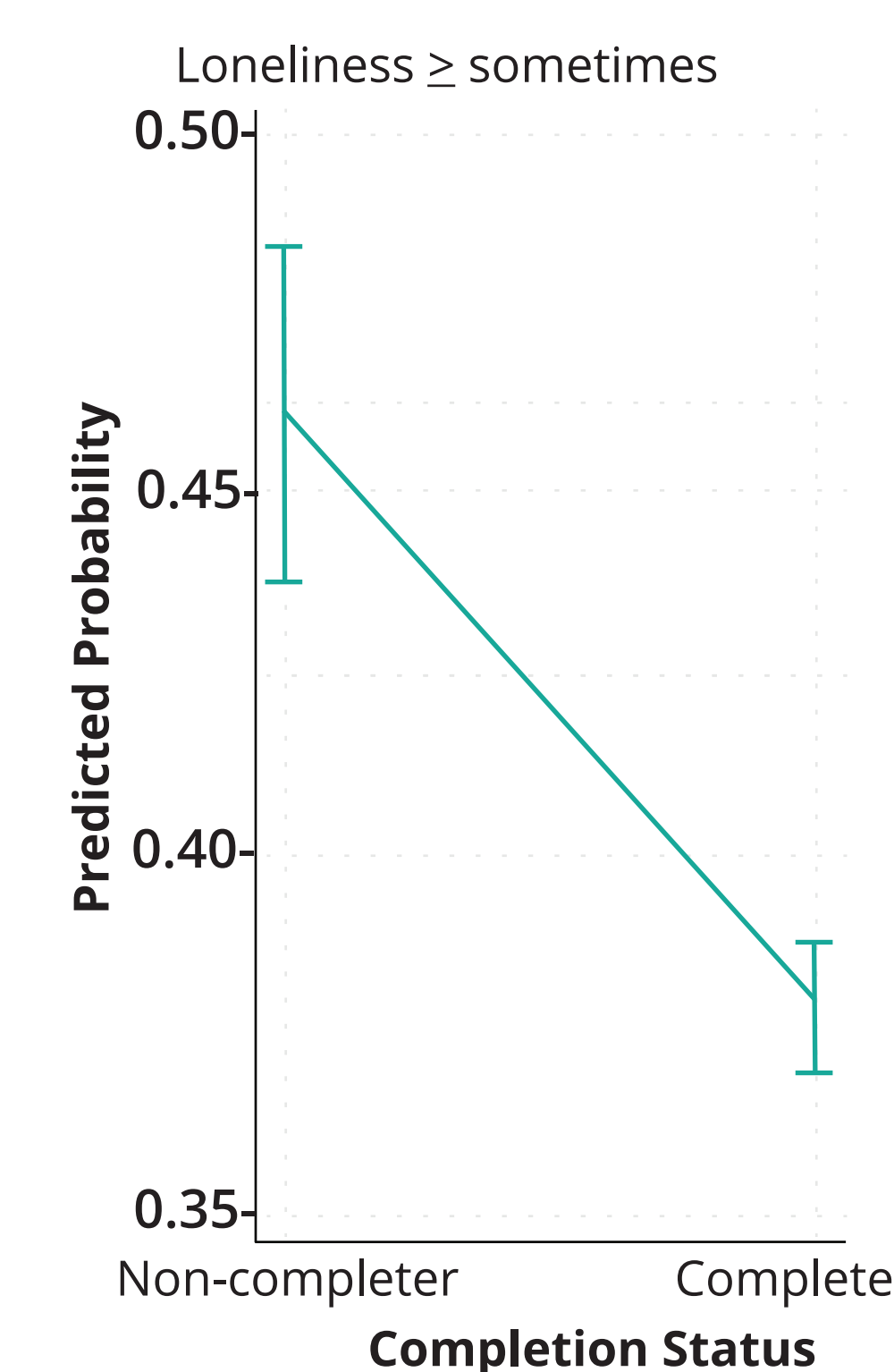
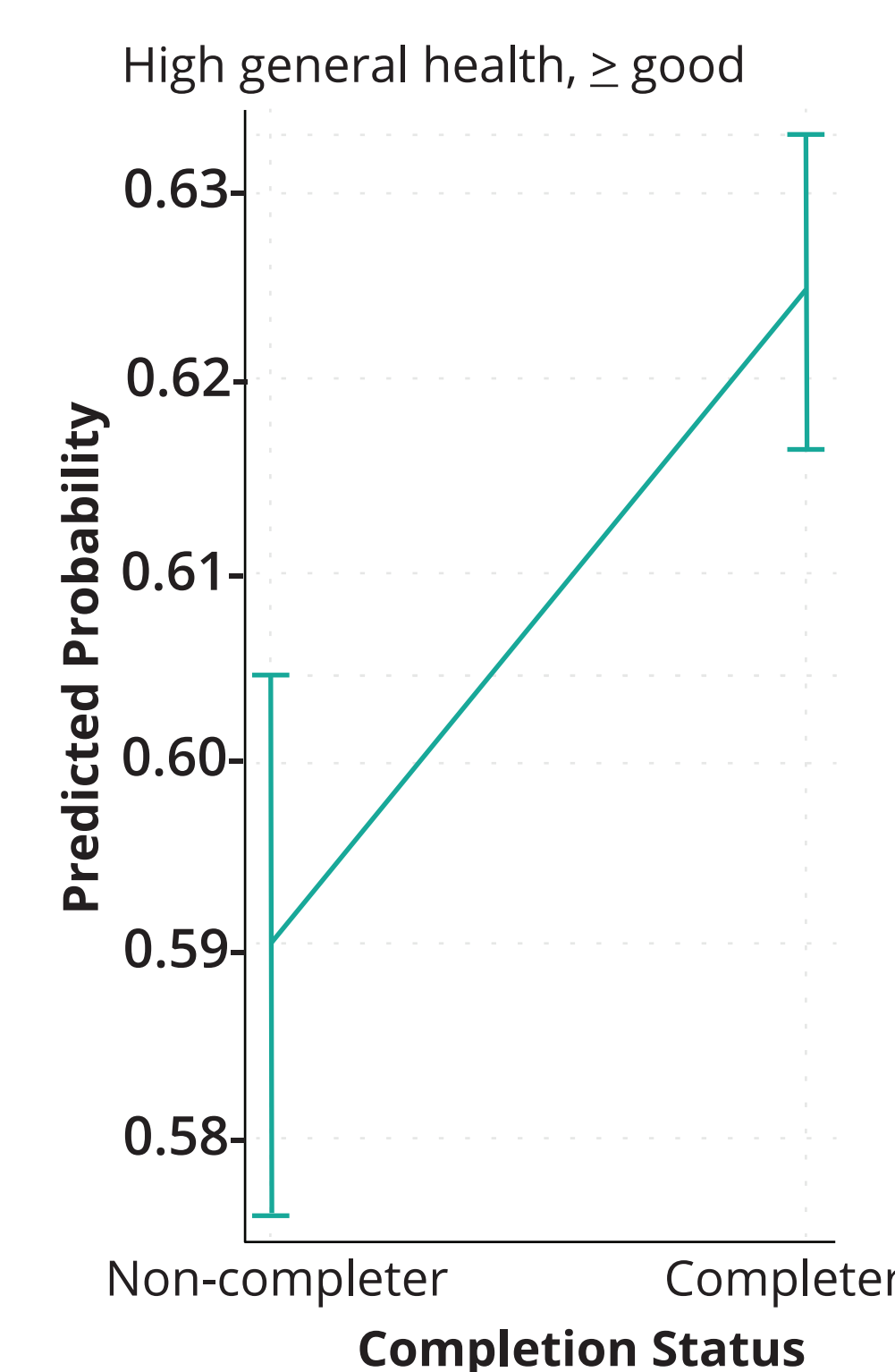
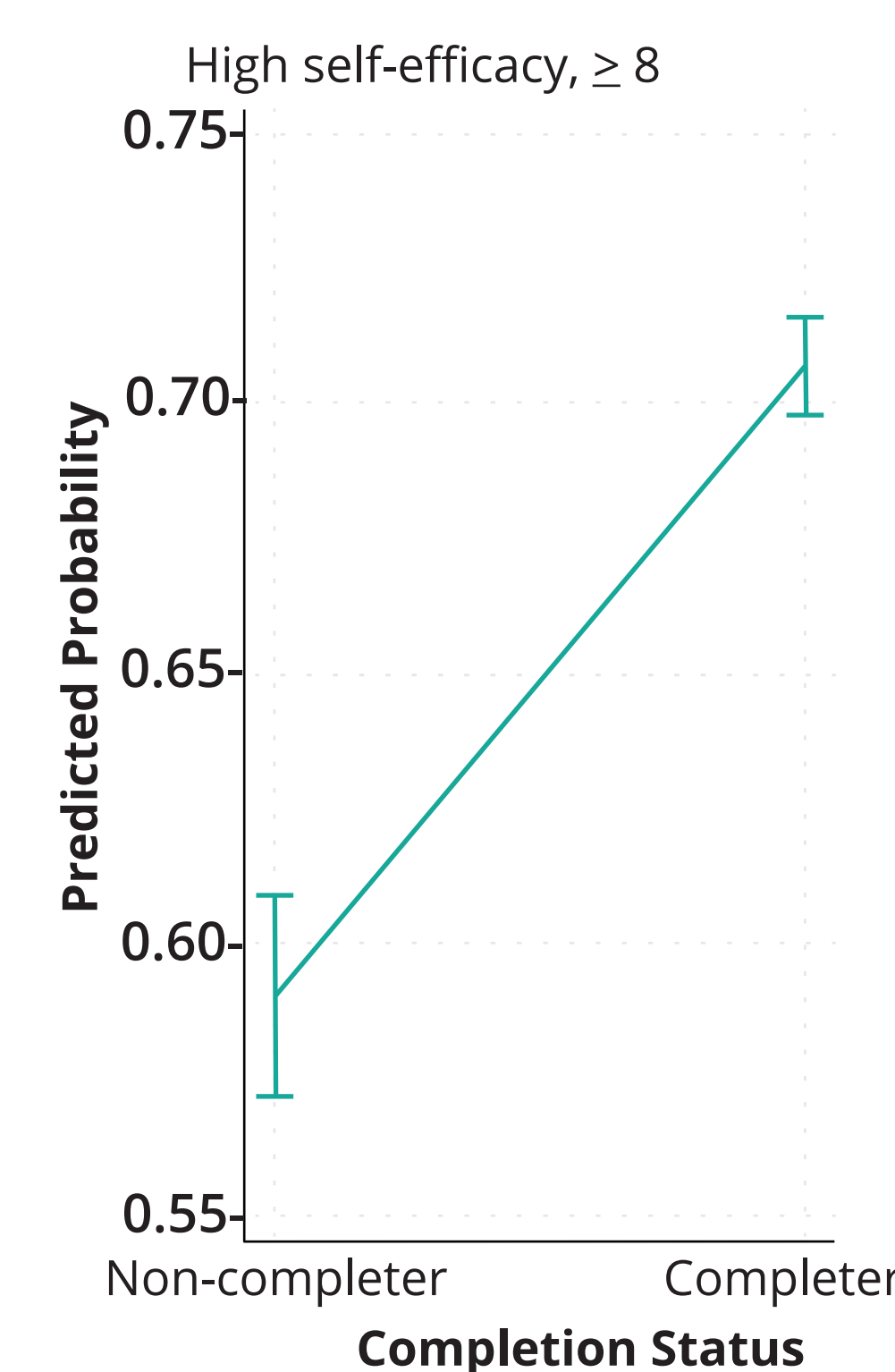
## Third Result Panel Loneliness/Social Isolation

Completion associated with:

–8 percentage-point reduction probability of loneliness/isolation ( $p < 0.001$ )

## Marginal effects comparison plot across outcomes

### Predicted Probabilities by Completion Status



## Selection Correction Panel

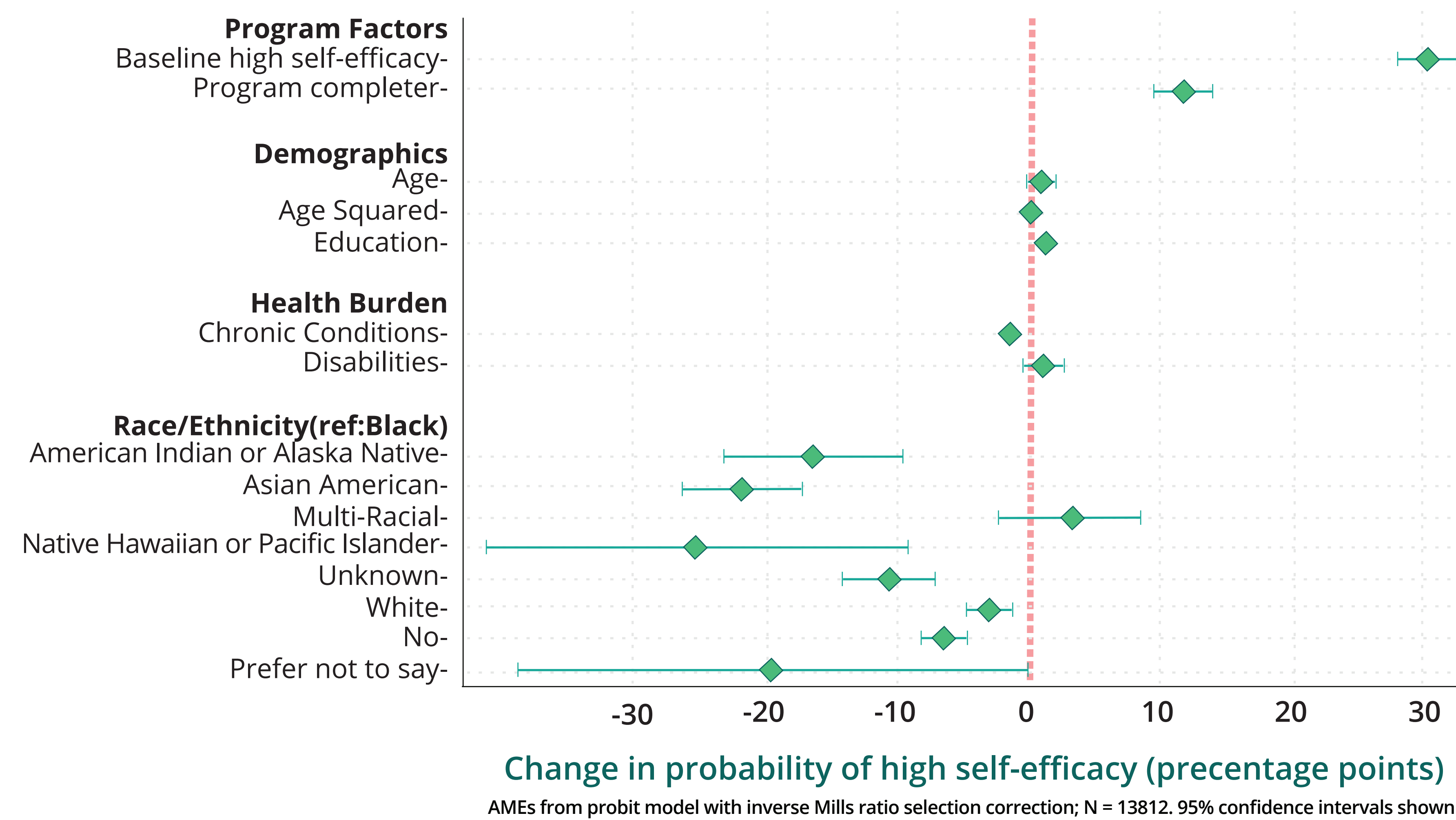
### Addressing Selection into completion

All models include: Heckman-style correction Inverse Mills Ratio significant across outcomes

**Implication:** Completion is endogenous in community-based interventions Failure to adjust may bias effect estimates.

## Determinants of High Self-Efficacy

Average marginal effects from selection-adjusted probit model



Change in probability of high self-efficacy (percentage points)  
 AMEs from probit model with inverse Mills ratio selection correction; N = 13812. 95% confidence intervals shown.

## Study Design

Pre-post observational evaluation

Key outcomes measured:

baseline, post-program completion

## Econometric Strategy

ANCOVA framework: controls baseline outcome persistence

Selection correction: Heckman two-step model

Primary estimator: Probit (average marginal effects)

Sensitivity check: Linear probability model

Results robust across specifications

## Covariate Adjustment

Models adjust for:

age, age<sup>2</sup>, sex, race/ethnicity, education, chronic conditions, disability count

## Why This Matters For HEOR

Most CDSME evaluations do not adjust for completion selection

This study separates participation effects from retention bias, improving causal interpretability in community-based program evaluation

## Limitations

Short pre-post interval limits assessment of longer-term effects

Self-reported outcomes

## Conclusions

Completion associated with:

improved self-efficacy

improved general health

reduced loneliness/social isolation

after adjusting for:

baseline status, health burden, selection bias

Supports CDSME as scalable community-clinical strategy aligned with:

Medicare prevention goals

Medicaid whole-person care models

aging network delivery infrastructure

## Key Takeways

CDSME completion increases probability of high self-efficacy by 11.7 percentage points

Selection correction materially changes interpretation of community-based intervention effectiveness

Real-world national implementation data support CDSME as scalable self-management infrastructure