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Examining Mental Health Burden Among Foreign and U.S. Born Adults: Looking at Nativity Status and Depression Outcomes using the NHANES 2017-2020 dataset

Background:

Mental health is shaped by the interplay of social and environmental factors, yet traditional models often focus on symptom treatment rather than root causes. While mental disorders affect all populations, racial/ethnic minorities and those with limited access to care are disproportionately impacted. Immigrant populations, in particular, have unique mental health patterns. Some literature suggests first-generation immigrants benefit from protective factors like cultural resilience and ethnic identity—coined the "healthy migrant hypothesis." Other studies highlight increased risk due to minority stress, acculturation, socioeconomic pressures, and barriers to care. These conflicting patterns remain poorly understood, especially when underdiagnosis and cultural context complicate assessments. We aimed to address this gap by examining whether nativity status, used as a proxy for immigrant status, is associated with differences in depression outcomes (PHQ-9 scores and clinically significant depression (MDD) diagnosis) among adults in the United States. The primary research question is: Do foreign-born adults have lower rates of depression compared to U.S.-born adults, after adjusting for confounding using propensity score methods?

Methods:

The study utilizes a cross-sectional design with data from the National Health and Nutrition Examination Survey (NHANES) 2017-2020 pre-pandemic cycle. Adults aged 21–79 with complete data on nativity and depression outcomes were included (N = 7,849). After single imputation, a random sample of N = 3,000 was drawn. The exposure was nativity status (foreign-born vs U.S.-born); outcomes were continuous PHQ-9 scores (primary) and binary MDD diagnosis (secondary). Covariates for propensity score models included demographics, socioeconomic status, health status, health care access, behavioral factors, and acculturation. Two analyses were conducted: (1) 1:1 propensity score matching (greedy matching, caliper = 0.2 SD, without replacement; (N = 266 matched pairs), and compared outcomes using linear and logistic regression on the matched sample; and (2) ATT-weighted doubly robust regression using TWANG to estimate treatment effects post-weighting (eff.N = 1107.75). Covariate balance was assessed using standardized mean differences (SMD), Rubin's Rules and other graphical diagnostics.

Results:

For the primary outcome, PHQ-9 scores, unadjusted analyses showed lower PHQ-9 scores among foreign-born individuals (mean difference: -0.95; 90% CI: -1.26, -0.64). After matching, the difference attenuated (-0.15; 90% CI: -0.78, 0.48). The doubly robust model yielded -0.65 (90% CI: -1.37, 0.06); the stability-adjusted estimate was -0.44 (90% CI: -1.13, 0.26). For the secondary outcome, MDD diagnosis, the unadjusted odds ratio was 0.54 (90% CI: 0.39, 0.73), but shifted closer to the null after adjustment: matched OR = 0.89 (90% CI: 0.45, 1.74); doubly robust OR = 1.03 (90% CI: 0.53, 2.00); stability-adjusted OR = 1.12 (90% CI: 0.57, 2.19). Propensity score methods achieved adequate covariate balance in both approaches, with most standardized mean differences below 0.1 post-matching and post-weighting. Further stability analyses were conducted to account for residual imbalances post-weighting.

Conclusions:

The findings are directionally consistent with prior research supporting the "healthy migrant hypothesis" and offer modest support, with the observation that foreign-born adults exhibit lower depressive symptoms than U.S.-born individuals. However, effect sizes were small and confidence intervals crossed the null. Additionally, the association with clinical MDD did not persist after adjustment. Hence, these results are mostly exploratory in nature and future work could build and refine on such work. While nativity status, acting as a proxy for immigrant status, may reflect differences in mental health, future work should build on these exploratory results using larger samples, culturally validated measures, subgroup analyses and longitudinal designs to better capture mental health trajectories in immigrant populations.