

Investigating Associations Between Antidepressant Usage and Demographic and Socioeconomic Variables

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I. INTRODUCTION

Depression and anxiety are common mental health conditions in the United States, and antidepressant medications play a central role in their treatment.¹ These medications can reduce symptoms, improve functioning, and enhance quality of life, making access to appropriate prescriptions an important aspect of mental health care. Patterns of antidepressant use, however, are not uniform across the population and are shaped by social determinants of health.² Factors such as socioeconomic status, race and ethnicity, educational attainment and access to healthcare have long influenced who receives treatment, contributing to persistent disparities in care.

Beyond social and demographic factors, individual health characteristics including overall physical and mental health, chronic conditions, and prescription medication burden can also influence whether individuals are more likely to be prescribed antidepressants. Psychological distress and depressive symptoms, measured with tools like the Patient Health Questionnaire-2 (PHQ-2)³ and the Kessler Index (K6)⁴ provide insight into symptom severity and the potential need for treatment, helping to contextualize antidepressant prescription patterns.

This study investigates the association between antidepressant usage and a range of demographic, socioeconomic, and health-related factors. By identifying which factors are most strongly associated with antidepressant prescription, the analysis aims to highlight populations that may face barriers to mental health treatment and inform strategies to improve equitable access to care.

II. METHODS

A. Data Sources

Prescription and demographic data were obtained from the Medical Expenditure Panel Survey (MEPS)⁵, a national survey conducted by the Agency for Healthcare Research and Quality (AHRQ). Specifically, analyses utilized the 2023 Full-Year Consolidated Data File for demographic and socioeconomic information, and the 2023 Prescribed Medicines File for details on medication prescriptions.

B. Statistical Methods

The study population consisted of 11,858 patients. First, an exploratory analysis was conducted to provide an overview of the demographic and clinical characteristics of the sample. Before modeling, missing data were addressed using a k-nearest neighbors (KNN) imputation approach to preserve sample size and reduce bias. To examine factors associated with antidepressant prescriptions, a logistic regression model was then conducted with antidepressant prescription (yes or no) as the outcome. Predictor variables included PHQ-2 and K6 scores to capture depressive symptoms and psychological distress, along with sex, age, race and ethnicity, insurance status, education, marital status, and poverty. Health factors, including comorbidity burden count and the total number of co-medications excluding antidepressants, were included to account for overall health status. Antidepressants were identified using therapeutic class code 249 in MEPS, which captures all medications classified as antidepressants.

III. RESULTS

A. Sociodemographic & Clinical Health Data Summary Statistics

To contextualize antidepressant prescribing patterns and assess whether demographic factors are associated with symptom severity at initiation, we first examined the sociodemographic characteristics of the study population. For patients who were prescribed an antidepressant, the mean age at initiation was 47.1 years (SD 18.6; see Figure 1). The sample was predominantly female (56%) and the majority of

patients were white (77.5%). Most participants had at least a high school education, with 18.6% holding a bachelor's degree. Regarding marital status, 45.8% were married, and 29.5% had never married. The income distribution was skewed toward higher incomes, with 42.2% classified as high income, and the majority of participants were insured (94.3%).

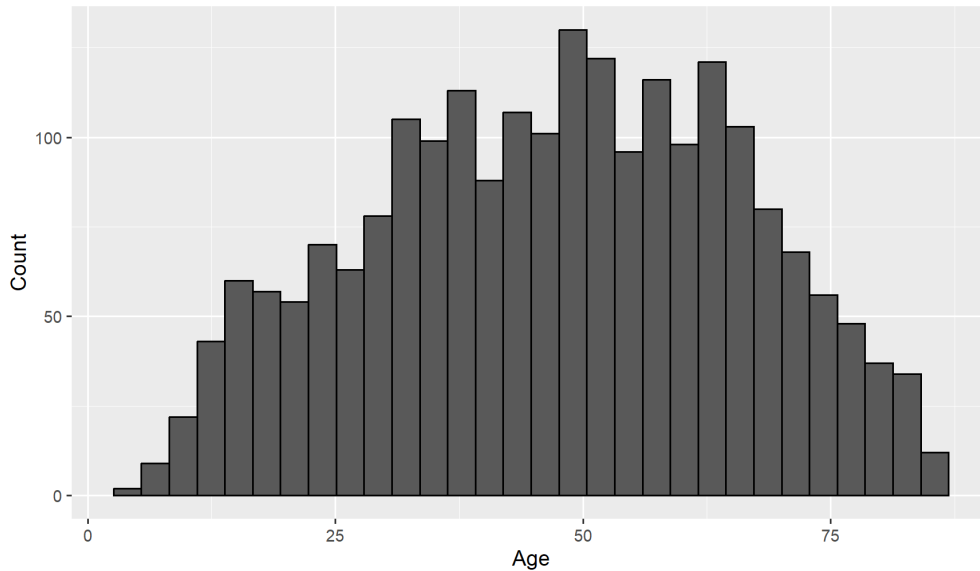


Figure 1. Distribution of Age at First Antidepressant Prescription

Among the study population, sertraline was the most commonly prescribed antidepressant (18.7%), followed closely by escitalopram (18.3%). The most prevalent comorbidities at the time of antidepressant initiation were high blood pressure (43.4%) and high cholesterol (40.8%). Table 1 lists the top five antidepressants and top five comorbidities in terms of patient count and prevalence.

Table 1. Top Five Antidepressants and Comorbidities at Initiation

Category	Antidepressant/Condition	N (%)
Antidepressants	Sertraline	787 (18.7%)
	Escitalopram	768 (18.3%)
	Trazodone	490 (11.7%)
	Fluoxetine	463 (11.0%)
	Duloxetine	416 (9.9%)
Comorbidities	High Blood Pressure (HBP)	5,147 (43.41%)
	High Cholesterol	4,843 (40.84%)
	Diabetes	2,017 (17.01%)
	Asthma	2,004 (16.9%)
	Coronary Heart Disease	839 (7.08%)

B. Logistic Regression Results

In the logistic regression model, several demographic and clinical factors were significantly associated with the likelihood of having an antidepressant prescription. Adults aged 18–44 and 45–64 had more than twice the odds of antidepressant use compared with the youngest age group (OR = 2.24, $p < .001$; OR = 2.02, $p < .001$), and adults 65 and older also showed elevated odds (OR = 1.68, $p < .001$). Males had significantly lower odds of antidepressant use than females (OR = 0.67, $p < .001$). Several Asian subgroups, including Indian and Chinese patients, had reduced odds of antidepressant usage relative to White respondents (ORs $\approx$ 0.41–0.45, $p \approx .03$ –.04). Psychological distress was strongly associated with antidepressant use as each unit increase on the K6 scale was linked to higher odds (OR = 1.07, $p < .001$). Medication burden was one of the strongest predictors, with each additional non-antidepressant medication increasing the odds of antidepressant use by about 12% (OR = 1.12, $p < .001$). In contrast, greater medical comorbidity was associated with lower odds (OR = 0.93, $p < .001$). Poor self-rated mental health was also a major predictor (OR = 1.57, $p < .001$), whereas poor physical health was associated with reduced odds (OR = 0.81, $p = .001$). Education, marital status, insurance, and poverty level were not statistically significant in the final model. Overall, age, sex, mental health indicators, and medication burden emerged as the primary factors associated with antidepressant usage.

Table 2. Summary of Logistic Regression Predictors, Definitions, and Significant Effects

Predictor Category	Definition	Significant Predictors ($p < .05$)
Age	Age grouped into <18, 18–44, 45–64, 65+	18–44, 45–64, 65+
Sex	Male vs. female	Male
Race/Ethnicity	MEPS race categories using detailed single-race groups	Asian Indian, Chinese
Depression/Psychological Distress	PHQ-2 score and K6 psychological distress score	K6
Education	Bachelor's and above vs. lower education	—
Medication Burden	Number of co-medications (not including antidepressants)	Co-medications count
Comorbidity Burden	Number of diagnosed comorbid conditions	Comorbidity count
Marital Status	Married, never married, separated, widowed	—
Insurance Status	Insured vs. uninsured	—
Self-Rated Mental & Physical Health	Poor vs. good/fair mental and physical health	Poor mental health, Poor physical health
Poverty Category	MEPS poverty categories (poor, near poor, low income, middle income)	—

IV. DISCUSSION

A. Key Findings

The results of this study reveal several meaningful patterns that align with existing literature on antidepressant usage and highlight important implications for understanding mental health care access.

The significantly lower odds of antidepressant usage among men are consistent with evidence that men face greater stigma, social pressure, and internalized norms discouraging seeking help for emotional or mental health concerns.⁶ Prior research has shown that men are less likely to report symptoms, seek mental health services, or receive pharmacologic treatment even when distressed.

The racial and ethnic differences observed also reflect well-documented inequities in mental health treatment access. The reduced odds of antidepressant use among several Asian subgroups, including Asian Indian and Chinese patients, align with studies showing that cultural factors, stigma, and language barriers contribute to lower treatment utilization in many Asian American communities.⁷ These findings reinforce concerns that minority groups often face both structural and cultural barriers that impede diagnosis and care. This underscores the importance of disaggregated analyses rather than treating Asian subgroups as well as other race/ethnicity categories as one.

The strong association between poor self-rated mental health and antidepressant use highlights the central role of subjective health assessments in mental health detection and treatment decisions.⁸ Because self-rated mental health often captures subtle, personal experiences of distress not fully represented by brief screening tools, this finding emphasizes the importance of encouraging patients to answer surveys honestly and thoroughly. In contrast, the finding that poor physical health was associated with lower odds of antidepressant use is noteworthy and may reflect concerns about medication side effects in individuals managing multiple chronic conditions. Clinicians may be cautious about prescribing antidepressants when patients have a complex medical history, given the potential for drug interactions associated with certain antidepressant classes.⁹ Similarly, a higher number of chronic medical comorbidities corresponded with lower odds of antidepressants. This again may indicate provider hesitation to introduce antidepressants in medically complex patients, or the possibility that some depressive symptoms are attributed to chronic illness.

Overall, the results align with broader evidence that demographic and psychosocial factors remain strong predictors of mental health treatment patterns, underscoring the need for targeted interventions to address disparities in care, reduce stigma, and improve culturally responsive mental health support.

B. Limitations

Several limitations should be noted. First, although racial and ethnic differences were observed, the sample was not evenly distributed across groups as the majority of the study population was white, which may limit the precision of estimates for smaller populations. Additionally, insurance status was captured only as insured vs. uninsured, preventing comparison across private insurance, Medicaid, and Medicare, each of which offers different costs and access to mental health care. A major limitation is the absence of clinical diagnoses for depression, anxiety, or related conditions. Not only did the MEPS data include PHQ-2 scores as opposed to the more robust PHQ-9, it lacked diagnostic information regarding depression or similar mental health disorders. Without formal diagnoses, it is difficult to determine whether antidepressant use reflects mental health needs, comorbid conditions, or off-label prescribing. Lastly, marital status, poverty, and education were not significant predictors in the final model, possibly indicating that these variables may not fully capture important underlying features, such as social support or health literacy.

C. Future Research

Future research should draw on datasets with more diverse clinical data. These measures would allow clearer interpretation of how symptom severity relates to prescription patterns for antidepressants. More detailed and standard racial and ethnic categories are also needed, since the current dataset used limited and atypical groupings. Furthermore, incorporating geospatial data such as census tract, neighborhood socioeconomic indicators, distance to primary care or mental health clinics, and access to parks or green space would make it possible to examine environmental and structural influences on care.

Overall, the findings highlight the complex mix of demographic, clinical, and psychosocial factors that shape antidepressant prescribing patterns. These results emphasize the need for more complete clinical data, greater demographic detail, and closer attention to structural and environmental factors to better understand who receives mental health treatment and why.

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