Disparities in adult depression by educational attainment: What are the age patterns?

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Abstract

Depression is the most common mood disorder in the United States and poses an immense health and economic burden. Disparities in depressive symptoms and treatment by socioeconomic status have been well-documented. However, it is not known whether these disparities remain constant over the life course or are dramatically larger in certain age groups.

We use data from the National Health and Nutrition Examination Survey (NHANES, 2005-2006 through 2013-2014 waves) to assess whether and how disparities by educational attainment in depressive symptoms and treatment change over the adult life course.

Reducing socioeconomic disparities is a public health goal. A better understanding of the age pattern of depression disparities may point the way toward designing effective policy interventions.

1. Background

Depression is the most common mood disorder in the United States, with an estimated lifetime risk of 30% for a major depressive episode among Americans age 13+ (Ronald C. Kessler et al. 2012). Disparities in depressive symptoms and treatment by socioeconomic status have been well-documented (McFarland and Wagner 2015; Cooper et al. 2015; Olfson et al. 2006), and they appear to be increasing in recent years, despite policy changes designed to make mental health care more broadly available (Todd and Teitler forthcoming).

Depression prevalence is not constant over the life course, although different studies do not agree on the general trajectory. A study of Swedish twins found a modest increase in depressive symptoms with age (Fiske, Gatz, and Pedersen 2003), while a study in Baltimore, MD found a U-shaped curve in age for depression symptoms, with worse symptoms at young adulthood and later life compared to middle age (Sutin et al. 2013). Other studies suggest that depression risk declines among older adults age 65+ (Ronald C. Kessler et al. 2010). To our knowledge, no studies have examined whether disparities in depression change throughout the life course.

A better understanding of the age pattern of depression disparities will provide evidence on the accumulation of health disadvantage throughout the life course. Cumulative disadvantage theory suggests that disparities may worsen throughout adulthood, but if the most disadvantaged groups experience excess mortality through adulthood, we may instead see disparities in depression outcomes narrow at older ages (Ferraro, Shippee, and Schafer 2009; George 2005; Herd 2006).

Furthermore, identifying age groups at which depression disparities are particularly high will identify vulnerable groups most in need of intervention, and the age groups most affected may provide clues as to what could be an effective policy intervention to reduce depression disparities. For example, eligibility for Medicare at age 65 presumably reduces disparities in access to high quality health insurance. Does this translate into reduced disparities in effective treatment of depression?

In this paper, we use data from the National Health and Nutritional Examination Survey (NHANES) to examine the pattern of socioeconomic disparities in depression by age group in U.S. adults. In prior work, we have documented that those with lower educational attainment are more likely to experience depressive symptoms and less likely to receive effective treatment for these symptoms compared to those with more education (Todd and Teitler forthcoming). Here, we assess whether the disadvantages conferred by low education are constant at all age groups or are more powerful at certain ages.

2. Data and Methods

We use data from the 2005-2006 through 2013-2014 NHANES waves, and plan to incorporate the 2015-2016 wave when the relevant variables are released. NHANES is a repeated, cross-sectional survey conducted in two-year waves that is nationally representative of the U.S. population.

Educational attainment was categorized into four categories: less than 12 years; a high school diploma or GED; some college; and a college degree or more. Race/ethnicity was categorized as non-Hispanic white, non-Hispanic black, Hispanic, and other.

Depressive symptoms were assessed for adults 18 years and older in the NHANES Mobile Examination Center private interview. Participants were asked nine questions from the Patient Health Questionnaire-9 (PHQ-9), a depression screening instrument (R. C. Kessler et al. 2002). NHANES respondents were asked, “over the last two weeks, how often have you been bothered by the following problems?” (1) little interest or pleasure in doing things; (2) feeling down, depressed, hopeless; (3) trouble falling asleep, staying asleep, or sleeping too much; (4) feeling tired or having little energy; (5) poor appetite or overeating; (6) feeling bad about yourself or that you are a failure or have let yourself or your family down; (7) trouble concentrating on things, such as reading the newspaper or watching television; (8) moving or speaking so slowly that other people have noticed, or the opposite, being so fidgety or restless that you have been moving around a lot more than usual; (9) thoughts that you would be better

off dead or of hurting yourself in some way. Response options were not at all (0 points), several days (1 point), more than half the days (2 points), or nearly every day (3 points). Points were summed across the nine items to obtain the PHQ-9 score for a range of 0 to 27 points. A score of ten points of higher corresponds to moderate or worse depressive symptoms and a diagnosis of Major Depression (Kroenke and Spitzer 2002).

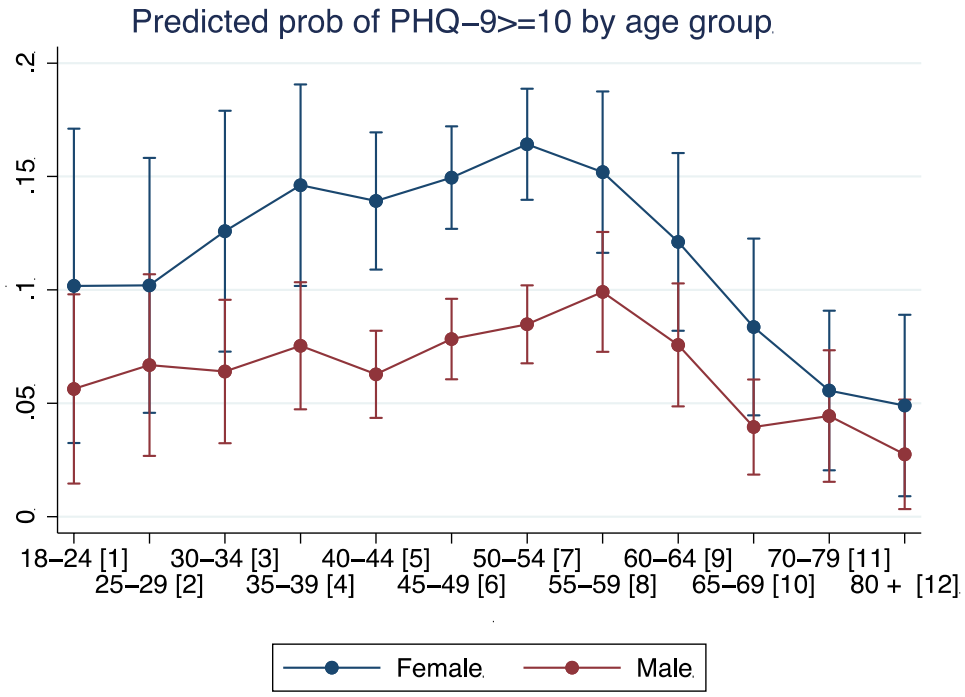
Respondents were also asked about mental health treatment. Psychotherapy use was determined as a positive response to the following question: "during the past 12 months have you seen or talked to a mental health professional such as a psychologist, psychiatrist, psychiatric nurse or clinical social worker about your health?" NHANES participants reported all prescription medication; psychopharmacology use was determined if a respondent reported a medication classified as an antidepressant by the Lexicon Plus database (Cerner Multum Inc.).

Our analytic sample includes adults 18 years of age or older in NHANES 2005-2006 through 2013-2014 with non-missing information on demographic characteristics (age, sex, race/ethnicity, educational attainment) and the depression measures described above for a total sample size of 26,037.

3. Preliminary and expected results

Figure 1 shows the predicted probabilities of moderate or worse depressive symptoms by sex and five-year age groups. These predicted probabilities are from logistic regression models of PHQ-9 score of ten or greater on sex*age group, race/ethnicity, and year of age. For both men and women, the probability of reporting moderate or worse depressive symptoms increases through early adulthood, peaking in the 50s before declining at older ages.

Figure 1: predicted probability of moderate or worse depressive symptoms (PHQ-9 score of 10+) by sex and five-year age groups



*Note: Predicted probabilities are from logistic regression models of a PHQ-9 score of ten or greater on age group*sex, 4 categories of race/ethnicity, and exact age.*

Our analytic plan involves creating parallel models and figures that examine this age trend separately by educational attainment to assess whether the pattern is the same at all levels of education. We will then compare the age groups to determine whether disparities by education are constant throughout adulthood, or are particularly large at certain age groups. We plan to assess disparities by examining odds ratios associated with education in the various age groups, as well as calculating the raw difference in numbers of people affected in each education-age group category.

In addition to looking at disparities in depressive symptoms, we will also examine the age pattern of disparities in receiving depression treatment.

4. Conclusion

This study will assess the age pattern in depression disparities by educational attainment over adulthood. We will examine whether the life course patterns in depressive symptoms and treatment are constant for those with different levels of educational attainment, and will assess whether education disparities remain constant across adulthood or are particularly large at certain ages. Identifying these age patterns may be an important step toward developing targeted policy interventions that will reduce disparities in depression outcomes.

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