



Research Letter | Public Health

Prevalence of and Inequities in Poor Mental Health Across 3 US Surveys, 2011 to 2022

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Introduction

Prior literature suggests mental health issues in the United States have not only increased population-wide in recent decades but also accumulated unevenly and unjustly across social groups.¹⁻³ However, few studies have leveraged multiple national surveys to strengthen understanding of the changing burden of poor mental health and differences across social groups. Such analyses may yield useful insights for clinical care, public health, and policies and interventions to address new, dynamic poor mental health patterns. To address this gap, we quantified the prevalence of poor mental health—and inequities by age, sex, and racial and ethnic group—among US adults across 3 national health surveys.

Methods

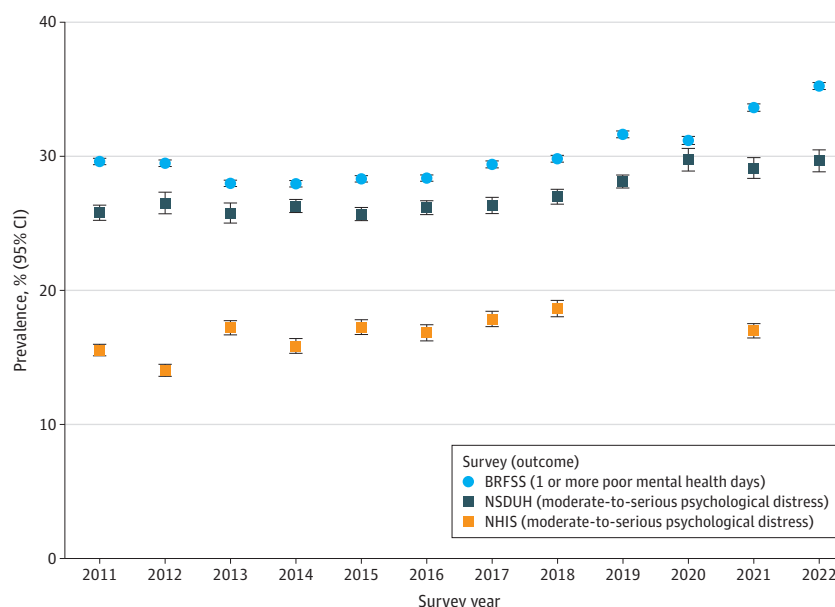
In this survey study, we analyzed 2011 to 2022 data from 3 nationally representative repeated cross-sectional surveys: the Behavioral Risk Factor Surveillance System (BRFSS), National Survey on Drug Use and Health (NSDUH), and National Health Interview Survey (NHIS). See key survey features in eTables 1 and 2 in [Supplement 1](#).

In NSDUH and NHIS, we examined past 30-day moderate-to-serious psychological distress by dichotomizing Kessler-6 scores as 0 to 4 vs 5 to 24 (higher scores indicate greater distress).⁴ In BRFSS, we assessed whether respondents reported 1 or more poor mental health days in the past 30 days because BRFSS does not include the Kessler-6.⁵ We refer to both outcomes as metrics of poor mental health.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Figure 1. Weighted Prevalence of Poor Mental Health by Survey: US Adults, 2011 to 2022

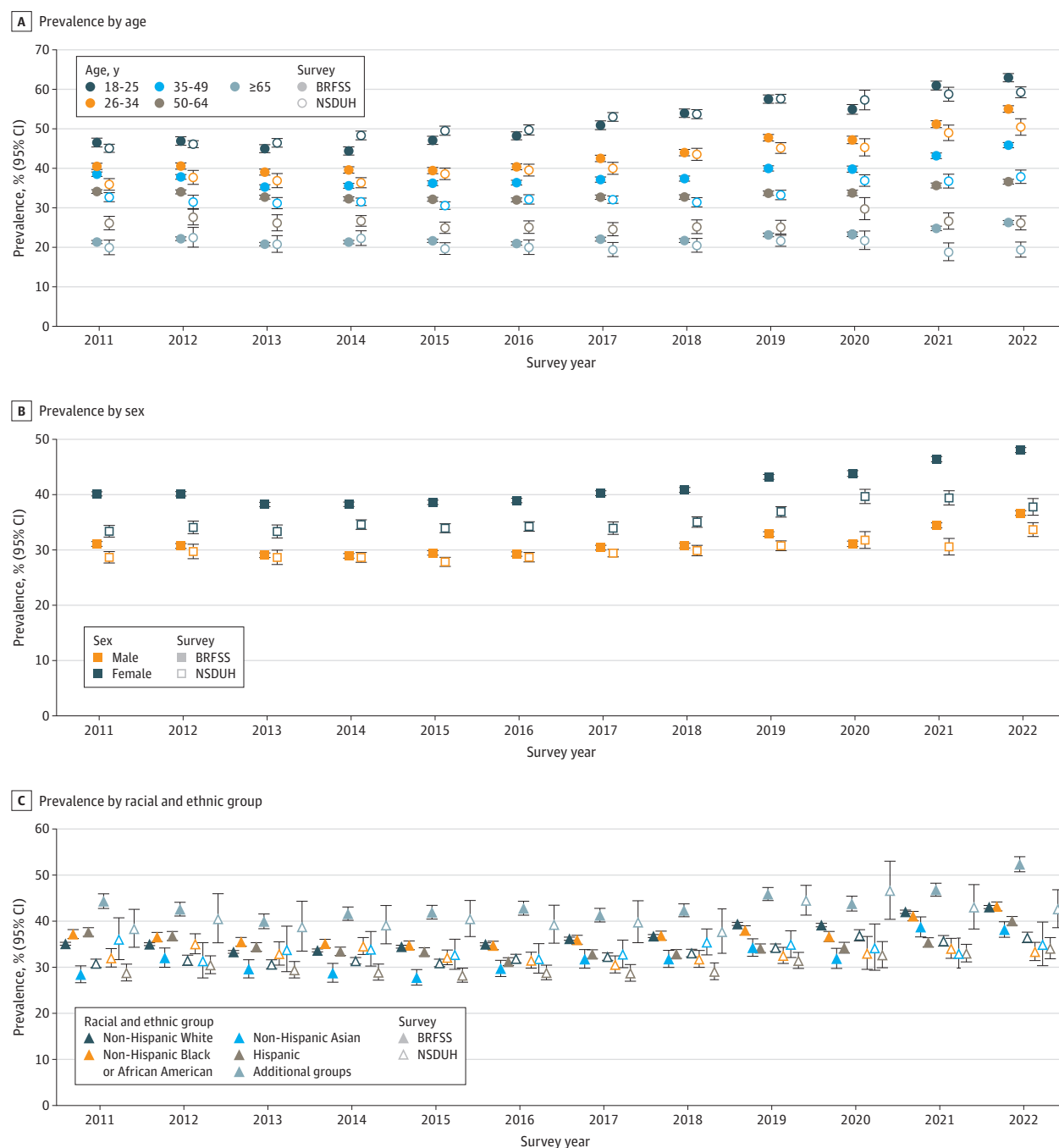


Data on psychological distress were not collected by the National Health Interview Survey (NHIS) in 2019, 2020, and 2022 due to survey redesign. Whiskers indicate 95% CIs. BRFSS indicates Behavioral Risk Factor Surveillance System; NSDUH, National Survey on Drug Use and Health.

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After examining the weighted characteristics of adults in each survey (eTable 3 in Supplement 1), we estimated poor mental health prevalence by survey year overall and by age, sex, and self-reported racial and ethnic group. All analyses accounted for complex survey designs. We did

Figure 2. Weighted Prevalence of Poor Mental Health by Social Group: US Adults, 2011-2022



The poor mental health outcomes assessed are 1 or more poor mental health days in the Behavioral Risk Factor Surveillance System (BRFSS) and moderate-to-serious psychological distress in the National Survey on Drug Use and Health (NSDUH). Due to limits on public-use data harmonization, in BRFSS, the first 2 age categories include, respectively, those aged 18 to 24 years and those aged 25 to 34 years. The category additional racial and ethnic groups refers to groups collapsed due to small size. In BRFSS,

this includes American Indian or Alaskan Native only, non-Hispanic; Native Hawaiian or other Pacific Islander only, non-Hispanic; other race only, non-Hispanic; and multiracial, non-Hispanic. In NSDUH, this includes American Indian or Alaska Native only, non-Hispanic; Native Hawaiian or Other Pacific Islander only, non-Hispanic; and more than 1 race, non-Hispanic. Overlapping estimates were horizontally dodged for improved visibility. Whiskers indicate 95% CIs.

not test for time trends because of discontinuities in NSDUH (pandemic-related) and NHIS (survey redesign-related) data comparability over time, even after weighting (eTable 2 in [Supplement 1](#)). Since less than 3% of observations were missing for each variable, we conducted complete case analysis. This secondary analysis of public-use, deidentified survey data was considered not human subjects research by the Harvard University Committee on the Use of Human Subjects. We followed the [AAPOR](#) reporting guideline. Stata version 18.0 (StataCorp) was used for analysis. The eAppendix in [Supplement 1](#) provides additional methodological details.

Results

Weighted characteristics of the US adult population for 2011 to 2022 were similar in the 3 surveys: approximately 3 billion adults, with approximately 13% aged 18 to 25 years, 51% female, 16% Hispanic, 5% non-Hispanic Asian, 12% non-Hispanic Black, and 64% non-Hispanic White. From 2011 to 2022, 35.7% to 42.5% of adults in BRFSS experienced poor mental health. Similarly, 31.1% to 35.8% experienced poor mental health in NSDUH, but only 18.7% to 20.5% did in NHIS, despite these latter 2 surveys using the same psychological distress measure (**Figure 1**). Given differences in BRFSS and NSDUH vs NHIS (and NHIS's inconsistent mental health data collection in recent years) the remaining results focus on BRFSS and NSDUH.

In subgroup analyses, poor mental health prevalence was higher among younger adults and lower among older adults—and increasingly so, until 2020, when younger adult prevalence stabilized or decreased in NSDUH and BRFSS, respectively, while older adult prevalence increased or remained stable (**Figure 2A**). Poor mental health prevalence was consistently higher among female vs male adults. This gap widened in 2020 to 2021, then decreased in 2022 in both surveys (**Figure 2B**). Some racial and ethnic inequities narrowed or reversed direction, driven by worsening mental health among White adults (**Figure 2C**). For example, prevalence was higher among Black adults than White adults in both surveys from 2011 to 2015, but this gap reversed direction thereafter, most notably in 2020.

Discussion

This survey study documents increasingly prevalent poor mental health from 2011 to 2022 across multiple US health surveys, with notable prevalence differences in BRFSS and NSDUH vs NHIS.⁶ Inequities in these outcomes by age, sex, and racial and ethnic group were often sizeable and changed over time in distinct ways, consistent with findings in prior literature.¹⁻³ Study limitations included our use of similar, but not directly comparable, measures of nonspecific poor mental health across surveys. Further research on mechanisms underlying observed trends before and since 2020 is needed to inform policy and clinical interventions to improve population mental health and health equity.

ARTICLE INFORMATION

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Author Contributions: Drs Wright and Dore had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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Acquisition, analysis, or interpretation of data: Wright, Dore, Mangurian, Williams.

Drafting of the manuscript: Wright, Dore.

Critical review of the manuscript for important intellectual content: Wright, Koenen, Mangurian, Williams, Hamad.

Statistical analysis: Wright, Dore.

Obtained funding: Hamad.

Supervision: Koenen, Mangurian, Hamad.

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Data Sharing Statement: See [Supplement 2](#).

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SUPPLEMENT 1.

eAppendix. Supplemental Methods

eTable 1. Selected Features of Each Survey Before the Onset of the COVID-19 Pandemic

eTable 2. Selected Impacts of the COVID-19 Pandemic on Each Survey

eTable 3. Weighted Sample Characteristics by Survey: US Adults, 2011–2022

eReferences.

SUPPLEMENT 2.

Data Sharing Statement