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Age, Period, and Cohort Trends in Perceived Mental Health Treatment Need and Differences by Mental Health Severity in the United States, 2008–2019

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Abstract

Identifying age, period, and cohort trends in perceived mental health treatment need over time by mental illness severity is important to identify where to focus early intervention efforts. We included adults who did not report receiving past-year mental health treatment in the 2008–2019 National Survey on Drug Use and Health (N = 364,676). Hierarchical age-period-cohort models were used to assess perceived mental health treatment need, adjusting for demographics stratified by mental illness severity (none, any but not severe [AMI], severe [SMI]). Median odds ratios estimated cohort and period variance. Cohort effects explained a significant portion of the variance over time; period effects were minimal. Perceived mental health treatment need was highest among adults with AMI from recent birth cohorts (2000–2002: β = 1.12; 95% CI = 0.96, 1.28). Efforts are needed to address increases in perceived mental health treatment need in younger birth cohorts, such as removing structural barriers (e.g., healthcare system barriers).

Keywords Birth cohort effects · Mental health · Perceived mental health treatment need · Psychiatric services

Introduction

Mental illness, including depression and anxiety disorders, is common and undertreated (Wang et al., 2005), despite effective available treatments and interventions (Khan et al., 2012). Only 44.8% of all adults with mental illness in the US received mental health treatment in 2019 (National Alliance on Mental Illness, 2021). Mental illness severity and treatment utilization differs by age. Young adults ages 18–25 have higher prevalence of any psychiatric disorder (29.4%) compared with other adult age groups (ages 26–49: 25.0%, ages 50 +: 14.1%), but lower prevalence of treatment use (38.9% versus 45.4% in ages 26–49 and 47.2% in ages 50+) (National Institute of Mental Health, 2021). Many

individuals with a psychiatric disorder perceive a need for treatment but do not receive it, partly due to structural barriers to receiving treatment (e.g., limited access (National Alliance on Mental Illness, 2017) or other systems-level barriers to care), negative attitudes about treatment (Bonabi et al., 2016; Mojtabai et al., 2016), or a combination (Green et al., 2020).

Perceived mental health treatment need has increased in all adults with any mental illness from 20.6% in 2008 to 26.0% in 2019 (SAMHSA, 2020b). However, these trends may vary substantially by age group (SAMHSA, 2020b). Available literature utilizing data from 2001 to 2003 indicates that perceived mental health treatment need is higher in young adults and 38.1% of young adults ages 25–34 with any lifetime psychiatric disorder perceived mental health treatment need without receiving care compared with 10.8% of older adults ages 65–74 (Mackenzie et al., 2010). While perceived mental health treatment need among those with any mental illness increased from 2008 to 2019, increases were greatest in young adults compared with older adults (e.g., ages 18 to 25: 30.2% in 2008 versus 40.7% in 2019; ages 26 to 49: 23.3% in 2008 versus 28.0% in 2019) (SAMHSA, 2020b). Mental illness severity is strongly linked to perceived treatment need (Mojtabai

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et al., 2002) and mental illness severity has increased over time with major depressive episodes with severe impairment increasing in all adults from 4.3% in 2016 to 5.3% in 2019 (SAMHSA, 2020b). However, age trends in perceived mental health treatment need by mental illness severity in the context of birth cohort and time period trends are understudied.

One common identification challenge in estimating age differences in mental health risk patterns is variation by time period and birth cohort (Salway et al., 2021). Time period effects encompass changes in prevalence that occur over time and affect the entire population across age (Bell & Jones, 2013). Birth cohort effects estimate the shared experiences that accumulate across the life course of individuals born during a specific time period that might differentiate risk of mental health outcomes (Bell & Jones, 2013). Age, period, and cohort (APC) models separate age effects that estimate developmental changes independently of time effects, period effects that assess time changes independently of age effects, and cohort effects that are interdependent on both developmental and time changes. APC trends in various mental health outcomes (e.g., psychological distress (Keyes et al., 2014), major depressive disorder (Wickramaratne et al., 1989), suicide attempts (Salway et al., 2021)) have been identified in prior research demonstrating that more recent birth cohorts have higher prevalence of mental health outcomes compared with older birth cohorts. No research has assessed APC trends in perceived mental health treatment need among individuals with varying disorder severity despite strong links between severity and perceived treatment need (Mojtabai et al., 2002). APC trends in perceived mental health treatment need could allow us to focus prevention and treatment resources on those with indicated treatment need. For example, if younger birth cohorts have higher indicated treatment need and digital mental health interventions are more acceptable in these cohorts (Apolinario-Hagen et al., 2017) then more investment in these types of interventions could be needed.

To fill these evidence gaps, we assessed APC trends in perceived mental health treatment need in the US from 2008 to 2019. Since perceiving a need for treatment decreases with age (Forbes et al., 2017), we hypothesized that younger adults would have higher perceived treatment need compared with older adults, independently of time period and birth cohort trends. We did not anticipate substantial period trends, as descriptive analyses indicate that increases in perceived need over time appear to be focused in younger age groups (SAMHSA, 2020b) and age effects may be primarily driving changes in perceived mental health treatment need. We expected that young birth cohorts with more severe mental illness would have higher prevalence of perceived mental health treatment need compared with older birth cohorts.

Methods

Data Source and Study Population

The National Survey on Drug Use and Health (NSDUH) is an annual cross-sectional survey of substance use and mental health among people in the United States ages 12 and older. The community-based sampling frame included households, homeless shelters and nursing homes, while excluding correctional settings and other institutionalized people (SAMHSA, 2014). The NSDUH used computer-assisted interviewing to obtain nationally representative estimates of behavioral health indicators, and audio computer-assisted self-interviewing to capture sensitive behaviors. Further details about NSDUH methods and survey design can be found elsewhere (SAMHSA, 2014). Weighted interview response rates for adults 18 and older were 73.3% in 2008 (SAMHSA, 2009) and 64.2% in 2019 (SAMHSA, 2020a).

The study sample included adults ages 18 and older in the NSDUH from 2008 to 2019 (N = 484,732). We excluded survey respondents with missing data for derived birth cohort or age (n = 50,466), perceived mental health treatment need (n = 1,577), mental health treatment (n = 858), and mental illness severity (n = 1). Of the remaining 431,836 adults, 15.2% (n = 67,160) used past-year mental health treatment (i.e., received treatment at inpatient or outpatient services or prescription medications) and were excluded to focus on people who are not engaged in mental health treatment. The final analytic sample was 364,676. Additional supplemental analyses were conducted among adults who used past-year mental health treatment to better understand undertreatment, or perceived need for additional mental health treatment (n = 67,160).

Measures

Perceived Mental Health Treatment Need

The primary outcome of interest was perceived mental health treatment need defined as those responding yes to the following question: "During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?".

Age, Period, and Cohort

Period was measured based on the calendar survey year (e.g., 2008). Similar to Miech et al. 2013, we used surrogate questions to derive age (in years) since the public NSDUH data does not include a variable for respondent's exact age (i.e., public NSDUH data only includes broader age groups).

Combining data from survey questions about age and calendar year when the respondent first initiated substance use (e.g., alcohol), exact age was derived. Birth year was estimated by subtracting calendar year of substance use initiation from age at substance use initiation. For example, if a respondent reported initiating alcohol use for the first time at age 18 in the year 2010, then the respondent's assigned birth year was 1992. Reliability checks were completed comparing various substance use questions among the respondents that used multiple substances. Cronbach's alpha across birth cohort measures estimated from various substance use initiation variables was high ($\alpha = 0.999$). Age was derived by subtracting the imputed birth year from the NSDUH survey year. Cronbach's alpha comparing NSDUH age group categories and derived age measures estimated from various substance use initiation variables was high ($\alpha = 0.997$). Derived age was aggregated into these age groups: 18–25, 26–34, 35–49, 50–64, and 65 or older. Derived birth cohort was defined by the following birth year groups: 1904–1945, single-year birth cohorts from 1946 to 1999, and > 2000.

Mental Illness Severity

Any mental illness was defined by as the Substance Abuse and Mental Health Service Administration (SAMHSA) as having at least one past-year psychiatric disorder other than a substance use disorder irrespective of impairment levels. Serious mental illness was characterized by SAMHSA as having at least one past-year mental illness that led to serious impairment (Hedden et al., 2013). In this study, mental illness severity was characterized as (1) serious mental illness, (2) any mental illness but not serious mental illness, and (3) no mental illness. Severity was based on cut-off points for predicted probabilities of mental illness severity with short scales of psychological distress and impairment, based on Kessler-6 questions and a list of items adapted from the World Health Organization Disability Assessment Schedule (SAMHSA, 2015). SAMHSA developed the prediction model by utilizing a sub-population of NSDUH survey participants that also were included in the 2008 Mental Health Surveillance Study (SAMHSA, 2015). Clinical diagnostic interviews were conducted 2–4 weeks following NSDUH interviews via phone interviews with trained clinical interviewers. Reliability of the model was improved in 2012 when three additional predictors were added to the models, improving accuracy of serious/any mental illness and national generalizability of estimates (Hedden et al., 2013).

Covariates

Individual characteristics included sex (male, female), education (less than high school, high school but not college, some college or college grad), race/ethnicity (non-Hispanic white, Black/African American, Hispanic, Asian/Pacific Islander/Native Hawaiian, other/multiracial/multiethnic/ Native American/Alaskan Native), and household income ($0–19,999; $20,000–49,999; $50,000–74,999; $75,000 +).

Statistical Analysis

First, we described the prevalence of perceived mental health treatment need over time in the NSDUH from 2008 to 2019, overall and by age group and birth cohort. We applied survey weights and used Taylor linearization to estimate standard errors to account for the complex survey design. We then utilized a hierarchical age-period-cohort (HAPC) model to assess average relationships between APC and perceived mental health treatment need stratified by mental illness severity. The APC method can parse out time trend effects (i.e., period effects) accounting for age and birth cohort and birth cohort effects accounting for age and time trends (Salway et al., 2021), allowing for stronger identification of developmental and time changes in perceived mental health treatment need by mental illness severity.

As age, period, and cohort are collinear (cohort = period-age), these HAPC models required various assumptions (Bell & Jones, 2013). HAPC models were cross-classified random effects models with level-1 covariates including age as a fixed effect and a varying intercept across level-2 non-nested components (i.e., year and birth cohort) (Yang, & K.C 2013). Logistic HAPC models accounted for the following additional level-1 covariates: sex, education, race/ethnicity, and household income. Median odds ratios were calculated to examine the degree to which period and birth cohort effects explained variance in perceived mental health treatment need by mental illness severity from 2008 to 2019. MOR is interpreted as the odds ratio of perceived mental health treatment need between two individuals with equivalent individual-level level-1 covariates from distinct periods or birth cohorts (Larsen & Merlo, 2005; Merlo et al., 2006). For example, a high MOR for birth cohort effects meant that there was substantial variation in the prevalence of perceived mental health treatment need across birth cohorts. The variance parameter was estimated from the HAPC models utilizing this formula: $MOR = e^{\wedge}(\sqrt{2 * Period\ or\ Cohort\ Level\ Variance * 0.6745})$ (Merlo et al., 2006). Data management was conducted in STATA, visuals in R, and HAPC statistical models in SAS.

Results

Across all years, adults with severe mental illness who were not engaged in past-year treatment had the highest prevalence of perceived mental health treatment need (41.03%) compared to perceived need for treatment among those with

any mental illness (12.61%) and no mental illness (1.02%). Among adults with serious mental illness without past-year mental health treatment use, prevalence of perceived mental health treatment need increased over time from 39.55% in 2008 to 44.31% in 2019, particularly since 2016 (37.95%). Perceived mental health treatment need also increased among adults with any mental illness from 11.86% in 2008 to 16.38% in 2019 (Fig. 1).

Figure 2 displays trends in perceived mental health treatment need by age group and birth cohort among those with any mental illness that did not use past-year mental health treatment from 2008 to 2019. Perceived mental health treatment need among those with any mental illness peaked in ages 28–32 (e.g., 21.27% of the study population ages 18–22 perceived a need for mental health treatment). Across all ages, younger birth cohorts with any mental illness had
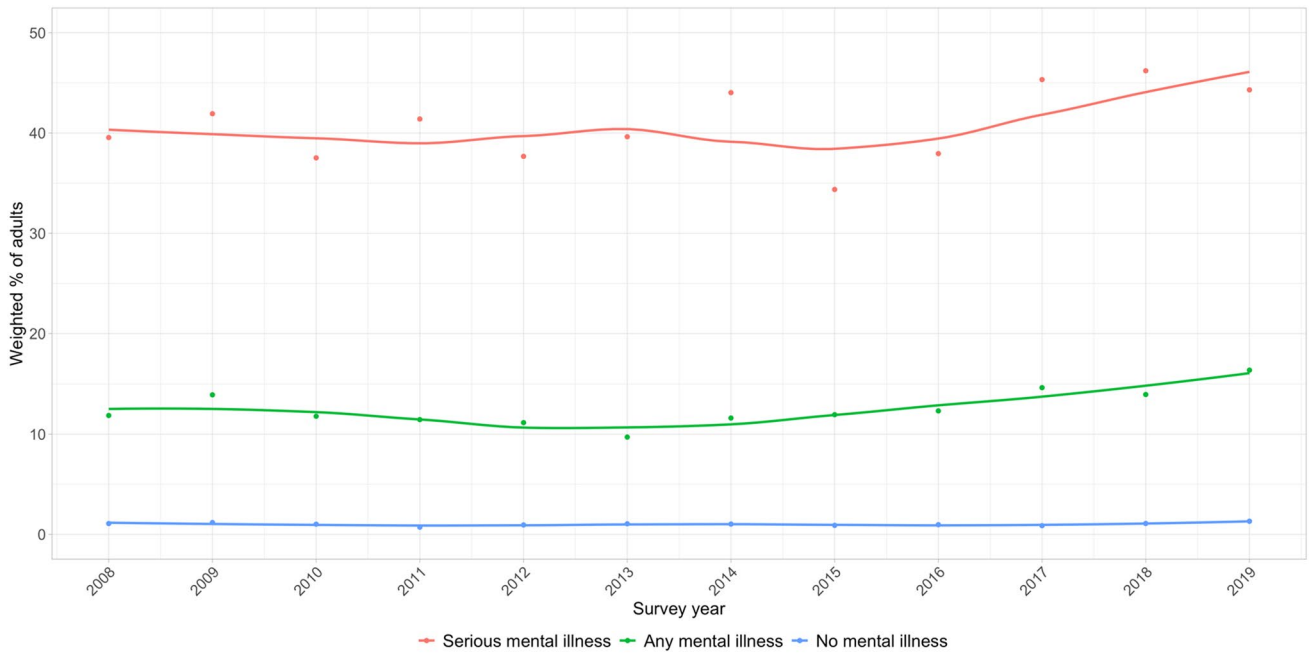

Fig. 1 Prevalence of past-year perceived mental health treatment need among adults 18 and older without past-year mental health treatment use over time by mental illness severity, NSDUH 2008–2019 (N = 364,676)
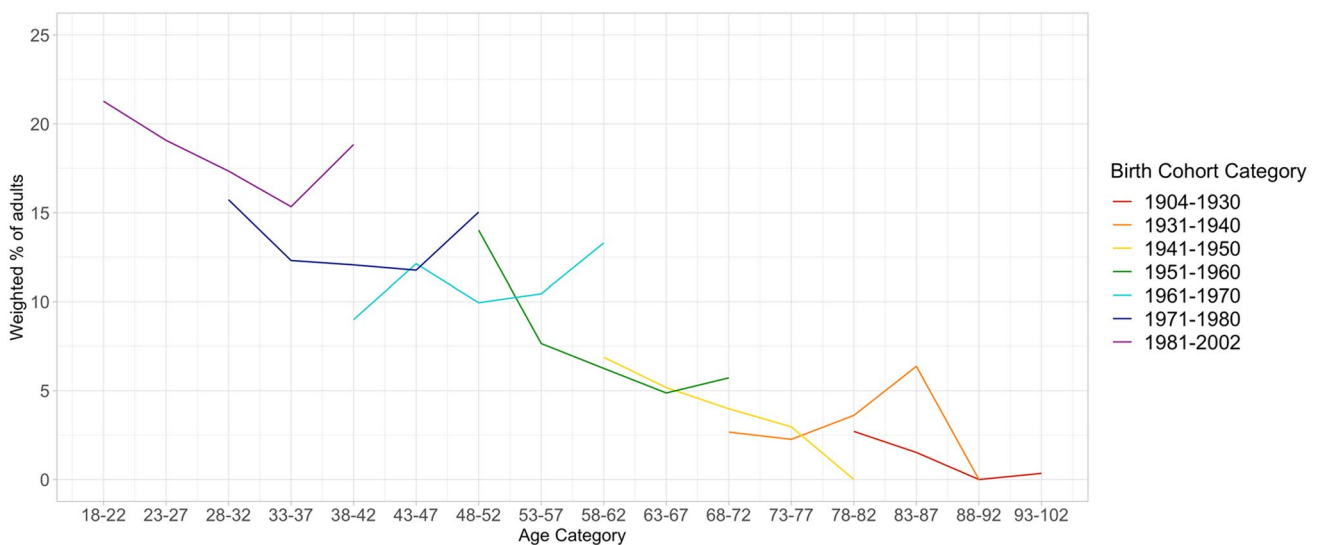

Fig. 2 Age- and birth cohort-specific prevalence of past-year perceived mental health treatment need among adults 18 and older with any mental illness and no past-year mental health treatment use, NSDUH 2008–2019 (N = 46,340)

higher overall perceived mental health treatment need compared with older birth cohorts (e.g., 1.22% in birth cohorts 1904–1930 versus 18.86% in birth cohorts 1981–2002). Supplemental Figs. 1 and 2 illustrate trends by age group and birth cohort among those with serious mental illness and no mental illness, respectively, and Supplemental Figs. 3–5 display these trends among those currently receiving mental health treatment by serious mental illness, any mental illness, and no mental illness.

Figure 3 illustrates period and cohort effects for perceived mental health treatment need by mental illness severity group among those without past-year mental health treatment use accounting for sex, race/ethnicity, education, and household income. The period effects indicated slight decreases in period trends in perceived mental

health treatment need from 2011 to 2017. Period effects were lowest in 2015 among those with serious mental illness (β = − 0.34; 95% CI = − 0.26, − 0.42) and highest in 2002 (β = 0.14, 95% CI = 0.06, 0.22); however, period trends were modest at all time points from 2008 to 2019. Perceived mental health treatment need was highest among individuals from most recent birth cohorts peaking in those born in 2000–2002 among those with any mental illness (β = 1.12; 95% CI = 0.96, 1.28). Results were similar across mental illness severity group.

Table 1 displays the MOR for period and birth cohort effects overall and by mental illness severity. Meaningful cohort effects were observed among adults with serious mental illness (MOR = 1.50; covariance parameter: 0.92; 95% CI: 0.63, 1.48). Thus, two individuals with the same
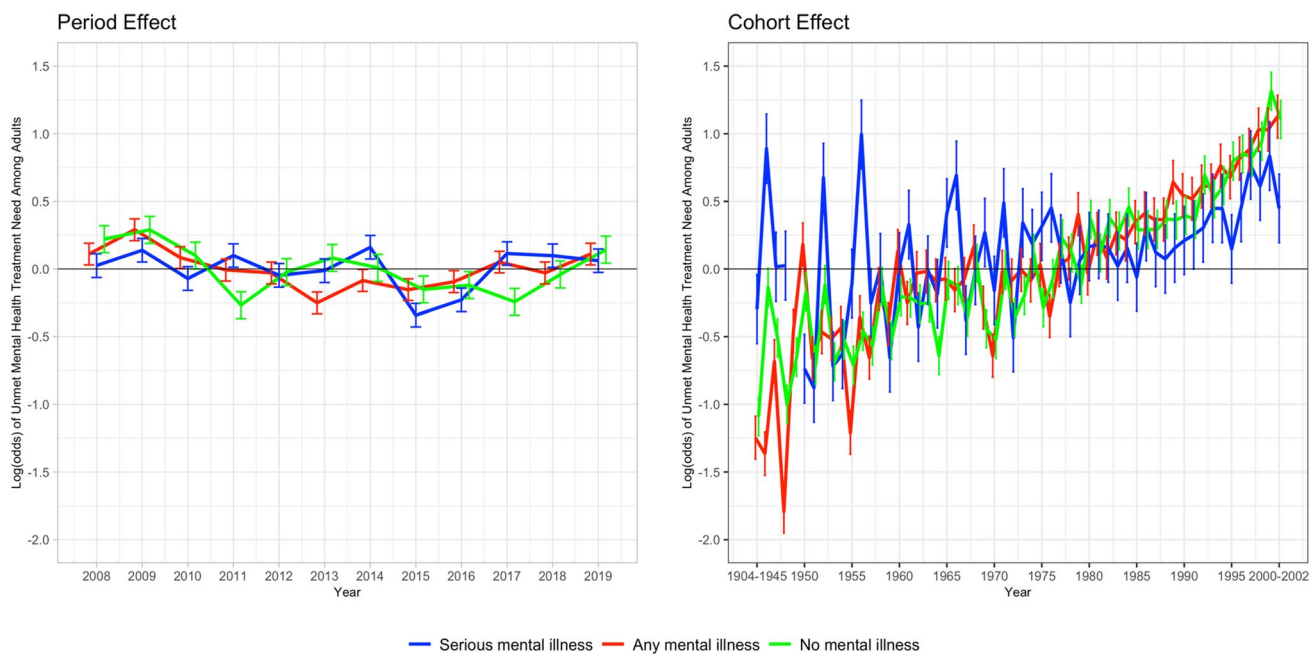

Fig. 3 Adjusted period and cohort effects of perceived mental health treatment need among adults 18 and older that did not use any mental health treatment in the past year, stratified by mental illness severity group in the past-year, NSDUH 2008–2019 (N = 364,676)

Table 1 Median odds ratio for analyses of hierarchical age-period-cohort estimates for perceived mental health treatment need among adults 18 and older that *did not* use mental health treatment in the past year stratified by mental illness severity, NSDUH 2008–2019 (N = 364,676)

Stratified by mental illness severity	Perceived mental health treatment need cohort effects			Perceived mental health treatment need period effects		
	MOR	Covariance	[95% CI]	MOR	Covariance	[95% CI]
Serious mental illness	1.50	0.92	[0.63, 1.48]	1.10	0.02	[0.01, 0.07]
Any mental illness	1.27	0.36	[0.26, 0.55]	1.09	0.02	[0.01, 0.06]
No mental illness	1.24	0.28	[0.20, 0.43]	1.11	0.03	[0.02, 0.09]

Models controlled for sex, race/ethnicity, education, and household income

MOR median odds ratio; *CI* confidence interval

demographics were 1.50 as likely to have different levels of perceived mental health treatment need if from different birth cohorts (i.e., an indicator of heterogeneity across all cohorts and not a comparison between specific cohorts). Cohort effects were smaller compared to adults with serious mental illness but still substantial among those with any mental illness (MOR = 1.27; covariance parameter: 0.36, 95% CI: 0.26, 0.55) and those with no mental illness (MOR = 1.24; covariance parameter: 0.28, 95% CI: 0.20, 0.43). Period effects were null or modest with period effects explaining less variance in perceived mental health treatment need than cohort effects across all mental illness severity groups. For example, the MOR for the group-level variance due to period effects among those with serious mental illness was 1.10 (covariance parameter: 0.02; 95% CI: 0.01, 0.07). Period effects remained null or modest across mental illness severity groups (Serious mental illness: MOR = 1.10; Any mental illness: MOR = 1.09, covariance parameter: 0.02, 95% CI: 0.01, 0.06; No mental illness: MOR = 1.11, covariance parameter: 0.03, 95% CI: 0.02, 0.09).

Among adults already receiving past-year mental health treatment, period effects and cohort effects in perceived mental health treatment need were similar to the main analyses focused on those not engaged in mental health treatment. Period effects were minimal across all mental illness severity groups, whereas cohort effects were observed across all mental illness severity groups (Supplemental Fig. 6; Supplemental Table 1). Unlike the main analyses focused on those not seeking mental health treatment, cohort effects were strongest among those with no mental illness (MOR = 1.38; covariance parameter: 0.65; 95% CI: 0.46, 0.99) compared to adults with serious mental illness (MOR = 1.29; covariance parameter: 0.42; 95% CI: 0.29, 0.62) and adults with any mental illness (MOR = 1.30; covariance parameter: 0.42; 95% CI: 0.30, 0.63; Supplemental Table 1).

Discussion

Using a nationally representative survey of adults who did not receive past-year mental health treatment from 2008 to 2019, we found that recent birth cohorts (1999 and 2000–2002) had highest perceived mental health treatment need across all mental illness severity groups (none, any, serious). Older birth cohorts had lowest perceived mental health treatment need across all mental illness severity groups, including at older ages. Cohort effects were more substantial than period effects across all mental illness severity groups, and perceived mental health treatment need was highest in adults with serious mental illness and lowest in adults without mental illness. Differences in magnitude of perceived need by mental illness severity are consistent with other literature with those with serious mental illness

reporting highest perceived treatment need compared with those with any or no mental illness (SAMHSA, 2020b). Birth cohort effects were substantial and relatively consistent in magnitude across mental illness severity group, indicating that increases in mental illness severity over time (SAMHSA, 2020b) cannot fully account for observed cohort effects in perceived treatment need.

There are many potential explanations for the observed positive cohort trends in perceived mental health treatment need including structural, attitudinal, and knowledge barriers that may contribute to the findings. First, structural barriers could be increasingly keeping younger cohorts from receiving needed mental health treatment. There were many efforts to increase treatment accessibility in the past decade, such as the Mental Health Parity Act of 2008 and the Affordable Care Act that aimed to decrease financial and insurance barriers to seeking mental health treatment (e.g., increasing the ability to remain on a caregiver's health insurance until age 26) (Centers for Medicare & Medicaid Services, 2021). Despite these efforts, high out-of-pocket mental health treatment costs can still impede mental health treatment access (National Alliance on Mental Illness, 2017) and there is evidence that cost barriers have increased over time (Mojtabai, 2005). Mental health workforces need to be strengthened (Health Resources & Services Administration, 2016) and a dearth of mental health professionals can lead to difficulty obtaining needed mental health care even when it is perceived as needed. There are still many cost barriers to receiving mental health care following the enactment of the Mental Health Parity Act of 2008, as many health insurance plans are not in compliance with the law and plans altered cost-sharing mechanisms weakening the effect of the law (Gertner, et al., 2018). Cost barriers differ by health insurance status as out-of-pocket spending for any specialty behavioral health visit, including mental health care and substance use care, were highest among those who were uninsured (22%) and lowest among those with Medicaid insurance (2%) (Gertner et al., 2018). Uninsurance rates are highest for young adults ages 19 to 34, so cost is likely to be a substantial barrier for young adults (Conway, 2020). This is also the age corresponding to a critical window for age of onset of many psychiatric disorders (Kessler et al., 2007). Second, there could be attitudinal barriers that could explain the cohort trends we observed. Attitudes about mental health treatment utilization are associated with use, as a longitudinal study found that more adults sought treatment if they had favorable attitudes about treatment seeking (33.4%) compared with those with less favorable attitudes (20.7%) (Mojtabai et al., 2016). Changes in attitudes (i.e., increased acceptability) towards seeking mental health treatment (Lien et al., 2019) could be contributing to a higher likelihood of endorsing survey questions about perceived treatment need, particularly among those with serious mental illness. Third,

knowledge barriers could contribute to observed results. There may have been changes in the ability of people to identify their symptoms with younger birth cohorts potentially being better able to identify their symptoms. However, stigma is still a barrier to receiving needed mental health treatment for many (Parcesepe & Cabassa, 2013). Future research should assess age, period, and cohort effects in reasons for mental health treatment need and main barriers to seeking care (i.e., financial, access, stigma, etc.) among those reporting mental health treatment need.

Perceived treatment need was highest for adults with serious mental illness and lowest for adults with no mental illness. However, there are still many adults with serious mental illness who do not perceive a need for mental health treatment. There are a range of reasons why someone who meets criteria for having any mental illness in the survey may report not perceiving a mental health treatment need including not perceiving their mental health to be a problem and other attitudinal barriers (e.g., difficulty finding treatment options that worked well for them in the past, preferring to handle psychiatric symptoms on their own) and structural barriers (e.g., limited availability of providers or appointments, cost concerns, insurance barriers, transportation barriers) leading an individual to believe that seeking treatment is not feasible. Exploring age, period, and cohort effects in reasons for mental health treatment need and main barriers to seeking care by mental illness severity could elucidate these reasons further.

Findings have implications for identifying age groups and birth cohorts that have higher perceived need for treatment. Treatment and prevention efforts (e.g., age-specific psychosocial mental health interventions in specific settings such as college campuses (Lattie et al., 2019)) should be adapted for younger age groups and birth cohorts. For example, since the COVID-19 pandemic has started, there has been more investment in teletherapy and digital applications for mental health services (Torous et al., 2020) that are more popular with younger populations (Apolinario-Hagen et al., 2017) and offer promise (Moreno et al., 2020). Mitigating structural barriers could decrease the overall number of individuals not receiving treatment and remaining individuals could not receive treatment due to more attitudinal and knowledge barriers. Prevention and treatment efforts may need to be tailored based on mental illness severity (i.e., efforts can be universal, selective, and indicated based on mental illness severity) (Compton & Shim, 2020). For example, prevention efforts such as family psychoeducation programs have been effective in reducing stigma towards those with severe mental illness (Morgan et al., 2018). Barriers to seeking needed mental health treatment differ by mental illness severity, as a study using the National Comorbidity Survey-Replication found that adults with more severe mental disorders reported structural (e.g., financial, transportation,

available treatments) and attitudinal (e.g., stigma, desire to handle problem on their own) barriers whereas adults with mild mental disorders reported low perceived treatment need as a frequent reason for not seeking care (57% of those with mild disorders) (Mojtabai et al., 2011). Healthcare availability and affordability challenges are more substantial among those with severe psychological distress compared to those with mild or no psychological distress (Coombs et al, 2021). More adults with any mental illness ages 18–64 who reported perceived mental health treatment need reported a structural barrier (e.g., cost, inadequate insurance coverage) than an attitudinal barrier (72% vs. 47%) (Walker et al., 2015). There are also specific age groups and birth cohorts that have had their mental health disproportionately impacted by the COVID-19 pandemic. Perceived mental health treatment need has increased more in young adults compared with other age groups since the start of the COVID-19 pandemic (Vahratian et al., 2021). It will be important to target mental health prevention and treatment efforts at this population in the years to come and future research should explore differences in barriers to receiving need mental healthcare in young adults by mental illness severity.

Our study has limitations worth noting. Due to lack of a continuous age variable in the public NSDUH, derivation methods were used to generate age approximations. When respondents reported using multiple substances, our study averaged all derived age measures to minimize age misclassification. Given that missing derived birth cohort and age information is fairly low, particularly in those with highest indicated treatment need (i.e., severe mental illness) missing data would have to be strongly related to causes of missingness, including using substances, to alter the associations between age and cohort effects and perceived mental health treatment need. Age and birth cohort are highly correlated, so there is the potential for positivity violations and off-support inference given that we do not have extensive data on the life course of each birth cohort. However, quality checks examining changes in perceived mental health treatment need over time by age group and birth cohort gave us confidence in our findings. We explored year and birth-cohort specific trends in perceived mental health treatment need to confirm that birth cohort effects were not due to time period changes in birth cohort prevalence, and we explored year and age-specific trends in perceived mental health treatment need to confirm that birth cohort effects were not due to time period changes in age group prevalence. The NSDUH does not use a diagnostic instrument to ascertain mental illness (SAMHSA, 2015), which may have resulted in misclassification of the mental illness severity variable used in this analysis; however, since this algorithm was validated against a diagnostic sub-sample this misclassification is likely minimal. Individuals ages 12 to 17 were

excluded from this analysis since the mental health module differs between adults and adolescents (SAMHSA, 2020a), so findings may not generalize to adolescents.

Conclusion

We observed substantial cohort effects in perceived mental health treatment need among a large, nationally representative sample of adults across mental illness severities, though perceived mental health treatment need was highest among people with serious mental illness. It is critical to address structural barriers that could be hindering mental health treatment access and to capitalize on efforts to reduce structural barriers to seeking needed mental health care beyond the ongoing COVID-19 pandemic. Investments in our mental health care workforce and interventions focused on addressing attitude/knowledge barriers are critical for bridging the gap between the growing mental health treatment demand and existing treatment capacity. It is imperative to enhance mental health treatment access targeted at young adults in the years to come given the influence of the COVID-19 pandemic on perceived mental health treatment need in this age group.

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