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Trends in major depressive episodes and mental health treatment among older adults in the United States, 2010–2019

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Abstract

Background: Despite concerns about increasing trends in depression over the past two decades, little is known about recent trends in depression and mental health (MH) treatment among older adults and whether these trends differ by demographic characteristics.

Methods: We examined data from a US representative sample of noninstitutionalized adults aged ≥65 from the 2010–2019 National Survey on Drug Use and Health (N = 31,502). We estimated trends in the prevalence of past-year major depressive episode (MDE) overall and by demographic characteristics. We also estimated trends in MH treatment among those with past-year MDE.

Results: From 2010/11 to 2018/19, the estimated prevalence of past-year MDE among older adults increased from 2.0 % (95 % CI: 1.6–2.6) to 3.2 % (95 % CI: 2.7 to 3.7), a 60.0 % increase ($p = 0.013$). Increases were detected among men ($p = 0.038$), White individuals ($p = 0.018$), those who are widowed ($p = 0.003$), those with an annual household income of <$20,000 ($p = 0.020$) or $20,000–$49,000 ($p = 0.016$), and those with some college degree ($p = 0.014$). Among those with MDE, there were no significant changes detected in any form of past-year MH treatment.

Limitations: NSDUH does not assess individuals who are institutionalized, incarcerated, or experiencing homelessness, and thus the prevalence of MDE may be underestimated.

Conclusions: Although the estimated prevalence of depression is increasing among older adults, there has not been a proportional increase in MH treatment among those with depression. These

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Declaration of competing interest

We declare no conflicts of interest and all relevant ethical safeguards have been met in relation to subject protection.

CRediT authorship contribution statement

Kevin H. Yang: Conceptualization, Writing – original draft, Writing – review & editing. **Benjamin H. Han:** Writing – review & editing. **Alison A. Moore:** Writing – review & editing. **Joseph J. Palamar:** Methodology, Formal analysis, Writing – review & editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jad.2022.09.007.

findings call for urgent expansion of treatment services and training of MH professionals with expertise in older adults to meet the needs of this growing, vulnerable population.

Keywords

Depression; Older adults; Mental health services; Epidemiology

1. Introduction

Depressive disorders are associated with significant morbidity and mortality among older adults (Nelson, 2019). They predict a range of poor outcomes, including functional decline, decreased quality of life, increased healthcare utilization, and suicide (Nelson, 2019). Approximately 1–3 % of community-dwelling older adults aged ≥65 experience major depression in the United States (US), and research suggests the number of older adults with depression will continue to increase in the context of a rapidly growing older adult population (Committee on the Mental Health Workforce for Geriatric Populations et al., 2012; Nelson, 2019). Furthermore, although both psychopharmacologic and psychotherapeutic treatments appear to be effective in managing depression in older adults, many individuals remain untreated or under-treated (Fyffe et al., 2004; Nelson, 2019; Unützer et al., 2003). As such, research is needed to understand trends in depression and mental health (MH) treatment among older adults in the US in order to better direct prevention and treatment efforts toward this vulnerable population.

While national trends in depression have been documented, research on older adults is mixed and outdated. For instance, Akincigil et al. (2011), using data from the 1992–2005 Medicare Current Beneficiary Survey, found that the proportion of older adults who received a depression diagnosis doubled from 3.2 % to 6.3 %. In contrast, Zivin et al. (2013) analyzed data from the 1998–2008 Health and Retirement Survey and estimated a 7 % relative decline in late-life depressive symptom burden. Updated trends in depression among older adults are needed.

More recently, studies have documented increasing trends in the prevalence of depression among the general US adult population, including older adults (Weinberger et al., 2018; Yu et al., 2020). However, none have evaluated trends in demographic characteristics associated with depression specifically among older adults. Understanding these trends is crucial in targeting treatment resources to subpopulations in greatest need. Furthermore, many aspects of recent depression treatment among older adults remain unassessed. For example, Akincigil et al. (2011) detected an increase in proportion of older adults with depression receiving antidepressants but a decrease in psychotherapy between 1992 and 2005. Whether these trends have continued is unknown. To address these gaps, we estimated trends in prevalence of depression and treatment for depression among US older adults from 2010 to 2019.

2. Methods

2.1 Data source

We examined data from adults aged ≥65 (N = 31,502) from the 2010–2019 National Survey on Drug Use and Health (NSDUH). NSDUH is a nationally representative annual cross-sectional survey of non-institutionalized individuals in the US. The study is based on a multistage area probability sample for each of the 50 states and the District of Columbia (Center for Behavioral Health Statistics and Quality, 2021). Surveys were administered by an interviewer via computer-assisted interviewing and audio computer-assisted self-interviewing. The weighted interview response rates were 64.9 % to 74.6 %.

2.2 Measures

Major depressive episode in the past year was coded by NSDUH as affirmative when participants reported experiencing at least five of the nine MDE Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) criteria nearly every day in the same two week period, with at least one of the symptoms being depressed mood or loss of interest or pleasure in daily activities (American Psychiatric Association, 1994). This measure has been used in prior NSDUH studies to estimate prevalence of MDE and has demonstrated good validity and reliability (Substance Abuse and Mental Health Services Administration, 2010; Weinberger et al., 2018).

Mental health treatments in the past year were queried via a series of questions regarding "treatment and counseling for problems with emotions, nerves, or mental health" excluding treatment for alcohol or drug use. Inpatient treatment included MH services received at a psychiatric hospital, psychiatric unit of a general hospital, medical unit of a general hospital, residential treatment center, or other type of hospital for MH treatment. Outpatient treatment included MH services received at a community MH center, private therapist's office (i.e., a psychologist, psychiatrist, social worker, or counselor), physician's office, outpatient medical clinic, partial day hospital or day treatment program, or other type of facility. Receipt of psychotropic medications was queried by asking if the participant received any medication prescription to treat a mental or emotional condition, not exclusive to depression. Any MH treatment was coded as affirmative when participants reported any inpatient treatment, outpatient treatment, or receipt of prescription medication.

Alternative mental health treatment included any treatment, counseling, or support for emotions, nerves, or MH from an acupuncturist, chiropractor, herbalist, in-person support group or self-help group, internet-based support group, religious advisor, telephone hotline, or massage therapist.

Perceived unmet need for mental health treatment was defined by an affirmative response 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?" This question was asked to all participants, regardless of history of MH treatment in the past year.

Demographic characteristics were categorized as follows: sex (i.e., male, female), race/ethnicity (i.e., non-Hispanic White, all others), annual household income (i.e., <$20,000,

$20,000–$49,999, $50,000–$74,999, $75,000 or more), education (i.e., less than high school diploma, high school diploma, some college/associate's degree, college degree and higher), and marital status (i.e., married, widowed, never married or divorced/separated). We recoded race/ethnicity in a binary manner because other groups had too few participants per cell in our models.

2.3 Statistical analysis

Survey year was combined into pairs to prevent small subsample size for various variables (Han et al., 2017). First, trends in past-year MDE from 2010/11–2018/19 were estimated for the full sample. Next, trends were stratified by each level of each demographic characteristic. Then, we estimated past-year MH treatment and perceived unmet need for MH treatment among those with past-year MDE. Due to small cell sizes, we omitted inpatient treatment as its own variable, although inpatient treatment, along with outpatient treatment and receipt of prescription medication, are included as part of any MH treatment. Logistic regression was used to estimate the odds of the outcome as a linear function of time (survey year) as a continuous predictor. These tests were accompanied with tests to determine whether the difference in prevalence between the first and last time-points was significant (using margins to obtain p-values). We then calculated the relative change in prevalence of both past-year MDE and past-year MH treatment from 2010/11–2018/19. Stata SE 17 (StataCorp, College Station, TX) was used for all analyses, and weights were used to account for the complex survey design, non-response, selection probability, and population distribution. This secondary analysis was exempt from review at the New York University Langone Medical Center's Institutional Review Board.

3 Results

Demographic characteristics by survey year are presented in Supplemental Table 1 (weighted) and Supplemental Table 2 (unweighted). Overall, we estimated that between 2010/11 and 2018/19, the prevalence of past-year MDE among older adults increased from 2.0 % (95 % CI: 1.6–2.6) to 3.2 % (95 % CI: 2.7–3.7), a 60.0 % increase ($p = 0.013$). Given that various demographic characteristics shifted across years we repeated this overall trend test controlling for demographic characteristics, and it remained significant ($p = 0.005$). Trends in past-year MDE in the full population and by stratified groups are presented in Table 1. With respect to sex, there was an increase in MDE among men (from 1.5 % to 2.4 %, an 60.0 % increase [$p = 0.038$]), but no significant change was observed among women. MDE increased among non-Hispanic White individuals from 2.2 % to 3.3 %, a 50.0 % increase ($p = 0.018$), but no significant change was observed with respect to non-White individuals. With regard to annual family income, there was an increase in MDE among those earning <$20,000 (from 1.9 % to 4.7 %, a 147.4 % increase [$p = 0.02$]). We also detected an increase among those earning $20,000–$49,999 from 2.0 % to 3.6 %, an 80.0 % increase ($p = 0.016$). No change was detected among those earning $50,000–$74,999 or ≥$75,000. With respect to education, increases were estimated among those with some college degree (from 2.2 % to 3.6 %, a 63.6 % increase [$p = 0.014$]). With regard to marital status, there was an increase in MDE among those who are widowed (from 1.2 % to 4.5 %, a

275.0 % increase [p = 0.003]), but no significant changes were observed for those married or for those never married or divorced/separated.

Among older adults with past-year MDE (Table 2), no significant changes were detected in any past-year MH treatment. Additionally, no changes were detected for prevalence of past-year alternative MH treatment or perceived unmet need for treatment.

4 Discussion

Based on this nationally representative sample of US older adults, we estimated a significant increase in prevalence of past-year MDE between 2010/11 and 2018/19. Despite this trend, we did not detect a corresponding increase in use of MH services among those experiencing MDE. To our knowledge, these results provide the most up-to-date status on depression and MH treatment among older adults in the US and call for expansion of treatment services and training of MH professionals with expertise in older adults.

The current study findings are consistent with increases in prevalence of depression among adults in both the US (Weinberger et al., 2018; Yu et al., 2020) and globally (Moreno-Agostino et al., 2021). Prevalence of major depression diagnosis reached 3.2 % in our study, consistent with global estimates of depression in older adults using DSM-IV criteria (Abdoli et al., 2022). This increasing trend may reflect changes in cultural attitudes such as decreasing stigma surrounding MH resulting in better understanding and willingness to endorse depressive symptoms (Pescosolido et al., 2021). Inadequate or ineffective treatment for depression may be responsible for continued depression, and associated costs for MH treatment or transportation difficulties may further limit access to such treatment (Lavingia et al., 2020). These and other explanations merit further investigation, in addition to whether or not such trends continue, especially in the context of COVID-19 and its association with increased depression and social isolation in older adults (O'Shea et al., 2021). Additionally, despite these increases, the estimated prevalence continues to be relatively low compared to rates of depression in other age groups. For instance, using 2009–2019 NSDUH data, Daly (2022) reported an increase in prevalence of depression among adolescents, with an estimated past-year MDE prevalence of 15.8 % in 2019 which is nearly five times greater than that estimated in older adults. Future research should investigate reasons for these differences in prevalence and how these demographic correlates for depression change over time among various age groups.

This study extends prior findings by identifying changes in associations of demographic characteristics among older adults experiencing depression. An unexpected finding was a significant increase in prevalence of depression among men, but not women. It is well-established that depression is more prevalent in women than men (Cheung and Mui, 2021), although our findings suggest that the gap in sex difference among older adults is narrowing. Reasons for these results are unclear and warrant further research. Other vulnerable subgroups with increases in prevalence of depression include those in lower income households and those who are widowed, consistent with prior studies (Zivin et al., 2013). Lastly, we detected increases among White individuals, but not among non-White individuals. This is consistent with findings by Weinberger et al. (2018) in which

increases in depression were detected between 2005 and 2015 among Non-Hispanic White adults, but not adults of other races/ethnicities. As the population ages and as older adults become increasingly diverse, future research on risk factors for experiencing depression and differences between races/ethnicities will be essential.

An estimated 35–44 % of older adults with depression did not receive any past-year MH treatment, and this prevalence did not change significantly over the study period. In the context of an increasing trend in prevalence of depression, this translates into a growing number of older adults with untreated depression. Explanations for the unchanged prevalence in MH treatment are unclear, although poor targeting of current MH services may partly explain the findings. Furthermore, the Institute of Medicine published a report addressing aspects of the workforce crisis and warned of the severe shortage of geriatric MH professionals (Committee on the Mental Health Workforce for Geriatric Populations et al., 2012). In fact, it is estimated that by 2030, there will be only one geriatric psychiatrist for every 27,000 adults aged ≥65 in the US (Jeste, 2012). In addition to a need for training of MH professionals with expertise in aging, the incorporation of medical models such as the Primary Care-Mental Health Integration (PCMHI) service in the Department of Veterans Affairs (VA) health system may be important in addressing the mental and physical health needs of older adults (Levine et al., 2017). As the aging population continues to increase, substantial efforts are needed to address this public health crisis.

The findings of this study should be interpreted in the context of several limitations. First, NSDUH is a survey and is thus subject to social desirability and recall bias. Second, because of small cell sizes, we had to combine some variables (e.g., other race/ethnicity) and/or omit variables (e.g., inpatient treatment). Third, NSDUH does not assess individuals who are experiencing homelessness or institutionalized such as in a skilled nursing facility. Thus, it is likely that the prevalence of depression is underestimated. Fourth, given that some demographic characteristics of the sample shifted across years, this could have influenced trends in MDE, although the overall trend in MDE was still significant when controlling for these factors. Finally, we could not include 2020 data as different survey methods were used (due to COVID-19) and SAMHSA warns that estimates should not be compared to previous years.

Despite these limitations, this study provides timely and valuable estimates on national trends in the prevalence of depression and treatment of depression among older adults. The increase in depression prevalence without a corresponding increase in depression treatment is a concerning trend and warrants urgent reforms in depression screening, prevention, and treatment for older adults, especially in the context of an aging population and increasing geriatric workforce shortage.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations

MDE	Major Depressive Episode
MH	mental health
NSDUH	National Survey on Drug Use and Health

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Table 1

National trends in past-year major depressive episode among adults aged ≥65 by demographic characteristics.

Characteristic	Weighted % (standard error)					Change from 2010/11 to 2018/19	
	2010–2011	2012–2013	2014–2015	2016–2017	2018–2019	% relative change	Linear p-value trend
Overall	2.0 (0.2)	3.0 (0.3)	3.1 (0.3)	2.9 (0.2)	3.2 (0.2)	60.0	0.013
Sex							
Male	1.5 (0.4)	1.7 (0.3)	2.3 (0.3)	2.2 (0.3)	2.4 (0.3)	60.0	0.038
Female	2.4 (0.3)	4.1 (0.6)	3.7 (0.5)	3.5 (0.3)	3.7 (0.4)	54.2	0.102
Race/ethnicity							
Non-Hispanic White	2.2 (0.3)	3.2 (0.4)	3.0 (0.3)	3.3 (0.3)	3.3 (0.3)	50.0	0.018
All others	1.4 (0.6)	2.3 (0.5)	3.4 (0.7)	1.4 (0.4)	2.8 (0.5)	100.0	0.251
Annual household income							
<$20,000	1.9 (0.5)	4.8 (1.0)	5.0 (0.7)	4.9 (0.8)	4.7 (0.8)	147.4	0.020
$20,000–$49,999	2.0 (0.4)	2.6 (0.4)	3.0 (0.4)	2.7 (0.3)	3.6 (0.4)	80.0	0.016
$50,000–$74,999	2.1 (0.6)	2.8 (0.8)	2.4 (0.5)	2.2 (0.4)	2.6 (0.5)	23.8	0.837
$75,000 or more	2.0 (0.5)	2.4 (0.7)	2.4 (0.4)	2.5 (0.4)	2.1 (0.4)	5.0	0.973
Education							
Less high school	1.4 (0.4)	4.7 (1.0)	4.6 (0.9)	2.7 (0.7)	3.9 (0.7)	178.6	0.080
High school diploma	2.1 (0.4)	3.0 (0.7)	3.1 (0.5)	2.4 (0.3)	2.8 (0.4)	33.3	0.579
Some college/associate degree	2.2 (0.5)	2.3 (0.6)	3.2 (0.6)	3.8 (0.5)	3.6 (0.5)	63.6	0.014
College and higher	2.3 (0.5)	2.4 (0.5)	2.2 (0.4)	2.7 (0.5)	2.8 (0.4)	21.7	0.355
Marital status							
Married	2.1 (0.3)	2.1 (0.3)	2.4 (0.3)	2.1 (0.3)	2.4 (0.3)	14.3	0.484
Widowed	1.2 (0.3)	4.4 (0.9)	3.6 (0.6)	3.5 (0.6)	4.5 (0.6)	275.0	0.003
Never married or divorced/separated	3.3 (0.7)	4.1 (0.8)	4.9 (0.8)	4.8 (0.7)	4.0 (0.5)	21.2	0.419

Table 2

National trends in mental health treatment among adults aged ≥65 with past-year major depressive episode by type and setting.

Characteristic (past-year)	Weighted % (standard error)					Change from 2010/11 to 2018/19	
	2010–2011	2012–2013	2014–2015	2016–2017	2018–2019	% relative change	p-value trend
Any mental health treatment	55.8 (6.6)	57.5 (5.4)	64.6 (4.0)	61.7(4.0)	57.6(3.4)	3.2	0.795
Outpatient treatment	29.0 (6.4)	23.0 (4.1)	32.6 (3.6)	32.8(4.2)	36.1 (4.0)	24.5	0.081
Received prescription medication	54.3 (6.6)	50.6 (5.5)	61.1 (4.0)	58.1 (4.2)	50.3 (3.2)	−7.4	0.829
Alternative treatment	14.3 (3.7)	21.2 (4.2)	15.1 (2.6)	25.1 (3.3)	22.5(3.2)	57.3	0.113
Perceived unmet need for treatment	13.4 (4.2)	11.8 (3.3)	15.8 (3.1)	17.4(2.4)	16.2(2.0)	20.9	0.238