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Predictors of Mental Health Services Use Across the Life Course Among Racially-Ethnically Diverse Adults

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Abstract

Objective—Little is known about key factors associated with use of mental health services across the life course. This study determined key socioeconomic, social support, psychiatric, and medical predictors of services use in younger, middle, and older age.

Design, Setting, Participants, Measurements—The sample included 3,708 adults with *DSM-IV*-based mood, anxiety, and substance use disorders in the Collaborative Psychiatric Epidemiology Surveys. Key predictors of mental health services use for each age group were systematically determined by multivariable models, and exploratory analyses examining potential effect modification by race-ethnicity and gender were assessed by interaction terms. Statistical analyses included complex design-corrected and weighted logistic regression analyses that provide results generalizable to the United States.

Results—Psychiatric and medical issues such as prior suicidal behavior, comorbid psychiatric disorders, and perceived cognitive impairment increased odds of mental health services use in younger, middle, and older age. Chronic medical conditions also influenced services use in younger and older age, with their impact on use across age potentially modified by racial-ethnic disparities (p interaction=.01). Moreover, socioeconomic factors like marital status influenced use in middle and older age, where being divorced, separated, widowed, or never married encouraged use. The effect of marital status on use across age was also potentially modified by racial-ethnic disparities (p interaction=.02).

Conclusions—Key socioeconomic, social support, psychiatric, and medical predictors uniquely influence use of mental health services across the life course. These findings will help inform efforts to encourage greater services use by adults across the life course in need of care.

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Keywords

mental health services use; life course; race-ethnicity; epidemiology

OBJECTIVE

The World Health Organization supports a life course perspective as an integral part of a conceptual framework for action on the social determinants of health; targeting factors that immediately influence health as well as promote or reduce health or illness later in life (1). Although psychiatric disorders are highly prevalent throughout the life course (2,3) and treatable (4,5), little is known about why different stages of the life course differentially impact use of mental health services (6–9). Prior research has found that adults in younger and older age with psychiatric issues have the lowest services use (6,10). Considering that psychiatric disorders, especially those that persist into later life, are strongly associated with poor health and social outcomes (1,11), adequate treatment of these disorders is crucial. Thus, understanding how key factors work together to influence mental health services use at different stages of the life course is vital for encouraging greater use and reducing illness in later life.

Most studies on mental health services use have examined factors related to use using overall samples of adults of various ages with and without psychiatric disorders (8,12–14). Of these studies, some have determined predictors of use in specific age groups (15–18). One study of community-dwelling adults found that socioeconomic factors such as employment and health insurance influenced use in younger age (18–64 years), whereas medical factors like perceived health status affected use in older age (≥65 years) (17). A similar study found that marital status and perceived cognitive impairment also impacted use in older age (≥55 years) (15). In sum, although there are studies that present correlates of mental health services use among adults, these studies did not provide detailed comparisons of younger, middle, and older age cohorts, examining important predictors across all age groups.

Furthermore, prior research suggests that health disparity factors, especially race-ethnicity and gender, greatly influence services use, as African Americans, Hispanics, and men generally show lower services use than non-Hispanic whites and women (6,19,20). However, due to the limitations of available data, no studies that we are aware of have investigated how racial-ethnic and gender differences may be important moderators of services use across different age groups of the life course.

Thus, the objective of the present investigation was to examine how important factors and disparities work together to impact the use of mental health services throughout the life course in younger (18–34 years), middle (35–54 years), and older (≥55 years) age; defining life course based on our previously published research (6). The study employed the Collaborative Psychiatric Epidemiology Surveys (CPES) that assessed a diverse range of socioeconomic, social support, clinically-based psychiatric, and medical characteristics that may be related to services use (21). The CPES is also one of the only datasets that is nationally representative of the age, racial-ethnic, as well as gender distributions of

community-dwelling adults in the United States, and provides results that are generalizable to the larger population (21). Using the CPES, the current study identified key predictors of mental health services use throughout the life course among adults who met *DSM-IV* criteria for mood, anxiety, and substance use disorders. We hypothesize that there will be salient differences in predictors of use by age group. This study also explored the ways racial-ethnic and gender disparities may influence these associations.

METHODS

Participants

The CPES (2001–2003) is comprised of 3 national studies (National Comorbidity Survey Replication, National Survey of American Life, and National Latino and Asian American Study) that collectively represent 20,013 community-dwelling adults (≥18 years) in the United States. The CPES sampling designs and methodologies are described elsewhere (22).

The current sample included 3,708 adults from the CPES with recent psychiatric disorders. As determined by the World Health Organization's World Mental Health Survey Initiative version of the Composite International Diagnostic Interview (WMH-CIDI) (23), all adults in this sample satisfied *DSM-IV* criteria (24) for mood (major depressive disorder, dysthymia, and bipolar disorder types I and II), anxiety (generalized anxiety disorder, panic disorder, agoraphobia without panic, posttraumatic stress disorder, and specific and social phobia,), or substance use (drug or alcohol dependence or abuse) disorders in the past 12 months. All data were obtained from the Inter-university Consortium for Political and Social Research (21). Participant consent was not obtained for this study because the investigation involved secondary data analysis. The University of California, San Francisco and San Francisco Veterans Affairs Medical Center institutional review boards approved this study.

Measures

Socioeconomic predictors—Socioeconomic predictors included age, gender, race-ethnicity (non-Hispanic white, African American, and Hispanic or other), education (0–11 or ≥12 years), marital status (married or cohabitating; divorced, separated, or widowed; or never married), family income (defined by the poverty index used in the 2001 United States census as the ratio of household income to poverty threshold adjusted for household size, low [≤1.5 times the poverty line], average [>1.5–6.0], or high [>6.0]) (12,25,26), and health insurance (private, public, military, or none).

Social support predictors—Social support predictors included perceived social, family, and friend support determined by common measures across the National Comorbidity Survey Replication, National Survey of American Life, and National Latino and Asian American Study. Perceived social support was defined as perceived expressive (functional or emotional) support from family and friends, and was assessed with ten questions that were each scored on a 0–3 scale. The sums of these scores were then used to create tertiles of perceived social support (low, moderate, or high). Perceived family and friend support were defined using similar criteria.

Psychiatric predictors—Psychiatric predictors included history of suicidal behavior (suicidal ideation, plans, and attempts), comorbid psychiatric disorders (any combination of comorbid mood-anxiety, mood-substance use disorder, or anxiety-substance use disorder), and perceived mental health. Perceived mental health was defined as a positive self-rating (excellent, very good, or good) versus negative self-rating (fair or poor) of overall mental health.

Medical predictors—Medical predictors included self-reported chronic medical conditions (occurrence of stroke, heart attack, heart disease, diabetes mellitus, cancer, and lung disease during the lifetime), perceived physical health, and perceived disability. Perceived physical health was defined as a positive self-rating (excellent, very good, or good) versus negative self-rating (fair or poor) of overall physical health, and perceived disability was based on the World Health Organization's Disability Assessment Schedule (WHO-DAS) (27,28). Perceived disability consisted of five domains (out-of-role, self-care, mobility, cognition, and social), where each domain was evaluated according to self-reported frequency (number of days) or severity (mild, moderate, severe, or none) of problems in the past 30 days, and was scored on a 0–100 scale, with higher values indicating greater perceived impairment. Because of highly skewed distributions, binary outcomes of any disability (>0) in each domain were examined.

Mental health services use—Assessed by the WMH-CIDI, mental health services use was defined as use of specialty mental health (psychiatrist, psychologist, other mental health professional, social worker, or counselor in a mental health specialty setting; overnight hospital stay; or mental health hotline use) or general medical (primary care physician, other general practitioner or family doctor, nurse, occupational therapist, or other non-specialty mental health professional) services for "emotions, nerves, mental health, or use of alcohol or drugs" in the past 12 months (12). This study determined key predictors of mental health services use in younger (18–34 years), middle (35–54 years), and older (≥55 years) age.

Statistical Analyses

Clustering and weighting techniques that reduce systematic bias and imprecision in a complex sampling design were implemented to produce results that are generalizable to the United States. Prevalence rates were determined by frequency measures and cross tabulations, with statistical differences estimated by the Rao-Scott chi square test that corrects for complex study designs (29). Standard errors were computed by a recalculation of variance using the Taylor series linear approximation method (30).

Two sets of analyses were conducted to identify key predictors of mental health services use across the life course. To obtain the most parsimonious model, important predictors were selected based on a priori criteria. First, for our primary analyses, unadjusted logistic regression analyses assessed the relationship between predictors and services use in younger (18–34 years), middle (35–54 years), and older (≥55 years) age groups. Predictors associated with use in these bivariate models ($p \leq .20$) were then systematically included in multivariable logistic regression models to assess the impact of the combined predictors on the odds of use in each age group, adjusting for race-ethnicity and gender. Predictors were added one by one

and removed from the models if they did not maintain a p≤.10. Second, we conducted exploratory analyses to evaluate whether racial-ethnic and gender differences may modify the associations of key predictors with services use across the life course. These analyses utilized main effects, 2-way interactions, and 3-way interaction terms in logistic regression models, including race-ethnicity or gender, predictor, and age. Because of concern for power, these exploratory analyses were conducted with age as continuous. In all models, odds ratios and 95% confidence intervals were estimated, and design-corrected likelihood ratio and Wald chi square statistics were computed.

All analyses were performed using SAS survey procedures (version 9.3, SAS Institute Inc., Cary, North Carolina). Reported results are based on weighted analyses unless otherwise noted.

RESULTS

In unweighted analyses, the age distribution for the overall sample was as follows, younger, middle, and older age, respectively: 41.9% for those aged 18 to 34 years, 42.7% for those aged 35 to 54 years, and 15.4% for those aged 55 years and older. The mean (SD) age was approximately 40 (14.7) years. The sample distribution was 65.3% women, 45.2% non-Hispanic white, 27.8% African American, and 27.0% Hispanic or other (18.7% Hispanic, 5.8% Asian, and 2.5% other). The distribution of psychiatric disorders was 49.5% mood, 83.4% anxiety, and 13.9% substance use disorders. The majority of the sample had a high school education or higher, average family income, and health insurance.

In weighted analyses, we found that mental health services use was low (<40%) throughout the life course among adults with mood, anxiety, or substance use disorders, as 26.3% in younger age, 37.5% in middle age, and 29.5% in older age used services. Weighted bivariate analyses of socioeconomic characteristics, social support, and psychiatric and medical conditions by age group are presented in Table 1. In younger age, nearly 60% of adults were never married, whereas more than 60% of adults in middle age were married or cohabitating and over 50% of those in older age were divorced, separated, or widowed (Rao-Scott χ^2=823.55, df=4, p<.001). Nearly half of adults in each age group had high perceived social and friend support. In addition, although more than 70% of adults in all age groups had perceived negative mental and physical health, lifetime prevalence of suicidal behavior and chronic medical conditions, and current (12-month) prevalence of comorbid psychiatric disorders and 30-day disability were lower. Approximately 30%–35% of adults in each age group had history of suicidal behavior and comorbid psychiatric disorders, while 9% of those in younger age, 23% in middle age, and 45% in older age had chronic medical conditions (Rao-Scott χ^2=167.04, df=2, p<.001). The 30-day prevalence of perceived out-of-role impairment was especially prominent in middle and older age, as roughly 50% of adults in younger age and 60% of those in middle and older age had such perceived disability (Rao-Scott χ^2=11.98, df=2, p=.003). Finally, less than 30% of adults in all age groups had other perceived impairments while roughly 17% in younger age, 33% in middle age, and 43% in older age had perceived mobility impairment (Rao-Scott χ^2=105.63, df=2, p<.001).

Table 2 presents key predictors of mental health services use across the life course. Overall, psychiatric and medical issues increased the odds of services use in all age groups. In younger age, adults with history of suicidal behavior (OR=2.26, 95% CI=1.62–3.15, Wald χ^2=23.22, df=1, p<.001), comorbid psychiatric disorders (OR=1.85, 95% CI=1.40–2.45, Wald χ^2=18.37, df=1, p<.001), chronic medical conditions (OR=1.80, 95% CI=0.98–3.32, Wald χ^2=3.53, df=1, p=.06), perceived cognitive impairment (OR=1.48, 95% CI=0.99–2.22, Wald χ^2=3.60, df=1, p=.06), or health insurance (OR=1.50, 95% CI=1.05–2.13, Wald χ^2=5.04, df=1, p=.02) were roughly 2 times more likely to use services than those without these conditions. Although similar factors encouraged services use in middle age, marital status and perceived family support further influenced use. Adults in this age group who were divorced, separated, widowed (OR=1.55, 95% CI=1.06–2.25, Wald χ^2=5.22, df=1, p=.02), or never married (OR=1.77, 95% CI=1.17–2.68, Wald χ^2=7.24, df=1, p=.01) were approximately 2 times more likely than those who were married or cohabitating to use services, while adults with moderate perceived family support (OR=0.71, 95% CI=0.53–0.94, Wald χ^2=5.63, df=1, p=.02) were less likely than those with lower perceived family support to use services. In older age, adults with psychiatric and medical issues and those who were divorced, separated, widowed, or never married (OR=1.49, 95% CI=0.92–2.41, Wald χ^2=2.58, df=1, p=.11) were all roughly 2 times as likely to use services. However, unlike in younger and middle age, health insurance did not affect use in older age, an outcome that was possibly due to the small number of adults in older age without health insurance.

In exploratory analyses, we found that the impact of chronic medical conditions and that of marital status on services use across the life course may be modified by racial-ethnic disparities (Wald χ^2=8.99, df=2, 3-way p interaction=.01 and Wald χ^2=8.27, df=2, 3-way p interaction=.02, respectively). Upon further investigation of distributions by race-ethnicity, we found that non-Hispanic whites with comorbid psychiatric disorders and chronic medical conditions had a decline in mental health services use with increasing age, whereas African Americans and Hispanics or others with comorbid psychiatric disorders and chronic medical conditions had greater use with increasing age. Furthermore, whites with psychiatric disorders who were divorced, separated, widowed, or never married had greater mental health services use with increasing age. However, African Americans and Hispanics or others with psychiatric disorders who were divorced, separated, widowed, or never married had less increase in use with increasing age. No modifying effects were found with gender.

CONCLUSIONS

This study determined key predictors of mental health services use across the life course, and explored how racial-ethnic and gender disparities influenced these associations among adults with mood, anxiety, and substance use disorders. The key factors that influenced use included marital status, health insurance, perceived family support, history of suicidal behavior, comorbid psychiatric disorders, chronic medical conditions, and perceived cognitive impairment.

The strongest and most clinically meaningful predictors that increased the odds of mental health services use across all age groups were history of suicidal behavior, comorbid

psychiatric disorders, and perceived cognitive impairment. More specifically, history of suicidal behavior had a strong effect in younger age and comorbid psychiatric disorders had a strong effect in middle age, while perceived cognitive impairment had a strong effect in older age (all increased use over 2-fold and statistically significant at $p < .05$). Prior studies have reported similar results, although they assessed less detailed age cohorts (8,15–18,31). A study of community-dwelling adults with mood, anxiety, or substance use disorders found that adults in younger to middle age (15–54 years) with suicidal behavior, comorbid psychiatric disorders, or chronic medical conditions were over 2 times more likely to use services (31). A similar study observed that adults in older age (≥55 years) with severe psychiatric disorders, chronic pain, or perceived cognitive impairment were also more likely to use (15). Although previous research has found that chronic medical conditions encouraged services use, our study further discovered that such issues increased the odds of use only during younger and older age.

Furthermore, the effect of chronic medical conditions on services use across the life course may be modified by racial-ethnic disparities. Our exploratory analyses suggested that non-Hispanic whites with chronic medical conditions were less likely to use services with greater age than whites without chronic medical conditions, whereas African Americans and Hispanics or others with such conditions were more likely to use than those without chronic medical conditions. Few studies have investigated the impact of racial-ethnic differences on the association of chronic medical conditions with services use across the life course. However, several studies have found that African Americans used more services with greater age (6,32,33), a pattern that may be driven by increased healthcare coverage and greater occurrence of comorbid psychiatric and medical conditions in older age. In fact, a recent study of community-dwelling adults with psychiatric issues reported that African Americans used particularly more services that paralleled use by whites in older age (6). Our findings thus suggest that chronic medical issues may be especially strong motivators of services use with greater age for racial-ethnic minorities.

In contrast, socioeconomic factors such as marital status and perceived family support, which we theorized would impact all age groups, primarily influenced services use in middle age, with health insurance having the strongest influence increasing mental health services use 2-fold. Furthermore, adults in this age group who were divorced, separated, widowed, or never married were more likely than those who were married or cohabitating to use services. Consistent with our findings, prior studies of community-dwelling adults have found that, even after adjusting for the presence or severity of psychiatric disorders, adults in younger to middle age (18–54 years) (12,34) and those in middle to older age (≥45 years) (18) who were divorced, separated, widowed, or never married were nearly 2 times more likely to use services. These studies indicate that marriage or cohabitation may be an important surrogate of mental health care, where relationship loss or strife may be a strong motivator of services use (12,14). In fact, our results suggest that relationship loss or strife is a key predictor of services use in middle and older age. Moreover, independent of marital status, adults in middle age with low perceived family support were more likely to use services, a finding similar to prior research (31).

Finally, the impact of marital status on services use across the life course may be modified by racial-ethnic differences. Our exploratory analyses suggested that whites who were divorced, separated, widowed, or never married were more likely to use services with greater age than those married or cohabitating, whereas African Americans and Hispanics or others were less likely to use with increasing age. Although prior studies suggest that relationship loss or strife may increase odds of services use, our findings highlight that relationship loss or strife may influence racial-ethnic groups to use services in different ways. This may suggest that mechanisms of coping with these issues vary due to underlying cultural differences. In fact, studies have found that racial-ethnic minorities such as African Americans prefer to rely on family, friends, and community members for mental health care (35,36), as stigma or mistrust of mental health services greatly hinders them from using services (37–39). Taken together, our findings that the effects of chronic medical and marital issues on services use across the life course were modified by racial-ethnic disparities may indicate two different patterns of use for racial-ethnic minorities. Our results suggest that psychosomatic issues may encourage use of services, while relationship issues may discourage use but encourage receipt of help from familial or cultural systems.

Our findings have important implications for both clinical practice and policy, where findings support efforts to encourage patients to engage in mental health care based on their age. For example, the motivation of a primary care clinician to encourage their younger, as well as their older patients, with a chronic medical condition to seek mental health services upon diagnosis of a comorbid psychiatric disorder is supported by this current study. Moreover, our findings suggest that familial and cultural systems may play essential roles in determining use of these services, where a clinician’s knowledge of a middle age patient’s familial support network or relationship issues along with a psychiatric diagnosis has strong implications for how he or she approaches a conversation with this patient about services use. Thus, educating healthcare practitioners, family or friends, as well as community members at local and national levels about the key factors that affect services use in different stages of the life course for adults with diagnosable mental health disorders, and in great need of care, may be crucial for encouraging greater mental health services use and reducing further illness in later life. In addition, at a policy level, reducing barriers to care by improving screening and access to mental health services in primary care is highly supported by this work.

This study has strengths. First, it is the only study that we know of that determined key predictors of mental health services use across the life course using a nationally representative sample of community-dwelling adults with clinically-based psychiatric disorders in the United States. It is also the first study, to our knowledge, that investigated the influence of racial-ethnic and gender disparities on key factors associated with services use. Finally, it is one of the few studies that examined a broad range of factors that may be related to use, and provided results that are generalizable to the United States.

This study has limitations. First, previous research suggests that psychiatric disorder severity (15,34), and the perceived need (31) for and beliefs and attitudes (15,40) about mental health treatment affect services use. Although these factors should be considered, assessing them was beyond the scope of the study. In addition, although we used a purposeful selection

approach in our model building, there is still potential bias in utilizing such a stepwise technique to determine a final list of predictors. Second, the CPES underrepresent adults who were homeless, institutionalized, old-old (75–84 years), and oldest-old (≥85 years), which might have limited statistical power for analyses of later stages of the life course. Furthermore, the CPES is from 2002–2003, and, thus, the service use landscape is a bit different now than it was at that time. Still, the CPES is one of the only studies to date that is nationally representative of the age, racial-ethnic, and gender distributions of the US, including diagnoses of mental health disorders. Third, although the WMH-CIDI has good concordance with the Structured Clinical Interview for the *DSM-IV* (34), the WMH-CIDI is a lay-administered interview and may not correspond to cases identified in clinical settings. Fourth, stigma about mental health issues may have discouraged survey participation, and validation of self-reported services use is limited. Finally, because of the cross-sectional nature of the data, potential cohort effects should be considered.

In sum, this study determined key socioeconomic, social support, psychiatric, and medical factors that impact mental health services use at different stages of the life course among adults with mood, anxiety, and substance use disorders. Although services use was low across the life course, our findings demonstrate that key factors like chronic medical conditions and marital status influence use at specific stages of the life course, with racial-ethnic disparities affecting these associations with use across age. These results suggest that targeting key factors that impact use in particular age groups through educational and outreach services may support increased use of services across the life course by adults in great need of care.

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Highlights

- This study determined that socioeconomic, social support, psychiatric, and medical predictors uniquely influence use of mental health services across the life course.
- Key factors included marital status, history of suicidal behavior, comorbid psychiatric disorders, chronic medical conditions, and perceived cognitive impairment.
- Exploratory analyses suggested that associations of chronic medical conditions and marital status with services use across the life course are modified by race-ethnicity.
- These findings add to the literature by providing evidence that key factors differentially influence mental health services use in younger, middle, and older age.
- Targeting key factors at different stages of life may encourage use of mental health services across the life course for those in great need of care.

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Table 1

Characteristics of 3,708 adults with mood, anxiety, and substance use disorders in the CPES across the life course

	Younger age, 18–34 years (N=1553)		Middle age, 35–54 years (N=1584)		Older age, ≥55 years (N=571)			
Characteristic	**%, mean[a]**	**SE[a]**	**%, mean[a]**	**SE[a]**	**%, mean[a]**	**SE[a]**	**df**	**p[a]**
Socioeconomic								
Age (M±SE years)	25.21	0.20	43.97	0.19	64.93	.58		<.001
Gender								
Female	57.44	2.28	59.35	1.48	68.39	2.76	2	.004
Race-ethnicity								
Non-Hispanic white	72.02	2.33	78.25	1.75	82.09	1.97		
African American	8.89	0.94	9.03	0.83	7.00	1.00	4	<.001
Hispanic or other	19.09	1.80	12.71	1.32	10.91	1.55		
Education, ≥12 yrs	81.62	1.34	84.26	1.80	68.41	2.86	2	<.001
Marital status								
Married or cohabitating	33.04	1.63	60.20	1.72	46.63	2.88		
Divorced, separated, or widowed	9.46	0.95	27.66	1.65	50.28	2.81	4	<.001
Never married	57.50	1.79	12.14	0.99	3.09	0.84		
Family income								
Low	29.56	2.87	20.92	1.72	29.20	2.79		
Average	57.64	2.73	57.75	2.17	56.68	3.12	4	<.001
High	12.80	1.37	21.32	1.94	14.12	1.83		
Health insurance[b]	73.86	1.85	84.36	1.16	93.21	1.32	2	<.001
Social support								
Perceived social support[c]								
Low	26.18	1.65	27.40	1.22	34.11	3.02		
Moderate	33.19	2.96	27.15	1.30	22.13	1.82	4	.01
High	40.62	2.42	45.45	1.74	43.76	3.44		
Perceived family support[d]								
Low	35.89	1.88	31.22	1.40	33.90	2.88	4	<.001
Moderate	38.96	2.01	29.04	1.14	35.17	2.25		

Characteristic	Younger age, 18–34 years (N=1553)		Middle age, 35–54 years (N=1584)		Older age, ≥55 years (N=571)			
	%, mean[a]	SE[a]	%, mean[a]	SE[a]	%, mean[a]	SE[a]	df	p[a]
High	25.16	1.53	39.74	1.56	30.93	2.84		
Perceived friend support[e]								
Low	20.44	1.70	24.17	1.51	26.74	2.85		
Moderate	30.68	1.94	30.10	2.08	30.45	3.04	4	.29
High	48.88	1.98	45.73	1.97	42.82	3.57		
Psychiatric								
History of suicidal behavior[f]	34.72	1.89	36.10	1.79	27.92	2.46	2	.04
Comorbid psychiatric disorders[g]	28.19	1.57	28.86	1.46	21.91	2.25	2	.04
Perceived mental health, negative[h]	70.02	2.48	74.98	1.90	76.16	2.75	2	.02
Medical								
Chronic medical conditions[i]	8.52	0.93	22.97	1.83	45.20	2.71	2	<.001
Disability								
Perceived out-of-role impairment[j]	52.18	1.81	60.63	1.65	59.65	2.96	2	.003
Perceived self-care impairment[k]	4.73	0.72	9.65	0.93	12.12	1.64	2	<.001
Perceived cognitive impairment[l]	23.36	1.58	28.83	1.33	24.01	2.21	2	.01
Perceived mobility impairment[m]	16.86	1.05	33.13	1.54	43.19	2.89	2	<.001
Perceived social impairment[n]	15.47	1.11	22.00	1.18	14.41	2.02	2	<.001
Perceived physical health, negative[o]	71.41	2.26	77.16	1.87	84.28	1.94	2	<.001

[a]Data are reported as weighted statistics, with statistical differences estimated based on the Rao-Scott χ^2 for percentages.

[b]Health insurance included private, public, or military health insurance.

[c]Perceived social support included perceived expressive support (functional or emotional support) from family members and friends.

[d]Perceived family support included perceived expressive support from family members only.

[e]Perceived friend support included perceived expressive support from friends only.

[f]History of suicidal behavior included history of suicidal ideation, plans, or attempts.

[g]Comorbid psychiatric disorders included comorbid mood, anxiety, or substance use disorders.

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[h] Perceived mental health was based on perceived overall mental health.

[i] Chronic medical conditions included stroke, heart attack, heart disease, diabetes mellitus, cancer, or lung disease.

[j] Perceived out-of-role impairment included perceived inability to work or carry out normal activities because of physical or mental health problems in the past 30-days.

[k] Perceived self-care impairment included perceived difficulty bathing, dressing, or feeding oneself because of health-related problems in the past 30-days.

[l] Perceived cognitive impairment included perceived difficulty in concentration, memory, understanding, or ability to think clearly in the past 30-days.

[m] Perceived mobility impairment included perceived difficulty with moving and getting around in the past 30-days.

[n] Perceived social impairment included difficulty maintaining a normal social life, participating in social activities, or getting along with others in the past 30-days.

[o] Perceived physical health was based on perceived overall physical health.

Table 2

Predictors of mental health services use across the life course among adults with mood, anxiety, and substance use disorders (N=3,708)

	Younger age, 18–34 years (N=1553)			Middle age, 35–54 years (N=1584)			Older age, ≥55 years (N=571)		
Characteristic[a]	**OR**[b]	**95% CI**[b]	**p**[b]	**OR**[b]	**95% CI**[b]	**p**[b]	**OR**[b]	**95% CI**[b]	**p**[b]
Socioeconomic									
Marital status[c]									
Married or cohabitating (ref)	—	—	—	—	—	—	—	—	—
Divorced, separated, or widowed	—	—	—	1.55	1.06 – 2.25	.02	1.49[c]	0.92 – 2.41[c]	.11[c]
Never married	—	—	—	1.77	1.17 – 2.68	.01			
Health insurance[d,e]	1.50	1.05 – 2.13	.02	2.00	1.26 – 3.18	.004	—	—	—
Social support									
Perceived family support[f]									
Low (ref)	—	—	—	—	—	—	—	—	—
Moderate	—	—	—	0.71	0.53 – 0.94	.02	—	—	—
High	—	—	—	0.91	0.62 – 1.35	.64	—	—	—
Psychiatric/Medical									
History of suicidal behavior[g,e]	2.26	1.62 – 3.15	<.001	1.74	1.34 – 2.26	<.001	1.68	0.88 – 3.19	.11
Comorbid psychiatric disorders[h,e]	1.85	1.40 – 2.45	<.001	2.01	1.13 – 3.56	.02	1.99	1.01 – 3.92	.05
Chronic medical conditions[i,e]	1.80	0.98 – 3.32	.06	—	—	—	1.55	0.92 – 2.63	.10
Perceived cognitive impairment[j,e]	1.48	0.99 – 2.22	.06	1.66	1.13 – 2.42	.01	2.23	1.19 – 4.18	.01

[a] Cells with dashes represent predictors that were not part of the final model.

[b] Odds ratios (OR) and 95% CIs were estimated, along with design-corrected likelihood ratio statistics and Wald χ^2 tests, adjusting for race-ethnicity and gender.

[c] Marital status consisted of 3 levels, with 2 df. For older age, marital status consisted of 2 levels, in which divorced, separated, widowed, or never married were collapsed into the same level, with 1 df.

[d] Health insurance included private, public, or military health insurance, with 1 df.

[e] Negative endorsement was used as the reference group.

[f] Perceived family support included perceived expressive support (functional or emotional support) from family members, with 2 df.

[g] History of suicidal behavior included history of suicidal ideation, plans, or attempts, with 1 df.

[h] Comorbid psychiatric disorders included comorbid mood, anxiety, or substance use disorders, with 1 df.

[i] Chronic medical conditions included stroke, heart attack, heart disease, diabetes mellitus, cancer, or lung disease, with 1 df.

[j] Perceived cognitive impairment included perceived difficulty in concentration, memory, understanding, or ability to think clearly in the past 30-days, with 1 df.