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Prevalence and Predictors of Persistent Versus Remitting Mood, Anxiety, and Substance Disorders in a National Sample of Older Adults

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Abstract

Objectives—Relatively little is known about whether mental disorders other than depression remit versus persist in later life, especially within nationally representative samples. Our objectives were to examine the prevalence of persistent mood, anxiety, and substance disorders in older adults, and to explore a range of physical and mental health predictors of disorder chronicity.

Methods—This study utilized a three-year follow-up design using Waves 1 (2001/2002) and 2 (2004/2005) of the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC). Participants included 1,994 adults 55+ who had a past-year mental disorder at Wave 1 and who completed Wave 2. The primary outcome was the prevalence of persistent mood, anxiety, and substance disorders at Wave 2. Potential predictors of persistence included sociodemographic variables, physical health (chronic health conditions and physical health-related quality of life), and mental health (childhood adversity, suicide attempts, mental health-related quality of life, comorbid mental disorders, personality disorders, and lifetime treatment seeking).

Results—With the exception of nicotine dependence, the prevalence of persistent mood, anxiety, and substance disorders ranged from 13% to 33%. Only younger age predicted substance disorder chronicity. Significant predictors of persistent mood and anxiety disorders included physical and mental health comorbidity, physical and mental health-related quality of life, suicide attempts, comorbid personality disorders, and treatment seeking.

Conclusions—At least two thirds of mental disorders in older adults were not persistent. Sociodemographic variables had little influence on chronicity, whereas a number of markers of

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mental disorder severity and complexity predicted persistent mood and anxiety disorders. The findings have important treatment and prevention implications.

Keywords

persistence; remission; epidemiology; longitudinal

Despite evidence that the prevalence of mood, anxiety, and substance disorders decrease from middle age to old age (1–3), these mental disorders remain common in late life. Various national community surveys from Australia (4), Europe (2), and North America (2, 5, 6) suggest that between 6% and 14% of adults 55 years of age and over have had a mood, anxiety, or substance use disorder within the past year. Furthermore, recent epidemiologic evidence indicates that incident rates of new disorders in late life are highest for nicotine dependence and major depression and lowest for drug use disorders and bipolar II (7). What is less clear is the extent to which mood and especially anxiety and substance disorders remit versus persist among older nationally representative community samples, and what the risk factors for persistence are. This information is important for two reasons. First, persistent disorders and sociodemographic characteristics associated with chronic mental health problems are sensible targets for treatment, prevention, and mental health promotion initiatives (8). Second, research focusing on persistence in the general adult population may not generalize to older adults, so that specific information pertaining to older community dwelling adults is needed.

Existing research has primarily examined the prevalence and predictors of persistent depression or depressive symptoms within older community and clinical samples, has focused less on persistent anxiety disorders, and is almost non-existent for persistent substance disorders. Two reviews of persistent depression in primary care and community samples suggest that overall approximately one third of depressed older adults experience a chronic and persistent course (9, 10). However, these reviews report highly variable persistence rates ranging from 14% to 62%. Far less research has examined the persistence of anxiety disorders among older adults. Data from the Longitudinal Aging Study Amsterdam indicated that 62 (23%) of the 3107 community dwelling older adults with an anxiety disorder at baseline also met criteria for an anxiety disorder six years later (11). And a community survey of 2784 community dwelling older adults from Quebec reported that 16.3% with an anxiety disorder at baseline still had an anxiety disorder one year later (12). Finally, the only study we could find examining the persistence of substance disorders among older adults was the Quebec survey, which only assessed benzodiazepine dependency; 27.5% of their respondents with this diagnosis had a chronic course.

With respect to predictors and correlates of persistent disorders among older adults, research focusing on depression suggests the following risk factors: more severe depression at baseline, comorbid physical and mental health problems, functional limitations, poor social support, and having an external locus of control (8, 9, 13–15). Very few sociodemographic predictors have emerged from this research, although there is some suggestion that female gender (16) and older age (9) increase the risk of persistence. Thus far, persistent anxiety has been associated with fewer factors than persistent depression, including neuroticism (11),

use of mental health services, and increases in chronic health problems from baseline to one year later (12).

The existing research on persistence of mental disorders among older adults has been limited in three important ways. First, there is a clear need to expand the range of potential predictors of disorder persistence to inform possible targets for prevention and intervention initiatives. Second, prior research has focused on depression and largely neglected exploring anxiety and substance disorder persistence in older adults. Third, there has been a dearth of research with large community samples with clinical diagnoses of mental disorders, and those that do exist do not have large enough samples to enable researchers to explore a wide range of predictors with adequate statistical power. The objectives of this study are to address these limitations using a large nationally representative longitudinal sample with reliable mood, anxiety, and substance diagnoses and rich data on physical and mental health. Based on previous research, we hypothesized that chronic and persistent disorders will be predicted by comorbid physical and mental health problems and by prior professional helpseeking. Other markers of disorder severity and complexity available in the NESARC that we expected would be related to persistence include lifetime suicide attempts, childhood abuse and neglect, poor health-related quality of life, and Axis II psychopathology.

Methods

Sample

We analyzed data from Wave 1 and Wave 2 (the 3-year follow-up) of the National Epidemiologic Survey for Alcohol and Related Conditions (NESARC). The National Institute on Alcohol Abuse and Alcoholism conducted Wave 1 between 2001 and 2002 and Wave 2 between 2004 and 2005. The Wave 1 NESARC sample included 43,093 participants (81% response rate) who represent Americans aged 18 years or older residing in the United States including the District of Columbia, Alaska, and Hawaii. Excluding individuals who were deceased, deported or on active military duty on follow up, 86.7% of Wave 1 participants responded in Wave 2, resulting in 34,653 completed interviews. The overall response rate from both waves was 70.2%. Trained lay interviewers from the U.S. Census Bureau with at least 5 years experience conducted face-to-face lay interviews following informed consent from participants. The potential sample for this study included 10,409 respondents who were 55 years of age or older at Wave 1 and who also completed the survey at Wave 2. The final sample consisted of 1,994 of these individuals who had a past-year mood, anxiety, or substance disorder at Wave 1. As is the case in previous research (17,18), we used 55 years as our age cut-off for three reasons. First, doing so increased our sample size and therefore enhanced statistical power. Second, the traditional age cut-off of 65 years is less relevant today as individuals are retiring well before 65 years of age or much later in life. Third, this age cut-off allowed us to compare young-old (55–64), middle-old (65–74), and old-old (75+) age groups. We employed appropriate statistical weights so that the data were representative of the American population. These weights adjusted the data for region, age, sex, race, and ethnicity based on the 2000 Census. They also account for attrition between Waves 1 and 2 and adjust for response/non-response and oversampling of

Blacks, Hispanics and young adults (19,20). A more detailed description of methodology, sampling and weighting procedures of the NESARC can be found elsewhere (3).

Measures

Dependent Variables—The Axis I mental disorders included Waves 1 and 2 past-year mood disorders (i.e., major depression, dysthymia, mania, and hypomania), past-year anxiety disorders (i.e., panic disorder with and without agoraphobia, social phobia, specific phobia, and generalized anxiety disorder), and past-year substance use disorders (i.e., alcohol abuse and dependence, nicotine dependence, and drug abuse and dependence). The survey used the Alcohol Use Disorders and Associated Disabilities Interview Schedule IV (AUDADIS-IV) designed for lay interviewers to assess Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV) mental disorders. This interview has fair to good test-retest reliability for the disorders used in this study (kappas ranging from .40 to .77) as well as evidence supporting its construct and criterion validity (3). We combined mania and hypomania to ensure sufficient statistical power. We also created two groups for substance use when examining predictors of persistence; past year alcohol or drug abuse and dependence including nicotine dependence and a second group excluding nicotine dependence. Finally, we created three “any” categories based on the respondent meeting criteria for at least one anxiety, mood and substance use disorder.

We operationally defined persistence of mental disorders as endorsing the past-year disorder at both Waves 1 and 2. Therefore, we defined remission as endorsing the past year mental disorder at Wave 1 but not meeting past year criteria at Wave 2. Persistent disorders for the “any” categories could include any type of that particular disorder. For example, if a respondent only met criteria for major depression at Wave 1, and only met criteria for dysthymia at Wave 2, that individual would be classified as having remitted major depression but persistent “any mood disorder”.

Covariates—Sociodemographic variables included age, sex, marital status, household income, education, and race at Wave 1. When we used sociodemographic variables as covariates, we assessed age continuously and categorized marital status (married or living with someone as if married, widowed/separated/divorced, never married), household income (0–\$19,999, \$20,000–\$34,999, \$35,000–\$59,999, and \$60,000+), education (less than high school, high school, some college or higher), and race/ethnicity (White, Black, Hispanic, and other). We also used these sociodemographic variables as predictors, although in that case categorized age into 3 categories to enhance interpretability: young-old (55–64), middle-old (65–74), and old-old (75+) age groups.

Physical Health Predictors—We created a count variable based on the number of past-year chronic physical health conditions that respondents endorsed in Wave 1. The 11 physical health conditions in the NESARC were based on self-reports of being diagnosed with the condition by a health professional. These physical health conditions included arteriosclerosis, hypertension, cirrhosis of the liver, liver disease, angina pectoris, tachycardia, myocardial infarction, heart disease, stomach ulcer, gastritis, and arthritis. The

highest number of physical health conditions that any respondent aged 55+ endorsed was nine.

We also derived the physical component score (PCS-12) from the 12-item Medical Outcomes Study Short Form (SF-12) at Wave 1 to measure physical health-related quality of life (i.e., physical functioning, role limitations, pain, and perceived health). We reversed scored this outcome so that higher scores on each health predictor variable indicate poorer health. In the current study this score ranged from 4.6 to 71.9 ($SD = 12.75$). The SF-12 has demonstrated good reliability and validity. For example, the PCS-12 is an excellent predictor of the physical component score (PCS-36) of the full SF-36, it demonstrates good test-retest reliability ($r = 0.89$), and the PCS-12 reaches the same statistical conclusions about group differences as did the PCS-36 when examining prior cross-sectional and longitudinal studies (21).

Mental Health Predictors—Only Wave 2 respondents reported on a variety of adverse childhood events (i.e., abuse, neglect, and general household dysfunction) occurring before they were 18 years old based on questions from the Adverse Childhood Experiences study (22). Childhood abuse was derived from multiple questions pertaining to physical, emotional, and sexual abuse. Neglect was derived from multiple questions pertaining to physical and emotional neglect. Household dysfunction was derived from multiple questions pertaining to having a battered mother, parental (or other adult living in home) mental disorder, parental (or other adult living in home) imprisonment, and parental (or other adult living in home) suicide attempt or completion. A detailed description of how this variable was created can be found elsewhere (23).

At Wave 2, respondents indicated whether they had ever attempted suicide. Because this question was only asked of every respondent at Wave 2 (as opposed to depressed respondents at Wave 1), we used the Wave 2 data and excluded those who indicated that they attempted suicide less than 4 years ago in order to retain the prospective nature of our predictors of Wave 2 persistence and remission. This resulted in us excluding 17 older adults from our analyses.

Similar to the PCS-12, we derived the mental component score (MCS-12) from the SF-12 at Wave 1 as a measure of mental health-related quality of life (i.e., well-being/distress, role limitations, social functioning, vitality). Higher scores represent poorer mental health quality of life and scores in the current study ranged from 7.7 to 77.7 ($SD = 10.17$). Like the physical component score, the MCS-12 is an excellent predictor of the MCS-36, has high test-retest reliability ($r = 0.76$), and reaches the same statistical conclusions about group differences as the MCS-36 when examining previous research (21).

We created a count variable of the number of past-year mood, anxiety, and substance use disorders at Wave 1 based on the AUDADIS-IV diagnoses, as described above. For the count variable, we included individual mood and anxiety disorders, any past-year alcohol abuse or dependence, and any drug abuse or dependence, excluding nicotine. Scores on this count variable ranged from 0 to 6, as 6 comorbid mental disorders was the most that any respondent aged 55+ endorsed.

At Wave 1, respondents who met DSM-IV criteria using the AUDADIS-IV for antisocial, dependent, obsessive compulsive, paranoid, schizotypal, avoidant, or histrionic personality disorders, were included in an “any personality disorder” group.

Finally, respondents at Wave 1 reported their lifetime use of services (emergency room visits, hospitalization, and outpatient services) for mood, anxiety, and substance use disorders. For example, respondents were asked, “whether they went to the emergency room because of panic attacks”. We categorized service use into “any anxiety”, “any mood”, and “any substance” help seeking. Table 1 provides the weighted prevalence of each mental disorder at both Waves 1 and 2, and Table 2 includes Ns and the weighted prevalence of sociodemographic variables and the physical health and mental health predictors for the subset of participants who had disorders at Wave 1 and who also completed Wave 2.

Analytic Strategy

Cross tabulations provided the weighted prevalence of the sociodemographic variables at Wave 1, each physical and mental health predictor at Wave 1, and mental disorders at both Wave 1 and Wave 2. From this information we derived the prevalence of persistent and remitted mental disorders at Wave 2. Unadjusted logistic regression models examined sociodemographic predictors of persistent mental disorders from Wave 1 to Wave 2. In addition, logistic regression models examined physical health (i.e., number of physical health conditions, physical health-related quality of life) and mental health (i.e., childhood adversity, lifetime suicide attempts, mental health-related quality of life, number of mental health problems, Axis II personality disorders, any anxiety, mood, or substance treatment/help-seeking) predictors of persistent mental disorders. We adjusted for Wave 1 sociodemographic factors in each of our models. In addition, our mental health predictor analyses controlled for the number of physical health conditions, and our physical health predictor analyses controlled for each of the any past-year disorders that were not the dependent measure (e.g., analyses with physical health predictors of any past-year mood disorder controlled for any past-year anxiety or substance disorder). These models allowed us to examine the odds of persistent mental disorders based on various predictors at Wave 1 through the estimation of odds ratios. Finally, we conducted two sets of analyses to explore the possible impact of missing data on our findings. First, our data set did not have any missing mental disorder values, but it did have missing data for some predictor variables of interest. We therefore conducted a series of sensitivity analyses in which we replaced missing independent variable data with extreme scores (endorsed and not endorsed for categorical variables, and scores one SD above and one SD below the mean for continuous variables) to determine if our results changed. Second, to assess possible sociodemographic and health influences on attrition, we compared respondents who were missing versus present at Wave 2 on Wave 1 variables using *t*-tests with continuous variables and Pearson chi-square tests with categorical variables. As a result of the large number of statistical tests and the often exploratory nature of the analyses we used $p < .01$ as a cutoff for statistical significance. We analyzed our data using SUDAAN 10.0.1 (24), which employs the Taylor Series Linearization method (25) for variance estimation to account for the complex sampling design of the NESARC. We applied appropriate weighting and stratification

variables to the data to ensure that the respondents who were re-interviewed at Wave 2 were representative of the American population.

Results

Study Attrition

Our attrition analyses found that respondents who dropped out were more likely to be older ($t(4344) = 23.51, p < .001$), widowed/divorced/separated ($\chi^2(2) = 133.4, p < .001$), making \$0–\$19,999 of family income per year ($\chi^2(3) = 202.58, p < .001$), and to have a high school education or less ($\chi^2(2) = 130.84, p < .001$). With respect to physical health, respondents who dropped out had more physical health conditions ($t(4031) = 5.82, p < .001$) and poorer physical health-related quality of life at Wave 1 ($t(4363) = 17.60, p < .001$). With respect to mental health, of the 10 individual mental disorders examined in this study the only one that was significant was social phobia. Surprisingly, respondents who dropped out were less likely to have this disorder at Wave 1 than those who remained in the study ($\chi^2(1) = 6.88, p = .009$). Although the majority of disorders were not significant, respondents who dropped out did have poorer mental health-related quality of life at Wave 1 than those who remained in the study, $t(4256) = 10.23, p < .001$.

Prevalence of Persistence

The prevalence rates of persistent and remitted mood, anxiety, and substance disorders are presented in Table 1. The prevalence of persistent individual mood and anxiety disorders was similar, ranging from approximately 15% to 25%. The rates of persistent any mood and any anxiety disorder were also very similar – both were approximately 30% at the three year follow-up. In contrast to the roughly 15% to 30% of individuals with mood and anxiety disorders who demonstrated a persistent course, persistence was much more variable within the substance disorder category, ranging from 13% for drug abuse or dependence to 64% for nicotine dependence. Overall, 60% of respondents with a Wave 1 substance disorder also had a substance disorder at Wave 2.

Predictors of Persistence

We began by exploring sociodemographic predictors (i.e., sex, age, marital status, income, education, and race/ethnicity) of any anxiety disorder, any mood disorder, and any substance disorder, with very few significant findings. With respect to mood disorders the only significant result that emerged was that, in comparison to respondents 75+, those who were 55 to 64 years of age had an odds ratio for any mood disorder of 2.34, Wald $F(2, 65) = 5.44, p < .01$ (99% CI from 1.02 to 5.34). There were no significant sociodemographic predictors of anxiety disorders. Finally, with respect to substance disorders, the only significant predictor was age. In comparison to respondents 75+, the odds of persistent any substance disorder was 3.14, Wald $F(2, 65) = 6.66, p < .01$ (99% CI from 1.32 to 7.48) among those 55 to 64.

Table 3 presents the results of our physical and mental health predictors of persistent mood disorders. None of our physical or mental health predictors was related to persistent mania. When predicting persistent dysthymia, poor physical health-related quality of life increased

the risk, whereas being the victim of childhood adversity lowered the risk. The latter finding was no longer significant in a sensitivity analysis that replaced missing data with “no” responses (Wald $F[1, 65] = 6.17, p = .02, OR = 0.23$ with 99% CI ranging from 0.05–1.10). Two variables predicted persistent major depression: a greater number of physical health conditions, and a greater number of comorbid mental health conditions. These same factors increased the risk of persistent any mood disorder. In addition, treatment seeking for problems with mood in the year prior to Wave 1 more than doubled the odds of having persistent any mood disorder at Wave 2. In our sensitivity analyses, when predicting persistent major depression the significant influence of number of physical health conditions became marginally non-significant (Wald $F[1, 65] = 4.04, p = .05, OR = 1.17$ with 99% CI ranging from 0.95–1.44) when missing data were replaced with values one SD below the mean ($M = 0.94$). The same was true for any mood disorder persistence (Wald $F[1, 65] = 4.64, p = .04, OR = 1.17$ (99% CI ranging from .96 to 1.41).

The results predicting persistent anxiety disorders are found in Table 4. Interestingly, no significant predictors emerged for the most prevalent anxiety disorders (i.e., specific phobia and GAD). Panic disorder persistence was predicted by poor physical health-related quality of life and lifetime suicide attempts, and social phobia persistence was predicted by treatment seeking for that disorder. Finally, persistent any anxiety disorder was predicted by poorer mental health-related quality of life, greater numbers of comorbid mental disorders, the presence of Axis II personality disorders, and having a comorbid mood disorder.

Our final set of analyses predicted the persistence of two outcomes: any substance disorder including nicotine dependence and any substance disorder excluding nicotine dependence. None of the physical or mental health predictors was significant for either outcome.

Discussion

There are two primary findings from this study. The first is that prevalence of persistent mood, anxiety, and substance disorders among older community dwelling adults is relatively low compared to other studies. The second is that, consistent with previous research, markers of disorder complexity (i.e., greater numbers of comorbid physical and mental health problems, presence of an Axis II disorder) and severity (poorer health-related quality of life, suicide attempts, previous mental health service use) increase the likelihood of chronic mood and anxiety disorders, but not substance disorders.

With respect to our primary prevalence finding, except for highly persistent nicotine dependence, one third or fewer older community respondents in the NESARC with mood, anxiety, and substance disorders exhibited persistence of those disorders over a 3-year period. Not surprisingly, the prevalence of persistent disorders from this study is significantly lower than the prevalence of persistent disorders among older depressed primary care and medically ill samples, where 45% to 65% exhibit persistent depression within one year of the initial assessment (26–28). Interestingly, however, a 3-year follow-up of 234 depressed elderly general medical practice patients found persistent diagnoses among 65% patients at the one-year follow-up, 40% at the two-year follow-up, and only 32% at the

three-year follow-up (29). This finding highlights the importance of the follow-up period, which may have contributed to our less prevalent findings.

When compared to other older adult community surveys, approximately 30% persistence for the any mood and any anxiety disorder categories after 3 years in this study is higher than the Quebec survey, which found 19% persistence for any mood disorder and 16% persistence for any anxiety disorder at one-year follow-up (12). In contrast, our persistence findings are lower than the Longitudinal Aging Study Amsterdam, which found that 49% of the sample had chronic depression after 3 years (8) and that after 6 years 32% had a chronic mood disorder (30) and 23% had a chronic anxiety disorder (11). Together, our study and these previous surveys of chronic disorders among older samples suggests that the prevalence of persistent disorders ranges from 16% to 49% after 1 to 6 years of follow-up. Although none of these studies compared persistence in older versus younger individuals, these rates appear somewhat lower than the prevalence of persistence reported in general adult samples (31–34). If future research supports this hypothesis, relatively lower levels of persistent disorders in later life may be due to general improvements in emotion regulation and mental health with increasing age (35,36) rather than to a healthy survivor bias in longitudinal studies (37).

With respect to our second primary finding, the primary driver of persistence in this study, as in previous research, was disorder severity and complexity. As has been the case in previous research (12,14,15), sociodemographic variables had very little influence on persistence in the NESARC. The only consistent effect was that young-old adults had a higher likelihood of persistent mood, anxiety, and substance disorders. This finding once again supports the notion of older age generally being associated with emotional health.

Although it is not surprising that disorder severity and complexity is associated with greater chronicity, our study adds to a large body of evidence indicating the strong effect of comorbid mental and physical health problems on persistence (8, 9, 15, 32–34). Although our finding that lifetime treatment seeking was associated with greater persistence at first appears counter-intuitive, this finding has been reported elsewhere (12, 33) and likely reflects that treatment seeking samples have more severe mental health presentations (29). Although it is tempting to assume that these individuals received poor treatment, and that there is evidence to support this assertion (38), a large study of effectively treated depressed primary care patients found that almost half remained depressed 6 to 12 months after baseline (39). Our novel finding of Axis II disorders increasing the risk of persistence also relates to treatment, as personality disorders complicate and reduce the effectiveness of treatment (40).

The findings of this study are supported by a number of strengths, including the large sample size and use of standardized diagnostic measures. There are, however, a number of limitations that should be taken into consideration. First and perhaps most importantly, the NESARC only assessed respondents twice over a 3-year interval. Without intervening assessments it is not possible to determine whether disorders were truly chronic, or if they perhaps relapsed and recurred. Second, our sample of older adults was predominantly white, the majority had at least a high school education, and the results of our community sample

may not generalize to individuals living in institutions or to clinical populations. Third, the NESARC assessed neither biological risk factors for disorders, nor psychological variables, such as personality traits and perceived control that have been found to affect persistence (14, 15, 34). Fourth, despite the large sample size, the prevalence of persistent cases for certain specific disorders was relatively small (e.g., 20 for mania) and the number of tests we conducted was substantial. So despite using a conservative p -value it is possible that some of our significant findings were due to chance. Finally, we were not able to examine disorders excluded from the NESARC, such as PTSD.

With these limitations in mind, the results of this study suggest that the majority of mental disorders in late life are not persistent. Although this finding is encouraging for older adults with mental health problems and those who treat them, our finding of disorder complexity and severity being linked to persistence highlights the importance of assessing or screening for these markers. For example, our data suggest that an older adult with panic disorder who also has prior suicide attempts and poor physical health-related quality of life is less likely to experience remission unless these other factors are identified and addressed in treatment. Our findings also add to an intriguing body of research suggesting the use of markers of disorder severity and complexity for preventing chronic mental health problems in later life by identifying groups of older adults who are at high risk of persistent disorders and targeting prevention initiatives at them (8). Regardless of the approach taken, monitoring and treatment of markers of chronicity has the potential to reduce the emotional, physical (41) and financial (42) costs of persistent mental health problems for large and growing numbers of older adults.

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Table 1

Prevalence of Persistent Versus Remitted DSM-IV Mental Disorders at Wave 2 Among Older Adults with Those Disorders at Wave 1

Past Year Mental Disorder	Overall Prevalence (n) at Wave 1			Within Disorder Persistence at Wave 2			Within Disorder Remission at Wave 2		
	N	% weighted (SE)	N	% weighted (SE)	N	% weighted (SE)	N	% weighted (SE)	
Mood disorders									
Major Depression	436	3.7 (0.20)	116	25.0 (2.34)	320	75.0 (2.34)			
Dysthymia	159	1.2 (0.11)	26	16.5 (3.60)	133	83.5 (3.60)			
Manic Episode/Hypomania	113	1.0 (0.10)	20	20.3 (5.53)	93	79.7 (5.53)			
Any mood disorder	579	4.9 (0.24)	184	31.7 (2.26)	395	68.4 (2.26)			
Anxiety disorders									
Panic Disorder with or without Agoraphobia	123	1.1 (0.11)	23	20.0 (5.59)	100	80.0 (5.59)			
Social Phobia	207	2.1 (0.17)	29	13.9 (2.93)	178	86.1 (2.93)			
Specific Phobia	600	5.3 (0.27)	141	24.2 (2.06)	459	75.8 (2.06)			
Generalized Anxiety Disorder	137	1.2 (0.11)	25	21.4 (4.42)	112	78.6 (4.42)			
Any anxiety disorder	908	8.2 (0.35)	263	29.5 (1.79)	645	70.5 (1.79)			
Substance disorders									
Alcohol Abuse and/or Dependence	245	2.2 (0.16)	82	33.4 (3.57)	163	66.6 (3.57)			
Nicotine Dependence	682	6.6 (0.33)	433	64.3 (2.26)	249	35.7 (2.26)			
Drug Abuse and/or Dependence	26	0.2 (0.05)	3	13.3 (7.55)	23	86.7 (7.55)			
Any substance disorder	891	8.5 (0.37)	525	60.2 (1.88)	366	39.8 (1.88)			

Note. Percentages may not add up to 100% because of rounding

Table 2

Sociodemographic and Clinical Characteristics of Older Adults with Any Anxiety, Any Mood and Any Substance Use Disorder at Wave 1 (n=1994)

Sociodemographic Characteristics	Unweighted n	Weighted % (SE)
Sex		
Male	751	42.4 (1.28)
Female	1243	57.6 (1.28)
Age		
55–64	1148	57.6(1.30)
65–74	577	30.1(1.16)
75+	269	12.3(0.79)
Marital Status		
Married or common law	926	61.1 (1.34)
Widowed/Seperated/Divorced	961	35.0 (1.30)
Never married	107	3.9 (0.50)
Household Income		
0–\$19,999	798	32.0 (1.26)
\$20,000–\$34,999	431	21.6 (1.15)
\$35,000–\$59,999	419	23.5 (1.12)
\$60,000+	346	23.0 (1.48)
Education		
Less than high school	523	22.6 (1.20)
High school	652	34.2 (1.16)
Some college or higher	819	43.2 (1.34)
Race/Ethnicity		
White	1353	79.6 (1.54)
Black	356	9.6 (0.89)
Hispanic	222	6.0 (0.93)
Other	63	4.8 (1.07)
Physical Health Predictors		
Number of physical health conditions (Mean, SE)	2.45	(0.04)
SF-12 Physical Component Score (Mean, SE)	33.45	(0.37)
Mental Health Predictors		
Number of mental health problems (Mean, SE)	0.99	(0.02)
SF-12 Mental Component Score (Mean, SE)	36.47	(0.33)
Childhood adversity	1121	57.4 (1.30)
Lifetime suicide attempt	85	3.24 (0.44)
Axis II personality disorders	456	22.8 (1.13)
Any anxiety help-seeking	401	19.1 (0.96)
Any mood/mania help-seeking	617	29.4 (1.10)
Any substance help-seeking	176	8.5 (0.71)

Note: Because lifetime suicide attempts were only assessed at Wave 2, the prevalence for this variable does not include 17 individuals who attempted suicide following Wave 1.

Table 3

Predictors of persistent mood disorders in older adults

Variables	Major Depressive Episode			Dysthymia			Mania/Hypomania			Any Mood Disorder		
	AOR (99% CI)	Wald F	p	AOR (99% CI)	Wald F	p	AOR (99% CI)	Wald F	p	AOR (99% CI)	Wald F	p
Physical Health												
W1 number of past-year physical health conditions	1.25(1.00–1.58)*	6.91	0.01	1.21(0.74–1.97)	1.04	0.31	0.66(0.29–1.49)	1.82	0.18	1.25(1.00–1.55)*	7.36	0.009
W1 SF-12 Physical Component Score	1.01(0.98–1.04)	0.39	0.54	1.07(1.00–1.14)*	6.62	0.01	1.01(0.95–1.08)	0.22	0.64	1.01(0.98–1.03)	0.49	0.49
Mental Health												
W2 childhood adversity												
No	1.00			1.00			1.00			1.00		
Yes	1.58(0.67–3.75)	1.99	0.16	0.22(0.04–1.09)*	6.33	0.01	2.10(0.19–23.49)	0.67	0.42	1.29(0.62–2.67)	0.85	0.36
W2 lifetime suicide attempts												
No	1.00			--			1.00			1.00		
Yes	2.66(0.70–10.15)	3.76	0.06	--			4.70(0.30–72.67)	2.24	0.14	1.69(0.57–5.05)	1.63	0.21
W1 SF-12 Mental Component Score	1.02(0.99–1.05)	3.42	0.07	1.02(0.97–1.07)	1.33	0.25	1.00(0.92–1.08)	0.01	0.94	1.02(0.99–1.04)	3.49	0.07
W1 number of past-year mental disorders	1.40(0.99–1.97)*	6.70	0.01	1.13(0.66–1.95)	0.38	0.54	1.38(0.67–2.82)	1.40	0.24	1.41(1.03–1.94)*	8.31	0.005
W1 Axis II any personality disorder												
No	1.00			1.00			1.00			1.00		
Yes	1.84(0.84–4.07)	4.20	0.04	1.55(0.31–7.65)	0.53	0.47	0.70(0.13–3.89)	0.30	0.59	1.70(0.90–3.22)	4.93	0.03
W1 lifetime mood treatment-seeking												
No	1.00			--			1.00			1.00		
Yes	1.59(0.65–3.92)	1.90	0.17	--			6.84(0.65–71.38)	4.73	0.03	2.05(0.98–4.29)*	6.59	0.01
W1 any past-year anxiety disorder												
No	1.00			1.00			1.00			1.00		
Yes	1.91(0.90–4.05)	5.24	0.03	1.02(0.30–3.52)	0.00	0.96	1.38(0.19–10.03)	0.19	0.67	1.65(0.85–3.20)	3.96	0.05
W1 any past-year substance disorder												
No	1.00			--			--			1.00		
Yes	1.17(0.44–3.12)	0.19	0.66	--			--			1.04(0.44–2.44)	0.01	0.91

Note. All analyses include the following covariates: sex, age, marital status, education, household income, and race/ethnicity. In the case of the physical health predictors, we additionally controlled for any past-year substance abuse or dependence and any past-year anxiety disorder. In the case of mental health predictors, we additionally controlled for number of physical conditions. Analyses with cell sizes less than 5 are not reported. W1 and W2 refer to Wave 1 and Wave 2, respectively.

All numerator degrees of freedom = 1; denominator degrees of freedom = 65 with the exception of suicide attempts = 71

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Table 4

Predictors of persistent anxiety disorders in older adults

Variables	Panic Disorder with or without Agoraphobia			Social Phobia			Specific Phobia			GAD			Any Anxiety Disorder		
	AOR (99%CI)	Wald F	p	AOR (99%CI)	Wald F	p	AOR (99%CI)	Wald F	p	AOR (99%CI)	Wald F	p	AOR (99%CI)	Wald F	p
Physical Health															
W1 number of past-year physical health conditions	1.54 (0.90–2.61)	4.63	0.03	1.25 (0.81–1.93)	1.87	0.18	1.16 (0.94–1.43)	3.54	0.06	0.73 (0.42–1.27)	2.29	0.14	1.14(0.97–1.35)	4.46	0.04
W1 SF-12 Physical Component Score	1.05 (1.00–1.11)*	6.90	0.01	0.86 (0.24–3.11)	0.05	0.82	1.02 (0.99–1.04)	2.60	0.11	0.96 (0.90–1.02)	3.79	0.06	1.01 (0.99–1.03)	1.40	0.24
Mental Health															
W2 childhood adversity															
No	--	--	--	1.00			1.00			1.00			1.00		
Yes	--	--	--	1.3 (0.35–4.74)	0.10	0.75	1.32 (0.68–2.57)	1.21	0.28	3.95 (0.83–18.77)	5.46	0.02	1.38 (0.84–2.29)	2.92	0.09
W2 lifetime suicide attempts															
No	1.00			1.00			1.00			--			1.00		
Yes	29.60 (0.87–1006.87)*	6.46	0.01	4.87 (0.87–27.27)	5.92	0.02	1.13 (0.27–4.72)	0.05	0.82	--			1.59 (0.57–4.46)	1.42	0.24
W1 SF-12 Mental Component Score	0.95 (0.89–1.02)	3.31	0.07	1.02 (0.97–1.07)	1.55	0.22	1.02 (0.99–1.05)	2.35	0.13	1.04 (0.97–1.13)	2.16	0.15	1.02(1.00–1.05)*	8.73	0.0044
W1 number of past-year mental disorders	1.39(0.83–2.33)	2.91	0.09	1.40(0.89–2.21)	3.91	0.05	1.19(0.88–1.61)	2.41	0.13	1.16(0.66–2.02)	0.49	0.49	1.42 (1.09–1.85)**	12.12	0.0009
W1 Axis II any personality disorder															
No	1.00			1.00			1.00			1.00			1.00		
Yes	1.16(0.27–4.95)	0.08	0.78	3.06(0.75–12.52)	4.44	0.04	0.93(0.44–1.95)	0.07	0.79	2.23(0.56–8.88)	2.36	0.13	1.70(1.04–2.80)*	8.08	0.006
W1 any lifetime anxiety treatment-seeking															
No	1.00			1.00			1.00			1.00			1.00		
Yes	0.28 (0.06–1.36)	4.57	0.04	5.92 (1.33–26.37)*	9.98	0.002	1.39(0.66–2.90)	1.37	0.25	0.51 (0.10–2.55)	1.25	0.27	1.53(0.91–2.58)	4.82	0.032
W1 any past-year mood disorder															
No	1.00			1.00			1.00			1.00			1.00		
Yes	1.86 (0.31–10.99)	0.86	0.36	2.15 (0.62–7.49)	2.67	0.11	1.62 (0.69–3.81)	2.26	0.14	3.28 (0.70–15.48)	4.14	0.05	2.37 (1.32–4.27)**	15.31	0.0002
W1 any past-year substance use disorder															
No	1.00			1.00			1.00			1.00			1.00		
Yes	2.55 (0.31–21.25)	1.37	0.25	2.44 (0.49–12.14)	2.17	0.15	1.67 (0.67–4.17)	2.24	0.14	0.57 (0.07–4.73)	0.5	0.48	1.66 (0.86–3.22)	4.17	0.05

Note. All analyses include the following covariates: sex, age, marital status, education, household income, and race/ethnicity. Analyses with cell sizes less than 5 are not reported. In the case of the physical health predictors, we additionally controlled for any past-year substance abuse or dependence and any past-year mood disorder. In the case of mental health predictors, we additionally controlled for number of physical conditions. W1 and W2 refer to Wave 1 and Wave 2, respectively. All numerator degrees of freedom = 1 with the exception of suicide predicting GAD = 12; denominator degrees of freedom = 65 with the exception of suicide attempts = 71