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Long-Term Effects of Mental disorders on Marital Outcomes In the National Comorbidity Survey Ten-Year Follow-up

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Abstract

Purpose—Epidemiological research has consistently shown an association between mental disorders and marital dissolution. However, this research mostly examined the association of divorce as a risk factor for mental illness. This study prospectively examined the associations of mood, anxiety, and substance use disorders with future marital dissolution and new marriages in a representative population sample.

Methods—The study used data from the National Comorbidity Survey panel study—a two-wave community epidemiological survey of 5,001 participants assessed in1990–1992 and re-interviewed in 2001–2003. Mental disorders were ascertained with the Composite International Diagnostic Interview, a fully-structured interview. Association of baseline lifetime disorders and disorders with onset after the baseline with subsequent divorce and marriage/remarriage were examined using discrete-time survival analysis models.

Results—Mental disorders at baseline or with onset after baseline were associated with significantly greater odds of subsequent divorce among respondents who either were married at baseline or got married after baseline. Mental disorders with onset after baseline were associated with smaller odds of marriage or remarriage. Projections assuming causal effects of mental illness on marital outcomes suggest that preventing the effects of common mood, anxiety and substance use disorders would be associated with 6.7 million fewer divorces and 3.5 million more marriages in the US population over an 11 year period.

Conclusions—Individuals with common mental illnesses are at greater risk of marital dissolution, and are less likely to enter new marriages. These factors contribute to the diminished social engagement and social support for individuals with these disorders. Interventions aimed at

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ETHICAL STANDARDS

Original collection of NCS and NCS-2 data has been approved by the Institutional Review Board of Harvard University and performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. The analyses reported here have been approved by the Institutional Review Board of Johns Hopkins University, Bloomberg School of Public Health. All persons interviewed for NCS and NCS-2 surveys gave their informed consent prior to their inclusion in the study.

CONFLICT OF INTEREST

Other authors declare no potential conflict of interest.

improving marital and family relationships could potentially ameliorate the effect of mental disorders on these vital social ties.

INTRODUCTION

This report is part of a series of reports examining social consequences of mental disorders in the US [1,2]. Previous reports in the series examined educational [1] and employment [2] outcomes. This report focuses on marital outcomes. Marriage remains one of the strongest social ties and sources of social, financial and emotional support in most societies including the US. In cross-sectional epidemiological studies, married individuals and those living as married typically have a lower prevalence of common mental disorders [3–5]. A number of longitudinal studies have specifically examined the association of mental disorders with marital status [6–11]. However, much of this research has focused on the impact of divorce on future mental disorders of adults or children in the affected families [12–15,6,11]. Fewer studies have examined the association of mental disorders with future marital outcomes, and with few exceptions [16,17], these studies focused on marital dissolution [11,18,19,12,20,21] following specific disorders, mainly depression [16,22,23]. The effect of mental illness on marital outcomes is likely not limited to depressive disorders, and extends to other marital outcomes including first marriage or remarrying [24]. However, few longitudinal studies have examined the association of a range of mental disorders with both marital dissolution and new marriages in the US.

The current study addresses the limitations of past research by examining prospective associations of common mental disorders with both divorce and new marriages in a nationally representative two-wave panel survey of the US household population. The first wave of the panel was the 1990–1992 National Comorbidity Survey (NCS) [25]. The second wave was the 2001–2003 NCS follow-up survey (NCS-2) [26]. We include examination of the association of mental disorders having first onsets after the baseline assessment with marital outcomes after the onset of these disorders. The NCS panel data provide a rare opportunity to examine the long-term associations of a broad range of mental disorders with marital outcomes prospectively in a large national sample. The current report extends earlier studies that found associations between lifetime mental disorders with marital instability and domestic violence using the cross-sectional NCS data [27,28].

METHODS

Sample

This report is based on a panel study with two waves. A total of 5,001 respondents completed interviews in both the 1990–1992 NCS (wave 1) and the 2001–2003 NCS-2 (wave 2). The NCS was a nationally representative survey of the US household population ages 15–54 that focused on estimating the prevalence and correlates of DSM-III-R mental and substance disorders [25]. Informed consent was obtained before administering interviews. Respondents were instructed that they could skip any questions they did not want to answer, that they could terminate the interview at any time, that their responses would be treated confidentially as allowed by law, and that all analyses would be carried out with de-identified data. Respondents were offered $25 as a token payment for completing the survey.

These recruitment and consent procedures were approved by the Human Subjects Committee of the Institute for Social Research at the University of Michigan. The response rate was 82.4%.

The possibility of nonresponse bias was assessed in several ways. First, we examined whether cooperation in listed households differ by age or sex, the only two variables available for all selected respondents. We found no marked differences with regard to these characteristics. Second, a supplemental non-response survey was carried out in parallel with the main survey. In this survey, a random sample of initial non-respondents was offered a financial incentive to complete a short form of the diagnostic interview. Elevated rates of both lifetime and current psychiatric disorders were found among these initial non-respondents. A nonresponse adjustment weight was constructed to compensate for this systematic nonresponse. Third, the adjusted sample (i.e., after weighting for the bias found in the nonresponse survey and for differential probabilities of selection within and between households) was compared with the national population on a wide variety of socio-demographic variables (age, sex, race/ethnicity, marital status, education, living arrangements, region, urbanicity) as defined by the 1989 US National Health Interview Survey (NHIS) [29]. We used the NHIS rather than the Census data because the most recent Census was carried out 9 years before the NCS and because the NHIS was a very large sample with an extremely high response rate that was a good proxy for the population at the time of the baseline NCS survey. A more detailed description of the post-stratification weighting scheme is reported elsewhere [30].

NCS interviews were conducted by professional interviewers and administered in two parts. Part I, which included the core diagnostic interview, was administered to 8,098 respondents. Part II, which included assessments of additional disorders and risk factors, was administered to a probability subsample of 5,877 respondents including all those in the age range 15–24 years, all others with any lifetime DSM-III-R disorder assessed in Part I, and a random sub-sample of other Part I respondents. The Part II sample was weighted by multiplying the final Part I weight by a weight to adjust for differential probabilities of selection into Part II. Further details about the NCS design and weighting are reported elsewhere [31].

The NCS-2 sought to trace and re-interview all 5,877 of the original Part II NCS respondents. Recruitment and consent procedures were identical to those in the baseline survey and were, as in the baseline survey, approved by the Human Subjects Committee of the Institute for Social Research at the University of Michigan. Of the original 5,877 respondents, 5711 were still living, 166 had died, and 5,001 were re-interviewed, for a response rate among survivors of 87.6%. Thus, the total response rate of the surveys was 72.2% (.876 × .824). NCS-2 respondents were administered an expanded version of the baseline interview assessing onset and course of disorders between the two surveys. We adjusted for systematic nonresponse in the NCS-2 by using NCS data to predict response in NCS-2 and weighting the panel sample by the inverse of the predicted probability of NCS-2 response based on that equation. (Detailed results available on request.) The final NCS-2 panel weight is a multiple of the final NCS Part II weight described in the previous

paragraph by this nonresponse adjustment weight. Analyses were limited to 4,982 participants who reported on their marital status both at baseline and at follow-up.

Assessments

Diagnostic assessment—The baseline NCS assessed lifetime DSM-III-R disorders using a modification of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) Version 1.1, a fully-structured, lay-administered diagnostic interview [32]. The CIDI modifications are detailed elsewhere [33]. Lifetime DSM-IV disorders with first onsets between the two interviews were assessed in the NCS-2 using CIDI Version 3.0 [33]. The disorders assessed included simple phobia, generalized anxiety disorder, social phobia, panic disorder with or without agoraphobia, agoraphobia without panic disorder, post-traumatic stress disorder, major depressive disorder, bipolar disorder (Type I or II), alcohol and drug abuse or dependence. Blinded clinical reappraisal interviews administered to a probability sub-sample of NCS respondents using the Structured Clinical Interview for DSM-III-R [34] documented generally good concordance between CIDI 1.1 (DSM-III-R) diagnoses and clinical diagnoses. Because marital status in the NCS-2 could have been influenced by mental disorders with first onsets in the decade after the NCS, in the NCS-2 interview we also assessed disorder with onset after NCS. These diagnoses were based on DSM-IV criteria rather than DSM-III-R criteria. Blinded clinical reappraisal interviews administered to a probability sub-sample of NCS-2 respondents using the Structured Clinical Interview for DSM-IV [35] documented generally good concordance between CIDI 3.0 diagnoses and independent blinded clinical reappraisal interviews [36,37]. The age at which the new-onset disorders began was also ascertained.

Marital status—Questions about marital status were asked as part of both the NCS and NCS-2 interviews. Respondents were classified as currently married, never married or previously married at baseline based on their NCS responses. The age at the time of marriage/remarriage, and at the time of separation from the spouse for those who were divorced, were assessed during the NCS-2 interview. This study focused on divorce during the follow-up among those who were married at baseline, or got married after baseline; and marriage/remarriage among those who were single at baseline (never married or previously married), or became single during the follow-up. The time sequence between onset of mental disorder and marital outcomes was established by ascertaining the age of marriage or age at last separation from spouse among those who were divorced, and the age of onset of mental disorder (all in years).

Baseline controls—We included a number of baseline socio-demographic variables as controls. These included age at the time of NCS interview, current age, sex, race/ethnicity, number of years of education, and history of previous marriage or divorce at the baseline. Controlling for prior marriage and divorce in the analyses allowed us to assess the effect of mental disorders on these outcomes independent of the effect of the same marital outcomes in the past, thus reducing the potential confounding effect of these prior marital outcomes. It is, for example, plausible that prior divorces make the individuals prone to future mental disorders as well as future divorces. Thus, prior divorces could be a potential confounder of

the relationship of mental disorders with future divorce. Adjusting for prior divorce reduces this confounding effect.

Analytic approach

Analyses examined the associations of lifetime mental disorders present at the time of NCS assessment (T1) with divorce after T1 as assessed in NCS-2 (T2) and the associations of lifetime mental disorders having onsets after T1 with divorce after the onset of mental disorder. Parallel analyses were conducted for the association of T1 lifetime mental disorders and mental disorders with onset after T1 with marriage/remarriage after T1. A discrete time survival analysis model with logistic link was used for these analyses [38]. The regression coefficients are therefore reported as odds ratios. For the analyses of the association of mental disorders with onset after T1 with divorce and marriage, age at divorce or marriage respectively, and age of onset of mental disorders were used to identify divorces and marriages that occurred *after* the onset of disorder. Controls were included in each model for baseline socio-demographic characteristics and age at the time of divorce (for analyses of divorce) and at the time of marriage/remarriage (for analyses of marriage/remarriage). Respondents joined the pool eligible for remarriage after they divorced and for divorce after they got married.

Analyses were conducted in two stages. First, only lifetime disorders at T1 were entered into the models. Next, both lifetime disorders assessed at T1 and disorders with onset after T1 were entered into the model. Separate analyses were conducted for divorce and for marriage/remarriage. In addition to dichotomous variables for each individual disorder, separate analyses were conducted for summary counts of the numbers of disorders, and indicator variables for any of the T1 lifetime disorders and disorders with onset after T1.

Simulations based on the parameter estimates in the regression models were used to calculate population attributable risk proportions (PARP) of divorce and marriage/remarriage. PARP can be interpreted as the percent of observed adverse outcomes (divorce and not being married) that would have been avoided if the causal effects of mental disorders were prevented based on the assumption that the regression coefficients accurately represent causal effects [39]. Population projections for PARP were made based on US Census data for 2010 [40] showing that 161,902,094 Americans were in the age range 15–54 (the age range of the NCS), assuming that 45.8% of these individuals were eligible to get married in future years (either never having married or being previously married) and 54.2% were currently married (based on NCS proportions), and assuming that the distribution of marital status in NCS-2 provides an accurate picture of population distribution of these outcomes.

Standard errors and significance tests were estimated using the Taylor series method [41] implemented in the SUDAAN software system [42] to adjust for the geographic clustering and weighting of the sample. Multivariable significance was evaluated using Wald χ^2 tests based on design-corrected coefficient variance-covariance matrices. Statistical significance was evaluated consistently using two-tailed .05-level tests. All reported coefficients (percentages and regression coefficients) are based on weighted data.

RESULTS

Baseline marital status and marital outcomes

A total of 2,228 respondents were married at T1. A majority of these participants (79.1%, n=1,681) remained stably married through time of the T2 interview; 490 (18.7%) divorced their spouse and 57 (2.2%) were widowed. Of the 547 who divorced their T1 spouses or were widowed, 195 (32.0%) remarried. At the time of T2, a total of 1,838 (84.6%) of the 2,228 who were married at T1 reported being currently married—1,681 in their original marriage and 157 in new marriages.

The second largest group of participants based on marital status was comprised of 1,917 respondents who had never been married at T1. A majority of these respondents (n=1,015, 52.5%) had married by T2. Of these, 234 (22.3% of the 1,015) later got divorced and 9 (1.5%) were widowed. Seventy-four (31.3%) of the 243 whose first marriage ended, later remarried. At T2, 838 (43.4% of the 1,917) were married—772 in their first marriage and 66 in new marriages.

The third largest group was comprised of 837 respondents who were not currently married at T1 but had been previously married. Approximately half of these respondents (n=377, 50.3%) had remarried by T2. Of these, 108 (23.3% of the 377) later got divorced and 5 (0.8%) were widowed. A total of 27 (19.8%) of the 113 whose first marriage ended, later remarried. At T2, 282 (39.8% of the 837) were married—264 in their first remarriage during the follow-up period and 18 in new remarriages.

Associations of mental disorders with divorce

The results of multivariable analyses of the association of mental disorders with divorce are presented in Table 1. In analyses of the association of T1 lifetime disorders with divorce, none of the associations for individual disorders were statistically significant. However, the joint test for association of mental disorders as a group was statistically significant (chi-squared=24.47, df=9, p=.004). Furthermore, the continuous variable of lifetime mental disorders (adjusted odds ratio [AOR]=1.17, 95% confidence interval [CI]=1.08–1.27, p<.001) and presence of any one disorder (AOR=1.42, 95% CI=1.12–1.80, p=.003) were significantly associated with divorce after T1.

In analyses including both T1 baseline disorders and disorders with onset after T1, the associations with baseline lifetime disorders persisted (Table 1). The joint test for these disorders was statistically significant (chi-squared=27.10, df=9, p=.001), as were tests for the continuous measure of number of T1 lifetime disorders (AOR=1.15, 95% CI=1.06–1.25, p=.001) and any T1 lifetime disorder (AOR=1.38, 95% CI=1.10–1.73, p=.004). In addition, disorders with onset after T1 were significantly associated with subsequent divorce (chi-squared=95.66, df=9, p<.001). The associations were significant for major depressive disorder (AOR=1.65, 95% CI=1.21–2.25, p=.001), bipolar disorder (AOR=1.54, 95% CI=1.14–2.07, p=.003), generalized anxiety disorder (AOR=1.51, 95% CI=1.00–2.29, p=.043) and drug or alcohol abuse (AOR=1.62, 95% CI=1.17–2.25, p=.003). The continuous measure of number of mental disorders with onset after T1 (AOR=1.34, 95% CI=1.22–2.46, p<.001), and any mental disorder with onset after T1 (AOR=1.65, 95% CI=1.37–1.99, p<.

001) were also associated with divorce at a statistically significant level, indicating the increased odds of divorce among individuals with these disorders.

Associations of mental disorders with marriage/remarriage

The results of multivariable analyses of the association of mental disorders with marriage and remarriage are presented in Table 2. In analyses of the association of T1 lifetime disorders with marriage, only the association of generalized anxiety disorder with marriage was statistically significant. Individuals with a lifetime history of this disorder at T1 had a 32% lower odds of marrying (AOR=0.68, 95% CI=0.47–0.99, p=.038). The joint test for all disorders, and the tests for the continuous measure of the disorders and for any of the T1 lifetime disorders were not statistically significant (Table 2).

In analyses including both T1 lifetime disorders and disorders with onset after T1, the associations of lifetime generalized anxiety disorder with marriage persisted (AOR=0.68, 95% CI=0.46–0.99, p=.039) (Table 2). In addition, social phobia with onset after T1 was also significantly associated with subsequent marriage. Individuals with this disorder had a 24% lower odds of getting married (AOR=0.76, 95% CI=0.61–0.95, p=.011). The joint tests for all disorders (chi-squared=29.13, df=9, p<.001), the continuous measure of number of mental disorders with onset after T1 (AOR=0.89, 95% CI=0.82–0.98, p=.009) and any mental disorder with onset after T1 (AOR=0.79, 95% CI=0.68–0.92, p=.002) were also associated with marriage at a statistically significant level, indicating decreased odds of getting married after onset of these disorders.

Population attributable risk proportions

The PARPs were computed for T1 lifetime disorders and the combined T1 lifetime disorders and disorders with onset after T1. The PARP associated with T1 lifetime disorders in the model predicting divorce was 12.3% and for the one associated with both T1 lifetime disorders and disorders with onset after T1 was 26.8%. These numbers suggest that 12.3% fewer of currently married individuals would divorce 10 years later if the effect of T1 lifetime mental disorders could be fully prevented and 26.8% fewer would divorce if the effect of both T1 lifetime disorders and disorders with onset after T1 could be prevented. These PARP values translate into over 3.1 and 6.7 million fewer divorces over a 10 year period in those aged 15–54, respectively, based on the 2010 US population and assuming the same distribution of marital status as in NCS.

The PARP associated with T1 lifetime disorders in the model predicting marriage/remarriage was 2.7% and for the one associated with both T1 lifetime disorders and disorders with onset after T1 was 7.8%. These numbers suggest that 2.7% more of those who are not currently married or become widowed or divorced during the 10 years follow-up would get married/remarried if the effect of T1 lifetime mental disorders could be fully prevented and 7.8% more would marry/remarry if the effect of both T1 lifetime disorders and disorders with onset after T1 could be prevented. These PARP values translate into over 1.2 million and approximately 3.5 million more marriages over a 10 year period in those aged 15–54 based on the 2010 the US population and assuming the same distribution of marital status as in NCS.

Both the PARP estimates and the projected numbers were larger when the combined associations with both T1 lifetime disorders and disorders with onset after T1 were considered compared to T1 lifetime disorders only.

DISCUSSION

The results of this study are consistent with past research identifying significant associations between mental disorders and marital outcomes [16,9,27,24]. The nationally representative sampling and longitudinal design of the NCS panel allowed assessment of the contribution of mental disorders to the overall marital outcomes at the population level. While the associations of individual disorder groups with marital outcomes were for the most part not statistically significant, tests involving summary scores showed significant associations. Furthermore, many of the associations were in the expected direction. The lack of statistical significance, therefore, is likely attributable to the small sizes of the samples for individual disorders.

Much of past research on the association of mental disorders with subsequent marital outcomes has focused on depression and on marital dissolution. Our results suggest that the association is not limited to depression or mood disorders. Furthermore, the associations extend to likelihood of new marriage and remarriage as well as divorce.

The association with both divorce and marriage/new marriages appeared to be stronger for disorders with onset after T1. These analyses focused on disorders with more recent onset relative to the timing of marital outcomes; whereas, the onset of T1 lifetime disorders might have been many years before the T1 assessment. Thus, at the time of T1 assessment, individuals with lifetime disorders might have fully or partially recovered from their mental disorder. In contrast, analyses for disorders with onset after T1 focused on more recent disorders, which likely explains the larger effects for these analyses. The association of disorders with onset after T1 with marital outcomes may become smaller if the follow-up was extended beyond 10 years as some of the individuals who were divorced at the time of 10-year follow-up might have remarried in later years. Thus, the differences in the associations of T1 lifetime disorders and disorders with onset after T1 with marital outcomes may reflects the differences between the long-term and short-term effects of mental disorders on these outcomes. This possibility should be investigated in future longitudinal research with multiple assessments over time.

The population impact of mental disorders is especially pronounced for divorce. There would be over 3 million fewer divorces if the effect of lifetime mental disorders on marital outcomes were prevented. This number would be over 6 million if the effect of new onset disorders could also be prevented. Divorce has significant negative effects on the mental, social and economic functioning of the family members, including impacted children [13,12,14,15,24,43]. Educational interventions to improve relationship quality and communication skills have been shown to produce positive results in general population sample [44–46]. There is also evidence for benefits of family and couples therapy for couples with mental health distress [47,48]. Individuals suffering from mental disorders,

their families and the society at large would potentially benefit from efforts to disseminate these interventions more broadly in usual care settings.

The limitations of this study and of the NCS data should be considered in interpreting the results. First, despite the large sample size, the number of respondents with individual mental disorders was too small to provide reliable estimates for many disorders. Numbers were also too small to assess whether the association of baseline lifetime disorders with marital outcomes varied based on the recency of mental disorders. It is plausible that mental disorders that were active at the time of baseline assessment had a stronger association with future marital outcomes than disorders that had remitted years before. This possibility needs to be assessed in future studies with larger samples. Second, the list of mental disorders assessed in the NCS was incomplete and did not include psychotic disorders, attention deficit hyperactivity disorder, or personality disorders, which might impact marital outcomes. Third, although analyses adjusted for socio-demographic characteristics, the possibility of residual confounding by unmeasured variables limits causal inference. In addition, a number of other social and contextual factors that can impact both the risk of mental disorders and negative marital outcomes (e.g., parental divorce, neighborhood factors) were not captured in the surveys. Fourth, we did not assess the impact of mental health treatment. However, treatments in the community often fall short of minimally adequate quality indicators [49]. Fifth, we did not consider cohabitation and separation without divorce because marriage and divorce are more objectively measured and are less transitional than other outcomes. With the changing structure of family life in the US [50], future research needs to assess the impact of mental disorders on a broader range of relationship outcomes. Sixth, the NCS sample was limited to those in the 15–54 years age range. The association of mental disorders with marital outcomes may differ in later middle age and old age. Finally, the study covered the period between 1990 and 2003. The incidence of marriage and divorce in the US has changed in more recent years [51], with possible implications for the association of marital outcome with mental disorders.

In the context of these limitations, the findings highlight potentially significant prospective associations between mental disorders and marital outcomes. These findings are in line with our previous studies based on the NCS panel that identified negative effects of mental disorders on educational and employment outcomes [1,2]. Research on treatment and prevention programs to improve communication and to strengthen marital ties have produced promising results [48,47]. However, these services remain out of reach for many couples in distress. Preventing the deleterious effects of mental disorders on marital and other intimate social relationships will likely depend on efforts to expand access to these services through reducing financial and attitudinal barriers, use of new approaches that make these interventions more readily available [52,53] and integration of marital therapy techniques in routine mental health care.

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Table 1

Association of mental disorders with future divorce in National Comorbidity Survey follow-up study.

	Model for lifetime mental disorders at T1			Model for lifetime mental disorders at T1 and new onset disorders after T1		
	AOR	**95% CI**	***P***	**AOR**	**95% CI**	***P***
Sociodemographic characteristics						
Current age	0.98	0.94–1.02	.286	0.98	0.94–1.01	.188
Age at T1	0.95	0.92–0.98	.003	0.96	0.93–0.99	.015
Female sex	1.06	0.83–1.37	.624	1.06	0.82–1.37	.633
Racial/ethnic groups						
Non-Hispanic white	1	ref	--	1	ref	--
Hispanic	1.16	0.84–1.60	--	1.18	0.84–1.65	--
Non-Hispanic black	1.75	1.23–2.48	--	1.78	1.28–2.49	--
Other	0.25	0.13–0.46	--	0.26	0.14–0.48	--
Joint test for racial/ethnic group	--	--	<.001	--	--	<.001
Years of education at T1	0.94	0.89–0.99	.020	0.95	0.90–1.00	.037
Previous divorce at T1	2.30	1.73–3.05	<.001	2.16	1.65–2.83	<.001
Lifetime mental disorders at T1						
Bipolar disorder	0.89	0.51–1.55	.662	0.77	0.46–1.30	.318
Major depressive disorder	1.12	0.85–1.46	.411	1.13	0.86–1.49	.355
Generalized anxiety disorder	0.95	0.63–1.43	.806	0.96	0.63–1.45	.833
Panic disorder and/or agoraphobia	1.31	0.95–1.81	.090	1.26	0.93–1.71	.124
Post-traumatic stress disorder	1.30	0.92–1.83	.124	1.24	0.90–1.71	.172
Specific phobia	0.98	0.73–1.30	.863	0.91	0.68–1.23	.544
Social phobia	1.07	0.89–1.30	.453	1.13	0.91–1.41	.250
Drug or alcohol abuse	1.17	0.89–1.53	.240	1.24	0.93–1.65	.137
Drug or alcohol dependence	1.27	0.96–1.66	.081	1.24	0.93–1.66	.140
Joint test	--	--	.004	--	--	.001
Mental disorders with onset after T1						

	Model for lifetime mental disorders at T1			Model for lifetime mental disorders at T1 and new onset disorders after T1		
	AOR	95% CI	*P*	AOR	95% CI	*P*
Bipolar disorder				1.54	1.14–2.07	.003
Major depressive disorder				1.65	1.21–2.25	.001
Generalized anxiety disorder				1.51	1.00–2.29	.043
Panic disorder and/or agoraphobia				0.84	0.56–1.28	.408
Post-traumatic stress disorder				1.47	0.85–2.55	.154
Specific phobia				1.12	0.77–1.64	.536
Social phobia				1.30	0.95–1.78	.094
Drug or alcohol abuse				1.62	1.17–2.25	.003
Drug or alcohol dependence				1.52	0.89–2.59	.111
Joint test				--	--	<.001
Number of lifetime mental disorders at T1	1.17	1.08–1.27	<.001	1.15	1.06–1.25	.001
Number of mental disorders with onset after T1				1.34	1.22–1.46	<.001
Any lifetime mental disorder at T1	1.42	1.12–1.80	.003	1.38	1.10–1.73	.004
Any mental disorder with onset after T1				1.65	1.37–1.99	<.001

Note: AOR stands for adjusted odds ratio, CI for confidence interval, T1 for assessed at baseline (National Comorbidity Survey, 1990–1992), and T2 for assessment at follow-up (National Comorbidity Survey-follow-up, 2001–2003).

Table 2

Association of mental disorders with future marriage in National Comorbidity Survey follow-up study.

	Model for lifetime mental disorders at T1			Model for lifetime mental disorders at T1 and new onset disorders after T1		
	AOR	**95% CI**	***P***	**AOR**	**95% CI**	***P***
Sociodemographic characteristics						
Current age	0.97	0.95–0.99	.008	0.98	0.95–1.00	.028
Age at T1	0.99	0.96–1.01	.275	0.98	0.95–1.01	.126
Female sex	1.04	0.88–1.22	.657	1.06	0.90–1.24	.469
Racial/ethnic groups						
Non-Hispanic white	1	Ref.	--	1	Ref.	--
Hispanic	0.81	0.65–1.01	--	0.81	0.65–1.01	--
Non-Hispanic black	0.66	0.48–0.92	--	0.66	0.48–0.91	--
Other	1.11	0.81–1.53	--	1.07	0.78–1.47	--
Joint test for racial/ethnic group	--	--	.012	--	--	.016
Years of education at T1	1.03	0.99–1.07	.161	1.03	0.99–1.07	.141
Previous marriage at T1	1.93	1.55–2.41	<.001	1.96	1.57–2.45	<.001
Lifetime mental disorders at T1						
Bipolar disorder	1.26	0.74–2.13	.384	1.32	0.78–2.21	.285
Major depressive disorder	1.01	0.83–1.23	.898	1.03	0.84–1.26	.800
Generalized anxiety disorder	0.68	0.47–0.99	.038	0.68	0.46–0.99	.039
Panic disorder and/or agoraphobia	0.90	0.71–1.14	.369	0.88	0.68–1.14	.334
Post-traumatic stress disorder	0.92	0.71–1.18	.494	0.95	0.74–1.22	.679
Specific phobia	0.94	0.78–1.13	.479	1.01	0.83–1.23	.902
Social phobia	1.01	0.85–1.20	.945	0.96	0.80–1.14	.606
Drug or alcohol abuse	1.03	0.86–1.24	.747	1.02	0.84–1.23	.853
Drug or alcohol dependence	0.94	0.76–1.15	.518	0.94	0.76–1.17	.570
Joint test	--	--	.239	--	--	.162
Mental disorders with onset after T1						

	Model for lifetime mental disorders at T1			Model for lifetime mental disorders at T1 and new onset disorders after T1		
	AOR	95% CI	*P*	AOR	95% CI	*P*
Bipolar disorder				0.75	0.55–1.03	.065
Major depressive disorder				0.82	0.60–1.12	.208
Generalized anxiety disorder				0.99	0.65–1.50	.943
Panic disorder and/or agoraphobia				0.89	0.66–1.21	.456
Post-traumatic stress disorder				0.95	0.59–1.53	.826
Specific phobia				1.25	0.91–1.71	.158
Social phobia				0.76	0.61–0.95	.011
Drug or alcohol abuse				0.88	0.69–1.12	.287
Drug or alcohol dependence				0.91	0.56–1.47	.682
Joint test						<.001
Number of lifetime mental disorders at T1	0.96	0.91–1.02	.155	0.97	0.91–1.02	.231
Number of mental disorders with onset after T1				0.89	0.82–0.98	.009
Any lifetime mental disorder at T1	0.95	0.81–1.13	.554	0.96	0.81–1.14	.639
Any mental disorder with onset after T1				0.79	0.68–0.92	.002

Note: AOR stands for adjusted odds ratio, CI for confidence interval, T1 for assessed at baseline (National Comorbidity Survey, 1990–1992), and T2 for assessment at follow-up (National Comorbidity Survey-follow-up, 2001–2003).