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Effect of Incident Axis I Disorders on Quality of Life

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Abstract

Cross-sectional studies indicate that mental disorders are inversely associated with quality of life, and that the magnitude of the negative correlation varies across disorders. To examine whether quality of life decreases following new onset of psychiatric disorders, and to characterize variations across disorders. Data were drawn from a longitudinal study representative of the adult US population. Changes were examined in quality of life, as measured by the Short Form-12 version 2 (SF-12), after incidence of DSM-IV disorders at Wave 2 in individuals without the given disorder at Wave 1. A subanalysis examined change of quality of life after incidence of mental disorders in individuals without a history of any mental disorder. With the exception of alcohol abuse, new incidence of each examined DSM-IV disorder was associated to a decrement in quality of life, being the largest for major depressive disorder and generalized anxiety disorder. Incidence of these disorders was associated with a decrease in quality of life even in individuals without history or presence of any other mental disorder. Although the incidence of most DSM-IV disorders is associated with a decrement in quality of life, mood and anxiety disorders have the largest impact.

Mental disorders are highly prevalent in the general population (Kessler, Berglund et al. 2005) and are associated with marked disability, (Ormel, VonKorff et al. 1994, Bijl and Ravelli 2000) which may even exceed that of medical chronic disorders such as diabetes mellitus, cancer or stroke. (Centers for Disease Control and Prevention 2009) Their high burden is related to their long term course, which onsets early in life (Kessler, Berglund et al. 2005) and is often persistent or relapsing, taking long periods of the individual's lifetime. (World Health Organization 2000) A characterization of the change in quality of life following new onset of mental disorders would help to target mental health care resources to populations in greatest distress.

Although several cross-sectional studies have documented the association between 12-month prevalence of psychiatric disorders and decreased quality of life, (Spitzer, Kroenke et

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Conflict of interest

The authors declare no existing conflict of interest.

al. 1995, Bijl and Ravelli 2000, Alonso, Angermeyer et al. 2004) there is limited evidence derived from longitudinal studies, which could provide greater explanatory power by being able to exclude time invariant unobserved confounds and by being able to temporally order events. In a case control design, a study using data from the Baltimore Epidemiologic Catchment Area (ECA)(Armenian, Pratt et al. 1998) found that individuals meeting criteria at baseline for phobia, MDD, and alcohol dependence and abuse had higher risk to decrease their quality of life along a follow-up of 12 years. Although this evidence suggests that the presence of some disorders may antecede a decrement in quality of life, it is difficult to draw causal inferences between disorder onset and a decrement in quality of life. So far, only one study has prospectively examined the impact of the onset of a psychiatric disorder on quality of life. In a general population survey from the Netherlands, (Ormel, Oldehinkel et al. 2004) non-depressed individuals who developed major depressive disorder underwent a significant decline in quality of life over the year following disorder onset. Whether and to what extent decrement in quality of life follow the onset of other mental disorders has not been previously examined.

We sought to address this gap in knowledge by examining within the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) relationships between new onset of mental disorders and changes in quality of life. Because part of the decrease in quality of life is due to comorbidity with other mental disorder, (Bijl and Ravelli 2000) we conducted subanalyses to examine and quantify the impact of the new onset of a mental disorders in the absence of pre-existing psychiatric comorbidities, and whether these results differed between men and women.

Method

Sample

The NESARC is a longitudinal survey with its first wave of interviews fielded in 2001–2002 and the second wave in 2004–2005. The target population was the civilian non-institutionalized population residing in households and group quarters, aged 18 years and older. Blacks, Hispanics and young adults (aged 18–24 years) were oversampled, with data adjusted for oversampling, household- and person-level nonresponse. The weighted data were then adjusted to represent the U.S. civilian population based on the 2000 Census. Interviews were conducted face-to-face by extensively trained interviewers of the US Bureau of the Census. All procedures, including informed consent, received full human subjects review and approval from the U.S. Census Bureau and U.S. Office of Management and Budget.

In Wave 1 of the study, conducted in 2001–2002, 43,093 individuals were assessed for a lifetime history of psychiatric disorders as well as other information. (Grant, Stinson et al. 2004) In Wave 2, attempts were made to conduct face-to-face re-interviews with all 43,093 respondents to the Wave 1 interview. Excluding respondents ineligible for the Wave 2 interview (e.g. deceased) the Wave 2 response rate was 86.7% (n=34,653) and sample weights were developed to additionally adjust for Wave 2 non-response. Data were reweighted at Wave 2 to account for differential loss to follow-up and to be representative of the target population. The present analysis includes the 34,653 respondents who completed

interviews at Waves 1 and 2. For each disorder, incident cases were defined as those that met criteria for that disorder at Wave 2 but did not meet lifetime criteria for that disorder (regardless of whether they sought treatment) at Wave 1.

Assessment

Sociodemographic measures included age, race/ethnicity, nativity, marital status, education, and family income. All diagnoses were made according to the DSM-IV criteria using the Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM IV (AUDADIS-IV). (Hasin, Carpenter et al. 1997, Canino, Bravo et al. 1999, Grant, Dawson et al. 2003) The test-retest reliability and validity of AUDADIS-IV measures of DSM-IV disorders is fair to good ($\kappa=0.40-0.77$). (Hasin, Carpenter et al. 1997, Canino, Bravo et al. 1999, Grant, Dawson et al. 2003) Axis I diagnoses assessed in both waves included: 1) Substance use disorders (SUD), including alcohol abuse and dependence, cannabis use disorder (CUD), and nicotine dependence; 2) Mood disorders, including MDD and bipolar disorder; and, 3) Anxiety disorders, including panic disorder, social anxiety disorder, specific phobia, and GAD.

Quality of life was measured using the Short Form-12, version 2 (SF-12), (Ware 2002) a reliable and valid measure of health status that reflects physical and mental function and well-being commonly used in population surveys. (Hasin, Stinson et al. 2007) The twelve questions can be scored to yield a mental component summary (MCS) score and a physical component summary (PCS) score. Given the aim of the study, we focused only on MCS scores. Each SF-12 disability scale is a norm-based score with a mean of 50 and standardized range of 0–100, with higher scores indicating less disability. (Ware 2002)

Analytic Strategy

To examine the effect at the individual level of psychiatric disorder on MCS scores, means of MCS scores were computed stratified by psychiatric disorder. To assess the independent effect of the association between MCS and each axis I disorder, multiple linear regressions were conducted with MCS score as the outcome variable. Each MCS value represents the mean score for the group when the psychiatric disorder was present. In the analysis of each disorder, the reference group was the remaining sample without lifetime history of that specific psychiatric disorder.

Linear regressions were conducted to compare changes in mean Wave 2 MCS scores between individuals with onset of a mental disorder and those that had no history of that mental disorder. For the analysis of each disorder the model controlled for sociodemographic variables (age, gender, race/ethnicity and individual income) number of comorbid axis I psychiatric disorders at Wave 1 and number of incident disorders between Wave 1 and Wave 2. In order to assess the effect of comorbidity, a subanalysis was conducted using the sample that did not meet criteria for any of the examined lifetime mental disorders at Wave 1 but did meet criteria for at least one mental disorder at Wave 2. For that subanalysis, Wave 2 MCS scores of incident disorders was compared with that of cases not meeting criteria for any lifetime axis I disorder. An additional subanalysis was conducted to examine differences across gender in both incident disorders in the general

population at Wave 2 as well as incident disorders at Wave 2 in individuals without history of the examined mental disorders. All analyses were computed using SUDAAN to adjust for the design characteristics of the survey.

Results

Incidence of all of the examined mental disorders, with the exception of alcohol abuse, showed a significant decrease in quality of life at Wave 2 after adjusting for sociodemographic and psychopathological variables, as measured by change in the SF-12 MCS score. The largest decreases in MCS were associated with new onset of MDD, bipolar disorder and generalized anxiety disorder. These results did not differ between men and women.

When the analysis was restricted to individuals with no lifetime history of psychiatric disorder in Wave 1, a significant decrease in the quality of life was only observed for the onset of, MDD, GAD cannabis use disorder. Onset of the rest of the examined disorders was not associated with significant decrements in the quality of life when there was no pre-existing lifetime history of mental disorder at Wave 1.

Discussion

This study examined for the first time the effects of the first incidence of a broad range of mental disorders on quality of life. In a prospective, large and nationally representative sample, the new onset of several mental disorders significantly diminished quality of life. The greatest decrements occurred after the onset of MDD, bipolar disorder and GAD, whereas onset of nicotine dependence and specific phobia involved smaller decrements, and onset of alcohol abuse was not associated with a significant decrease in mental health related quality of life. Furthermore, when the analyses were restricted to individuals with no prior history of mental disorders, only the incidence of MDD, GAD and cannabis use disorder were associated with significant decrements in quality of life.

Although long suspected based on the association in cross-sectional studies of presence of psychiatric disorders and lower quality of life, (Spitzer, Kroenke et al. 1995, Armenian, Pratt et al. 1998, Bijl and Ravelli 2000) and the findings in the Netherlands regarding incident MDD, our results provide the first empirical of evidence documenting that the incidence of mental disorders is followed by decrements in quality of life across a broad range of mental disorders. Given the high prevalence and often persistent or relapsing course of psychiatric disorders, our findings suggest that prevention and early treatment of psychiatric disorders constitute an important area to improve quality of life in the general population.

We found that mood and anxiety disorders were associated with the largest decrements in quality of life. These findings are consistent and extend evidence from previous cross-sectional studies (Spitzer, Kroenke et al. 1995, Armenian, Pratt et al. 1998, Bijl and Ravelli 2000) indicating that mood and anxiety disorders are generally associated with larger burden. Studies on remission of mental disorders have further shown that following symptom remission, mood and anxiety disorders are associated with greater residual disability than other psychiatric disorders (Bijl and Ravelli 2000, Rubio 2013). Taken

together, these findings document the heavy burden associated with mood and anxiety disorders over time. Decrements in quality of life associated with the onset of mood and anxiety disorders are probably related to interactions of symptoms with several areas of functioning including impaired general health perceptions, negative cognitions, erosion of coping skills, role limitations, and decreases in social functioning, vitality and work performance. (Bijl and Ravelli 2000, Waghorn, Chant et al. 2005, Lopez, Mathers et al. 2006, Comer, Blanco et al. 2011) Strong cross sectional correlations have been reported between severity of mood and anxiety symptoms and functional impairment. (Ormel, VonKorff et al. 1994, Ormel, Oldehinkel et al. 2004)

The new onset of substance use disorders was associated with a smaller decrement in mental health related quality of life. Our findings are consistent with clinical and epidemiological evidence indicating a long temporal gap between onset of substance use disorders and adverse functional consequences, (Kaskutas, Weisner et al. 1997, Mojtabai, Olfson et al. 2002, Wang, Berglund et al. 2005) and comparatively long delays between disorder onset and treatment-seeking for substance use disorders. (Wang, Berglund et al. 2005) Although nicotine dependence seldom has an impact on quality of life shortly after its onset, (Strandberg, Strandberg et al. 2008) it remains the single most important cause of preventable death and disability in the world. (Rehm, Taylor et al. 2009) Similarly, there is a long latency between onset of alcohol dependence and development of cirrhosis and alcohol-associated cancers. (Rehm, Taylor et al. 2009)

In order to examine the impact of incident psychiatric disorders in individuals unaffected by pre-existing comorbid disorders, we examined the relationships among people without a prior history of psychiatric disorder at the baseline assessment. In this group, a significant decrease in quality of was only evident among those who developed MDD, GAD and cannabis use disorders. For some disorders, such as panic disorder, lack of significance may have been related to small sample size, as the magnitude of the decrement in quality of life for this disorder was similar in full sample and among individuals without prior psychopathology. For other disorders, such as bipolar disorder or social anxiety disorder, the decrease in quality of life was less marked among individuals without prior psychopathology than in the full sample. Taken together, these results confirm cross-sectional assessment of the cumulative effect of several mental disorders on quality of life, (Bijl and Ravelli 2000, Alonso, Angermeyer et al. 2004) and further highlight the importance of secondary and tertiary prevention of psychiatric disorders.

Several limitations should be considered in the interpretation of the present results. First, although many common mental disorders were assessed in the NESARC, onset of unmeasured psychiatric disorders, general medical conditions, or life events may have also influenced changes in quality of life. In addition, information was not available concerning several important mental disorders such as schizophrenia, obsessive compulsive disorder, and PTSD. Third, since quality of life is a subjective measure, it is possible that negative emotions associated to incident mental disorders bias negatively the perception of actual quality of life. Fourth, as previously indicated, despite this is the largest epidemiological prospective sample to date, the sample sizes of some analyses of individuals without prior mental disorders have limited the statistical power to detect significant changes. Fifth, the

three years between Waves may have been a relatively long period, and exogenous events beyond the incident disorder might have happened during that timespan as a limitation. Finally, this study did not examine treatment response and therefore does not distinguish the impact in individuals receiving treatment from those who were untreated.

Conclusion

In conclusion, the onset of mental disorders is followed by significant decrements in quality of life. This decrement is especially marked among individuals that had other mental disorders in addition to the new incident disorder. Given the high prevalence of psychiatric disorders, their often persistent or relapsing course, improving the early access and quality of treatment for psychiatric disorders offers substantial opportunities to improve the quality of life in the general population.

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Table 1

Mean change in SF-12 for incident first episode of mental disorder at Wave 2 in the National Epidemiological Survey for Alcohol and Related Conditions

Axis I Disorder	Subjects with incident first episode at Wave 2			Subjects without history of the studied mental disorder			Adjusted difference in SF-12 ¹	P Value
	N	Mean SF12 at Baseline	Mean Change in SF12 at Follow-Up	N	Mean SF12 at Baseline	Mean Change in SF12 at Follow-Up		
Major Depression	1498	49.99	-6.60	28370	53.55	-1.14	-4.52	<0.0001
Bipolar	934	46.78	-5.93	32159	53.16	-1.16	-4.01	<0.0001
Generalized Anxiety Disorder	1237	46.61	-6.05	31923	53.26	-1.10	-3.72	<0.0001
Social Anxiety Disorder	727	47.31	-5.59	32205	53.08	-1.18	-2.51	0.0002
Panic Disorder	837	46.85	-5.40	32026	53.14	-1.20	-2.25	0.0003
Alcohol Dependence	957	51.05	-4.46	29739	53.07	-1.21	-2.24	0.0002
Cannabis Use Disorder	380	50.61	-4.55	31552	52.88	-1.23	-1.71	0.0231
Specific Phobia	2080	50.16	-3.07	29166	53.20	-1.16	-1.08	0.0028
Nicotine Dependence	1861	51.65	-2.94	27096	53.27	-1.15	-0.97	0.0037
Alcohol Abuse	1302	52.48	-1.18	27371	52.64	-1.29	-0.06	0.8475

¹ Difference in SF-12 was adjusted for age, gender, race/ethnicity individual income, number of comorbid axis I psychiatric disorders at Wave 1 and number of incident disorders between Wave 1 and Wave 2

Table 2

Mean change in SF-12 for incident first episode of mental disorder (without any comorbid disorder) at Wave 2 in the National Epidemiological Survey for Alcohol and Related Conditions

Axis I Disorder (pure)	Subjects with incident first episode at Wave 2			Subjects without history of all the studied mental disorder			Adjusted difference in SF-12 ^I	P Value
	N	Mean SF 12 at Baseline	Mean Change in SF12 at Follow-Up	N	Mean SF12 at Baseline	Mean Change in SF12 at Follow-Up		
Major Depression	307	52.37	-4.97	11958	55.24	-1.14	-3.85	<0.0001
Bipolar	51	52.69	-3.17	11958	55.24	-1.14	-2.12	0.3274
Generalized Anxiety Disorder	62	52.03	-5.07	11958	55.24	-1.14	-3.96	0.0500
Social Anxiety Disorder	45	52.38	-0.74	11958	55.24	-1.14	0.33	0.8170
Panic Disorder	43	53.03	-4.51	11958	55.24	-1.14	-3.44	0.1272
Alcohol Dependence	112	54.41	-1.52	11958	55.24	-1.14	-0.54	0.6207
Cannabis Use Disorder	11	56.92	-5.46	11958	55.24	-1.14	-4.51	0.0001
Specific Phobia	398	53.88	-0.95	11958	55.24	-1.14	0.15	0.8197
Nicotine Dependence	480	53.84	-1.73	11958	55.24	-1.14	-0.63	0.2142
Alcohol Abuse	317	55.64	-1.48	11958	55.24	-1.14	-0.48	0.4095

^I Difference in SF-12 was adjusted for age, gender, race/ethnicity individual income, number of comorbid axis I psychiatric disorders at Wave 1 and number of incident disorders between Wave 1 and Wave 2