Mental disorders and subsequent educational attainment in a US national sample

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Abstract

As part of a larger investigation of the adverse effects of mental disorders on role functioning, we examined the associations of early-onset mental disorders with subsequent educational attainment in a large nationally representative survey of the US adult population. Diagnoses and age of onset for each of 17 DSM-IV disorders were assessed through retrospective self-report with the fully structured WHO Composite International Diagnostic Instrument (CIDI). Survival analysis was used to examine the associations between early-onset DSM-IV/CIDI disorders and subsequent termination of schooling with controls for socio-demographic characteristics and childhood adversities (i.e. childhood traumatic events, childhood neglect, parental mental illness, family disruption, and low parental educational attainment). Mental disorders were found to be significantly associated with termination of schooling prior to completion of each of four educational milestones (primary school graduation, high school graduation, college entry, college graduation), with odds ratios in the range of 1.3–7.0. The proportion of school terminations attributable to mental disorders was largest for high school graduation (10.2%) but also meaningful for primary school graduation (3.8%), college entry (4.4%) and college graduation (2.6%). These results add to a growing body of evidence documenting a wide variety of adverse life course effects of mental disorders.
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1. Introduction

One way that early-onset mental disorders may have adverse effects on adult role functioning is through educational attainment (Freudenberg and Ruglis, 2007). Effects of mental disorders on early termination of schooling could lead to lifelong decrements in economic and social functioning as well as in the poor health known to be associated with low socio-economic status (Cutler and Lleras-Muney, 2006; Freudenberg and Ruglis, 2007; Fronstin et al., 2005; Huurre et al., 2006; Koivusilta et al., 2001). As part of a larger investigation of the adverse effects of mental disorders (Merikangas et al., 2007), this study examines associations

between early-onset mental disorders and subsequent termination of schooling in a large nationally representative survey of the US adult population. Our aim is to identify the specific disorders associated with termination of schooling at each stage of education in order to estimate the societal burden of these disorders and inform interventions to reduce that burden.

The first study to examine the educational consequences of mental disorders in a national sample found associations of child-adolescent mood, anxiety, substance use and conduct disorders with termination of schooling prior to each of three educational milestones: high school graduation, college entry among high school graduates, and completion of 4 years of college among college entrants (Kessler et al., 1995). A subsequent study attempted to quantify the societal burden of mental disorders in decreased educational

attainment (Vander Stoep et al., 2003). That study estimated that as many as 46% of high school dropouts might be attributable to the negative effects of prior mental disorders.

Evidence from several longitudinal studies suggests that associations with school termination may vary across mental disorders. In particular, studies that examined the association of depression and anxiety disorders with subsequent school termination found either that the association does not exist when viewed prospectively (Johnson et al., 1999) or that, where it exists, it is attributable entirely (Fergusson and Woodward, 2002; Miech et al., 1999) or in large part (McLeod and Kaiser, 2004; Woodward and Fergusson, 2001) to childhood adversities that precede the onset of disorders and are likely to have independent effects on educational attainment. On the other hand, studies examining impulse-control and substance use disorders have found associations with subsequent school termination that remain significant after accounting for childhood adversities. These effects have been found for conduct disorder (Miech et al., 1999), attention deficit disorder(Miech et al., 1999), overall externalizing behaviors(McLeod and Kaiser, 2004), overall disruptive disorders (Johnson et al., 1999), and substance use disorders (Johnson et al., 1999). However, no study has examined associations with school termination for a wide range of specific DSM disorders across the full range of educational milestones from primary school through college graduation.

Using data from the National Comorbidity Survey Replication (NCS-R; Kessler and Merikangas, 2004), the current study examines the associations between 17 child-adolescent onset DSM-IV psychiatric disorders and the subsequent termination of schooling prior to completion of four educational milestones – primary school graduation (8th grade), high school graduation, college entry, and college graduation – with statistical controls for pre-existing childhood adversities. We estimate the proportion of school terminations attributable to mental disorders taking into account potential confounding by childhood adversities.

2. Methods

As described in more detail elsewhere (Kessler et al., 2004b, 2005a), the NCS-R is a nationally representative, multi-stage clustered area probability sample of English-speaking respondents ages 18 and older in the non-institutionalized civilian population of the 48 coterminous states. Fieldwork was carried out by the professional survey interview field staff of the Institute for Social Research at the University of Michigan between February, 2001 and April, 2003. A total of 9282 face-to-face interviews were completed. All respondents were administered a Part I diagnostic interview of core diagnoses. A sub-sample of 5692 Part I respondents, consisting of all those who met lifetime criteria for a core disorder plus a probability sub-sample of other respondents, were also administered a Part II interview that assessed correlates and disorders of secondary

focus. The response rate was 70.9%. Interviewers explained the study and obtained verbal informed consent prior to beginning all interviews. The NCS-R recruitment, consent, and field procedures were approved by the Human Subjects Committees of both Harvard Medical School and the University of Michigan.

3. Measures

3.1. Psychiatric diagnoses

DSM-IV diagnoses were made using the World Health Organization's (WHO) World Mental Health (WMH) Survey Initiative version of the Composite International Diagnostic Interview (CIDI) (Kessler and Ustun, 2004), a fully structured lay-administered diagnostic interview that generates diagnoses according to the definitions and criteria of both the ICD-10 (WHO, 1991) and DSM-IV (APA, 1994) diagnostic systems. DSM-IV criteria are used in the current report. The disorders considered in this report include mood disorders (major depressive disorder, dysthymia, and bipolar disorder I or II studied together for increased statistical power), anxiety disorders (generalized anxiety disorder, specific phobia, social phobia, panic disorder, separation anxiety disorder, and post-traumatic stress disorder), substance disorders (alcohol and drug abuse and dependence), and impulse control disorders (intermittent explosive disorder, conduct disorder, oppositional defiant disorder, and attention deficit hyperactivity disorder). Lifetime prevalence and age of onset were assessed separately for each disorder. All diagnoses are considered with organic exclusions and without diagnostic hierarchy rules. As described elsewhere, (Kessler et al., 2004a) a blinded clinical reappraisal study using the Structured Clinical Interview for DSM-IV (SCID) (First et al., 2002) as the validation standard showed generally good concordance between DSM-IV diagnoses based on the WMH-CIDI and the clinical diagnoses for anxiety, mood, and substance disorders. The WMH-CIDI diagnoses of impulse-control disorders have not been validated, as the SCID does not assess these disorders.

3.2. Educational attainment

Respondents were asked how many years of education they completed. Using these responses and assuming an orderly academic progression we examined the predictors of educational attainment in categories that included completion of primary school, high school among those who completed primary school, college entry among high school graduates, and college graduation among college entrants.

3.3. Childhood adversities

Based on the finding in previous studies that childhood adversities explain some of the associations between early-onset mental disorders and subsequent educational