

Mental disorders as risk factors for later substance dependence: estimates of optimal prevention and treatment benefits

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Background. Although mental disorders have been shown to predict subsequent substance disorders, it is not known whether substance disorders could be cost-effectively prevented by large-scale interventions aimed at prior mental disorders. Although experimental intervention is the only way to resolve this uncertainty, a logically prior question is whether the associations of mental disorders with subsequent substance disorders are strong enough to justify mounting such an intervention. We investigated this question in this study using simulations to estimate the number of substance disorders that might be prevented under several hypothetical intervention scenarios focused on mental disorders.

Method. Data came from the National Comorbidity Survey Replication (NCS-R), a nationally representative US household survey that retrospectively assessed lifetime history and age of onset of DSM-IV mental and substance disorders. Survival analysis using retrospective age-of-onset reports was used to estimate associations of mental disorders with subsequent substance dependence. Simulations based on the models estimated effect sizes in several hypothetical intervention scenarios.

Results. Although successful intervention aimed at mental disorders might prevent some proportion of substance dependence, the number of cases of mental disorder that would have to be treated to prevent a single case of substance dependence is estimated to be so high that this would not be a cost-effective way to prevent substance dependence (in the range 76–177 for anxiety-mood disorders and 40–47 for externalizing disorders).

Conclusions. Treatment of prior mental disorders would not be a cost-effective way to prevent substance dependence. However, prevention of substance dependence might be considered an important secondary outcome of interventions for early-onset mental disorders.

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Introduction

A large proportion of people with alcohol and other drug disorders have a history of mental disorders (Allan, 1995; Kessler *et al.* 1996; Armstrong & Costello, 2002; Grant *et al.* 2004a; Chan *et al.* 2008). This has significant implications, as co-morbid cases often

require more intensive treatment and have a poorer clinical course than other cases (Brooner *et al.* 1997; Swendsen & Merikangas, 2000; White *et al.* 2001). The reasons for this co-morbidity are unclear (Kessler, 1995; Waldman & Slutske, 2000; Willoughby *et al.* 2004). Although some studies suggest that substance disorders possibly precipitate mental disorders (e.g. Crum *et al.* 2005; Lukassen & Beaudet, 2005; Semple *et al.* 2005), reports of the reverse order predominate, with mental disorders typically found to begin at earlier ages than substance disorders (Merikangas

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