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Review

Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990–2014: A systematic review and meta-analysis

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ABSTRACT

Background: Comorbidity is highly prevalent between substance use disorders (SUDs), mood and anxiety disorders. We conducted a systematic review and meta-analysis to determine the strength of association between SUDs, mood and anxiety disorders in population-based epidemiological surveys.
Methods: A comprehensive literature search of Medline, EMBASE, CINAHL, PsychINFO, Web of Science, and Scopus was conducted from 1990 to 2014. Sources were chosen on the basis that they contained original research in non-clinical populations conducted in randomly selected adults living within defined boundaries. Prevalence of comorbid SUDs, mood and anxiety disorders and odds ratios (ORs) were extracted.
Results: There were 115 articles identified by electronic searches that were reviewed in full text which yielded 22 unique epidemiological surveys to extract lifetime and 12-month prevalence data for psychiatric illness in respondents with an SUD. Meta-analysis indicated the strongest associations were between illicit drug use disorder and major depression (pooled OR 3.80, 95% CI 3.02–4.78), followed by illicit drug use and any anxiety disorder (OR 2.91, 95% CI 2.58–3.28), alcohol use disorders and major depression (OR 2.42, 95% CI 2.22–2.64) and alcohol use disorders and any anxiety disorder (OR 2.11, 95% CI 2.03–2.19). ORs for dependence were higher than those for abuse irrespective to diagnoses based on lifetime or 12-month prevalence.
Conclusions: This review confirms the strong association between SUDs, mood and anxiety disorders. The issue has now been recognised worldwide as a factor that affects the profile, course, patterns, severity and outcomes of these disorders.

Contents

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1. Introduction

The issue of substance use disorders (SUDs) comorbid with mental health disorders has gained increasing prominence in psychiatry and drug health over the last 30 years. There is overwhelming evidence that SUDs are more prevalent among people with severe mental health disorders than among the general population (Kessler, 2004; Menezes et al., 1996; Merikangas and Kalaydjian, 2007; Regier et al., 1990; Rosenthal et al., 2012) which have contributed to the high burden of disease worldwide (Whiteford et al., 2013; Wittchen et al., 2011). Current reasoning to explain the high rates of comorbidity are that one mental disorder may directly influence another, such as heavy alcohol use may produce depression in persons who are alcohol dependent (Cerda et al., 2008; Hall et al., 2009). Comorbidity may also be indirectly produced such as when substances are used for self-medication or for relieving distress of a mental disorder, e.g., sustained use may lead to dependence. A third possibility is that comorbidity may arise from common shared causes through genetic predisposition or socioeconomic factors, such a poverty or trauma or transmitted within the family (Cerda et al., 2008; Kushner et al., 2000). The high comorbidity rates may also be due to increased access and opportunity to use illicit drugs in the community (Liang et al., 2011) with the closure of large psychiatric hospitals over the last three decades.

Since comorbid mental health disorders are usually associated with poor treatment outcomes this leads to severe illness and high levels of health service utilisation (Kessler et al., 1994; Kessler, 2004; Merikangas and Gelernter, 1990). Yet despite the high rates of comorbidity between substance use, mood and anxiety disorders, the problem remains poorly understood and is often missed as a diagnosis among clinicians practising in either field (Cuffel, 1996; Tickell, 1999). A better understanding of comorbidity is needed to identify the correlational and/or potential causal relationships among symptoms, disorders and treatment in comorbid patients. Such knowledge will also make an important contribution to treatment and prevention strategies.

In epidemiologic surveys, comorbid prevalence rates can be expressed in two ways: the prevalence of SUDs among respondents with a mental health disorder or the prevalence of psychiatric cases among respondents with a SUD. The prevalence rates between the two populations can vary considerably due to their frequency of occurrence. Take for instance the prevalence of major depression and illicit drug dependence reported by Grant et al. (2004). Amongst respondents with any drug dependence, the prevalence of major depression was ~40%, whereas the prevalence of any drug dependence amongst respondents with major depression was 3.5%. Conversely, the prevalence of any SUD in respondents with mania was ~30% compared to the prevalence of mania (~5%) in respondents with a SUD (Grant et al., 2004). Nonetheless, even large national studies have limited reporting capacity of comorbid prevalence rates within general populations where one or both disorders are of low prevalence (such as schizophrenia and intravenous drug use or methamphetamine use) where the resulting comorbid sample size is small and variance estimates large.

Many epidemiology surveys report prevalence rates for individual mental health and various SUDs but often do not report comorbid prevalence rates, although sometimes these are reported in subsequent analyses (e.g., Merikangas et al., 1998; Swendsen et al., 1998). Jane-Llopis and Matytsina (2006) reported comorbid prevalence of mental health disorders and SUDs and their relationship to be highly prevalent across high income countries. This was not a systematic review and included only nine surveys conducted between 1998 and 2005. However, this review found that people with a SUD had higher comorbid rates of mental health disorders than vice versa and that people with illicit drug use disorders (DUDs) had higher rates of mental health disorders than those with alcohol use disorders (AUDs) (Jane-Llopis and Matytsina, 2006).

The aim of this systematic review is to report and combine the findings of surveys based on large epidemiological populations reporting prevalence rates of SUDs comorbid with mood and anxiety disorders from studies conducted between 1990 and 2014. We chose 1990 as a starting point to include the influential Epidemiologic Catchment Area (ECA) study and subsequent surveys using similar large scale census techniques and face to face interviews to report prevalence rates using American Psychiatric Association-Diagnostic and Statistical Manual (DSM) or World Health Organisation-International Classification (WHO, ICD) diagnostic instruments from diverse geographic sites. Prevalence of mood and anxiety disorders in respondents with an SUD was collated for lifetime and current (1 year) abuse or dependence of alcohol or illicit drugs. SUDs comorbid with any anxiety disorders included agoraphobia, generalised anxiety disorders (GAD), panic disorder and social phobia. Mood disorders included bipolar disorder, major depression and dysthymia.

The odds (or odds ratio, OR) of having major depression or any anxiety disorder among individuals with alcohol or illicit drug use was used in the meta-analysis because it is not affected by differences in calculating prevalence rates of SUDs within populations with mental health disorders or vice versa. The reason comorbidity rates for major depression and any anxiety disorder were selected for the meta-analysis was that they are commonly reported and comorbidity for specific psychiatric diagnoses or specific substances (cannabis, heroin, cocaine, etc.) are under reported. The current review excludes studies of clinical or treatment-seeking populations as these will be the subject of subsequent reviews. Studies based within these clinical setting will have greater power than general population surveys to reveal associations between particular mental illnesses of low prevalence (schizophrenia, bipolar disorders, etc.) and licit and illicit substance dependence. Thus,

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