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Review article

Prevalence of comorbid bipolar and substance use disorders in clinical settings, 1990–2015: Systematic review and meta-analysis

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ABSTRACT

Background: Comorbidity between substance use disorders (SUDs) and bipolar disorder (BD) is highly prevalent to the extent it may almost be regarded the norm. This systematic review and meta-analysis aimed to estimate the prevalence rates of SUDs in treatment seeking patients diagnosed with BD in both inpatient and outpatient settings.

Methods: A comprehensive literature search of Medline, EMBASE, psychINFO and CINAHL databases was conducted from 1990 to 2015. Prevalence of co-morbid SUDs and BD were extracted and odds ratios (ORs) were calculated using random effects meta-analysis.

Results: There were 151 articles identified by electronic searches that yielded 22 large, multi-site studies and 56 individual studies describing comorbid rates of SUDs amongst community dwelling, BD inpatients or outpatients. The SUDs with the highest prevalence in BD were alcohol use (42%) followed by cannabis use (20%) and other illicit drug use (17%). Meta-analysis showed males had higher lifetime risks of SUDs compared to females. BD and comorbid SUDS were associated with earlier age of onset and slightly more hospitalisations than non-users.

Limitations: The results do not take into account the possibility that individuals may have more than one comorbid disorder, such as having more than one SUD, anxiety disorder, or other combination. Some of the meta-analyses were based on relatively few studies with high rates of heterogeneity. Most included studies were cross-sectional and therefore causality cannot be inferred.

Conclusions: This systematic review shows comorbidity between SUDs and bipolar illness is highly prevalent in hospital and community-based samples. The prevalence of SUDs was similar in patients with bipolar I and bipolar II disorders. This study adds to the literature demonstrating that SUDs are common in BD and reinforces the need to provide better interventions and properly conducted treatment trials to reduce the burden conferred by comorbid SUD and BD.

Contents

Abbreviations: 12M, 12 month; AUD, Alcohol Use Disorder; BD-I, Bipolar I disorder; BD-II, Bipolar II disorder; BD, Bipolar disorder; CI, Confidence interval; CIDI, Composite International Diagnostic Interview; CUD, Cannabis use disorder; DUD, Drug use disorder; ECA, Epidemiological Catchment Area; MDQ, Mood Disorders Questionnaire; MeSH, Medical Subject Heading; N, Subject number; OR, Odds ratio; PTSD, Post-Traumatic Stress Disorder; SCAN, Schedule for Clinical Assessment in Neuropsychiatry; SCID, Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders; SD, Standard deviation; SUD, Substance use disorder

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1. Introduction

It is well known that substance use disorders (SUDs) are over-represented in individuals with bipolar disorder (BD) as shown by the epidemiological catchment area (ECA) study (Regier et al., 1990). This raises the question, what is the link between SUD and bipolar illness? One line of evidence suggests those predisposed to BD may experiment with illicit substances more than others (Goldberg, 2001). For some, substance use may precede or follow the onset of BD while in others, substances are used as a means of self-medication that can predispose or facilitate early onset of an affective disorder (Goldstein and Bukstein, 2010). Thus, substance use is enmeshed with BD and appears to be both a cause and a consequence of early onset (Bally et al., 2014; Gibbs et al., 2015).

Substance use further complicates the clinical picture by interfering with the trajectory and destabilising the course of bipolar illness - specifically increasing the frequency of episodes and number of hospitalisations, and may also interfere with mood-stabilising effects of drugs by reducing their efficacy or requiring higher doses to achieve their effectiveness (Levin and Hennessy, 2004; Rakofsky and Dunlop, 2013; Salloum and Thase, 2000). Comorbid SUDs may also contribute to more varied and complex clinical presentations in BD, increase relapse rates, worsen depressive features and increase the frequency of self-harm and suicide attempts in BD (Baldassano, 2006; Levin and Hennessy, 2004). Thus, a better understanding of the factors that lead to co-occurrence is needed along with the development of interventions that reduce the likelihood of those with BD developing substance dependence. This will be informed by initially mapping accurately the prevalence of comorbid SUDs and BD.

Therefore, the principal objective of this systematic review is to report prevalence rates of SUDs comorbid with BP. We achieve this by combining the findings of studies conducted between 1990 and 2015 in treatment settings, involving large follow-up cohorts and national case registries. This time period was selected because it includes the seminal ECA study (Regier et al., 1990) and we have used it in two previous systematic reviews (Lai et al., 2015) Hunt et al., 2016 – facilitating direct comparisons. Our endeavour was to collate prevalence rates based on type of substance used, type of SUD (abuse, use, or dependence) where the study was carried out (recruited as inpatient, out-patient/community or mix) based on studies using large cohorts or from studies using consecutive admissions or random samples of outpatients or community-based subjects with BD; e.g., bipolar I (BD-I), bipolar II (BD-II) disorder.

We determined the prevalence rates and odds ratios (ORs) of SUDs between men and women and between BD-I and BD-II disorders for various SUDs using meta-analysis. We also compared studies that reported the effect of SUDs on age of onset and number of hospitalisations for those with or without a lifetime SUD and BD.

2. Methods

Methods were based on the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (Liberati et al., 2009; Moher et al., 2009) and guidelines for Meta-Analysis for Observational Studies in Epidemiology (MOOSE) (Stroup et al., 2000).

2.1. Data sources and search strategy

An initial search of the bibliographic databases MEDLINE, PsychINFO, EMBASE and CINAHL was conducted in August 2015 by GEH using subject headings (MESH terms) or free text (key words) to reflect differences in indexing among databases. The following set of terms were used in the various searches: (bipolar or mania or manic or hypomania) AND (comorbid or co-occur or alcohol$ or cannabis or drug$ or illicit or substance$ or abuse or dependence) AND (epidemiology or prevalence or incidence) NOT (adolesc$ or aids or child or gambl* or lithium or panic or placebo or sleep or treatment or youth) limit to English language and humans and year between 1990 and 2015. Other searches were conducted using names and abbreviations of BD cohorts or multi-site studies (Stanley Foundation or Cincinnati bipolar, DMDA, McLean First episode, STEP-BD, EMBLEM, EPIMAN, EPPIC etc) and key authors identified within the BD and SUD field. Hand searches of review article reference lists focussing on SUD and BD were also conducted (e.g., Baldassano, 2006; Bauer et al., 2005; Brady and Sonne, 1995; Carra et al., 2014; Cerullo and Strakowski, 2007; Di Florio et al., 2014; Rakofsky and Dunlop, 2013; Sonne and Brady, 1999; Strakowski and DelBello, 2000). A final search was