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Research paper

The prevalence and predictors of bipolar and borderline personality disorders comorbidity: Systematic review and meta-analysis

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ABSTRACT

Introduction: Data about the prevalence of borderline personality (BPD) and bipolar (BD) disorders comorbidity are scarce and the boundaries remain controversial. We conducted a systematic review and meta-analysis investigating the prevalence of BPD in BD and BD in people with BPD.
Methods: Two independent authors searched MEDLINE, Embase, PsycINFO and the Cochrane Library from inception till November 4, 2015. Articles reporting the prevalence of BPD and BD were included. A random effects meta-analysis and meta-regression were conducted.
Results: Overall, 42 papers were included: 28 considering BPD in BD and 14 considering BD in BPD. The trim and fill adjusted analysis demonstrated the prevalence of BPD among 5273 people with BD (39.94 ± 11.78 years, 44% males) was 21.6% (95% CI 17.0–27.1). Higher comorbid BPD in BD were noted in BD II participants (37.7%, 95% CI 21.9–56.6, studies = 6) and North American studies (26.2%, 95% CI 18.7–35.3, studies = 11). Meta regression established that a higher percentage of males and higher mean age significantly ($p < 0.05$) predicted a lower prevalence of comorbid BPD in BD participants. The trim and fill adjusted prevalence of BD among 1814 people with BPD (32.22 ± 7.35 years, 21.5% male) was 18.5% (95% CI 12.7–26.1).
Limitations: Paucity of longitudinal/control group studies and accurate treatment records.
Conclusions: BPD-BD comorbidity is common, with approximately one in five people experiencing a comorbid diagnosis. Based on current diagnostic constructs, and a critical interpretation of results, both qualitative and quantitative syntheses of the evidence prompt out the relevance of differences rather similarities between BD and BPD.

1. Introduction

Discriminating between borderline personality (BPD) and bipolar (BD) disorder is difficult (Barroilhet et al., 2013; Ghaemi et al., 2014), as well as crucial in the clinical and critical evaluation of the comorbidity rates between the twos (Zimmerman and Morgan, 2013).

The odds of confusing BPD with BD are particularly high for

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severe bipolar cases (Ghaemi and Barroilhet, 2015), essentially due to differential emphasis placed on similarities rather than differences between the twos (Agius et al., 2012; Ghaemi et al., 2014; Vieta and Suppes, 2008; Zimmerman and Morgan, 2013).

A bio-psychosocial approach promoting an explanatory psychological effect of a biological (cyclothymic) temperament in the understanding of the controversies surrounding BD-BPD nosological dilemmas has not been unanimously accepted, tough being ontologically and clinically suggestive (Khalili, 2014).

Moreover, BPD and BD share substantial overlap in the nosological validator of mood lability, especially for currently depressed BD Type-II (BD-II) cases (Henry et al., 2001), "soft bipolar" atypical forms of depressions sharing a common cyclothymic temperament diathesis (Perugi et al., 2011, 2003) and "ultra-rapid" (Mackinnon and Pies, 2006), "stably instable" bipolar cases (Akiskal, 1994). Mood lability is a Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-5) (APA, 2013) criterion for BPD, but not BD, though being common also in this latter (Goodwin and Jamison, 2007). DSM-defined atypical or manic features are infrequent in BPD compared to BD, though high rates of mixed features have been documented by large-sampled cross-sectional studies on major depressive episode patients (either DSM-defined "unipolar" or "bipolar" cases) with both BD and BPD according to permissive definitions (Allen et al., 2012; Perugi et al., 2013, 2015; Young et al., 2012).

Similarly, the symptom of impulsivity is closely allied to mood lability, and it is often seen as manifesting as sexual impulsivity in both BPD and BD, although it can also be physical, aggressive, financial (Ghaemi et al., 2014) or binge eating-related (Nagata et al., 2013; Perugi and Akiskal, 2002b). The affective lability of BPD vs. BD-II/cyclothymic patients nonetheless shows differential frequency and intensity patterns using both self-report and clinician-administered measures (Reich et al., 2012; Swann et al., 2013). BD and BPD differ notably on a number of diagnostic validators, especially the course of illness of past sexual abuse (Bayes et al., 2015; Briere and Elliott, 2003; Conus et al., 2010; Fossati et al., 1999; Maniglio, 2014) and history of para-suicidal self-harm (Joyce et al., 2010; Nock and Kessler, 2006). Genetic validators, treatment response, and neurobiological differences are also consistent between the twos (Ghaemi et al., 2014).

Unsurprisingly, stating the controversy surrounding the relationship between BD and BPD, the most studied question concerns their actual diagnostic concordance, not only for independent samples but also for comorbid BD-BPD cases (Zimmerman and Morgan, 2013). Across studies, approximately 10% of BPD patients had BD-I, an additional 10% had BD-II. Likewise, approximately 20% of BD-II patients were diagnosed with BPD (Zimmerman and Morgan, 2013). While the comorbidity rates are substantial, each disorder is nonetheless usually diagnosed in the absence of the other across the studies, whereas studies directly comparing patients with BPD to BD cases (or BPD to BD) found significant differences over a broad-range of validators, actually challenging the notion of BPD being part of the broad bipolar spectrum (Zimmerman and Morgan, 2013). On the other side, while the "pragmatic approach" of the DSM-IV (and DSM-5) aims at reducing the rates of over-diagnosis, the "strict" validity of some diagnostic categories as BD and BPD has been questioned (Stein et al., 2010), meaning that it cannot be granted that BD and BPD necessarily represent clear-cut distinct diagnostic entities. In this view, the absence of any DSM guidance soliciting the assessment of BPD in BD or the opposite could ultimately lead to underestimation of comorbidity rates between the twos.

To our knowledge, no meta-analysis has specifically investigated BPD and BD comorbidity and predictors. Adopting a meta-analytic approach would therefore provide the advantage of pooling data from numerous studies in a logical manner towards a more accurate effect size which is closer to the true prevalence than when individual studies are considered separately (Ioannidis, 2009).

In contrast to previous meta-analytic reports assessing a broad range of mood disorders comorbid with varying personality disorders (Friborg et al., 2014), the present systematic review and meta-analysis, first of its kind to best of our knowledge, rather focuses on the prevalence and predictors of comorbid BPD↔BD in adults.

2. Materials and methods

The present meta-analysis was conducted according to the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) guidelines (Stroup et al., 2000), and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009).

2.1. Information sources and search strategy

Two independent authors searched MEDLINE, Scopus, Embase, PsycINFO and the Cochrane Library. The search strategy combined free text terms and exploded MESH headings for the topics of bipolar disorder and borderline personality disorder as following: (((((((Bipolar disorder) OR BD) OR Bipolar) OR Manic depressive disorder) OR Manic depressive) OR Manic)) AND (((Borderline personality disorder) OR Borderline) OR BPD). This latter MEDLINE strategy was then adapted for use in the other databases (Appendix A). Studies published in English through November 4, 2015 were included. We further assessed the reference listing of retrieved relevant articles for potential inclusion of additional contributes.

2.2. Inclusion criteria

2.2.1. Study population and study design

We considered studies that included comorbid cases of BD and BPD providing accurate diagnostic definitions based on either the DSM or the International Classification of Diseases ICD (any edition or text revision). Accounted BD populations at study included either BD-I, BD-II and/or BD-Not Otherwise Specified (BD-NOS) cases. Participants of both sexes, 18 years of age or older were considered.

Both population-based and hospital-based studies were included. Among hospital-based studies, inpatients, day-hospital and outpatient subjects were included; emergency care records excluded as considered non-representative. All experimental and observational study designs were included apart from case reports, opinion articles/letters to the Editor or conference proceedings or reviews.

2.2.2. Outcome measures

Primary outcomes were (i) lifetime prevalence of comorbid BPD in BD patients and (ii) lifetime prevalence of comorbid BD in BPD patients.

2.2.3. Study selection and data extraction

Identified studies were independently reviewed for eligibility by three authors (MF, LO, SM) in a two-step based process; a first screening was performed based on title and abstract while full texts were retrieved for the second screening. Disagreements by reviewers were resolved by consensus at both stages. Data were extracted by two authors (BS, MF) and supervised by six additional authors (AV, LG, GP, DDB, MS and NV) using a *purpose built* data extraction spreadsheet. The data extraction spreadsheet was