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Review

Neurobiological and behavioural studies of affective instability in clinical populations: A systematic review

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ABSTRACT

Objectives: To evaluate the neurobiological, psychophysical and behavioural measures of affective instability in clinical populations.
Data sources: A range of medical and psychological science electronic databases were searched (including MEDLINE, EMBASE, and PsycINFO). Hand searching and reference checking are also included.
Review methods: Reviews, systematic reviews, experimental and cross-sectional studies, providing affective instability in neurobiological and behavioural measurements in clinical populations. Studies were selected, data were extracted and quality was appraised.
Results: Twenty-nine studies were included, 6 of which were review studies (one a meta-analysis) and 23 of which were primary studies, across a wide variety of disorders including ADHD, bipolar affective disorder, schizophrenia, severe mood dysregulation, major depression, and borderline personality disorder.
Conclusions: The bulk of the studies converge on the role of the amygdala, particularly in borderline personality disorders, and how it connects with other areas of the brain. Future research needs to extend these findings across diagnoses and development.

Contents

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1. Introduction

Affective instability (AI) is widely described in the psychiatric literature but there is a lack of agreement and consistency in how it is assessed, measured and defined. Conceptions of AI include ideas that it incorporates frequent affective category shifts, disturbances in affect intensity, excessively rapid emotion rise-times, delayed return to emotion baseline, excessive reactivity to psychosocial cues, endogenously driven, random, chaotic or rapid-cycling changes and overdramatic affective expression (Koenigsberg, 2010). The term is used interchangeably with mood instability, affective lability, affective and emotional dysregulation and mood swings, by researchers and clinicians alike, and as a result all these terms have been used in studies.

The variability of how the term is used makes it difficult to know how common it is. AI as described in the Diagnostic and Statistical Manual-IV (DSM-IV) has been estimated to have a general population prevalence of around 14% (Black et al., 2006; Marwaha et al., 2013b). Despite the problems of definition there is general agreement that AI is clinically important. AI described as "due to a marked reactivity of mood" (p. 663) is a diagnostic criterion in borderline personality disorder (BPD), and is defined in DSM-5 as: '. . . being due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days) [. . .] These episodes may reflect the individual's extreme reactivity to interpersonal stresses' (p. 664) (APA, 2013). In people with BPD, prospective studies show that it is the strongest factor in the diagnostic criteria for that disorder that predicts suicidal behaviour and more so than a negative mood state overall (Yen et al., 2004). Neuroticism (Korten et al., 2012) and having more interpersonal difficulties with partners are both linked to AI as well as future depression (Miller and Pilkonis, 2006; Thompson et al., 2011). Linehan (1993) considers emotional dysregulation as not just a symptom of BPD but potentially the cause of the disorder (Crowell et al., 2009). What is clear, however, is that in addition to the substantial prevalence of mood instability in the general population, and its importance in the contemporary conceptualisation of borderline personality disorder, it is also a feature of several psychiatric disorders. Fluctuation of mood has been known to be a key feature of bipolar affective disorder (BP), yet clinicians may see affective instability in disorders other than BPD or BP such as ADHD, depression, PTSD (Broome et al., in submission) and it may be an important feature in the onset of psychosis (Marwaha et al., 2013a,b, 2014).

In previous work, we have systematically reviewed psychometric measures and definitions of affective instability (AI), transdiagnostically, in adults (Marwaha et al., 2014) affective instability is an important psychopathological construct, linked to distress and impairment (Marwaha et al., 2013a,b) and can be a feature of many childhood and adult-onset psychiatric illnesses. There is little research studying neurobiological and behavioural measurements of affective instability in clinical populations. The current systematic review aims to collate evidence on the neurobiological and behavioural measurement for affective instability in clinical populations, across the diagnostic spectrum, with a goal to consider whether AI meets the ideal expressed in the Research Domain Criteria (RDoC) of a clinical phenotype that is of importance and can be studied neuroscientifically through experimental designs (Cuthbert and Insel, 2013). RDoC supports research that studies biobehavioural dimensions, which cut across existing diagnostic categories, with the key idea being that advances in genetics, systems neuroscience and behavioural science are not wholly consistent with the existing categories of mental disorder as defined in both the ICD and DSM. Hence, traditional psychiatric taxonomies may be an impediment to translational research in mental health. Given that AI manifests developmentally, utilising neuroscientific and behavioural approaches, in addition to psychometric strategies, may allow mechanisms underpinning AI to be detected prior to the problems associated with it developing, and hence offer a window for early detection, intervention and prevention of harms.

2. Methods

We used the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) for guidance regarding reporting of search, extraction and synthesis of results in this review (Moher et al., 2009).

2.1. Eligibility criteria

Studies were included if they met the following criteria:

a) Study design: for primary studies, experimental studies (randomised controlled trials, nonrandomized controlled trials, controlled before-and-after studies, and cross-sectional studies); as well as reviews.
b) Participants: we defined clinical population as subjects meeting the diagnostic criteria of DSM-IV or ICD-10.
c) Neurobiological and behavioural measurements: we defined neurobiological measurements as including any affective neuroscience paradigm, for example, fMRI, EEG and PET; behavioural measurements as any format of cognitive and behavioural test/task, for example: the Attention Network Test (ANT).
d) Comparison: we did not have restrictions for the comparator characteristics.
e) Outcomes: we included studies that reported outcomes relating to neurobiological and behavioural measurements for affective instability.

2.2. Information sources

The following bibliographic databases were searched MEDLINE, EMBASE, PsycINFO, PsycArticles and Web of Science. The main search was from the date of inception of each database to February 2012, and was then updated till January 2014. Five journals (*Journal*