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Review article

Factors contributing to depressive mood states in everyday life: A systematic review

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ABSTRACT

Background: Although accumulated evidence suggests that fluctuations in depressed mood are common among individuals with depression, and may be associated with onset, duration, and severity of illness, a systematic appraisal of putative predictors of depressed mood is lacking.
Methods: A systematic search for relevant studies in the literature was conducted using PsycInfo and PubMed databases via EbscoHost in February 2016. The search was limited to articles using the experience sampling method, an approach suitable for capturing in situ fluctuations in mood states.
Results: Forty-two studies met inclusion criteria for the review, from which three key risk factors (poor sleep, stress, and significant life events) and two protective factors (physical activity and quality of social interactions) were identified. The majority of papers supported concurrent and lagged associations between these putative protective/risk factors and depressed mood.
Limitations: Despite support for each of the proposed protective/risk factors, few studies evaluated multiple factors in the same study. Moreover, the time course for the effects of these predictors on depressed mood remains largely unknown.
Conclusions: The present review identified several putative risk and protective factors for depressed mood. A review of the literature suggests that poor sleep, negative social interactions, and stressful negative events may temporally precede spikes in depressed mood. In contrast, exercise and positive social interactions have been shown to predict subsequent declines in depressed mood. However, the lack of multivariate models in which the unique contributions of various predictors could be evaluated means that the current state of knowledge prevents firm conclusions about which factors are most predictive of depressed mood. More complex modeling of these effects is necessary in order to provide insights useful for clinical treatment in daily life of the depressed mood component of depressive disorders.

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1. Introduction

The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) highlights that the presence of an empty, irritable, or sad mood are the contents of depressed mood, and constitute diagnostic features of depressive disorders. Although diagnosis of major depressive disorder is based, in part, on sustained and consistent demonstration of depressed mood for a period of at least 2 weeks, recent research into the momentary experiences of depressed mood suggests that depressed individuals meaningfully differ from non-clinical populations in the profile of depressed mood during their daily lives. Compared to non-depressed individuals, those with a diagnosed depressive disorder exhibit a greater tendency towards low positive affect (PA) and high negative affect (NA) (Bylsma et al., 2011; Jacobs et al., 2013; Peeters et al., 2003; Wichers et al., 2012), and also appear more variable in their mood states across time (Bylsma et al., 2011; Gauvin et al., 1996; Peeters et al., 2006). Importantly, the severity, persistence, and variability of negative mood states in this population are predictive of development and prognosis of illness (Kuppens et al., 2012; Thompson et al., 2012). Therefore, understanding of the predictors for depressed mood states has potential implications for treatment of depression, reducing the risk of experiencing depressed mood states in individuals who do not have clinically diagnosed depression, and understanding any differences between these two groups (Wichers, 2014).

Recent attempts to identify trait- and contextual-level predictors of temporary spikes in depressed mood have relied upon the experience sampling methodology (ESM; alternatively labeled ecological momentary assessment and daily diary studies; e.g., Bolger and Laurenceau, 2013). In ESM studies, participants are typically asked to self-report (via smartphone app, Personal Digital Assistant, web survey, or pen-and-paper) on target events (mood, behaviors, etc.) multiple times per day for a period of 1–2 weeks. By randomly and intensively sampling these experiences over an extended time frame, researchers seek to infer qualities of these target events, such as frequency of occurrence as well as determinants and consequences of these events.

Unlike experimental manipulations of mood, which may not adequately approximate typical environments in which individuals experience their varying mood states, ESM involves monitoring participants in daily life, thus increasing ecological validity. Additionally, repeated assessment points allow for the re-estimation of predictor-outcome relationships and so are less susceptible to influences of atypical responses on estimates of association. Importantly, repeated assessment also allows for evaluation of concurrent and lagged associations between proposed predictor and outcome, and allows for modeling of the time lag between predictor and outcome, which not only establishes temporal precedence but is also useful for identifying time course from risk exposure to outcome. Moreover, as ESM repeatedly samples an individual's experiences at time of survey (i.e., depressed mood right now), it is less susceptible to recall biases that have been shown to affect cross-sectional survey-based recall of mood in general (e.g., average mood over the past month) (Maes et al., 2015; Torous et al., 2014). As such, ESM provides an important method for advancing understanding of the nature of depressed mood.

Although recent reviews of ESM-based literature have documented variability in depressed mood (e.g., aan het Rot et al., 2012; Ebner-Priemer and Trull, 2009; Wenze and Miller, 2010), a comprehensive review of the predictors and potential consequences of instances of depressed mood states has not been undertaken. Each of these prior reviews briefly covers predictors of depressed mood, but it is not their primary focus. Ebner-Priemer and Trull (2009) and Wenze and Miller's (2010) reviews focus on the benefits of ESM for capturing affective data, including the potential treatment applications of this technology. In contrast, aan het Rot et al. (2012) focuses on treatment effects and residual symptoms, the neuroscience of mood symptoms, and differences in symptom expression across various at-risk populations.

There are several important reasons for undertaking a systematic review of the predictors of depressed mood at this juncture. First, accumulated literature using the ESM identifies contextual factors such as physical activity, sleep, stress, significant events, and quality of interactions as potential risk factors for acute spikes in depressed mood (aan het Rot et al., 2012; Bower et al., 2010; Brown et al., 2011; Wichers, 2014). Thus, there is a body of literature to draw upon for this review. However, second, this literature base has typically progressed in an atheoretical manner, and the predictive value of these proposed risk factors have typically been explored in isolation rather than collectively. Moreover, as individuals with depression are differentiated from those with sub-clinical or non-clinical levels of depressive symptoms in the severity of depressed mood and extent to which depressed mood persists over time (Bylsma et al., 2011; Jacobs et al., 2013; Wichers et al., 2012), depressed mood may thus be a qualitatively different experience for these subgroups. Accordingly, it is possible that these proposed risk factors differ in their predictive value for depressed mood across clinical and non-clinical populations. The possibility of individual differences in these state-based associations has not been systematically evaluated. Third, knowledge about how to predict onset and understanding of triggers for these experiences would have therapeutic benefit allowing common psychological treatment options for depression – such as cognitive behavioral therapy (CBT)-to help clients better understand triggers for depressed mood and factors which protect against elevated depressed mood states (Wichers, 2014).

Thus, in order to advance understanding in this area of research, the present study systematically evaluates existing literature to identify the level of support for each of the aforementioned, proposed risk and protective factors for depressed mood states. This review is guided by two primary research questions:

1)What is the level of empirical support for the proposed risk factors (physical activity, sleep, stress, significant life events, and quality of interactions) for depressed mood states?;