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Editorial overview: The assessment, etiology, and treatment of unipolar depression

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Major depressive disorder is a common, recurrent, and impairing condition that predicts future suicide attempts, interpersonal problems, unemployment, substance abuse, and delinquency [1,2]. According to the World Health Organization, 121 million people are currently suffering from MDD and it is one of the leading causes of disability worldwide. The annual economic cost of MDD in the U.S. alone due to medical expenditures, lost productivity, and other costs is substantial [3].

Given its public health significance, a substantial amount of effort is devoted each year to developing a better understanding of how to best assess, understand, and treat depression. This special issue in *Current Opinions in Psychology* is devoted to presenting some of the most exciting and innovative psychological research in the area of depression. The work presented in this issue falls into several (overlapping) categories: (a) depression assessment, (b) etiology of depression, (c) maintenance of depression, (d) innovative treatments, (e) established treatments, and (f) predictors of treatment response. I will briefly describe the articles in each category with the hope that this brief review whets your appetite and encourages you to read the full article.

Depression Assessment

Typically, depression symptoms are assessed via self-report, usually by asking the patient to report on their subjective impressions of their own symptoms via a questionnaire or interview. Girard and Cohen (2015) have developed highly innovative methods that measure vocal and facial characteristics, as well as head movements, that may allow for a more precise, reliable, and automated measurement of depression severity than traditional self-report methods.

Similarly, traditional depression assessments typically involve the participant recalling symptoms over long periods of time. Among other problems, this leads patients to report their “average” experience of symptoms over time and does not capture the moment-to-moment fluctuations in symptoms that often occur in everyday life. A more accurate and reliable method of depression assessment likely involves experience sampling—the

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measurement of symptoms as they occur in the real world. Arney et al. (2015) review some exciting work in this area, referred to as Ecological Momentary Assessment (EMA), arguing that EMA is well suited to the study of depression and other hard to study phenomena such as emotion regulation and suicidal ideation and behavior.

Finally, Woody and Gibb (2015) suggest that new ways of conceptualizing and assessing depression-related phenomenon may be in order. The National Institute of Mental Health has recently proposed a Research Domain Criteria (RDoC) initiative in an effort to develop new ways of classifying mental disorders. Woody and Gibb (2015) describe how to apply an RDoC framework to depression research and provide an instructive example from their own RDoC-inspired depression research.

Etiology of Depression

It is estimated that nearly 1 out of 5 people will experience depression at some point in their life [4]. What factors contribute to this high prevalence rate? Many possibilities have been explored, ranging from broad societal factors to person specific mechanisms. Several of the most promising etiological factors across several different levels of analysis are covered in this issue.

At a broad societal level, it is well known that race and ethnicity influence the experience of depression and how it is treated. Cardemil, Nelson, and Keefe (2015) review racial and ethnic disparities in depression and identify potential mechanisms that contribute to race and ethnic disparities associated with depression treatment. Similarly, gender differences are one of the most robust and consistent findings in depression, as women are more likely than men to become depressed in adolescence and this gender difference persists until older age. Girgus and Yang (2015) review psychological, interpersonal, and physiological mechanisms that might account for this gender difference.

Given that gender differences in depression start during childhood, development must play a critical role in the etiology of depression. Hankin (2015) brings a developmental psychopathology perspective to the development of depression from childhood through adolescence. He also comprehensively reviews how genetics, neurobiology, emotion, reward, and cognitive factors may all contribute to the development of depression in different developmental contexts, including stressful environments.

Given the central role that life stress plays in depression, Hammen (2015) provides an in-depth review of this research literature. Specifically, she reviews cutting edge research on how early life stress, acute stressors, and chronic stress each contribute to depression, both alone and in conjunction with known risk factors and moderators, such as individual differences in HPA axis, neural and genetic mechanisms.

Individual differences in cognition have long been posited to play an important role in the etiology of depression. We are fortunate to have three very interesting reviews on different aspects of cognitive vulnerability to depression. Joormann and Tanovic (2015) review how cognitive processes may underlie emotion regulation difficulties often observed in

depression. In particular, they focus on several different but related facets of cognitive control.

Allen and Reznik (2015) focus on the neurophysiological mechanism of frontal EEG asymmetry as an important indicator of depression risk. Consistent with Joorman and Tanovic (2015), Allen and Reznik (2015) suggest that frontal EEG asymmetry may confer vulnerability to depression via its impact on emotion regulation.

Dozois and Rnic (2015) review the important literature on core beliefs and the development of early maladaptive schemas in depression. It would be fascinating to examine how these different lines of cognitive vulnerability research converge, perhaps using an integrative neuroscience approach postulated by Allen and Reznik (2015).

Maintenance of Depression

Once a person becomes depressed, what keeps him or her depressed? This is a critical question for depression researchers, as identifying maintenance factors for depression is absolutely critical for the development of new treatments that are most likely to have a therapeutic impact on depression symptoms.

Several articles in this issue directly address maintaining mechanisms in depression. Heller (2015) reviews innovative work that links individual differences in neural functioning to the persistence of depression symptoms over time. One exciting aspect of this review is that Heller points to important parallels from research with rodents, suggesting important translational possibilities from animal models of depression.

Staying in the neural domain, Proudfit, Bress, Foti, Kujawa, and Klein (2015) posit that two distinct neurophysiological information processes biases contribute to the persistence of depression: sustained processing of motivationally salient stimuli and reward positivity. Both of these mechanisms appear to be diminished in people with MDD, suggesting an important role in the maintenance of the disorder.

Similarly, Admon and Pizzagalli (2015) review reward processing in depression with a particular focus on anhedonia, an inability to experience pleasure from activities once found enjoyable. Admon and Pizzagalli (2015) focus on the behavioral and neuroimaging evidence and note that current treatments often do not address diminished reward processing, even though it has an important role in the maintenance of depression.

A central feature of depression is the persistence of sad mood. Rottenberg and Hindash (2015) suggest that the presence of sad mood alters how depressed individuals respond to changes in the environment. That is, depressed people respond with relatively little emotion reactivity to environmental changes, regardless of whether the changes are positive or negative. Thus lack of responsivity to the environment is posited to maintain an episode of depression.

Innovative Treatments

Once reliable maintenance factors have been identified, the next important step is to develop interventions that target, alter, and improve these maintenance processes. Several authors in this special issue describe research programs that attempt to do just that.

Consistent with the idea that a negative cognitive bias has an important role in the maintenance of depression, Koster and Hoorelbeke (2015) review the literature on cognitive bias modification in depression. Cognitive bias modification (CBM) is a technique that attempts to experimentally modify cognitive biases and then determine whether altering a specific bias is associated with reductions in depression. This area of research is relatively new, but Koster and Hoorelbeke (2015) provide a very nice review of the work that has been completed to date and point to important directions for future research.

One important direction for CBM research is to examine whether improving negative memory biases subsequently improves depression. Evidence suggests that depressed individuals more readily recall negative material, but whether this is causally related to the maintenance of depression is unclear. Becker, Vanderhasselt, and Vrijnsen (2015) review different approaches to memory bias modification in depression and highlight important future directions for this burgeoning line of work.

Another CBM approach with promising preliminary data is the psychological treatment of depressive rumination. Rumination, the tendency to repeatedly dwell on negative thoughts and feelings, has been strongly implicated in depression maintenance. Watkins (2015) reviews this literature and the promising approaches that have been used to help depressed individuals overcome rumination.

Although different in approach from interventions described by Watkins (2015), exposure-based cognitive therapy (EBCT) (Hayes, 2015) <http://dx.doi.org/10.1016/j.copsyc.2015.03.032> also targets unproductive processing of negative material using an approach that is adapted from exposure-based treatments for anxiety disorders, notably post-traumatic stress disorder. This multimodal treatment adds principals of exposure and emotional processing to cognitive therapy for depression. Preliminary treatment outcome data, reviewed by Hayes (2015) <http://dx.doi.org/10.1016/j.copsyc.2015.03.032>, appears to be very promising for this innovative approach to depression treatment.

Established Treatments

In addition to the development of new treatments, there are several existing treatments with established efficacy for the treatment of depression. Indeed, these established treatments provide a high bar that any newly developed treatment needs to surpass in order to demonstrate superior efficacy.

Pharmacological treatment, particularly with selective serotonin reuptake inhibitors, represents a popular and well-established treatment for depression. However, despite that it is often considered a first-line treatment for depression, the mechanisms by which antidepressants exert their therapeutic effects are not well established. Walsh and Harmer

(2015) review a novel neuropsychological model of antidepressant treatment and suggest that antidepressants may be effective in part because they reverse negative biases in affective processing.

Despite the efficacy of several psychotherapies for depression (e.g., CBT), many patients do not receive effective forms of depression treatment. Cuijpers (2015) reviews evidence for Internet-based treatment for depression, including CBT. Internet-based, self-guided treatments for depression appear to be efficacious, often resulting in treatment effect sizes that are comparable to face-to-face psychotherapies for depression. In addition to traditional treatment approaches, Cuijpers (2015) also reviews how newer approaches that leverage emerging technologies, such as mobile devices and game-based interventions, will impact how Internet-based depression treatment will be delivered in the near future.

Cognitive therapy (CT) for depression represents one of the most researched forms of psychological depression treatment. In addition to the treatment of acute episodes of depression, CBT has been used to prevent the recurrence of depression among people who have recently remitted from a depressive episode. Vittengl and Jarrett (2015) review this literature, including a very large recent study they completed that examining the effectiveness of continuing CT for reducing depressive relapse. Importantly, they also highlight who is most likely to benefit from this form of treatment and identify important future directions for work in this important area.

As noted earlier and in several of the reviews in this issue, adolescence is a high-risk period for the onset of depression. Much effort has been devoted to identifying treatments that might prevent a depressive episode in depression. Rohde (2015) reviews the adolescent prevention literature and concludes that cognitive-behavioral interventions are effective at reducing depressive episodes, particularly when these programs target adolescents at high risk for relapse.

Predictors of Treatment Response

One important issue that all clinicians confront is whether a given treatment will work for a particular patient. Unfortunately, treatment matching is rare in depression, as treatments are often prescribed in a trial and error fashion. That is, treatments are tried until one that works is found. Identifying reliable predictors of treatment response would not only be a boon to clinicians, but it would also move the field more rapidly towards developing interventions for people who do not respond to traditional treatments.

Fisher and Bosley (2015) describe the growing field of precision medicine—the idea that treatment selection for depression can and should be informed by patient attributes. They review attempts to use biological factors, including genetics and biomarkers, for pharmacological and psychological treatments. Although relatively few studies have been completed, evidence to date appears to be promising.

Medina, Jacquart, and Smits (2015) apply a similar framework to identifying who is most likely to respond to exercise interventions for depression. They focus specifically on neuroinflammatory states and neurotrophin production as possible biomarkers of

antidepressant response to exercise. This work is notable in that the biomarker focus stems from a strong understanding of the health benefits of exercise. It would be ideal if other interventions for depression had such a strong basic science foundation from which to develop new interventions.

As you can see from this brief overview, this special issue of *Current Opinions in Psychology* includes 24 outstanding articles that cover a wide range of topics within the field of depression. All the articles in this issue are focused, brief, and represent the state-of-the-art for each topic. The authors are also all leaders in their respective fields. I trust that you will enjoy reading these articles and I hope that you learn as much from them as I did.

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Biography

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