Innovations and advances in cognitive behavioral therapy: Insights from experimental psychopathology

At its core, the goal of experimental psychopathology is to understand what processes or mechanisms cause, maintain, or otherwise contribute to mental health problems (e.g., Zvolensky, Forsyth, & Johnson, 2013). There are countless examples of how this type of research has led to important improvements in treatment for people with psychological disorders. Perhaps most famously, Beck’s (1963) findings that people with depression consistently exhibit systematic thinking errors (i.e., cognitive distortions) and conscious negative automatic thoughts revolutionized how we help people with emotional disorders (see Beck, 2019, for a history of cognitive therapy for depression). Indeed, by spending a bit of time perusing treatment recommendations by the National Institute for Health and Care Excellence (NICE), it becomes clear quickly that cognitive behavioral therapy (CBT) is now—and has been for a while—a first-line evidence-based treatment for almost every psychological disorder. As such, it would be easy to conclude that “our work is done.”

However, many people continue to suffer with mental health problems that either are not improved following CBT or relapse following treatment; many more are unable to access evidence-based care. Understanding what mechanisms still need to be targeted, for whom, under which conditions, and developing ways to increase access to these treatments is vital. Experimental psychopathology comprises a framework in which to make that happen. The goal of this Special Collection was thus to bring together experimental psychopathology research that continues to advance CBT for various psychological disorders. Authors were invited to submit manuscripts describing (1) original investigations of underlying mechanisms of psychopathology, (2) original investigations of new (or new variations of) CBT interventions, or (3) reviews/integrations of a body of published experimental psychopathology findings that have led to recent innovations or have the potential to lead to innovations in CBT.

The result is an exciting special collection that runs the gamut of mental health problems, experimental psychopathology methods (experiments, case-study designs, and randomized controlled trials [RCTs]), includes both clinical and nonclinical participants, and features reviews of experimental psychopathology literature. Together, these articles suggest that we have learned much, and that we have much to learn about how to advance CBT and its accessibility for people with mental health problems.

In their selective review, Gagne, Kelly-Turner, and Radomsky (2018) focused on the science–practice bridge (rather than the gap) to understand both how research has informed the treatment of obsessive–compulsive disorder (OCD) and how clinical experience can inspire experimental research. They provided a broad overview of etiological models of OCD, with a particular focus on diverse cognitive models such as the cognitive appraisal model and the seeking proxies for internal states model. Through examples of experiments across checking, obsessions, contamination fear, and “just-right” symptom presentations, they provided ideas for future research and future practice. Indeed, throughout the years, researchers have developed many clever studies that shed light on the diverse cognitive mechanisms that cause and maintain OCD (e.g., inducing thought–action fusion by telling an experimental group that if they think the word “apple,” a person in the next room will receive a shock; Rassin, Merckelbach, Muris, & Spaan, 1999) and thus provide potentially fruitful treatment targets. There are also important gaps in the experimental literature. Most notably, “just-right” experiences have been largely understudied; clinical suggestions for treating this particular
presentation are thus based primarily on theory. Gagné et al. also suggested potential avenues for testing some current clinical practices (e.g., responsibility pie charts) to inform both theory and practice. Behavioral experiments are a key theme throughout the article; by developing individualized and collaborative tests of beliefs with our clients, we may be best able to target the key factors driving their symptoms.

Vidovic, Romano, and Moscovitch (2019) were interested in understanding whether negative mental images can be modified in an experimental study and how this new technique might support therapeutic gains. The authors introduced a brief version of imagery rescripting—or changing the content of one’s memory to meet the needs of one’s younger self—as a technique to morph participants’ negative mental images into ones that are more positive. Participants were adults with social anxiety disorder and those without any psychological diagnoses. They were randomly assigned to receive either a short imagery morphing session or a supportive counselling session. Afterward, they completed daily homework assignments and returned a week later for a speech task. Although Vidovic et al. found that people (with and without social anxiety) in the morphing condition were able to use the technique effectively to morph their negative imagery, there did not appear to be any clinical benefit of this strategy. This was surprising, given findings supporting more extensive imagery rescripting as an efficacious technique among people with social anxiety disorder. Although the researchers’ hypotheses were not fully supported, their findings open the door for interesting and important follow-up research questions, such as differentiating between morphing an image and reappraising the meaning of that image, incorporating theories and findings from cognitive science (e.g., memory consolidation), and establishing the optimal variations, durations, and intensities of treatment techniques to effect meaningful change. Here, we see a clever example of how to use experimental psychopathology methods to identify a novel technique and directly test its efficacy for a particular type of presentation. The refinement of this technique in subsequent research has the potential to contribute to improved outcomes for people with social anxiety disorder.

Ovanessian, Koerner, Antony, and Dugas (2019) discuss the anxiolytic effects of different written exposure tasks for people with generalized anxiety disorder (GAD), with the goal of reducing the degree to which people avoid their own anxiety-provoking internal experiences. The authors astutely indicate that, whereas imaginal exposures are used across all CBT interventions for GAD, there is very little agreement on the procedure under which clinicians and clients plan and execute these exposures. By introducing imagery rescripting, Ovanessian et al. propose an interesting mechanism with the potential to enhance treatment for chronic worry. They randomly assigned participants into one of three conditions (standard written exposure, written exposure with rescripting, and neutral writing exercise). People in the rescripting condition also demonstrated unique improvements in GAD symptoms, fear of anger, and fear of positive emotions. It seems that incorporating rescripting in written exposures was not more beneficial than typical written exposures, yet Ovanessian et al. highlighted secondary worry-related processes that warrant further exploration. The authors made a novel contribution by directly comparing imagery rescripting with typical written exposures in the treatment of GAD. Their findings are important for CBT for GAD as the rescripting condition—but not the standard written exposure condition—experienced different symptom improvements, which can help clinicians collaborate with their clients to implement one exposure technique over the other, depending on how they have conceptualized the maintaining factors for their symptoms and functioning. This is a direct clinical contribution with important potential applied outcomes.

Compared to many psychological disorders, eating disorders are among the most fatal. To reduce the relapse rates of individuals discharged from inpatient services, Farrell et al. (2019) explored the effectiveness of food-based exposures on individuals hospitalized with eating disorders, using a large case series design. This contribution is particularly novel, given that treatment in inpatient settings often prioritizes
nutritional stability and avoidance of food-based fears. The intervention consisted of gradually approaching feared and avoided foods while ceasing strategies aimed at reducing the individual’s weight or changing their shape. As expected, patients experienced significant reductions of food-related fears from pre- to posttreatment. Not only were there no increases (i.e., rebound effects) in self-induced vomiting, compulsive exercising, or laxative misuse, patients experienced decreases in self-induced vomiting and compulsive exercising behaviors. Patients also reported favorable perceptions of the treatment’s helpfulness and consideration of emotional needs and reported that they would recommend this treatment to others. The authors’ findings suggest that food-based exposure therapy in inpatient settings has positive overall effects, and may generalize across eating disorder presentations, symptom severity, and food-related fears and avoidance behaviors. These results are exciting and encouraging for implementing this type of intervention into current CBT practices, as the authors suggest that time-limited behavioral interventions contributed to important gains—rather than simply focusing on weight restoration. Furthermore, in line with the cognitive behavioral model, this article also highlights that targeting one component (i.e., behavior) can have many secondary positive effects (i.e., cognitions and emotions). Indeed, this important study provides yet another example of how applying evidence-based theory to practice results in improvements for patients and clients.

Kane et al. (2019) reviewed experimental research focused on the effects of anxiety on sexual arousal to better understand whether anxiety is helpful, unhelpful, or has no influence on sexual arousal. The authors set out to provide suggestions for developing and refining current CBT interventions for sexual dysfunction. They emphasized a commonly shared view of theoretical models that sexual dysfunction is heavily influenced by beliefs and perceptions. Kane et al. noticed that the literature held many contradictions regarding the helpfulness (and unhelpfulness) of anxiety in the context of sexual functioning. For example, despite theory and initial research suggesting that anxiety may play an excitatory role in sexual arousal, the authors also observed the opposite when reviewing more recent research, meaning people experienced decreased sexual functioning (or no change in sexual functioning) when researchers induced anxiety experimentally. The authors also observed conflicting evidence for the role of performance-based fears in sexual arousal. Contrary to early theories wherein researchers suggested that people with performance-based fears would demonstrate inhibited sexual arousal, the authors found evidence that people’s performance-based fears, at times, had no effect on sexual arousal, and at other times, increased sexual arousal. Thus, they concluded that the interplay between anxiety and sexual arousal is likely more complex than once believed, and as such, theoretical models require updates to reflect the various empirical findings. Kane et al. proposed exciting new avenues for experimental psychopathology research, including experimental studies that better incorporate and manipulate people’s beliefs about sex and anxiety (e.g., anxiety sensitivity) to advance our understanding of the complex relation between anxiety and sexual functioning. This detailed review highlighted how far cognitive behavioral models of sexual functioning have come, but also demonstrated large gaps in knowledge that could be filled using experimental psychopathology methods. Indeed, they ultimately concluded that clinicians need to use caution implementing anxiety-based interventions for sexual dysfunction, given the lack of clarity inherent in the extant evidence.

Finally, McDermott and Dozois (2019) conducted an RCT focused not only on treatment efficacy but also on increasing access to evidence-based care, with the goal of reducing the long-term burden of depression symptoms. They recruited a large sample of undergraduate students with elevated self-reported distress or neuroticism. Participants completed baseline symptom measures and were randomly assigned to complete 6 weeks of one of three online interventions: (1) CBT (MoodGym; Christensen, 2004), (2) Attentional Bias Modification, or (3) Attentional Control Condition. At both post-intervention and 4-month follow-up, participants who completed online CBT reported reduced depressive symptoms and were less likely to report symptoms meeting diagnostic criteria for Major Depressive Disorder than those in either of the other two conditions. In other words, the online intervention appeared to reduce current symptoms and potentially prevent the onset of a depressive episode. Notably, over 100 participants per condition remained in the study until 4-months post-treatment, highlighting the great potential for increased access to evidence-based services offered by online interventions with minimal human resources. A particularly important contribution of this study is that McDermott and Dozois extended
Findings from past research by demonstrating that online CBT may have a direct effect on reducing the incidence of diagnoses, and that its effects can be maintained over a longer-term interval.

In putting this Special Collection together, I took a broad view of experimental psychopathology. Indeed, there is an argument to be made that RCTs, for example, are better understood as applied or clinical psychopathology research rather than as experimental psychopathology (e.g., Zvolensky, Lejuez, Stuart, & Curtin, 2001). However, given the experimental nature of much clinical research, and the overarching goal of experimental psychopathology to determine the causal and maintaining factors of psychological disorders (thus providing direct treatment targets), combining these frameworks may be the optimal way to truly bridge the science–practice gap. Moreover, differentiating between a full-blown RCT and a well-controlled preliminary experiment testing a potential technique (with the goal of testing a theory) is complex, and perhaps not helpful. By focusing on experiments that have the potential to lead to large-scale advances in treatment, we have a much better chance of helping people whose symptoms continue to be impairing.

Although there may be an inherent assumption that experimental psychopathology research necessarily carries downstream clinical implications (Zvolensky et al., 2001), its findings do not always translate to improvements for people suffering from psychological disorders. To be clear, understanding phenomenological characteristics and correlates of psychological disorders has much to add to the knowledge base; however, focusing on mechanisms of change that therapists can readily address in therapy is key to reducing symptoms (e.g., see also Ouimet, Ashbaugh, & Radomsky, 2019). The researchers who contributed work to this Special Collection have truly taken that idea to heart in developing and implementing their studies.

Taken together, the series of studies in this Special Collection highlight the important role played by experimental psychopathology in developing, refining, and facilitating access to CBT for a wealth of psychological disorders. The contributors to this collection have shed light on past and current experimental research, applied it directly to potential therapeutic techniques, and tested the efficacy of novel methods for treating specific symptoms and disseminating such treatments. They have also put the spotlight on areas in which research is still lacking—and thus people who are still not receiving optimal treatment. It is particularly hopeful to see how experimental psychopathology research can be readily translated to treatment, suggesting that for people who are currently undertreated, advances are very likely forthcoming.

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