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SPECIAL SERIES

Introduction to the Special Series: Clinical Applications of the Inhibitory Learning Model

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Exposure therapies (ETs) are treatments of choice for a number of mental health disorders, particularly anxiety and associated conditions, and problems due to avoidance. Exposure has received broad empirical support as a primary intervention. Recent efforts have focused on improving the efficacy and acceptability of exposure-based treatments. As proposed by Craske etal. (2014), strategies to improve ETs based on the inhibitory learning model have shown notable promise. However, surveys suggest that clinicians continue to avoid ETs, or implement them in a manner that interrupts their efficacy. In this special series, articles focus on specific inhibitory learning strategies in exposure, and their adaptation to multiple patient populations. The aim of the special series is to critically assess the research support for inhibitory learning approaches to exposure, and provide guidance for clinicians to implement these strategies in everyday practice.

Numerous quantitative summaries of treatment research have shown that exposure-based interventions are highly efficacious in alleviating anxiety and related symptoms (see Hofmann et al., 2012). Exposure therapy has become a mainstay in treatment for disorders marked by avoidance. As such, attention has turned to methods of increasing the salience of the stimuli presented, such as through virtual reality therapy (Opriş et al., 2012). In addition to the research on the efficacy of exposure methods, there are numerous how-to guides for conducting exposure, ranging from the general foundations of the approach (Abramowitz, Deacon, & Whiteside, 2011), to applications with specific disorders including, but not limited to: phobias (Craske, Antony, & Barlow, 2006); panic disorder with agoraphobia (Antony & Swinson, 2000); and obsessive-compulsive disorder (OCD; Abramowitz & Jacoby, 2015). In the case of posttraumatic stress disorder, exposure was recommended as a primary approach in recent clinical practice guidelines (Courtois et al., 2017). These are only a few examples, as there are additional guides that provide clinicians with methods for adapting exposure to special populations, and a wide range of other conditions marked by avoidance.

While the depth and breadth of research support for exposure is impressive, many practitioners remain reluctant to administer exposure protocols—as stated in the title of one chapter, "Exposure Therapy Has a Public Relations Problem" (Richard & Gloster, 2006). In a survey of practitioners, it was found that exposure was rarely administered, and even when offered, was given in conjunction with practices of dubious efficacy (Hipol & Deacon, 2013). Another survey of practitioners reported that while psychologists were inclined to offer exposure when treating OCD, many did so for an inadequate duration to achieve beneficial outcome (Moritz et al., 2019). In addition, providers had a preference for conducting exposure using imagery rather than in vivo. Explanations for this discrepancy (i.e., the limited application of exposure despite its extensive research support) have included therapist anxiety regarding the believed dangers of the procedure (Deacon et al., 2013), misplaced concerns over litigation risk (Richard & Gloster, 2006), and the "spun-glass theory of mind" (Meehl, 1973). This last concern is based on the notion that clients are too fragile to tolerate the emotional experience associated with exposure, and thus the procedure will produce more harm than benefit.

These perceptions can be aided in part by traditional descriptions of exposure therapy. For example, in the classic conceptual paper depicting the fundamental mechanisms of action, Foa and Kozak (1986) suggested that fear activation must be sufficiently intense for the fear memory to be engaged. In other words, a minimum level of anxiety must be evoked in session to ensure a beneficial outcome. Further, Foa and Kozak suggested that the best outcome would occur with longer sessions (up to 2 hours). To the everyday clinician, this presents a

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daunting prospect—exposure exercises would need to be sustained for a 2-hour period with the client experiencing elevated levels of anxiety. This represents a significant cognitive demand for the clinician as well as an emotional demand for the client. Waller (2009) posited that the emotions of clinicians detrimentally impact the fidelity with which cognitive-behavior therapy is implemented. In other words, therapist distress (and related expectancies) produces safety behavior that may impede treatment (e.g., minimizing the extent to which aversive stimuli are formally addressed).

The advent of the inhibitory learning model changes the conditions under which exposure-based interventions can be conceptualized and implemented. Craske et al. (2014) detailed eight strategies to enhance exposure-based tasks, which promote inhibitory learning and, when applied in general clinical settings, could be appealing to clinicians. While all involve direct contact with fear-evoking stimuli, the context of presentation and the behavior of the clinician vary from traditional protocols. To illustrate, one facet of the inhibitory learning model involves altering expectancies for the stimulus. Clinicians relying on this might present the feared stimulus in a situation contrary to how the client encounters it in the natural environment. For example, a client with panic disorder might be offered interoceptive exposure in which the therapist highlights the ordinariness of the experience, or even exaggerates its consequences (e.g., "now that you've spun around in the chair, you'll make the record books for being the first 'death-by-dizziness' case reported in the medical research literature").

This model contrasts with prior exposure conceptualizations in that gradual habituation is no longer a necessary condition for efficacious treatment. Interestingly, this was supported in a foundational study involving a sample of individuals with rat phobia. In this study, exposure was conducted with intense evocative accompanying imagery and with pleasant imagery, both developed by the therapist. Both treatment groups improved significantly compared to a no-treatment control group, demonstrating that contact with the stimuli, and not necessarily fear, is the essential ingredient for successful exposure (Foa et al., 1977).

The aim of this special series is to highlight ways in which the inhibitory learning model can be integrated in everyday clinical practice. As will be discussed in the articles that follow, the inhibitory learning model is grounded in basic science (Weisman & Rodebaugh, 2018). Adaptations derived from this model are consistent with principles of behavior change. Frank and McKay (2019) discuss a broad range of exposure techniques using inhibitory learning to treat misophonia, or selective sound sensitivity, a problem marked by avoidance of cues associated with sounds and intense aversive emotional reactions. The authors contend that the inhibitory learning approach may expand the scope of exposure treatments to conditions not previously treated with this modality.

Krompinger et al. (2019) argue that expectancy violation and occassionally reinforced extinction, two core elements of the inhibitory learning model, create ecological validity in exposure and promote increased benefit (e.g., acceptance for the 'uncontrollability' of life experiences and a more nuanced tolerance for aversive experiences). De Jong et al. (2019) discuss exposure in multiple contexts, as well as means to embed retrieval signals. These are consistent with a long-standing principle in behavior therapy overall: namely, providing treatment in a way that fosters generalization as an outcome (i.e., Stokes & Baer, 1977). Blakey and Abramowitz (2019) discuss how targeting safety cues in the context of exposure may achieve the same goal (i.e., generalization). This is a rich area of research presently in the anxiety disorders, and thus addressing safety signals in the context of inhibitory learning is essential. Hoffman and Chu (2019) employ the pragmatic truth criterion to help clinicians distinguish healthy coping from safety behaviors, and provide guidance on how therapists using an inhibitory learning approach can address these occurrences.

Applications of exposure by necessity are varied in intensity and context. The inhibitory learning approach leverages this reality instead of attempting to minimalize such variation. Knowles and Olatunji (2019) describe this process and provide a rationale for treatment from this perspective. An assumption in exposure is that clients recognize the nature of the emotional state that promotes avoidance. Thus, affect labeling can be emphasized in the inhibitory learning approach to exposure. Marks et al. (2019) provide guidance on how to integrate this specific technique. Finally, exposure therapy is widely practiced in childhood anxiety disorders, which presents unique challenges for clinicians. The inhibitory learning model presents considerable opportunities in this regard, which are highlighted by McGuire and Storch (2019; this issue).

Tolin (2019) provides a summary and broad clinical perspective on the various approaches.

Overall, bridging the gap between the research literature and clinical practice represents an important step towards increasing the availability of exposure interventions to the widest group of clients possible. These strategies have the potential to diminish clinician concerns regarding exposure procedures. Each of the following articles will focus on particular strategies derived from the inhibitory learning model, or adaptations to a novel population. The special series concludes with a comment paper (Tolin, 2019) that ties together the various themes of the preceding invited essays.

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