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PRESIDENT'S COLUMN

How Can Clinical Psychology Help Bridge the Gap in a Divided Nation?

Elizabeth A. Yeater, Ph.D.

This is my final entry in The Clinical Psychologist as President of Division 12. Dr. Annette La Greca is our incoming President, and Dr. Jon Comer will be completing his year as Past President. Make no mistake about it - the three of us will go down in the history of Division 12 as the "Pandemic President Trio!"

I am a clinical psychologist, and not a politician, and it has been several decades since I took a course in political science (I did well in the class, but shoot, it has been many years!). Thus, I do not intend to wax political in the following paragraphs. Yet, it is remarkably obvious that the past year (likely four years) and the recent election have had a psychological and emotional impact on many (myself included). As I sat transfixed in front of my computer as the election results came in, I found myself completely baffled by the fact that there was any red on the map of the United States. It was so clear to me in that moment – who would vote for a continuance of the same for the next four years! Who would vote for an administration that eschewed science when it came to COVID-19? Certainly, refusing to accept the scientific realities contributed to the deaths of many Americans!

Just as there have been several times in my life when I have been confronted with my own ethnocentrism (when I visited Tanzania, for example), I realized then that I am peculiarly out of touch with a large percentage of the United States citizenship. I make this statement descriptively, not judgmentally - it is true, I am a "card- carrying liberal" who would have voted for Bernie Sanders, one of the 2% of our population who holds a doctoral degree, and someone who associates primarily with people who adhere to the same political beliefs as I do (thus, they sound exactly like me! No dissenting opinions are offered!). I simply am not representative of the general population and am out of touch with at least a substantial portion of the United States population. I would prefer to consider myself as reasonably "in touch" - I come from a relatively poor background (I know what food stamps are and how to use them), was raised by a single mother, and had few educational resources growing up. My family, on both sides, lived for several centuries in West Virginia. My paternal grandmother had a fourth grade education, never learned how to drive, and never flew in

an airplane. I am the first in my family to obtain an advanced degree. Yet despite those roots, and all of the associations that came with them – both good and bad - I clearly do not understand a substantial portion of our population (and I am a psychologist!). I know I am having a shared experience with many of you, and am making a statement that I have heard others declare, but it feels good to say it regardless - perhaps by admitting this to ourselves, we can find a way to bridge the gap that divides our country. As psychologists, I am confident that we can find ways to accomplish this goal. We treat clients successfully who are different from us in various and sundry ways; we are trained in multicultural diversity and how to identify our biases and blind spots; and we know about errors in judgments and the problematic use of heuristics in decision making (I will return to these points in just a moment).

As someone who conducts research and values the scientific method for all that it has to offer us, I have found the attack on science to be one of the most disconcerting aspects of this year (which notably had many disconcerting aspects to it). Certainly, we can point to other times in our history in which science was denigrated and scientists persecuted, yet I did not expect to see this during my lifetime, particularly because of the clear advantages science has provided us in the modern age (e.g., personal computers, cell phones, DNA, vaccines, treatments for once terminal cancers).

I teach our graduate course in Psychological Clinical Science at the University of New Mexico. One of the issues we discuss early on in the course is pseudoscience, as well as how common it is for people to believe in things that have little or no evidence (you would think I would have reminded myself of these readings when I was shouting like a lunatic at the red on the electoral map!). For instance, a non-negligible percentage of people (who are not psychologists) believe in aliens (on Earth!), astrology, ghosts, communication with the dead, extrasensory perception, and psychic experiences. However, even within our own field, there have been dark times in which some have fallen prey to pseudoscience. The one that comes to mind most readily is the repressed memory debacle of 1990s. There too, a non-negligible group of psychologists and therapists believed that repression of sexual abuse (particularly childhood sexual abuse) was real, and that clients often presented for treatment with any number of symptoms that might "signal" that they had repressed their own abuse (e.g., depression, anxiety, eating

disorders, and the list went on and on). Of course, that "pseudoscience fever" broke once the work of Drs. Stephen Ceci and Elizabeth Loftus demonstrated that: (a) repetitive and suggestive questioning of children (and sometimes adults!) can result in confessions of experiences that never occurred (i.e., kids are good conversationalists!), and (b) we can cause a significant percentage of people to "remember" events that never happened to them (e.g., Loftus' classic hot air balloon ride experiment).

So, why might Trump supporters believe the pseudoscientific statements made about COVID-19? Why would QAnon supporters believe that Democrats are part of a Satanic pedophilic cult that is working to undermine Trump? Why did a non-negligible group of psychologists buy the book Courage to Heal in the 90s to assist their clients in uncovering their repressed memories of childhood sexual abuse? Carl Sagan (among others) has written that we fall prey to these ideas, while inconceivable, because pseudoscience is easier to conceive of than science, and because pseudoscience may function to help us avoid a reality that we do not have control over. Let's face it scientific reasoning is arduous, and pseudoscience is less of a "cognitive load," so to speak. The year 2020 has been laden with lack of control - thus, it is no mystery why pseudoscientific beliefs have multiplied and proliferated among the general population.

Yet, I have hope, and some of that hope lies in the realm of education. We know quite a bit in psychology about information processing, memory, and judgment errors and biases. We know how to train people to think more scientifically about claims that are made by others. A favorite paper of mine that I assign in my Clinical Science course is Lilienfeld's (2005) article "The 10 Commandments of Helping Students Distinguish Science from Pseudoscience in Psychology." In this brief yet compelling paper, Lilienfeld outlined 10 ways in which we can educate undergraduates on the differences between science and pseudoscience. Notably, he stated that in order to grasp scientific thinking, students need also to understanding the underpinnings of pseudoscientific beliefs (e.g., venting pent up rage is good, opposites attract, schizophrenics have two personalities, we only use 10% of our brain). That is, we need to "go there" with students, and in a way that is not pretentious, defensive, or authoritarian. Only then, might there be an opening to change thinking about pseudoscientific beliefs. Lilienfeld (2005) noted also that the media and internet contribute to the swift dissemination of pseudoscientific claims and theories

(clearly, this relationship is much stronger in 2020), and that instruction in critical thinking skills is needed and crucial for countering pseudoscientific thinking.

Lilienfeld's comments seem so relevant, even 15 years subsequent to the publication of this paper. Can we attempt to listen to those who hold beliefs that are disparate from our own? Can we assist others in considering counterarguments to a cherished belief system? I suspect we can – although the task seems immense to me as I write this – we certainly do this in our clinical work with clients who hold on to maladaptive beliefs about themselves, others, and the world. I realize the problems at hand are more complex than simply engaging in Socratic reasoning, but I also believe that psychology has a place at the table here – surely, we know quite a bit about changing human behavior.

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Transcranial Electric Stimulation and the Extinction of Fear

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Approximately 28% of the American population will meet criteria for an anxiety disorder, posttraumatic stress disorder (PTSD), or obsessivecompulsive disorder (OCD) during their lifetime (Kessler et al., 2012). Exposure-based cognitivebehavioral therapies are among the most efficacious treatments for these disorders (Adams et al., 2015; Tuerk, 2014). Unfortunately, partial response is common, and a sizeable minority of patients are treatment refractory (Hofmann & Smits, 2008; McNally, 2007). Treatments of the future may be novel somatic or psychotherapeutic strategies, but the neuroscienceguided synergistic combination of the two holds particular promise (Hofmann, 2007; Marin et al., 2014; Singewald et al., 2015).

Extinction-Based CBT

Exposure therapies are thought to depend on safety learning: namely, on extinction learning targeting anxious symptomatology (Craske et al., 2008; Scheveneels et al., 2016; Singewald et al., 2015). Fear extinction learning is typically studied in the lab by first conditioning a new fear. This is accomplished by repeatedly a neutral stimulus (CS+ [e.g., red light]) with an unconditioned stimulus (US [e.g., a shock]) until associative learning occurs. Most paradigms also include a second neutral stimulus (CS- [e.g., yellow light]) that is never paired with the US. Researchers typically infer the presence of fear conditioning from increases in fearful responding to the CS+ (e.g., autonomic arousal) relative to the CS-, though a range of other fear-related outcomes are also commonly assessed (e.g., US expectancy). Fear extinction training then involves the repeated presentation of the CS+ in the absence of the US, which promotes the acquisition of extinction learning. Extinction learning is typically weaker and less stable than the original conditioning, so the return of fear is common. The return of fear is arguably the most relevant aspect of extinction research to treatment of disordered anxiety with exposure-based CBT (Craske et al., 2008; Craske et al., 2014). Common laboratory tests of the return of fear include: spontaneous recovery following the

passage of time, context renewal when the CS+ is presented in the conditioning context, and reinstatement following re-exposure to the US (Quirk & Mueller, 2008).

The canonical fear circuit typically includes the amygdala, hippocampus, and medial prefrontal cortex (mPFC) (Moustafa et al., 2013; Sehlmeyer et



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al., 2009). The amygdala is critical for fear learning, fear expression, and early acquisition of extinction learning (Myers et al., 2011; Myers & Davis, 2002). The hippocampus is important for context-dependent fear and safety learning and behavior (Maren & Hobin, 2007; Maren & Holt, 2000). Dorsal and ventral portions of the mPFC are differentially involved in conditioning and extinction (Milad et al., 2005; Milad & Quirk, 2002; Milad et al., 2004; Sierra-Mercado et al., 2006). Activation of the dorsal mPFC, including the dorsal anterior cingulate cortex (dACC), is associated with increases in fearful responding (Herry et al., 2008; Senn et al., 2014). Conversely, activation of the ventral mPFC (vmPFC) is associated with decreases in fearful responding and the inhibition of fear during extinction acquisition and recall (Milad et al., 2005; Milad & Quirk. 2002; Sierra-Mercado et al., 2006).

Several prominent figures in the field have proposed that methods to augment activity, plasticity, or connectivity of the vmPFC may improve fear extinction and, by extension, exposure-based CBT (Craske et al., 2008; Hofmann et al., 2011; Milad & Quirk, 2012). A range of behavioral, pharmacological, and somatic techniques have been explored to accomplish these aims (Roquet & Monfils, 2018; Singewald et al., 2015), including a variety of non-invasive brain stimulation and neuromodulation technologies (Marin et al., 2014).

Transcranial Electric Stimulation (tES)

Transcranial electric stimulation, or tES, is a class of non-invasive neuromodulation techniques. Three modalities of tES dominate psychiatric and psychological research: transcranial direct current stimulation (tDCS), transcranial alternating current stimulation (tACS), and transcranial random noise stimulation (tRNS). tDCS is the most used and well understood of these modalities. Research into the effects of tDCS on fear and anxiety is relatively young, though interest has steadily grown over the past decade (Figure 1).

Standard tDCS procedures involve the placement of anode and cathode electrodes on the body with at

Table 1. Summary of published work examining the effects of tDCS on fear extinction processes. (Abend et al., 2016; Dittert et al., 2018; Ganho-Avila et al., 2019; Lipp et al., 2020; van't Wout et al., 2017; Vicario et al., 2020)

Authors	Participants	Target(s)	Settings	tDCS Timing	Results
van't Wout et al., 2016	HC (<i>n</i> = 44); Active and Sham	vmPFC	tDCS, 2mA, 10-min. Anode: AF3 Cathode: CMP	After conditioning and 5-min. prior to and during extinction training	Accelerated extinction acquisition; decreased SCR to the CS+. No effects on spontaneous recovery.
Abend et al., 2016	HC $(n = 45);$ DC, AC, and Sham	mPFC	tDCS and tACS (1Hz), 1.5 mA, 20-min. Anode: Nasion/Fpz Cathode: Inion/Oz	Active tDCS and tACS during extinction and sham during conditioning and recall	No effects of tACS or tDCS on extinction acquisition. tACS increased SCR to the CS+ and tDCS increased SCR to the CS- during spontaneous recovery.
van't Wout et al., 2017	PTSD (<i>n</i> = 28); Acquisition vs. Consolidation (both active)	vmPFC	tDCS, 2mA, 10-min. Anode: AF3 Cathode: CMP	After conditioning and during extinction training or after extinction training	tDCS during consolidation marginally reduced SCR to both CS+ and CS- during spontaneous recovery.
Dittert et al., 2019	HC (<i>n</i> = 84); Two Sham and Active groups (both polarities)	vmPFC	tDCS (1.5mA, 20-min) near F7 & F8 (both polarities)	After conditioning and before extinction	Decreased and increased SCR to the CS+ and CS- during early extinction acquisition, respectively, in both Active-tDCS groups compared to Sham-tDCS groups.
Ganho-Ávila et al., 2019	HC Women (<i>n</i> = 48); Active and Sham	R.dIPFC	tDCS (1mA, 20-min) Cathode: F4 Anode: CLD	Before extinction training	No effect on extinction acquisition. Higher SCR to the CS- & CS+ after reinstatement.
Vicario et al., 2020	HC (<i>n</i> = 32); Active and Sham	vmPFC	tDCS, 2mA, 10-min. Anode: AF3 Cathode: CMP	After conditioning and during extinction training	tDCS marginally lowered SCR to CS+ during extinction acquisition and significantly lowed SCR to the CS+ during spontaneous recovery.
Lipp et al., 2020	HC (<i>n</i> = 100); 5 groups: dIPFC and Cerebellar (both polarities) and Sham	Cerebellum & L. dIPFC	tDCS, 1mA (dIPFC, F3 & CSA), 2mA (cerebellum, R. Inion & R. BCM), 20- min.	After conditioning, 5- min. prior to and during extinction training	No effects of tDCS on extinction acquisition. Anodal tDCS of the L. dIPFC reduced SCR to the CS+ during context renewal.

Notes: All studies used bipolar tES. CMP = Contralateral Mastoid Process, CSA = Contralateral Supraorbital Area, CLD = Contralateral Deltoid, BCM = buccinator muscle, dIPFC = Dorsolateral Prefrontal Cortex, HC = Healthy Controls, PTSD = Posttraumatic Stress Disorder, SCR = Skin Conductance Response, tDCS = Transcranial Direct Current Stimulation. All effects in Results column are statistically significant unless otherwise noted (e.g., marginal effects).



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least one placed on the scalp. A direct current passed between is these electrodes, and the body, including the completes the scalp. circuit. The electrical is weak amplitude (typically between 0.5 and 2 mA), and most of the current (up to 90%) is shunted by the scalp (Liu et al., 2018). Moreover, the current that does reach the brain

only directly influences the outer most portion of the cortex, particularly cells with an adjacent orientation to the electrodes (Pelletier & Cicchetti, 2014). Accordingly, the label "tDCS" is a bit of a misnomer as the current that reaches the brain is insufficient to directly stimulate neurons. Action potentials are instead indirectly modulated. More specifically, tDCS modulates local electric field potentials of the neuronal membrane, particularly beneath the electrodes (Nitsche et al., 2008; Nitsche & Paulus, 2000, 2001).

At sufficient current densities, neural tissue under the anode electrode is depolarized whereas neural tissue under the cathode is hyperpolarized (Stagg et al., 2018). Since the resting membrane potential of primary neurons is roughly -70 millivolts (mV) and must be depolarized to roughly -55mV for action potentials to occur, anodal tDCS increases the likelihood of intrinsic

activity leading to action potentials by depolarizing neural tissue and shifting resting membrane potentials closer to -55mV. On the other hand, cathodal tDCS decreases the likelihood of intrinsic activity leading to action potentials by hyperpolarizing neural tissue and shifting neuronal resting membrane potentials beyond -70mV and further away from -55mV. Though these effects are not universally true and are sensitive to dosage parameters (e.g., current and duration (Fricke et al., 2011), the polarizing effects of tDCS can be detected within minutes and, if administered for an adequate duration, can last for upwards of an hour after stimulation (Nitsche & Paulus, 2000, 2001; Nitsche et al., 2005). This suggests that anodal and cathodal tDCS can influence LTP-like and LTD-like plasticity, respectively; an idea that has since been confirmed by a range of experimental techniques and has clear implications for learning and memory, including fear extinction and therapeutic learning in the context of exposure-based CBT (Brunoni et al., 2012; Lang et al., 2005; Miranda et al., 2009; Monte-Silva et al., 2013; Nitsche et al., 2004; Nitsche et al., 2015; Nitsche et al., 2009; Nitsche & Paulus, 2000, 2001; Nitsche et al., 2005; Stagg et al., 2018; Stagg & Nitsche, 2011; Ziemann et al., 2008).

tES and Fear Extinction

To date, seven studies have examined the effect of tES on fear extinction (Table 1). Most studies targeted the vmPFC and all utilized bipolar tDCS, though one of these also included a tACS condition. Stimulation has been administered before, during, and after extinction training. All but one of these studies (van't Wout et



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al., 2017) utilized psychiatrically healthy control samples.

Two studies have targeted the dIPFC with tDCS to augment extinction learning and recall (Ganho-Avila et al., 2019; Lipp et al., 2020). Compared to sham tDCS, which involves ramping on/off the current for a short period of time to create the sense of stimulation

but does not directly affect cortical processes, cathodal stimulation of the right dIPFC (anode over F4 [10-20 EEG] and cathode over the contralateral deltoid [CLD]) prior to extinction training, which was completed 24 hours after conditioning, was reported to have no effect on extinction acquisition, but was associated with significantly greater autonomic arousal – measured by skin conductance response (SCR) – to the CS+ and CS- during a delayed (1-3 mo.) reinstatement test (Ganho-Avila et al., 2019). This was partially consistent with the author's hypotheses as cathodal tDCS, which is inhibitory, was expected to interfere with extinction learning and consolidation. In the most recent and well-powered study of tDCS and fear extinction, Lipp and colleagues (2020) compared the effects of five

different tDCS settings on extinction acquisition and context renewal. Conditions included anodal and cathodal tDCS of the left dIPFC (F3 and contralateral supraorbital area [CSA]), anodal and cathodal tDCS of the cerebellum (right inion and right buccinator muscle), and sham tDCS. In all conditions, tDCS was administered for ten minutes. The first five minutes were administered at rest between conditioning and extinction training and the last five minutes were administered during early extinction training. None of the four active tDCS montages significantly influenced extinction acquisition when compared to sham tDCS. Neither anodal nor cathodal tDCS over the cerebellum significantly affected context renewal. Anodal tDCS of the left dIPFC did significantly reduce SCR to the CS+ during context renewal when compared to all other conditions, though the authors note that effect sizes were small (Lipp et al., 2020).

Five studies have attempted to target the vmPFC with bipolar tDCS to augment extinction learning and memory (Abend et al., 2016; Dittert et al., 2018; van't Wout et al., 2017; van't Wout et al., 2016; Vicario et al., 2020). Three of these studies aimed to remotely modulate the vmPFC by placing an anode over the left ventrolateral PFC [AF3]) and placing the cathode behind the ear on the contralateral mastoid process (CMP). This includes the first published study on tDCS and extinction, which administered tDCS for a total of ten minutes: five minutes before extinction training – which was shortly after conditioning – and during the first five minutes



Figure 1. Very little peer-reviewed research explored the effects of tDCS on fear and anxiety before 2012 but interest has steadily grown since then. Peer-reviewed publications on tDCS and fear or anxiety indexed on scopus.com



Figure 2. Electrical field modeling of bipolar (1A, left) and multifocal (1B, right) tDCS targeting the medial prefrontal cortex (mPFC) with anode placed over the frontal pole (Fpz, 10-10 EEG). Anode size, location, and amperage (1.5 mA) are identical. One return electrode is placed over the occipital lobe (Oz) for bipolar tDCS whereas five return electrodes surround the anode (AF3, F3, Fz, F4, & AF4) with multifocal tDCS. Multifocal tDCS minimizes the influence of negative polarity (cathodes) at any one site while also restricting the spatial distribution of current to a smaller area beneath the anode

of extinction training (van't Wout et al., 2016). The authors reported that, compared to sham stimulation, active anodal stimulation significantly accelerated latephase extinction learning but did not significantly affect early extinction acquisition or spontaneous recovery. In the only study of tDCS and extinction to utilize a psychiatric sample, this same group examined the effects of the same bipolar montage on the acquisition and consolidation of extinction learning in a sample of veterans with PTSD (van't Wout et al., 2017). This study did not include a sham condition and instead compared the effects of tDCS administered during extinction training with tDCS administered after extinction, though all tDCS was still administered on the same day as conditioning. No effects of tDCS were reported on extinction acquisition but veterans who received tDCS after extinction training did evince marginally reduced (p = .08) spontaneous recovery when tested after a 24hour delay, though the authors noted a medium effect size (d = .38). A separate group of investigators found that, when administered during extinction training with a sample of psychiatrically healthy controls, the same tDCS procedures marginally improved extinction acquisition (p = .06) and significantly reduced

Transcranial Electric Stimulation and Fear Extinction (continued)

spontaneous recovery when compared to sham tDCS (Vicario et al., 2020). One study aimed to remotely modulate the vmPFC by placing tDCS electrodes over the left and right inferior frontal gyri (F7 and F8) (Dittert et al., 2018). Four experimental groups were included in this study: two sham tDCS groups and two active tDCS groups. Electrode montages were the same for all groups, but the polarities were inverted for the two active groups (anode F7/cathode F8 vs. cathode F7/anode F8). Offline tDCS was administered in the two active groups for 20-minutes after conditioning and before extinction training. Results suggested that, regardless of polarity, active tDCS significantly improved extinction acquisition, particularly during the early phase of training. Not only did tDCS reduce SCR to the CS+ during extinction training, but it also increased SCR to the CS-, which the authors interpreted as a sign of enhanced stimulus discrimination (Dittert et al., 2018).

One study has targeted the vmPFC with tDCS to augment fear extinction while also including a significant (24-hrs) time interval between the conditioning session and the tDCS and extinction session (Abend et al., 2016). Participants were randomized to one of three experimental conditions: sham tDCS, active tDCS, or active tACS. The electrode montage was the same for all conditions - anode over nasion/Fpz and cathode over inion/Oz - and stimulation was administered for 20-minutes in both active conditions. The timing of tES relative to extinction training is not specified in the methods but the discussion suggests that tES was administered during extinction training. Nonetheless, the authors hypothesized that tDCS would improve extinction learning and that tACS would interfere with the reconsolidation of the fear memory. Compared to sham tES, no significant effects tDCS or tACS on extinction acquisition were found. However, the authors did find that both tDCS and tACS adversely influenced spontaneous recovery when tested 24-hours after tES and extinction training. During spontaneous recovery testing, SCR to the CS- was elevated and comparable to the CS+ in the tDCS group and SCR to the CS+ was elevated relative to the CS- in the tACS group. Moreover, self-reported fear ratings of the CS+ were significantly higher than CS- ratings in the tACS and tDCS groups. These findings suggest that tACS and tDCS interfered with the consolidation of extinction learning and may have promoted the overgeneralization of fear or interfered with stimulus discrimination (Abend et al., 2016).

Summary and Future Directions

Taken as a whole, remote modulation of the vmPFC with tDCS appears to hold the most promise as an extinction augmentation strategy. Three studies reported positive effects of remote vmPFC stimulation on extinction acquisition, though significance was

marginal for one study (Vicario et al., 2020) and tDCS timing varied across all three studies (Dittert et al., 2018; van't Wout et al., 2016; Vicario et al., 2020). Two studies reported that anodal tDCS remotely targeting the vmPFC prevented spontaneous recover (van't Wout et al., 2017; Vicario et al., 2020). Stimulation after extinction training only had a marginal effect (van't Wout et al., 2017) whereas stimulation during extinction training significantly reduced spontaneously recovery (Vicario et al., 2020).

All but two of the studies on tDCS and extinction (Abend et al., 2016; Ganho-Avila et al., 2019) began extinction training and tDCS shortly after fear conditioning. This also means that tDCS was administered during the consolidation of the original fear learning. While no studies have shown that tDCS can reduce consolidation of fear learning, there is evidence that anodal stimulation of the right dIPFC during reconsolidation enhanced fearful arousal when tested 24-hours later (Mungee et al., 2014). It is possible that tDCS administered during the consolidation of original fear learning could have reduced arousal to the CS+ during extinction training or interfered with the consolidation of fear learning. Null extinction findings may also be due in part to the effects of tDCS on the consolidation of the original fear conditioning.

Completion of fear conditioning and extinction training in close temporal proximity also dramatically influences the strength and mechanisms of extinction learning (Maren, 2014). The vmPFC plays a limited role in extinction learning when said learning is trained shortly after fear conditioning (Maren, 2014; Myers et al., 2006). Conversely, long-term potentiation (LTP)-like plasticity in the vmPFC is important to extinction learning when said learning is trained after the original conditioning has been consolidated into long-term memory (Burgos-Robles et al., 2007; Herry & Garcia, 2002; Myers et al., 2006; Santini et al., 2004; Santini et al., 2001). Future studies should consider the impacts of timing of extinction training and tDCS relative to one another and to fear conditioning – on target mechanisms and on translational implications. Extinction methods that include adequate delay between conditioning and extinction are likely to yield different results and have clearer translational relevance to exposure-based CBT than methods that initiate extinction training shortly after conditioning.

The two studies that that did separate tES and extinction training from conditioning both reported null effects on extinction acquisition and adverse effects on the return of fear (Abend et al., 2016; Ganho-Avila et al., 2019). It is worth nothing that cathodal tDCS of the right dIPFC was hypothesized to interfere with extinction processes (Ganho-Avila et al., 2019). Contrary to the author's hypotheses, anodal tDCS of the mPFC had no effect on extinction learning and may have enhanced

fear generalization (Abend et al., 2016). The authors of this paper provided several thoughtful explanations for their findings. Depending on stimulation timing relative CS+ presentation, animal research has shown that direct current stimulation can disrupt cellular or network processes implicated in extinction learning (Abend et al., 2016; Milad et al., 2004). As such, tDCS administered during extinction training may similarly interfere with extinction processes during said training. They also note that their electrode placement and procedures likely influenced regions other than the vmPFC, including the dorsal mPFC, which can drive fearful arousal (Abend et al., 2016; Laurent & Westbrook, 2009). As can be seen in Figure 2A, electrical fields generated by bipolar tDCS with anode over the frontal pole and cathode over the occipital lobe - an approximation of the methods used by (Abend et al., 2016) and colleagues (2016) - are spread throughout the brain, with positive voltage passing over the entire PFC and negative voltage passing over the visual cortices and extending into the parietal lobes. Future research should consider using the newer and more spatially precise technique of multifocal or high definition tDCS (Ruffini et al., 2017; Ruffini et al., 2014).

Multifocal tDCS uses a single stimulation electrode and multiple return electrodes, typically in a circumferential array surrounding the stimulation electrode. This focuses stimulation, which can be anodal or cathodal, to a smaller surface area while also mitigating the influence of the return current by dividing it across all return electrodes. Put simply, multifocal tDCS can allow investigators to target a single and smaller cortical area, whereas bipolar tDCS influences one or, in most circumstances, two relatively large cortical areas. See Figure 2 for a comparison of electrical field modelling between bipolar (2A) and multifocal (2B) tDCS targeting the mPFC.

All published fear extinction studies have used bipolar electrode montages (Table 1). The lead author (T.A.) recently completed a series of studies examining the effects of multifocal tDCS targeting the mPFC on functional brain connectivity, fear extinction learning and memory, and exposure-based therapeutic learning (Adams et al., 2019; Adams et al., 2017). Results from these have yet to be peer-reviewed and should be interpreted cautiously but, to our knowledge, are the only data on the effects of multifocal tDCS on extinction processes. We used a multifocal montage with a small (1cm2) anode over the frontal pole (Fpz) that was surrounded by five return (cathodal) electrodes (Figure 2B). Computational modeling of electrical fields suggests that the positive current generated by this montage should be focused on ventral portions of the mPFC while negative current will be small enough to have a limited effect on surrounding tissue, including the dorsal mPFC. Results suggest that offline (before imaging, extinction training, or exposure) administration

of multifocal frontopolar tDCS may: 1) modulate mPFC functional connectivity, 2) augment extinction learning and consolidation, and 3) accelerate within-session learning (i.e., trial-by-trial distress reductions) during individualized in vivo exposure with OCD patients. Though promising, these preliminary findings still require peer-review and replication before any concrete interpretations can be made.

Anodal tDCS of the left dIPFC is the only procedure that has been shown to prevent context renewal (Lipp et al., 2020), though this was the only study that tested for it. Nonetheless, the effects of anodal tDCS of the left dIPFC on extinction learning and memory should be explored further. Investigators may consider using modified extinction procedures that target explicit learning or emotional regulation strategies given the role of the left dIPFC on explicit regulation of fear during extinction training (Delgado et al., 2008). Future research might consider multifocal tDCS of the left dIPFC given research showing that multifocal tDCS increases dIPFC activation and functional connectivity, including the hippocampus, more than bipolar tDCS (Kuo et al., 2013; Ruffini et al., 2017). Anodal tDCS of the left dIPFC is also an attractive strategy given high rates of major depressive disorder among those diagnosed with anxiety and related disorders (Kessler et al., 2005; Kessler et al., 2012) and the demostrated anti-depressive effects of anodal tDCS over the left dIPFC (Berlim et al., 2013).

The ability to demonstrate biological target engagement of tDCS is important for intervention development and should be included when feasible (Insel, 2015; Insel et al., 2013). This is made even more important when considering recent controversies related to the strength, precision, and placebo-response of tDCS (Liu et al., 2018; Schambra et al., 2014). No published studies on tDCS and extinction have included imaging in their protocols and so it is not known if the tDCS methods used had their expected effects on relevant biological targets (e.g., changes to regional activation or functional connectivity). Several research groups are currently completing such studies, including one by our group that is examining the effects of multifocal tDCS on functional activation and connectivity at rest and during extinction learning (NCT03907917).

Investigators should also begin exploring the effects of tDCS on learning, memory, and symptom reductions in the context of exposure-based CBT. Only one published study has reported the effects of tDCS combined with therapeutic exposure (van 't Wout-Frank et al., 2019). Motivated by their successful fear extinction studies with psychiatrically healthy volunteers and PTSD patients, van't Wout and colleagues (2019) completed a single-blind pilot trial to characterize the effects of bipolar tDCS combined with virtual reality (VR) exposure therapy with a small sample (n = 12) of U.S. military veterans with PTSD. All veterans received six

sessions of warzone-related VR exposure that was separated into three 8-min. trials. Half were randomized to receive 25 minutes of active tDCS (2mA, anode over AF3 and cathode over PO8 [right occipital lobe] during VR (online) or 25 minutes of sham tDCS during VR. While there were no significant group differences in PTSD symptom severity by the end of the six treatment sessions, the veterans who received active-tDCS with VR reported less severe PTSD symptoms after one month relative to those who received sham-tDCS with VR (van 't Wout-Frank et al., 2019). Compared to sham-tDCS, veterans who received anodal tDCS (2mA) simultaneously with six sessions of VR exposure evinced accelerated between-trial therapeutic learning. Reductions in physiological arousal during VR was greater for the veterans who received active tDCS across the six exposure sessions. This is consistent with our findings with OCD patients completing in vivo exposure after 20 minutes of frontopolar tDCS (Adams et al., 2017).

Conclusions

Exposure-based CBT for disordered anxiety is among the most efficacious treatments in all of psychiatry and psychology but these treatments have important limitations. Advances in cognitive neuroscience provide clear targets and a growing armamentarium of technologies for improving the efficacy and efficiency of exposure-based CBT. Though preliminary and inconsistent across studies, evidence thus far suggests that prefrontal tDCS holds promise as a tool for augmenting fear extinction and, by extension exposure-based CBT.

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SCP Member Spotlight on Dr. Matthew Southward

Dr. Matthew Southward is a postdoctoral fellow at University of Kentucky at the Treatment Innovation for Psychological Services (TIPS) Lab. Dr. Southward specializes in translational research examining emotion regulation flexibility, mechanisms of CBT, and ways to optimize treatment outcomes. He has been involved with Division 12 since 2017 and has served as both a Student Representative and Social Media Coordinator. Read below to learn more about Dr. Southward's contributions to the division and to the field!

Please provide an overview of your work

With my research program, l'm focused on understanding the active mechanisms of cognitivebehavioral treatments to make these treatments more efficient, effective, and personalized. I'm particularly interested in the role of emotion regulation flexibility namely whether it is better for people to learn and implement a wide range of strategies to regulate their emotions or really focus on honing one or two go-to strategies to use in a wide range of situations. I take a translational approach to these questions by analyzing the emotion regulation profiles of healthy samples to compare to clinical and treatment-seeking samples. I hope to use this information to adapt the delivery of evidence-based treatments so that people only get the most effective components or the components that are most effective for them.

Where did you complete your training?

I graduated from Ohio State University and completed my internship at Duke University Medical Center. At both institutions, I studied depression and borderline personality disorder (BPD) as well as treatments for these disorders. I received excellent training as a study therapist and researcher on clinical trials of cognitive therapy for depression (CT) with Dr. Dan Strunk and dialectical behavior therapy (DBT) with Dr. Jen Cheavens. I sought out Duke for internship to continue to hone my DBT expertise with Dr. Andrada Neacsiu and to expand my understanding of the real-world economic factors that shape treatment delivery with Dr. Zach Rosenthal.

What is your current position/occupation?

I'm currently a postdoc at the University of Kentucky working with Dr. Shannon Sauer-Zavala on the best methods to personalize treatments using the Unified Protocol (UP). Because of its modular design and transdiagnostic applicability, the UP is an ideal treatment to study which emotion regulation skills work for whom. We have just finished collecting data for a treatment

trial comparing UP treatment delivery based on personal strengths, personal deficits, and module standard ordering and are excited to dig into the results! As a postdoc, I have the distinct pleasure of analyzing rich data like these in addition to seeing patients and supervising graduate students on clinical trials of evidence-based treatments.



Matthew Southward, Ph.D.

Can you describe the ways that your career has taken shape over time? How did you get to where you are today?

Relationships and cold emails! In college, I worked at the University of Chicago Medical Center with Dr. Eunice Chen on a study comparing DBT to CBT for bulimia and binge eating disorder. This was my first exposure to DBT, and I thought it was such a useful framework in which to study mechanisms of treatment. The DBT research world is not that big, so when I reviewed my list of potential graduate schools with Dr. Chen, she gave me personal insight into each advisor. The fit with Dr. Cheavens and her grad students was perfect and allowed me to explore all facets of my interests in DBT and emotion regulation mechanisms. A few months before I applied to internship, I sent a cold email to Dr. Sauer-Zavala to express my interest in a postdoc position with her. We met during a conference and kept in touch through internship, so it was a natural fit to work together on my postdoc.

How long have you been a member of SCP?

I've been a member of SCP since 2017 during which time I've served as the Social Media Coordinator for the Division (shameless plug for our Facebook or Twitter @SCPDiv12) and as the Student Representative to the Publications Committee (2017-2019).

Please describe any roles you have with APA or other national, state, or local organizations.

I have also been a member of ABCT's Twitter team (@ ABCTNOW) since 2017, a member of Duke University Medical Center's Multicultural Team (2018-2019), a Student Representative for Ohio State's clinical area (2017-2018), and the co-chair of Ohio State's Clinical Area Student & Alumni Network (2016-2018).

What do you see as an important direction for the field of Psychology?

Expanding access to high quality psychotherapy treatments and/or components. The disparity between the need for care and availability of evidence-based treatments makes expanding access, for me, an essential goal of the field. To expand access, we need researchers with a range of expertise, from fundamental aspects of measurement, research design, and open science; to understanding which treatment components offer the greatest reach; to how we disseminate these components (especially to historically underserved communities); and large-scale health and economic policies. There is absolutely a role for everyone!

What's something nobody would know about you?

The Southward Community Park in Grimsby, Ontario, Canada is named after my extended family who gave their farmland to have the park built.

What are your hobbies?

I'm an avid runner and a huge soccer fan, both of Arsenal in the English Premier League and the Columbus Crew in MLS. One of my pandemic goals has also been to support my favorite bookstore (Chicago's Seminary Co-op) and work my way through some of the lesserknown Russian novels I learned about in college.

What led to your interest in clinical psychology and/or area of interest?

I've always been fascinated to learn the principles behind how people change. These principles are clearly expressed in psychotherapy, in which you can immediately test, in practice, theoretical ideas and experimental principles you might discuss with colleagues.



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Diversity Spotlight: Dr. Wendy Dragon

Profile by Michelle S. Schwartz

The current spotlight is on Dr. Wendy Dragon for her work in promoting the health and well-being of individuals in larger bodies. Dr. Dragon received her BA in Psychology and Criminal Justice in 2003 followed by her MA in Clinical Psychology in 2008 from Kent State University. She completed her doctoral degree (PhD) in Clinical Psychology from Kent State University in 2012. Dr. Dragon has served as a core faculty member of Wright State University's PsyD program in Dayton, Ohio since 2013. She is an exemplary practitioner, teacher, mentor, and citizen psychologist, dedicating her expertise and energy around topics of equity, inclusion, and affirming clinical approaches for individuals in larger bodies. The spotlight serves to highlight Dr. Dragon's scholarship and clinical work with individuals in larger bodies and illuminate the need to address issues related to sizeism as clinical psychologists.

Dr. Dragon's scholarship has focused on the impact of fatphobia on reproduction rights, incorporating larger body acceptance into doctoral training and practice, addressing weight stigma in clinical work, and using social media to address sizeism. She has presented her work at national conferences and professional workshops to increase psychologists' competency in conducting research and clinical work with individuals in larger bodies. Additionally, she has mentored students in conducting research on topics related to individuals in larger bodies to increase focus on this population and add to the psychological literature. She has supervised dissertation projects on stigmatizing measurement in size acceptance-based treatment approaches, developing a fat acceptance therapy, and the impact of SARS-CoV-2 on physicians' stigmatization of clients in larger bodies.

Dr. Dragon's clinical work in this area focuses on increasing psychological wellbeing, balanced nutrition, and joyful movement in an environment of respectful care for clients in larger bodies. She believes that respect, not stigma, leads to better quality of life and improved health for all clients. Clinically, she focuses on divorcing views of physical and mental wellbeing from ideas about weight as well as healing clients' relationships with their bodies. She also assists clients in learning how to care for their marginalized bodies.

Dr. Dragon participates in groups and trainings to educate current and future psychologists on how to engage in affirmative clinical work with individuals in larger bodies. I interviewed Dr. Dragon and below is what she had to say about important considerations when working with individuals in larger bodies.

What are considerations that psychologists should have in working with clients in larger bodies?

I would like to ask my colleagues to become aware of their own biases when sitting with a person in a larger body, and to consider whether they are aware of the barriers that person may have experienced in his/her/their lives. For example, our larger clients may have had to experience microaggressions just to attend a therapy appointment. To be aware that that same person may be holding their breath in hopes that they will not be invalidated by their current mental health provider. And that they are likely to have heard stigmatizing comments from their physical and mental health providers. I would invite them to learn about the impact that weight stigma can have on people in larger bodies outside of the clinical space, as well. For example, we know that weight stigma can intersect with other demographic variables in a way that impacts body image, self-esteem, and even guality of relationships in various ways. We also know that sizeism can decrease access to everything from education to the quality of medical and mental health care. My hope is that if we increase our awareness of societal sizeism, we will be better able to help clients address their own negative views about themselves and their bodies that result from living in a society that stigmatizes them.

How can we as psychologists address our own biases about individuals in larger bodies?

I think a good place to start is to acknowledge that we probably have some biases. I firmly believe that the constant exposure to the thin ideal and diet culture has a significant impact on the ways in which we think about the people who are in bigger bodies and even how we see ourselves. Our society is full of images, stories, and ideas about how it is good to be thin and that being thin is an expression of your moral fortitude. As an example, every before and after dieting picture represents a microcosm of ways in which society rewards and values people in thinner bodies at the expense of those in larger ones. Ads about diets, surgeries, medications, OTC drugs and weight loss centers make it sound like every larger person has a thinner person 'trapped inside' them, even though we know that the most common outcome of a diet is that the weight will be regained. Celebrities are held up as beautiful when they are thin and are the subject of tabloid stories when they gain weight. This creates a society where many communal spaces become places to discuss the newest way in which we are supposed to 'control our weight.' Once we come to terms with the idea that we probably have absorbed those messages, then I think we can start to examine our biases about weight. There are a host of things we can do to start unpacking our biases. Some ways we can start are to seek out a training or workshop on size bias, read about the experiences of people in larger bodies, start adjusting our social media diet to be more size diverse, and listen to people with a broader perspective about weight. But I think it takes time and persistence to address our biases about weight, as every day we hear sizeist messages repeated in new ways.

What should psychologists do if they want to make their practice 'more size friendly'?

I think it starts at the curb. Psychologists can consider issues around mobility and ease of access. I would encourage my colleagues to pay attention when they are walking in from their car in the morning; count the number of steps to their office, note the presence or absence of handrails and stairs, take note of the width of doors and walkways. They can go into the bathroom that their clients use. Is it large enough for a wider person? If they are renting a space, they may be able to negotiate with their landlord to fix these problems, which all create access issues for those with disabilities, as well. Inside their offices, they can consider the placement of the furniture. Is there room for a larger person to walk through easily? Are the chairs armless and sturdy (and do they look sturdy, as well)? Is the seating firm and high enough for clients to rise with ease? Also look around the office and waiting space. Are they unintentionally signaling healthist and sizeist attitudes? Literature, gym materials, and art can all indicate a weight centric attitude. They should probably look over their website, as well. Does it look inclusive (not just size, but other forms of diversity)? I would also suggest thinking about language: talk with clients about the words that they use to describe their bodies and avoid terms like overweight and obese that are pathologizing.

How can we incorporate body acceptance into our clinical work when clients' goals focus on losing weight?

First of all, I think we need to learn how to practice body acceptance principles with ourselves. We need to show that we respect our clients' bodies, regardless of size. Additionally, we need to be honest about what we can and cannot provide. I am upfront with my clients that I will not work on weight management with them and offer to refer them out if that is what they want. But I also ask my clients about why they want to lose weight. I have found that the desire for weight loss is often rooted in the idea that losing weight is the only way to achieve something else. For example, many clients are looking to improve their body image, their self-esteem, or their relationships; but they have bought into the societal message that they cannot be happy unless they are thin. Once we find out what they actually want, it becomes easy to focus on working toward that value

from a weight normative frame. Part of that frame is getting them to explore their relationships with their bodies. Do they listen to their bodies? For example, I have had many clients who routinely ignore their bodies' needs for sleep, or water, or even for toileting. Is their relationship with food and movement joyous or punitive? Do they have expectations of their bodies that are realistic? Working on their relationships with their bodies often fosters a sense of bodily appreciation and acceptance that helps with the core clinical issues as well.

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Section 8: Association of Psychologists in Academic Medical Centers

Submission by Adriana Lequerica Ziemba, PsyD. ("Dr. Z")

Health Psychologist in Primary Care & Licensed

Psychologist, Florida

Over the past year, I have work inside a Palm Beach county (FL) primary care clinic system with both a clinical and teaching aim. I find that clinical work is teaching work, in particular, when implementing changes to move clinic services from co-located mental health model in primary care to integrated primary care. I am generally at the family residency clinic, which is in the rural portion of the county, as the generalist behavioral health consultant (BHC). Additionally, I am also the behavioral health integration manager in-charge of developing and implementing training to further the Primary Care Behavioral Health model to existing clinical and non-clinical staff, and to all new employees of the clinic. While broad primary care clinic services have been shifting towards integrated care, expanding access to behavioral health, a more urban/suburban clinic location has been in a unique position for some time: the tertiary care of persons with alcohol and opioid use disorders.

The clinics are driven by the mission of increasing access to quality care, and providing much needed lowcost primary care to underserved populations, using population care models. Identifying persons that could benefit from medication-assisted treatment for substance use disorders is also within the scope of the mission.

At any time during the workday, a substance use screener (given by a medical assistant as part of a medical visit) can trigger a sequence of events in which primary care meets tertiary care, leading to a warm hand off that can save a life. Primary care physicians review the questionnaire with the patient and provide brief intervention, using SBIRT model. A behavioral health consultant nearly always provides a same-day brief diagnostic assessment, helping to determine if the patient is appropriate for the in-house medication assisted treatment program. If a person is ready, within minutes they are scheduled for an adult outpatient treatment program intake, sometimes on the same day, and almost always within 3 to 5 days.

Nestled within the primary care environment, there is a tertiary treatment program to address opioid and alcohol use disorders, which is robust with licensed addiction counselors, care coordinators, a board-certified addiction psychiatrist, a psychiatric physician assistant, and its own primary care providers with training in substance use disorders and are 'waivered'. The buprenorphine waiver program through the Substance Abuse and Mental Health Service Administration allows gualified medical prescribers to prescribe needed medication to address the opioid epidemic (1). The Adult Outpatient Treatment Program (AOTP), is driven by evidenced based harm reduction strategies, a multidisciplinary team approach, and medications to assist a patient as needed (buprenorphine, naltrexone, vivitrol). The model of the program is Office Based, with a more recent addition of an Emergency Department based model, which allows for people to get an immediate intake upon discharge post detox and stabilization from a local emergency department (2). Patients derive consistent quality care and follow up, allowing for substance use treatment, behavioral health interventions, social supports, and primary care interventions to occur within the same clinic simultaneously.

More broadly, and outside of the formal AOTP, clinical staff in the primary care clinic setting have received basic training in medication assisted treatment for alcohol use disorders. Medical providers are now supporting patients who may not require a full outpatient program and want to decrease or stop alcohol use. Integrated primary care allows for both the medication intervention, and brief behavioral interventions within the primary care setting.

Education is at the forefront of AOTP. Frequent educational events, rotation of family medicine residents, and various nursing staff allow for many providers to get experience in helping folks who struggle with alcohol and opioid use disorders. Behavioral health clinicians help educate all staff on harm reduction models and trauma informed care to create a welcoming environment from registration to check-out. Lives can be saved through global screening in a no-stigma environment when it comes to treating substance use disorders, use of the harm reduction approach, and quick response to patients in need.

For my part, as a clinician who on occasion assists as an addiction counselor, I teach to increase the knowledge base of behavioral medicine among existing and new addiction counselors, with the goal of addressing health topics outside of substance use, (i.e., chronic health disease co-management). Addiction counselors at AOTP recently set their sights on improving the completion of Pap tests among their female and male transgender patients, by checking quality measures in the electronic medical record, and bringing up the topic with the patient and the primary care provider. I also teach basic BHC strategies and how to address a warm hand off to the AOTP medical and behavioral health providers who spend most of their time inside AOTP to continue the mission of primary care behavioral health integration across all service lines of the clinic.

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become-buprenorphine-waivered-practitioner

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What is EBP Again? A Brief Review of "Evidence Based Practice" and Suggestions for Selling it to the Public

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The term evidence-based practice (EBP) has gained widespread use across healthcare settings in the last two decades. Despite broad agreement on its central tenets (i.e., integrating research evidence with clinical expertise and patient characteristics; American Psychological Association [APA], 2005), there has been disagreement and discussion about the standards by which EBP is determined and the way the term is used in clinical practice. In this paper, we provide a brief historical context for the move from the term "empirically supported treatments" (e.g., Chambless & Hollon, 1998) to "evidencebased practice" and elaborate on the presence and impact of the problems caused by inconsistent definitions for providers and consumers. In particular, we focus on two important problems that we must address. First, without consistent, agreed-upon definition and criteria, the term "evidence-based practice" can be broadly interpreted and used without accountability. Second, consumers receive conflicting messages about EBPs and subsequently cannot use this label to effectively inform their treatmentseeking efforts. We then provide suggestions and recommendations for ways clinical psychologists can improve the clarity with which they explain and publicize EBPs in their own practices, settings, and systems.

Brief History of Evidence-based Practice

The integration of research evidence into clinical practice has been а longstanding tradition in the field of clinical psychology. As early as 1947, the notion that doctoral students should be trained as both researchers and clinicians became a part of the APA (Shakow et al., policy 1947). Largely mirroring the approach in medicine to inform clinical practice with research to improve patient outcomes (Sox & Woolf, 1993; Woolf & Atkins, 2001), several initiatives in clinical



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psychology have taken place over the last two decades, shaping the field's understanding of, and approach to, integrating research evidence into clinical practice.

Empirically Supported Treatments

In 1993, Division 12 (Society of Clinical Psychology) of the APA first established the Task Force on the Promotion and Dissemination of Psychological Procedures to identify and promote empirically supported psychological treatments (ESTs; previously labeled "empirically validated treatments"), defined by Chambless and colleagues (1998) as "clearly specified psychological treatments shown to be efficacious in controlled research with a delineated population" (p. 7). Over the next decade, the APA released guidelines to evaluate research evidence and integrate it into clinical work and proposed initial criteria for identifying ESTs for particular disorders. To be classified as empirically-supported, interventions must have (a) been shown to be statistically superior to a notreatment control group, an alternative treatment group, or a placebo, or shown to be equivalent to an already established efficacious treatment; (b) been studied in at least two randomized controlled trials (RCTs) or a series of single-case experiments; (c) been designed to treat a specific disorder or specified set of problems; and (d) replicated findings in at least two independent research settings (Chambless & Hollon, 1998). By applying these criteria to psychological interventions, APA Division 12 identified an evolving list of treatments for which empirical support was considered to be well established.

While the EST movement offered a concise approach to determining which therapeutic interventions were supported by research evidence, several criticisms quickly emerged. First, the reliance on RCTs and single-case studies as the gold-standards raised concerns regarding the generalizability of findings from these studies and the

SUBMITTED ARTICLE: What is Evidence Based Practice (continued)

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undervaluation of other research methodologies that could contribute to the evidence-base for a particular intervention (Duncan & Reese, 2012). Second, criticisms about the over-representation of cognitivebehavioral therapies and brief/manualized treatments in the ESTs—stemming from a reliance on symptom outcome data to determine intervention efficacy have been raised (e.g., Messer, 2004). Third, critics have argued the criteria used to select treatments may rely too heavily on specific treatment effects and overlook other relevant therapeutic variables.

several limitations to the widespread Finally, dissemination and implementation of ESTs into clinical practice and training programs were underscored. For example, one survey of directors of clinical and internship training highlighted a gap between individuals' knowledge of ESTs and knowledge of how to train students in the delivery of ESTs (Woody et al., 2005). Several barriers to integrating ESTs into practice have been proposed, including: (a) concern that the promotion of ESTs could be used to restrict access to non-EST treatments that are available to the public (APA, 2005; Duncan & Reese, 2012), (b) lack of availability of clinical supervisors to train clinicians in ESTs (Weissman et al., 2006; Woody et al., 2005), and (c) concern that the narrow scope of ESTs might not be easily applied to complex clinical presentations (Woody et al., 2005).



Qingqing Yin, MS.

achieved consensus on a definition of evidence-based practice in psychology (EBPP; hereafter, EBP) that closely parallels the definition of evidence-based practice in medicine (Institute of Medicine, 2001; Sackett et al., 2000). As illustrated by a "three-legged stool" metaphor (Spring, 2007), the definition of EBP integrates three core components: (a) research evidence, (b) clinical expertise, and (c) patient characteristics (APA, 2006).

Despite a continued commitment to science-practice integration, EBP is distinguished from EST in a number of ways. Fundamentally, EBP is a more comprehensive concept that encompasses clinical activities such as assessment, case formulation, and treatment, whereas ESTs specific are treatment approaches that have been supported by efficacy research (APA, 2006). Furthermore, in contrast to ESTs' reliance on RCTs. EBP entails a broad view of research evidence that attends to various types of research evidence (e.g., efficacy, effectiveness, process of change,



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cost-effectiveness, etiology, epidemiology) derived from multiple methods that may contribute to effective practice. Finally, considerations of clinician and patient factors in treatment decision making distinguishes EBP from ESTs. Taken together, EBP describes a process of clinical decisionmaking that includes, but cannot be reduced to, ESTs.

Misunderstandings and misrepresentations of EBP are not uncommon, of which some can be traced to the confusion between EBP and EST (Levant & Hasan, 2008; Lilienfeld et al., 2013; Spring & Hitchcock, 2010). In published works, the term "EBP" has sometimes been used as a synonym of ESTs, or to generally describe research-informed psychological practice without reference to the APA definition (e.g., Aarons & Sawitzky, 2006; Gallo & Barlow, 2012; Hays et al., 2002). In a survey of 1195 clinical psychology graduate students (Luebbe et al., 2007), approximately 15% of responders only referenced ESTs when asked to define EBP, and only around 7% and 13% of responders referenced clinical expertise and patient characteristics, respectively, in their descriptions of EBP. Based on an informal evaluation of course syllabi collected via professional listservs in which graduate training in behavioral interventions was discussed, Spring (2007) found a lack of awareness of the differences between EBP and ESTs. Another survey study with clinical and other health professionals found that negative attitudes about EBP was the most frequently cited barrier to its implementation; and the reported negative attitudes often reflected a misconception that EBP is equivalent to using ESTs (Pagoto et al., 2007). Lilienfeld et al. (2013) identified other common mischaracterizations of EBP in the clinical literature, including that "EBP stifles innovativeness in the development of new treatments," "EBP requires a 'cookie-cutter,' 'one-size-fits-all' approach to treatment," and "EBP is unnecessary because all treatments are equally efficacious" (p.892-893).

Although many agree that, relative to ESTs, the EBP framework better captures what research can offer

SUBMITTED ARTICLE: What is Evidence Based Practice (continued)

to clinicians, the complexities of human experiences, and the interpersonal nature of clinical service delivery (Ducan & Reese, 2012; Wampold et al., 2007), the definition of EBP itself has also generated concerns, particularly around the operationalization of "evidence." For instance, Stuart and Lilienfeld (2007) argued that the 2005 APA Task Force did not define "evidence" sufficiently, did not explicitly differentiate between evidence- and non-evidence based psychological practice, or adequately address the problem of



iatrogenic treatments. Others have argued practical explanations should be provided for psychologists to determine the best evidence and to develop a synthesis guides that the practice appropriately (Hunsley, 2007). similar These and concerns may reflect ambiguity some

Shireen Rizvi, Ph.D.

in the interpretation of EBP that poses challenges for implementation and utilization by providers and consumers.

Problems Resulting from EBP Misunderstanding

Given the history that led to and has become intertwined with the term "evidence-based practice" in psychology, the lingering misunderstandings and inconsistent use of the term creates problems for both providers and consumers, including those discussed above. Here, we discuss two additional problems: 1) overly broad interpretation of EBP and use by providers and systems without accountability and 2) conflicting messages provided to consumers that may impede their treatment-seeking efforts.

The first problem has wide-reaching effects on our healthcare system. It allows providers and healthcare systems to say they provide "evidence-based practice" without having to justify that they are, in fact, operating within the spirit of the term. Although in the previous decade, providers were reticent to use EBP owing to assumptions about its limited applicability and rigidity that seemed incongruous with their clinical approach (Lilienfeld et al., 2013), the term is now ubiquitous. One needs only a quick search of mental health provider databasestonoticethefrequentuseoftheterm"evidencebased" to describe available services. Even providers who do not use the term "evidence-based practice" to describe their services do not instead advertise that they provide "non-evidence-based practice," and yet we know that not everyone provides treatment that has research support. Therefore, the term becomes essentially meaningless. There are likely multiple

reasons for the non-specific or inaccurate use of "EBP" to describe one's services, including misunderstanding or limited information about the designation. The consequence of this broad interpretation is that, rather than helping consumers identify effective treatments that fit their needs and goals, EBP becomes a vague descriptor with no associated accountability.

The second problem, consumer confusion, affects our ability to reach and provide services to those who need them. There is limited evaluation of the extent to which the public understands what this term means and uses it to inform their personal treatment decisions. For example, we surveyed 670 participants about their perceptions of what qualities make up "evidence-based practice" by selecting true/false options for a series of statements (for a description of the sample and study methods, see Ward-Ciesielski & Rizvi, 2019). Encouragingly, most participants agreed that "Keeping up to date on new research and incorporating it into treatment" and "Providing treatments that have been shown to work for particular psychological problems" are characteristics of EBP. However, participants were almost evenly split on whether "Using clinical intuition to guide decisions about treatment," "Using approaches that the general public knows about," or "Providing medication as part of treatment for psychological problems" were relevant. The complete list of true/false statements and proportion of participant responses are provided in Table 1. These results provide some evidence that the general public still does not know what EBP means or why it may be important in their search for psychological treatment.

Summary and Recommendations

As clinical psychologists, we need to do a better job of communicating with the public about what evidence-based practice is and what the benefits are. Recent work suggests that most people report seeking information about mental health and mental health treatment online (e.g., Aref-Adib et al., 2016; Pretorius et al., 2019; Ward-Ciesielski & Rizvi, 2019), and a number of professional organizations have begun to provide online resources to describe and list empirically-supported treatments and evidence-based practice. For example, APA Division 12 maintains a list of Research-Supported Psychological Treatments (https://div12.org/psychological-treatments/); and the Association for Behavioral and Cognitive Therapies' provides information about EBP on their Psychological Treatments page (https://www.abct.org/Help/index.cfm ?m=mFindHelp&fa=WhatIsEBPpublic). Unfortunately, limited work has sought to identify effective ways to provide online education and guidance to the public regarding finding effective services. Importantly, if we are not promoting our services well online, we cannot expect the public to understand and use this information to make informed decisions about their own care.

One crucial foundational step for clinical psychologists is to ensure that we are consistently using the term "evidence-based practice" and applying it appropriately. That is, we can hold ourselves to the following definition for EBP: "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (APA, 2006, p.274). We should also do a better job communicating about EBP among other clinical psychologists to promote accurate use of this term within the field. Furthermore, providing information about what is, and importantly, what is not consistent with the EBP framework in undergraduate and graduate psychology courses and training program materials may instill the appropriate use of this label and application of the practice across levels of training and experience.

Starting from this foundation, we can optimize the way we present information online. Although EBP entails a broader view of research evidence than ESTs, ESTs are often components of EBP. To make clear which treatments are effective for whom, it is an option for providers to list what ESTs they offer for which psychological problems as a part of their evidence-based practice. Knowing specific research-supported treatments that providers are competent to deliver within the EBP framework, the public may be better able to evaluate the match and mismatch between their needs and the services available thereby making informed decisions.

Another crucial component of this effort to disseminate information about EBP to the public involves providing educational resources that outline exactly what EBP means, beyond just stating the definition of the term. For many individuals outside of the field of psychology. the definition of EBP-a clinical decision-making framework that incorporates research evidence, clinical expertise, and patient characteristics-is vague at best, and confusing or obscure at worst. Besides some ambiguity in the interpretation of EBP noted above, the public might have questions about what it means to integrate research evidence in clinical work, who participated in the original research studies, how to evaluate a providers' clinical expertise, what it means to consider "patient characteristics and preferences" in treatment, etc. Part of our efforts to educate the public about EBP must involve initiatives to demystify this process of clinical decision making and provide clearer explanations of each of the tenets of EBP.

For example, breaking down the third tenet of EBP could include a description of how exactly patients' "characteristics, culture, and preferences" are centered in clinical practice. Providers could describe the collaborative nature of the treatment process, including the role of the therapist as a coach or guide that is helping the patient reach their own goals, that patients have agency in their treatment, and the importance of values clarification as a means to tailor treatment for each patient. The importance of

treatment acceptability and patient autonomy should be emphasized here. Providers could take this opportunity to highlight that centering the patients' experience and being sensitive to culture, identity, and preferences are essential parts of an EBP framework. In doing so, providers can signal to the public their commitment to providing culturally responsive care.

As a minimum, the public would be well served by inclusion of information about EBP more generally. Including links to more detailed resources, like those highlighted above, may fit well on personal or agency websites, and brief grounding of services provided within the larger EBP context may fit into even limited provider descriptions. Continuing to recognize and respond to the desires of many in the community to find information online, we can work to increase the consistency, accuracy, and clarity of our information concerning EBP. Notably, in light of the limited specific research in this area of public awareness and the benefits and feasibility of disseminating EBP-related information, we present these recommendations as suggestions alongside encouraging more research into how to bridge the well-known science-practice gap as well as the gap between providers and consumers.

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