

Do Hypnosis and Mindfulness Practices Inhabit a Common Domain? Implications for Research, Clinical Practice, and Forensic Science

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Hypnosis and mindfulness practices provide clinicians with two viable yet distinct methods, or more accurately families of methods, for increasing well-being and ameliorating problems in living. In this article, we compare and contrast hypnotic and mindfulness interventions, address the question of whether they inhabit a common domain, describe how they may be combined to advantage, and discuss clinical and research implications. We contend that hypnosis and mindfulness inhabit a common, albeit broad, domain of suggestive approaches. However, we also argue that meaningful differences exist that are particularly salient and consequential in the forensic arena.

INTRODUCTION

In recent decades, hypnosis and mindfulness practices have increasingly been used with success to treat a wide variety of medical and psychological disorders. In the past two decades, the scientific world has been rocked by a veritable explosion of psychological and medical research reports on the topic of mindfulness, growing from less than 89 in 1990, to over 600 by the end of 2006 (Brown, Ryan, & Creswell, 2007), and the beat of fascination with mindfulness-based interventions goes on. Given the recent fascination with mindfulness practice, and use of hypnosis in an increasingly broad spectrum of psychotherapeutic interventions, the time seems ripe to examine the potential similarities and differences across hypnosis and mindfulness practices and the possibilities of integrating these two approaches. In this article, we synthesize and extend our previous efforts (Lynn, Das, Hallquist, & Williams, 2006; Lynn, Malaktaris, Condon, Maxwell, & Cleere, in press; Lynn, Barnes, Deming, & Accardi, 2010) by comparing and contrasting hypnotic and mindfulness interventions, addressing the question of whether they inhabit a common domain, and describing how they may be combined to advantage. We also will briefly touch on the distinction between hypnosis and meditation in the forensic context and discuss pertinent research and clinical implications.

The practice of mindfulness antedates the use of hypnosis for therapeutic purposes, and can be traced back more than 2000 years when

the Buddha described meditation as a way to relinquish clinging to troubling thoughts, feelings, and habitual ways of acting in the world (Lynn, Das, Hallquist, & Williams, 2006, pp. 143). Mindfulness encompasses a highly diverse range of spiritual, philosophical, and psychological practices—the most prominent being Buddhist meditation traditions. Indeed, large differences are apparent in the way mindfulness interventions are practiced and conceptualized in the psychological literature and the landscape of contemporary psychotherapy (Chiesa & Malinowski, 2011). Nevertheless, Kabat-Zinn's (1990/2005) widely cited definition of mindfulness as purposeful, nonjudgmental attention to the unfolding of experience on a moment-to-moment basis provides a brief yet cogent description of mindfulness across diverse practices. Although mindfulness is a more encompassing term than meditation, mindfulness is the essential ingredient in many meditative practices, which train attention and awareness and explicitly encourage mindfulness (Walsh & Shapiro, 2006). In paying nonjudgmental attention, mindfulness also encompasses acceptance, patience, and tolerance regarding the ebb and flow of thoughts, feelings, and sensations that emerge into awareness, regardless of whether one is concentrating on a focal object, as in concentration meditation, or attending to the contents of consciousness, as in Vipassana or insight meditation (Mellinger & Lynn, 2012).

On a contemporary basis, clinicians have employed mindfulness to treat various psychological and physical maladies including anxiety and

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depression, chronic pain, and substance abuse, as well as to enhance overall health and quality of life (Grossman, Niemann, Schmidt, & Walach, 2004). For example, mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002) produces reductions in the average rate of relapse in depression on the order of 50% (Hofmann, Sawyer, Witt, & Oh, 2010; Piet & Hougaard, 2011) and also substantially reduces anxiety in children and adults (Kim, et al., 2010; Semple & Lee, 2011). In one study, 8 weeks of mindfulness practice apparently promoted increases in gray matter density in brain regions associated with learning and memory, emotion regulation, and perspective taking (Holzel, et al., 2011).

One reason for the success of mindfulness practices is that they have been incorporated into a steadily widening stream of cognitive–behavioral and acceptance-based therapies, including Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 2003), MBCT (Segal, Williams, & Teasdale, 2002), Dialectical Behavior Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and Integrative Behavioral Couple Therapy (IBCT; Christensen, Jacobson, & Babcock, 1995). According to Davis and Hayes's (2011) review, substantial research supports the benefits of mindfulness practice. More specifically, mindfulness can elicit positive emotions, promote greater response flexibility, decrease reactivity to thoughts and emotions, and minimize negative affect and rumination.

Although the lineage of hypnosis is not measured in millennia, its range of application is equally impressive. Reviews and meta-analytic studies consistently document the effectiveness or promise of hypnosis in treating an array of psychological and medical conditions ranging from acute and chronic pain to obesity (see Brown, 2007; Brown & Hammond, 2007; Flammer & Alladin, 2007; Flammer & Bongartz, 2003; Elkins, Jensen, & Patterson, 2007; Flory, Salazar, & Lang, 2007; Lynn et al., 2000; Neron & Stephenson, 2007). Furthermore, meta-analyses have shown that hypnosis enhances the effectiveness of both psychodynamic and cognitive behavioral psychotherapies (Kirsch, 1990; Kirsch, Montgomery, & Sapirstein, 1995). Moreover, brain imaging studies leave no doubt that the effects of hypnotic suggestions activate brain regions consistent with suggested events (e.g., visual hallucinations activate visual cortex; Lynn, Kirsch, Knox, & Lilienfeld, 2006), quelling any lingering questions about whether the effects of hypnosis are “genuine.”

Mindfulness and hypnosis are similar in certain respects that warrant mention at the outset. Perhaps the most obvious parallel is that both are

multi-faceted self-regulation techniques that: (a) access attentional resources; (b) invite receptive, nonjudgmental acceptance of suggestions and absorption in internal and external experiences; and (c) discourage focusing attention on stimuli that compete with being mindful or becoming immersed in suggestion-related experiences. Additionally, success at both practices depends to some extent on attentional flexibility (Davidson & Goleman, 1977; Gruzelier et al., 2002; MacLeod, 2011).

Both hypnotic and mindfulness participants often report they feel relaxed (Benson, Greenwood, & Klemchuk, 1975; Lynn, Brentar, Carlson, Kurzhals, & Green, 1992; Wallace, Benson, & Wilson, 1984), and a standard relaxation hypnotic induction, relaxation procedures, and meditation interventions share common physiological correlates (e.g., decreased blood pressure, increased alpha; Edmonston, 1991; Morse, Martin, Furst, & Dubin, 1977; Wagstaff, Brunas-Wagstaff, Cole, & Wheatcroft, 2004). Nevertheless, neither hypnosis nor mindfulness practices can be reduced to relaxation (Lynn et al., 2006). Relaxation is not essential to responding to hypnotic suggestions. In fact, responsivity to suggestions is not diminished when exercising on a bicycle (see Banyai, 1991). A study that compared EEGs of individuals trained in relaxation, concentrative meditation, and mindfulness meditation found statistically reliable differences in EEG patterns, with mindfulness meditation associated with less slow wave activity and more fast wave activity than relaxation (Dunn, Hartigan, & Mikulas, 1999).

A number of differences between hypnosis and mindfulness bear note. The aim of hypnosis is to experience shifts in consciousness and behavior consonant with what is suggested for therapeutic ends or research purposes. In contrast, the aim of mindfulness practice is simply to attend to an action such as breathing while allowing thoughts and feelings to come and go, or to pay attention to and/or label the contents of consciousness without judgment as they emerge. Mindfulness promotes awareness and acceptance of the constantly changing nature of conscious experience. In contrast, hypnosis promotes appreciation for the pliability of consciousness, the link between suggestions and a wide variety of cognitive–affective–behavioral responses, and the interdependence of thoughts, feelings, and emotions stimulated by suggestion. In mindfulness practice, attention, ideally, is self-regulated following direct suggestions intended to promote mindfulness, whereas traditional hypnosis typically is more dependent on suggestions provided by the hypnotist (Astin, Shapiro, Eisenberg, & Forsy, 2003). Moreover, in mindfulness practice,

suggestions often promote observational or meta-awareness (i.e., being aware of being aware), whereas explicit suggestions during hypnosis are often provided to focus attention on suggested events, rather than on oneself (Harrer, 2009). Another distinction is that hypnosis typically is used as a catalyst or adjunct to an established psychotherapy (e.g., cognitive–behavioral; see Lynn, Rhue, & Kirsch, 2010), whereas training in mindfulness is commonly viewed as “an end in itself.” Given these salient differences it is apparent that hypnosis and mindfulness provide clinicians with two viable yet distinct methods, or more accurately families of methods, for increasing well being and ameliorating problems in living. Yet these differences do not exclude the possibility we will examine next: that hypnosis and mindfulness inhabit a common domain.

HYPNOSIS AND MINDFULNESS: THE SAME DOMAIN?

Starting with Hilgard’s seminal paper in 1973, researchers and clinicians have located hypnosis within a larger domain of phenomena associated with suggestion and suggestibility, including the effects of misleading information on memory, sensory suggestibility, and responses to placebo treatments (Hilgard, 1973; Kirsch et al., 2011). The question arises, should mindfulness practices, including meditation, be included within the broad domain of hypnosis? We will argue that suggestions form the backbone of both mindfulness practice and hypnosis and further contend that a strong argument can be made that hypnosis and mindfulness fall within a common domain. Yet to say that mindfulness and hypnosis share a common domain is not tantamount to saying they are alike: In fact, they are not. In the discussion that follows, we will highlight not only commonalities between hypnosis and mindfulness, but also salient differences.

HYPNOSIS, MINDFULNESS, AND SUGGESTION

Hypnosis has been defined in many ways that variously focus on hypnosis as a particular state, the product of a distinct trait, and a procedure embedded in a situational context defined as “hypnotic.” Similarities and differences between hypnosis and mindfulness practice are evident or not depending on the definition of hypnosis we adopt. For example, if we define hypnosis in narrow terms (see Kirsch et al., 2011), such that an induction is necessary for the situation and the response to suggestion to be considered “hypnotic,” then mindfulness practices would, of necessity,

not fall within the domain of hypnosis. However, when mindfulness suggestions are preceded by a traditional hypnotic induction, thereby clearly establishing the context as “hypnosis,” then the intervention in toto could be considered “hypnotic.” Moreover, as we shall see, many of the suggestions commonly associated with mindfulness practice resemble those traditionally administered in the context of hypnosis.

If we define hypnosis broadly to include waking imaginative suggestions, then the only difference between hypnotic and waking suggestions has to do with the types of suggestions typically administered following an induction (Kirsch et al., 2011). These suggestions are often described as involving alterations in perception, attention, memory, emotions, sensations, and voluntary action (Kihlstrom, 1985; Lynn & Kirsch, 2006). If we conceptualize the domain of hypnosis to include waking imaginative suggestions designed to alter the nature or focus of attention and concentration, then many, if not all, mindfulness interventions arguably fall within this domain. By this view, psychotherapeutic interventions that do not employ such suggestions to focus and/or alter attention do not populate this domain.

Note that we use the term “suggestion” broadly. In hypnosis, suggestions are commonly in the form of statements such as “Your right arm is getting lighter and lighter, slowly rising up into the air,” in contrast with a request or instruction such as “Please raise your right arm straight out in front of you,” which has the same behavioral goal as the suggestion of the type commonly used in hypnosis. However, typical hypnosis protocols often contain an amalgam of instructions (e.g., focus on my voice, relax the muscles of your face), requests (e.g., Please do your best to imagine the following suggestions vividly), and traditional authoritative imaginative suggestions of the “hypnotic” sort noted above. In this article we use the term “suggestion” to describe explicit and implicit or nonverbal communications that are delivered in an interpersonal context and intended to signal that participants act in a particular way, or have particular experiences if they engage in instructed, requested, or imagined activity. If we adopt this definition of suggestion, then many of the instructions and requests contained in mindfulness or meditation scripts, like those contained in hypnosis protocols, can be thought of as suggestions or at least suggestive in nature.

Although the line between traditional suggestions, requests, and instructions may be vanishingly fine, there are no doubt important differences in the way people respond to verbal communications as a function of how they are phrased and perceived (Lynn, Neufeld, & Mare,

1993). Indeed, one of the central points of this article is that objective and subjective responses to communications are highly dependent on their specific wording, regardless of whether they are preceded by an hypnotic induction or embedded in a mindfulness script.

Of course, the more suggestions are phrased in keeping with culturally bound conceptions of what is “hypnotic,” the more likely the situation will be identified as “hypnotic.” Indeed, what makes communications and interventions “hypnotic” is not necessarily their content or nature so much as how the person comes to construe the situational context in which they are embedded. Indeed, simply labeling certain cognitive–behavioral or widely used psychotherapeutic methods as “hypnosis” can define the situation as “hypnotic” and thereby boost treatment effectiveness (see Lynn et al., 2010 for a review).

We (Lynn et al., 2006; Lynn et al., 2010; Lynn et al., in press) and others (Yapko, 2011; Dowd, 2004) have observed that many mindfulness practices involve suggestions and share many features with hypnotic interventions. As Yapko (2011) observes, guided-mindfulness meditation mirrors clinical hypnosis in critical respects: both involve a two-person psychotherapy relationship in which a clinician suggests imagery and experiences to a receptive client in an effort to enhance the client’s well being. Yapko’s (2011) valuable treatise on mindfulness and hypnosis contains many excellent examples of mindfulness meditations that involve guided imagery and can be conceptualized as “hypnotic” in that they follow communication patterns common to many hypnosis protocols. Yapko rightly contends that therapists who develop mindfulness scripts would do well to have considerable familiarity with “hypnotic” methods and communications—in short suggestive approaches—to maximize the impact of mindfulness scripts.

Like Yapko (2011), Dowd (2004) highlights the role of imagery in both hypnosis and certain mindfulness practices to bolster the convincing nature of suggestions or to create a transformed reality. Consider the following example of “bubble imagery” to promote mindfulness: “Imagine yourself as a child lying on your back, gazing up into a cloudless sky, and blowing soap bubbles through a plastic ring. As a bubble drifts up, you watch it rise and this brings your attention to the sky. While you are looking at the bubble, it pops, and you keep your attention right where the bubble had been. Your awareness now lies in empty space . . . When this ‘thought bubble’ vanishes, don’t replace it with some other mental construct. Stabilize your attention in natural awareness” (Wallace, 2000; pp. 114).

Moreover, mindfulness suggestions, like hypnotic suggestions, often contain analogies embedded in instructions to imagine: “Imagine that urges to smoke or drink are ocean waves that grow gradually until they crest and subside. Imagine riding the wave, surfing it, without giving in to the urge. Learn that the urge will pass” (Marlatt, 2002). Alternatively, individuals may be asked to imagine that their thoughts and emotions are passing like leaves on a stream, items on a conveyor belt, soldiers on parade, or clouds morphing shape in the sky (see Lynn et al., 2006).

Mindfulness protocols do not necessarily include suggestions to imagine or analogies, yet they often are replete with highly direct suggestions, as exemplified by the following example of concentration meditation taken from Mellinger and Lynn (2012):

Find or create a place that’s relatively free from distraction to start your practice. Seat yourself in a relaxed, upright position. Notice your breathing, and focus your attention steadily at the place in your body where your breath seems most vivid. . . Perhaps your nostrils are the best focal point, or you can rest your hand on your belly with one finger above your navel and one finger below, and concentrate on the space between them. Start getting to know your breath with its associated sensations—the movement of air through your airway, the sounds of breathing in and out, perhaps the coolness of the air going in or the warmth of exhaled air, and the motion of your nostrils, mouth, chest, diaphragm, and stomach. ‘Know your breath’ is the master instruction of concentration on your breath: Get acquainted with the ins and outs of your breathing and allow all else to glide into the background.

When focusing on their breath, people often judge it at first (“Too fast!” “Too deep!” “Too uneven!”), criticize themselves (“I’m not much good at this,” “I’m breathing wrong,” or “I keep getting distracted.”), and/or become dissatisfied when they don’t get particularly relaxed. At such moments, our judgmentalism really interferes with our ability to simply become acquainted with our breath. Sometimes we might even become panicky about feeling unable to catch our breath, thinking catastrophically that we’re getting too short of breath, or worrying that focus on the breathing will

lead to a scary loss of mental control. In reality, our breath takes care of itself and of us.

Of course, judging and critiquing aren't the purposes of this practice, nor is relaxation the main event. Should you find yourself judging, simply remind yourself to return to observing or just following your breathing ("Where was I? In...or out?"). If you become panicky, remember that your breath takes care of itself and of you. Our breath, controlled automatically and effortlessly by our cerebellums from deep within our brains, puffs wind into the sails of our vitality and sustains us. So it's simple: learn to find and follow the breath. Practice letting your mind chatter away in the background while tuning back into your breath and keeping it center stage.

Readers familiar with hypnotic suggestions will readily note the resemblance between these mindfulness suggestions and "hypnotic" suggestions in which patients are invited to focus on feelings, sensations, and to recall different times in life to cultivate feelings and fresh perspectives in the present.

Suggestions naturally differ as a function of the meditation or mindfulness practice, just as suggestions differ as a function of the research or treatment goal in a hypnosis session. Of course, the core suggestion or directive of mindfulness practices is to be mindful. However, this essential dictum is often accompanied by suggestions to practice acceptance, nonjudgment, patience, tolerance, and compassion toward the self in relation both to (a) the inevitable difficulties that arise in being mindful of present experience and (b) the specific contents of consciousness that arise while being mindful. Thus, mindfulness suggestions are designed to have a broad scope, impinging on many aspects of everyday life, hopefully generalizing well beyond the practice session. The closest hypnosis analogue is posthypnotic suggestions for hypnotic effects or suggestions to carryover into daily living and self-suggestions or self-hypnosis, which can be used to generalize and optimize in-session treatment effects.

Whereas hypnosis participants are invited to become absorbed or experientially involved in suggested events, mindfulness often involves explicit and implicit suggestions to assume what is commonly described as a "decentered" perspective. That is, the contents of consciousness that arise in the course of being mindful are to be

regarded as nothing more than the product of a churning mind that ceaselessly and automatically generates thoughts, feelings, and action tendencies. Not only do thoughts come and go, but they also do not necessarily reflect personal worth or demand a self-referential label such as "I am hopeless" or "I am bad." The aim of mindfulness is not to control cognitions, but to observe them and related emotions as they arise, in some traditions (Vipassana) parsing thoughts in terms of categories such as "memories" or "worries" to de-center from them (Lynn et al., 2006).

Even if practitioners do not receive an explicit suggestion to keep from identifying with experiences as they pass through consciousness, "decenteredness" is arguably a byproduct of responding to more explicit suggestions to experience mental events without attachment or to focus on a breath, for example, and let other experiences float in and out of awareness. If mindfulness practice is successful, practitioners will ideally witness a decrease in their proclivity to identify with, cling to, or attach to any particular object of attention that causes suffering or depletes the ability to be mindful and lead a vigorous life. Moreover, during mindfulness practice, with continued exposure to emotions, cognitions, and sensations that are habitually avoided, it is expected that practitioners will reduce the frequency and aversiveness of such experiences (Baer, 2003).

In fostering a decentered perspective and therapeutic exposure, mindfulness methods are a promising means of recognizing and deautomatizing habitual and negative response sets (Deikman, 1966; Lynn et al., 2006; Tart, 1986, 1995; Wenk-Sormaz, 2005) associated with binge eating (Kristeller & Hallet, 1999), depression (Teasdale, Segal, & Williams 2003), and substance abuse (Marlatt, 2002), for example. In contrast, hypnotic suggestions are often used to establish positive response sets and treatment expectancies, access personal resources, develop therapeutic associations, and target specific symptoms and negative cognitions and replace them with more adaptive responses, beliefs and attitudes (Williams, Hallquist, Barnes, Cole, & Lynn, 2010; Yapko, 2012).

Just as hypnotic suggestions diverge in keeping with therapeutic goals and the problem addressed, mindfulness practices vary depending on the tradition or technique practiced. Still, what is notable is the explicit nature of suggestions to be mindful across methodologies. Consider the following three suggestions that capture the essence of three traditions and which were foundational to a recent study of mindfulness (Brewer, Worhunsky, Gray, Tang, Weber, & Kober, 2011).

1. CHOICELESS AWARENESS

“Please pay attention to whatever comes into your awareness, whether it is a thought, emotion, or body sensation. Just follow it until something else comes into your awareness, not trying to hold onto it or change it in any way. When something else comes into your awareness, just pay attention to it until the next thing comes along.”

2. LOVING-KINDNESS MEDITATION

“Please think of a time when you genuinely wished someone well (pause). Using this feeling as a focus, silently wish all beings well, by repeating a few short phrases of your choosing over and over. For example: May all beings be happy, may all beings be healthy, may all beings be safe from harm.”

3. CONCENTRATION MEDITATION

“Please pay attention to the physical sensation of the breath wherever you feel it most strongly in the body. Follow the natural and spontaneous movement of the breath, not trying to change it in any way. Just pay attention to it. If you find that your attention has wandered to something else, gently but firmly bring it back to the physical sensation of the breath.” Note that in loving-kindness and concentration meditation, the focal point of attention stands as a counterpoint to other potential objects of attention and in this way increases awareness of the workings of the mind as it churns out all manner of thoughts unrelated to the intended focus of concentration.

Differences in hypnosis and mindfulness definitions and techniques make it difficult for researchers to draw general conclusions about experiential and psychophysiological differences across methods (Wegner, 2011). As Lynn et al. (2006) observe, participants’ attention (e.g., focused versus “free floating”) and subjective response to hypnosis and meditation will likely depend, at least in part, on specific suggestions and the instructional set adopted (e.g., mindfulness vs. concentration meditation, such as focus on a single thought, object, sound; self vs. hetero-hypnosis, (Kahn & Fromm, 1990), as well as participants’ willingness and ability to respond to perceived task demands.

That said, hypnosis and mindfulness both appear to be associated with a decrease in brain default mode activity and a corresponding decreased tendency toward mind-wandering (Mazzoni, Venneri, & Kirsch, 2009; Brewer et al., 2011). As Spiegel, White, and Waelde (2011) have noted, changes in consciousness associated with both hypnosis and mindfulness meditation are often reflected in changes in frontal attentional systems in the brain associated with the dorsal anterior

cingulate cortex and the dorsolateral prefrontal cortex (see also Baron Short et al., 2010).

Although both hypnosis and mindfulness apparently modulate activity in the default mode network, Mazzoni et al., 2009 found that resting hypnosis produced deactivation in the anterior area of the network, whereas Brewer et al., 2011 found that mindfulness produced deactivation in both the anterior and posterior areas of the network. Another interesting difference between hypnosis and meditation is that in hypnosis, there may be a decoupling between brain regions associated with monitoring and cognitive control (Egner, Jamieson, & Gruzelier, 2005), whereas in meditation experiences, there appears to be a stronger coupling of self-monitoring and cognitive control (Brewer et al., 2011). Again, this difference may be a function of the suggestions and demands of the situation. In some meditative practices (e.g., concentrative meditation), there is a clear demand for focused attention and monitoring of attention. However, the experience of involuntariness in hypnosis can be facilitated by not carefully monitoring action and thoughts so much as being prepared to respond to whatever is suggested, with the hypnotist “taking the lead” or “standing in” for executive control functioning (Lynn, Rhue, & Weekes, 1990): Hence, the decoupling of monitoring and executive control.

STATES AND TRAITS

Both mindfulness and hypnosis can be described in terms of states and traits. If we can dispense with the notion that there is some hypnotic or trance state that sharply demarcates hypnotic from nonhypnotic experience, then there is even more license to contend that mindfulness and hypnosis practices fall within a common, albeit broad, domain of suggestive approaches. State mindfulness can be defined as what the person experiences while responding to the suggestion to pay attention, in a nonjudgmental manner, to the ebb and flow of consciousness or to a particular thought, feeling, or object of concentration. The better able the participant is to respond to this suggestion, the more likely we are to conclude that the person experienced a state of mindfulness. Similarly, state hypnosis can be described as what the person experiences in response to suggestions administered by the hypnotist or self-suggestions, commonly referred to as self-hypnosis. The more compelling the experience of suggested events during hypnosis, the more likely the hypnotist and participant are to conclude that the person experienced a “state” allied with hypnosis.

Suggestions—hypnotic and nonhypnotic—can produce profound alterations in consciousness. However, hypnotic suggestions typically do not produce profoundly uniquely altered or special states relative to similarly worded nonhypnotic suggestions. Researchers have discovered that people are able to respond to a variety of suggestions with no prior induction of hypnosis, and that the formal hypnosis induction procedure confers, at best, only a small increase in responsiveness above and beyond responsiveness to the same suggestions administered with no prior induction (Hilgard & Tart, 1966). In fact, nonhypnotic or waking suggestibility (see Braffman and Kirsch, 1999), is the best predictor of hypnotic responsiveness (Hull, 1933; Barber & Glass, 1962; Hilgard & Tart, 1966; Braffman & Kirsch, 1999), with correlations between imaginative suggestibility and hypnotic responsiveness ranging from .54 to .99. Moreover, when participants are tested on two occasions, with and without “hypnosis,” the addition of an hypnotic induction to waking suggestions adds little or nothing to hypnotic responsiveness beyond the suggestions themselves (Braffman & Kirsch, 1999; Green & Lynn, 2011).

Lacking appropriate controls, it is tempting to interpret a hypnotically suggested effect as an indicator of a hypnotic trance. Raz, Shapiro, Fan, and Posner (2002) reported that a hypnotic suggestion to see words as if they were in a foreign language reduced Stroop interference in highly suggestible subjects. Because Stroop inhibition is widely regarded as automatic, one might interpret this as a major shift in information processing and hence as an altered state. Raz, Kirsch, Pollard, and Nitkin-Kaner (2006) have since replicated these results with un hypnotized as well as hypnotized subjects. Their data confirm that suggestion can modulate the Stroop effect in highly suggestible subjects, but they also indicate that this does not require the induction of hypnosis. Because the subjective experiences of responses to (identically-worded) hypnotic and nonhypnotic suggestions are often indistinguishable, the distinction between hypnotic and nonhypnotic suggestions is often blurry at best.

Generally speaking, the suggestions posed to individuals, not the presence or absence of an hypnotic induction, provide the best indicator of the “state” they will experience. In the case of hypnosis, different suggestions are accompanied by disparate patterns of brain activation (Lynn et al., 2006). Cortical activation depends largely on the task and the specific suggestions presented (e.g. Barabasz, Barabasz, Jensen, Calvin, Trevisan, & Warner, 1999; Crawford, 2001; DePascalis, 1999; Gruzelier, 1998; Hofbauer, Rainville, Duncan, & Bushnell, 2001; Kihlstrom, 2003; Rainville,

Carrier, Hofbauer, Bushnell, & Duncan, 1999; Rainville, Hofbauer, Paus, Duncan, Bushnell, & Price 1999) as well as the participants’ cognitive abilities (Wagstaff, 1998; Ray and DePascalis, 2003). Time-series analyses of electrophysiological state during a hypnosis session have shown changes in EEG activity over the course of an induction and as a function of the instructions the participants received (Hinterberger, Schoner, & Halsband, 2011). In the case of meditation, with respect to the three different meditation suggestions we presented above, researchers (Brewer, Worhunsky, Gray, Tang, Weber, & Kober, 2011) found that the Loving-Kindness meditation—hypothesized to engender greater acceptance of self and others and improve concentration—produced greater cortical deactivation in the amygdala, compared with concentration associated with breath awareness and mindfulness/choiceless awareness meditation.

Mindfulness would be expected to vary as a function of stress, fatigue, and situations that require problem solving and capture immediate attention. Still, individuals may differ in terms of trait mindfulness (Frewen, Lundberg, Mc Kinley, & Wrath, 2011, pp. 254): the “frequency with which individuals tend to experience mindful states.” Accordingly, individuals who possess the trait of mindfulness would be expected to be mindful in a variety of situations, including those that are stressful and evoke negative affect. In contrast, the trait of hypnosis refers to the ability of individuals to respond to a variety of hypnotic suggestions, including those for ideomotor responses such as hand levitation, challenge suggestions (e.g., challenge to open the eyes following suggestions for the eyes to be tightly closed), and cognitive-delusory suggestions (e.g., hallucinations, age regression, amnesia). Measures of trait mindfulness (Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Baer et al., 2008; see Williams & Lynn, 2010 for a review) as well as measures of hypnotizability (see Barnier & Council, 2010) have been well validated and shown to be psychometrically sound. Studies that examine the relation between trait mindfulness and hypnotizability are therefore warranted.

ATTENTION AND HYPNOTIC RESPONSIVENESS ARE MODIFIABLE

Although practice in meditation seems to have no bearing on hypnotic responsiveness, and being adept in meditation does not appear to be related to suggestibility (Murphy, Donovan, & Taylor, 1997; Rivers & Spanos, 1981; Spanos, Gottlieb, & Rivers, 1980; Spanos, Stam, Rivers, &

Radtke, 1980; Spanos, Steggles, Radtke-Bodorik, & Rivers, 1979), both mindfulness and hypnotic responsiveness are amenable to training, suggesting that even if baseline (trait) differences are apparent among individuals, a certain degree of pliability is also evident.

Gorassini and Spanos (1986) developed the Carleton Skills Training Program (CSTP) to enhance hypnotic responsiveness. The CSTP includes the following components: (a) information to instill positive attitudes about hypnosis and motivation to respond; (b) instructions regarding how to use imaginal strategies to promote successful responding and instructions regarding how to interpret suggestions (e.g., one must actually lift the hand while imagining that it is rising by itself); (c) exposure to a video-taped model who enacts successful responses to suggestions and verbalizes imagery-based strategies to facilitate subjective response; and (d) practice in responding to test suggestions.

Researchers have documented appreciable increases on behavioral and subjective measures of suggestibility following hypnotizability modification training (Diamond, 1972; Gfeller, Lynn, & Pribble, 1987; Kinney & Sachs, 1974; Sachs & Anderson, 1967; Spanos, 1986). In more than fifteen studies, Spanos and his associates (see Gorassini & Spanos, 1996; Spanos, 1986) determined that more than 50% of initially low hypnotizable subjects who underwent a multi-faceted cognitive skill training program (CSTP) scored as high hypnotizable at posttesting. Importantly, researchers have documented large magnitude CSTP treatment gains that have persisted for two and a half years (Spanos, Cross, Menary, & Smith, 1988). Moreover, research in Spain (Chiesa & Perez, 1998), Poland (Niedzwienska, 2000), and England (Fellows & Ragg, 1992) has provided cross-cultural support for the effectiveness of the CSTP. The fact that the CSTP produces increases in both objective and subjective responsiveness to hypnotic suggestions, as well as gains that generalize to novel, demanding test suggestions (Spanos, 1986), is important in that high suggestibility can confer considerable benefits in a variety of clinical and health-related contexts (see Lynn, Kirsch, Barabasz, Cardena, & Patterson, 2000; *et al.*, 2000). However, conclusions about clinical implications remain tentative insofar as researchers have not, as yet, examined the effects of hypnotizability modification in clinical contexts (but see Gfeller & Gorassini, 2010 for a discussion of clinical applications of such training).

Turning to mindfulness meditation, Zeidan and colleagues (Zeidan, Johnson, Diamond, David, & Goolksaian, 2010) found that after as few as four practice sessions, participants with no

prior mindfulness training evidenced increased mindfulness, visuo-spatial processing working memory, and executive functioning, along with decreased fatigue and anxiety, compared with participants who listened to a recorded book and did not participate in mindfulness training.

In a fascinating follow-up study, the research team (Zeidan, Johnson, Gordon, & Goolksaian, 2010) determined that at least some effects of brief mindfulness training (3-day, 1-hour total) were the byproduct of active elements of the practice (noticing flow of breath, passively acknowledging a thought and letting it go by) and not demand characteristics. More specifically, participants in the active condition reported greater reductions in heart rate, depression, fatigue, negative mood, and confusion than participants who practiced sham mindfulness meditation (i.e., take deep breaths every 2–3 minutes as they “sit in meditation”), and a control condition in which they sat for 20 minutes each session and were allowed to speak to each other.

In Wenk-Sormaz’s (2005) study of 2 weeks of mindfulness meditation in which participants meditated during three 20-minute sessions, this limited exposure to mindfulness produced increases in attentional control, as measured by decreased Stroop interference, a supposedly “habitual” or automatic response. Jha and colleagues (Jha, Krompinger, & Baime, 2007) compared naïve meditators who participated in an 8-week training in MBSR (Kabat-Zinn et al., 1992), which emphasized concentrative meditation skills, with experienced meditators who participated in a 1-month intensive mindfulness retreat. Whereas naïve participants were readily able to improve concentrative skills, increases in receptive attention skills were restricted to experienced meditators. The researchers concluded that mindfulness training might be useful in an attention training protocol and exert potential benefits in many domains.

In another study, after three months of intensive meditation training at a meditation retreat during which participants meditated for 10 to 12 hours/day, compared with controls, participants improved in their ability to allocate limited attentional resources and process new information, presumably leaving more resources available to process momentary experiences (Slagter, Lutz, Greisschar, Nieuwenhuis, & Davidson, 2009). Finally, Chambers, Lo, and Allen (2007) observed increases in sustained attention, including increases in working memory capacity, among individuals in a non-clinical sample after participating in intensive mindfulness meditation training (10-day intensive mindfulness meditation retreat).

In conclusion, cognitive processes are modifiable, with appreciable improvements in attention and cognitive resources produced in response to both brief and intensive training in mindfulness meditation and in increasing responsiveness to suggestion in an hypnotic context. Additional research is necessary to document whether increasing hypnotizability and mindfulness can improve well being and mood regulation.

One of the most difficult challenges in practicing mindfulness is to avoid getting discouraged when concentration or attention wanes or is difficult to maintain. Embedding motivational suggestions into mindfulness protocols and hypnotic inductions that precede or accompany mindfulness suggestions can be used to encourage motivation to practice and “stay with” more intensive mindfulness training programs (Lynn et al., 2010).

TREATMENT OUTCOMES: HYPNOSIS VERSUS MEDITATION

Virtually no research has compared the outcomes of hypnosis and mindfulness interventions. In a pilot study, which suggests important directions for future research, Butler, Waelde, Hastings, Chen, Symons, Marshall et al. (2008) conducted a randomized controlled trial of meditation with yoga, group therapy with hypnosis, and psychoeducation with 46 individuals presenting with long-term depressed mood, (e.g., major depression, dysthymia, and other depressive conditions). The instructions in the meditation and yoga condition were based on the Inner Resources (IR) program (Waelde, 1999). More specifically, individuals received instructions to surrender to thoughts and feelings as they arise and then consciously let go of these thoughts and feelings through use of visualization (e.g., imagining the lungs are two balloons being filled with air) and breathing. The hypnosis condition included group hypnotic inductions and other exercises designed to help the participants increase positive affect, improve modulation of affect, and generate alternative responses. Participants also learned self-hypnosis for use outside of sessions. Significantly more participants in the meditation group (77%) experienced a remission at 9-month follow-up than did controls (36%). Participants in the hypnosis group also experienced more remission (62%) than controls, although the difference only approached significance. Importantly, participants in the control condition developed new depressive conditions during the study, whereas this was not the case for participants in the active treatment conditions.

The study has clear limitations, including the relatively small number of participants, which may have precluded the ability to document statistically significant differences across the hypnosis and control condition, as well as the inability to determine the relative effectiveness of different treatment components. Still, as the authors concluded, the study suggests that hypnosis and meditation both have potential to improve treatment outcomes in depressed mood over and above standard psychoeducation. Importantly, this research paves the way for more definitive comparative research across a variety of clinical conditions and problems in living.

IMPLICATIONS FOR CLINICAL WORK: SYNTHESIZING HYPNOSIS AND MINDFULNESS

Given that clinical hypnosis and mindfulness practices share a common domain associated with the use of suggestion, we (Lynn et al., 2006; Lynn, Barnes, Deming, & Accardi, 2010; Lynn, Malaktaris, Condon, Maxwell, & Cleere, in press) have argued that it is possible and perhaps advisable to use hypnosis to augment the effectiveness of mindfulness-based interventions. In these publications, we have provided examples of hypnotic inductions that we suggest can be used to accompany and hopefully enhance mindfulness practice in the treatment of depression and the treatment of posttraumatic stress disorder. This recommendation is based on a steadily accumulating literature showing that hypnosis can enhance the effects of interventions ranging from psychodynamic to cognitive-behavioral (see Lynn et al., 2010). Because the suggestions that are included in most mindfulness protocols are easy to pass (i.e., attention focus, imagery), the use of hypnosis should not necessarily be contingent on high hypnotic responsiveness. However, some patients may be more amenable to the use of hypnosis than others, and may prefer one way of framing suggestions (e.g., hypnosis vs. traditional meditation) over the other.

Lynn et al. (2010) recommended that clinicians use hypnosis to enhance mindfulness protocols based on providing suggestions related to different facets of mindfulness and acceptance (Williams & Lynn, 2010) including: (a) nonjudgment (i.e., not categorizing experiences as good or bad, right or wrong), (b) tolerance (i.e., remain present and experience whatever arises; do not become discouraged when attention wanders, as alluded to above), (c) willingness (i.e., choose to be mindful and accepting of experience), (d) non-attachment (i.e., accept what cannot be changed,

know limits of ability to control outcomes), and (e) nonavoidance (i.e., develop courage to confront life's challenges; experiences are impermanent, be aware of change).

We have also advocated the use of hypnosis (Lynn et al., 2010; Lynn et al., in press) to precede attention-switching exercises to bolster attentional control and mindfulness. For example, based on Wells's (2008) Attention Training Technique (Wells, 2008), we ask patients to detect different sounds, then switch attention, as rapidly as possible, from one sound to another, and finally count all the sounds they can hear at one time. Visual or physical sensations can be substituted for sounds, which can also be presented via a tape or DVD recording. Additionally, suggestions can be given for patients to count by serial sevens in-between each breath.

Alternatively, after an hypnotic induction, we invite participants to switch attention from one body part to another, starting with the top of the head, paying nonjudgmental attention to what is experienced, and then releasing the attention from that part to refocus attention on the breath. Other suggestions (Lynn et al., in press) we recommend to facilitate attention focus and acceptance include: (a) scan for "tension spots," then release their attention from these areas and return to the breath; (b) breathe in (e.g., acceptance, compassion, tolerance for self and others, forgiveness) and breathe out (e.g., judgment, self-criticism; tension the body or mind does not need) specific qualities of experience; and (c) as negative thoughts or emotions arise, silently say, "that's just a thought" or "that's just a feeling I experience" and watch carefully in a nonjudgmental way as the identified thought or emotion morphs into another thought or feeling.

Clinically, we have found success in training "bare attention" by inviting participants to do the following in sequence: (a) open their eyes and quickly focus on one thing in the room—"the stimulus"—that captures their attention; (b) "take in" and describe one aspect of what they see (e.g., "round"); (c) focus on their breath and then notice a second aspect of what they see (e.g., red horizontal line) in relation to the stimulus, and (d) refocus on the breathe once again. The therapist discourages any judgmental comments about the stimulus (e.g., "beautiful color"). The exercise proceeds in this manner to the point at which patients are able to describe essential elements of the stimulus to the extent they believe that the therapist will be able to recognize the object.

During the exercise, therapists may look in another direction or, better yet, sit with eyes closed until patients feel confident they have described elements of the stimulus requisite to identification by an observer. We encourage patients to practice this version of the childhood "eye spy" game on a regular basis outside the consulting room, sans an observer, of course. Clearly, viewing meditation and attention strategies in the context of suggestion provides almost unlimited opportunities to devise creative, directive protocols to enhance awareness and mindfulness.

IMPLICATIONS FOR RESEARCH

The link between hypnosis and meditation has barely been explored from an empirical standpoint. The fact that hypnosis and mindfulness methods are intimately tied to specific suggestions intended to create specific experiences, or to a perspective from which to view the stream of consciousness as it unfolds, implies that it is important to examine the effects of different suggestions on variables of interest. Indeed, little is known about which mindfulness suggestions are associated with optimal outcomes on a variety of measures (e.g., symptom change, attentional abilities), and which mindfulness suggestions best optimize treatment gains in tandem with hypnotic inductions.

Controlled studies are vitally important to address whether simply defining the situation as "hypnosis" and preceding meditation instructions with a formal hypnotic induction can enhance expectancies, boost motivation to engage in mindfulness practices, and ultimately improve attentional faculties or treatment outcomes, above and beyond suggestions for mindfulness. It will be imperative in any psychophysiological studies of hypnosis and meditation to control for the wording of mindfulness suggestions, as differences in suggestions across hypnotic and non-hypnotic conditions have served as a confound in studies of the psychophysiological correlates of hypnotic interventions (Lynn et al., 2006).

Another interesting line of research to pursue would be to examine whether the same measures that have been shown to correlate with hypnotizability, such as absorption and fantasy proneness (see Nash & Barnier, 2008), also correlate with the ability to experience mindfulness and with the outcome of mindfulness training. Clearly, much needs to be learned regarding the similarities and differences in the mechanisms associated with responding to both hypnotic inductions and mindfulness scripts.

IMPLICATIONS FOR FORENSIC SCIENCE: THE NEED TO DISTINGUISH HYPNOSIS AND MEDITATION

As we noted earlier, just because hypnosis and mindfulness meditation inhabit a common domain in no way implies that meaningful distinctions cannot and should not be drawn in certain contexts. In the forensic arena, it may be especially important to delineate such differences. Clearly, hypnosis and meditation carry very different connotations to most people: hypnosis implies an altered state, whereas mindfulness meditation implies an ability to experience “reality” in the moment.

Simply labeling a procedure as “hypnotic” can establish a potent expectational context. More specifically, the hypnotic context may carry strong demands such that participants report more memories (accurate and inaccurate) and express greater confidence in what they remember than in a nonhypnotic context (see Lynn, Boycheva, Deming, Liliensfeld, & Hallquist, 2009; Wagstaff, Brunas-Wagstaff, Cole, & Wheatcroft, 2004). In keeping with this hypothesis, Wagstaff and colleagues (Wagstaff et al., 2004) found that, compared with a control condition in which participants received no meditation instructions, a focused breathing meditation (i.e., focus attention on the breath and bring it back gently when it wanders) produced a small increase in face recognition with no accompanying increase in false confidence typically associated with hypnosis. In short, the expectational context in which suggestions are embedded may exert a strong bearing on how confidently witnessed events are remembered.

Wagstaff and his colleagues (Wagstaff et al., 2008) argued that if expectancies and demand characteristics play a role in false memory and false confidence effects, it might be possible to eliminate such effects with suggestions that hypnosis can assist participants in discriminating correct and incorrect information. This is exactly what the researchers found. In two studies, Wagstaff and his colleagues (Wagstaff, Wheatcroft, & Jones, 2011) were able to show that when instructions implied that accurate reporting is a feature of hypnosis, highly responsive participants (i.e., high hypnotizables) were actually more resistant to false memories related to misleading information provided during hypnosis than their low or medium hypnotizable counterparts. By emphasizing the need to report

accurately, participants may scrutinize their memories more carefully and raise their criterion for discriminating between guesses or imaginings and “real” memories. Mindfulness meditation, with its emphasis on careful inspection of current experiences (e.g., pay attention to the quality of the breath; note and categorize the contents of consciousness as they arise) may likewise implicitly increase demands for accurate reporting. That said, it seems premature to recommend that mindfulness meditation be used to improve memories prior to the independent replication of initially promising findings.

A compelling argument can be made to hew to a narrow definition of hypnosis in forensic situations, lest ambiguity arise in the courtroom and different methodologies such as meditation, relaxation, and guided imagery—which may have very different ramifications for recall confidence and accuracy—be treated interchangeably. It is important to carefully examine suggestions provided to participants in any memory-related context, as it is well known that leading questions, independent of hypnosis, can rival and even exceed the biasing effects of the hypnotic context (see Lynn, Barnes, & Matthews, 2009).

CONCLUSIONS

Mindfulness is not a “special case” of hypnosis, as hypnosis and mindfulness can be clearly distinguished in terms of (a) the establishment of the “context of hypnosis,” in the case of hypnotic interventions, and (b) participants’ belief they are experiencing “hypnotic” communications versus suggestions to experience mindfulness. Hypnosis and mindfulness represent broad families of approaches with traditions (e.g., Ericksonian, cognitive–behavioral; insight meditation, non-judgmental awareness) that may share some but certainly not all features. After all, there are salient differences between hypnosis and mindfulness that take on special meaning and force in the forensic context. However, it is reasonable to assert that hypnosis and mindfulness practice inhabit a common domain with the epicenter being the element of suggestion and, commonly in clinical practice, the use of guided imagery and metaphoric communications. Carefully operationalizing hypnosis and mindfulness in different contexts and across different clinical applications will no doubt assist in further elaborating the similarities and differences between these suggestive approaches and in examining their psychophysiological correlates in particular.

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