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## Myths and Misconceptions About Hypnosis and Suggestion: Separating Fact and Fiction

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Accepted Article

Abstract

We present 21 prominent myths and misconceptions about hypnosis in order to promulgate accurate information and to highlight questions for future research. We argue that these myths and misconceptions have (a) fostered a skewed and stereotyped view of hypnosis among the lay public, (b) discouraged participant involvement in potentially helpful hypnotic interventions, and (c) impeded the exploration and application of hypnosis in scientific and practitioner communities. Myths reviewed span the view that hypnosis produces a trance or special state of consciousness and allied myths on topics related to hypnotic interventions; hypnotic responsiveness and the modification of hypnotic suggestibility; inducing hypnosis; and hypnosis and memory, awareness, and the experience of nonvolition. By demarcating myth from mystery and fact from fiction, and by highlighting what is known as well as what remains to be discovered, the science and practice of hypnosis can be advanced and grounded on a firmer empirical footing.

Hypnosis engenders marked and sometimes profound changes in cognition, perception, memory, emotions, and behavior. The dramatic effects of hypnosis were once dismissed as hokum, hogwash, and hype (see Pintar & Lynn, 2008). Yet, more recently, hypnosis has traversed the boundaries of mainstream science to achieve acceptance as a legitimate topic of investigation (Oakley & Halligan, 2013). Nevertheless, myths and misconceptions about hypnosis linger in the public imagination and in some scientific circles (Nash, 2001; Polito, Barnier, & Cox, 2016).

In this article, we present prominent myths and misconceptions about hypnosis to promulgate accurate information and highlight questions to be addressed to move inquiry forward. We use the term *myth* to connote a corpus of beliefs about hypnosis that are not supported or are contradicted by the consilience of evidence. Our use of the term intends in no way to minimize the importance of the broader connotation of myths in terms of their cultural

richness and resonance. Some of the misconceptions about hypnosis contain a nugget of truth, which we will mine, and, in some cases, we point readers to gaps in our understanding of hypnosis and issues yet to be resolved.

The myths and misconceptions we present have (a) fostered a skewed and stereotyped view of hypnosis among the lay public, (b) discouraged participant involvement in potentially helpful hypnotic interventions, and (c) impeded the exploration and application of hypnosis in the scientific and practitioner communities. This state of affairs is unfortunate, as hypnosis has recognized value as a catalyst of knowledge pertinent to cognitive science and consciousness studies, abetted by recent innovations and discoveries in brain mapping and neuroscience (Oakley & Halligan, 2009). For example, researchers have incorporated hypnotic suggestions to modulate attention, expectancies, visual perception, motor control, and memory in analogues and paradigms relevant to experimental psychopathology. These studies span amnesia, false memories, clinical delusions (e.g., mirrored self-misidentification), agnosia, hallucinations, alien control states, motor paralysis, and visual spatial neglect (Cox & Bryant, 2008). Hypnotic suggestions have been vehicles to study expectancies, the experience of nonvolition, rapport, and hypnotic interventions (see Terhune et al., 2017). The value of hypnosis in investigating cognitive and affective processes has not yet been fully exploited. We suggest that hypnosis would be utilized more widely if more accurate information were widely disseminated, as we do in the discussion that follows.

Surveys of students from various countries (Green, Page, Rasekhy, Johnson, & Bernhardt, 2006) document the wide prevalence of a number of myths and misconceptions we review. A powerful engine driving these myths is the popular media, including movies,

## Myths and Misconceptions About Hypnosis and Suggestion

television, and the Internet, which capitalize on the core myth that hypnosis is "an altered state of consciousness quite different from normal waking consciousness" (70% agreed, Green et al., 2006); termed by many, a *trance*. The myth of trance is arguably the mother of all myths and has birthed many related myths that we will discuss.

The idea that hypnosis brings about a trance state was first popularized in Du Maurier's blockbuster novel, *Trilby* (1894/1999), in which Svengali--a name now synonymous with a brutal manipulator--uses hypnosis to ply the ill-starred Trilby to his will. De Maurier portrayed hypnosis as a sleep-like trance state that produced amnesia, loss of control and willpower, and special abilities (e.g., Trilby became an opera diva). The term "trance" is still featured in titles (and contents) of articles in influential hypnosis journals (e.g., Wickramasekera, 2016) and unfortunately still carries the baggage of its historical roots.

Films provide for many examples of the supposed trance-inducing properties of hypnosis (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2010, p. 101-102), in which hypnosis supposedly compels people to: (a) commit an assassination (*The Manchurian Candidate*); (b) commit suicide (*The Garden Murders*); (c) disfigure themselves with scalding water (*The Hypnotic Eye*); (d) assist in blackmail (*On Her Majesty's Secret Service*); (e) perceive only a person's internal beauty (*Shallow Hal*); (f) steal (*Curse of the Jade Scorpion*); (g) access past lives (*Dead Again*); (h) fall victim to brainwashing by alien preachers who insert hypnotic messages in sermons (*Invasion of the Space Preachers*); and (i) commit nefarious acts (*Trance*).

Endorsing such myths could compromise willingness or motivation to respond to hypnosis. Indeed, 50% of participants in Green et al.'s (2006) survey expressed "some

apprehensions about hypnosis and being hypnotized" and endorsed "I am wary of becoming hypnotized because it means giving up free will to the hypnotist" (49%). Willingness to use hypnosis for health care is associated with more accurate views of hypnosis (Montgomery, Sucala, Dillon, & Schnur, 2017), whereas negative beliefs suppress hypnotic responsiveness (Spanos, Brett, Menary, & Cross, 1987). We hope that propagating more accurate beliefs will maximize involvement and gains in psychotherapy, encourage more clinicians to integrate hypnosis into empirically supported interventions, and spur more researchers to study hypnosis to extend the frontiers of knowledge within and beyond the domain of hypnosis.

Herein we describe paramount myths and misconceptions derived from our clinical practices, the media, and the hypnosis literature and highlight relevant research and survey data. We present the following myths with the caveats that our review of each myth and selection of myths is brief given space constraints; that other experts may disagree with what we regard to be myths and misconceptions; and with the expectation that additional research will support, qualify, or disqualify our categorization and thereby further enhance our understanding of hypnosis.

### Myths and Misconceptions About Clinical Hypnosis

#### **1. Hypnosis is a panacea in treatment vs. hypnosis is not helpful**

Some clients view hypnosis as a panacea, a "quick fix" for longstanding complaints, whereas others view hypnosis with trepidation, bemusement, or as a useless exercise in futility. Neither view accurately mirrors empirical findings.

Meta-analytic reviews have secured encouraging outcomes. In the seminal such review, Kirsch, Montgomery, and Sapirstein (1995) calculated that the average client receiving

cognitive-behavioral therapy (CBT) augmented by hypnosis reported greater improvement than at least 70% of clients receiving the same non-hypnotic cognitive-behavioral treatment without hypnosis. Terhune et al. (2017) reviewed subsequent meta-analyses and concluded that hypnotic interventions typically yielded outcomes superior to comparison conditions (e.g., no treatment, usual treatment, wait-list comparisons) in studies of chronic pain and hypnotically induced analgesia, irritable bowel syndrome, psychosomatic disorders, surgical or medical patients, nausea and vomiting in chemotherapy patients, and needle-related pain and distress in children and adolescents. Additional meta-analyses have reported (a) favorable results for hypnosis in treating depression (Milling, Valentine, McCarley, LoStimolo, 2019), anxiety (Valentine, Milling, Clark, & Moriarity, 2019), obesity (Milling, Gover, & Moriarity, 2018), and posttraumatic stress disorder (Rotaru & Rusu, 2016); (b) mixed results (no significant differences from sham interventions) in treating insomnia (Lam et al., 2015); or (c) preliminary positive findings in treating smoking (see Green & Lynn, 2019).

Nevertheless, like any psychological intervention, not everyone improves with hypnosis treatment, and limited evidence exists regarding where hypnosis stands relative to many nonhypnotic interventions based on randomized controlled trials (RCTs). Many studies did not examine the link between treatment outcome and hypnotic suggestibility, follow-ups were not undertaken or lengthy, samples were small, and/or studies did not evaluate mechanisms of change or the role of hypnosis independent of other mediators or moderators of outcomes (e.g., attention, imagination, expectation). Still, many of the meta-analyses yielded moderate-to-large effect sizes, implying that hypnosis can be a brief, cost-effective intervention.

## **2. Hypnosis is typically a stand-alone treatment**



According to Montgomery, DuHamel, and Redd (2000), "...few current practitioners of hypnosis view it as a stand-alone therapy. Rather, hypnotic suggestion is more commonly used adjunctly with psychodynamic, cognitive-behavioral, or even pharmacological therapies" (p. 143). Kirsch et al.'s (1998) meta-analysis focused on the salutary effects of adding hypnosis to cognitive-behavioral interventions, and more recent meta-analyses document positive effects for (a) combining hypnosis with CBT for weight loss relative to CBT alone (Milling et al., 2018) and for (b) combining hypnosis with other psychological interventions for anxiety compared with hypnosis used as a stand-alone treatment (Valentine et al, 2019).

#### Myths and Misconceptions About Hypnotic Responsiveness

### **3. People are either hypnotizable or they are not**

People vary in their responsiveness to hypnotic suggestions, and their responsiveness can be relatively stable over time (Piccione, Hilgard, & Zimbardo, 1989). This apparent trait is often referred to as "hypnotizability" and that term has been partially responsible for many of the misconceptions surrounding this issue (Kirsch, 1997; Weitzenhoffer, 1980). One of these misconceptions is that people are either hypnotizable or not, with some thinking that very few people can respond to hypnotic suggestions and others believing that everyone can respond.

This misconception is related to the most pervasive misconception about hypnosis, the myth of trance. Hypnotic responsiveness is measured by administering a hypnotic induction, followed by suggestions for altered experience and behavior (e.g., automatic movements, temporary amnesia, hallucinations) and counting the number of suggestions passed. Conventionally, approximately 15-20 percent of participants are considered to be highly suggestible, another 15-20% low suggestible, and the remainder medium suggestible. The term

*hypnotizability* implies that what is being measured is the ability to be hypnotized, which is generally assumed to mean the ability to enter a hypnotic trance (but see Laurence et al., 2008).

Yet the experience of hypnosis does not reflect anything like a stable, unvarying "trance" state with universally shared properties that is either present or absent. Researchers have found that (a) the reported depth of hypnosis varies within a hypnotic session (Cardeña, Jönsson, Terhune, & Marcusson-Clavertz (2013); (b) highly suggestible individuals pass some suggestions but not others, implying that hypnotic responsiveness involves multiple and potentially discriminable suggestion-related abilities (see Barnier, Terhune, Polito, & Woody, in press); (c) some highly suggestible individuals experience greater suggestion-related involuntariness than other equally hypnotizable individuals (Terhune, Cardeña, & Lindgren, 2011); and (d) on average, hypnotic responsiveness decreases significantly over repeated testing (see Fassler, Lynn, & Knox, 2008) and increases appreciably with evidence-based training (see Myth 9 below).

#### 4. ***Hypnotic suggestibility is very different from nonhypnotic suggestibility***

A suggestion is a communication indicating that a person will experience a specific response as involuntary. Suggestibility refers to one's propensity for responding to suggestions and can include imaginative suggestibility, interrogative suggestibility, and the placebo effect (Halligan & Oakley, 2014; Kirsch et al., 2011). Imaginative suggestibility differs from other forms of suggested responses in that it refers to the ability to experience the kind of suggestions given during hypnosis, which typically involves experiencing an imaginary situation that the subject knows to be lacking in factual reality (Comey & Kirsch, 1999).

The idea that hypnotic suggestibility is very different from nonhypnotic suggestibility might be a reasonable inference if a trance were a prerequisite to respond to imaginative suggestions. However, abundant data indicate this is not the case. The first sustained research program on hypnosis was conducted by Hull (1933), who measured the ability to respond to the same suggestions with and without a hypnotic induction. His conclusion was that “No phenomenon whatever can be produced in hypnosis that cannot be produced to lesser degrees by suggestions given in the normal waking condition” (Hull, 1933, p. 391). This conclusion has since been consistently replicated (see Braffman & Kirsch, 1999; Meyer & Lynn, 2011).

**5. *Hypnosis is associated with greatly increased responsiveness to suggestions***

The myth that hypnosis dramatically increases suggestibility is widely represented in Internet advertisements that tout the special ability of hypnosis to compel someone to have sex, achieve unbounded success, eliminate the fear of public speaking, and "cure" impotence, as a smattering of examples. Although a state of heightened suggestibility is incorporated into some definitions of hypnosis (APA division, Elkins et al., 2015), the enhancement of responsiveness produced by a hypnotic induction turns out to be very small, “far less than the classical hypnotists would have supposed had the question ever occurred to them” (Hull, 1933, p. 298) (reviewed in Terhune & Cardeña, 2016). In two studies assessing this difference (Meyer & Lynn, 2011; Milling, Coursen, Shores, & Waszkiewitz, 2010), no advantage at all was found for inducing hypnosis. Additionally, non-hypnotic suggestibility has emerged as the best predictor of hypnotic responsiveness (see Braffman & Kirsch, 1999), with correlations ranging from .54 to

.99, rivaling test-retest correlations. Taken together, non-hypnotic suggestibility, expectancies, and motivation combined account for a third to more than half of the variance in hypnotic responsiveness (Braffman & Kirsch, 1999; Meyer & Lynn, 2010). Thus, hypnosis scales measure the ability to respond to the kinds of verbal suggestions that are typically given in hypnosis, regardless of whether one receives a hypnotic induction or not, rather than the degree to which a person can “be hypnotized.”

#### **6. *People slip into a hypnotic trance***

One counterargument to studies that find little differences between hypnotic and nonhypnotic conditions is that when given suggestions without a hypnotic induction, “hypnotizable” individuals might “slip into trance” (Barabasz, 2005). Hypnotic trance is rarely clearly or explicitly defined by researchers or clinicians, and the nature of this hypothesized state has been described in a plethora of contradictory ways (see Kirsch & Lynn, 1995). One definition is that hypnotic trance is “the cognitive end state produced by a hypnotic induction procedure” (Halligan & Oakley, 2014, p. 111). While the authors are among the few to actually define “trance,” broad definitions place no constraints on the nature or constituents of this state, which is often the case when this term is used. In the absence of reliable physiological markers, it is generally operationalized by self-report of its presence.

Mazzoni et al. (2008) tested the hypothesis that people can spontaneously slip into a hypnotic state when given an imaginative suggestion without the administration of a hypnotic induction. Highly suggestible participants were given suggestions to experience positive and negative color hallucinations with and without an induction. Not only were they able to subjectively add color to a grey-scale pattern regardless of hypnosis, but greater increases in

activity in the left fusiform area, relative to an imagination control condition, suggested that they were genuinely perceiving the nonexistent colors, not just imagining them. Nevertheless, participants reported being "in trance" only during the hypnosis trials. Moreover, in another study (Kirsch et al., 2008), when participants received either a hypnotic induction or the same suggestions with instructions to remain fully alert and wide awake and not slip into hypnosis, subjective experiences were comparable across conditions, and behavioral responses were only slightly higher in the hypnosis condition. Indeed, when an advantage for hypnotic vs. nonhypnotic suggestibility is observed, it is typically unremarkable, in the range of 1.5-2 suggestions on a 12-point scale (Kirsch & Lynn, 1995).

#### **7. A "Hypnotic Trait " is Robustly Associated with Hypnotic Suggestibility**

As we noted, absent intervention to enhance hypnotic responsiveness, hypnotic suggestibility is relatively stable over time. Nevertheless, attempts to find reliable and robust personality correlates associated with hypnotic responding have produced disappointing results. Standardized scores on personality inventories and hypnotic suggestibility suggest that the two constructs are largely orthogonal. Green (2004), for example, found that domain scores of the Neo-PI-R (Costa & McCrae, 1992), along with gender, accounted for only around 6% of the variance in hypnotic suggestibility. Other researchers similarly concluded that personality assessment based on the five-factor model does not meaningfully predict behavioral responses to standardized hypnotic suggestions (e.g., Nordenstrom, Council & Meier, 2002).

Research associating hypnotic responsiveness with the widely used Dissociative Experiences Scale (DES; Carlson & Putnam, 1993) has secured correlations that only hover around  $r=.20$  (e.g., see Kirsch & Lynn, 1998 for a review), and scales that measure non-

pathological dissociation have similarly not found significant correlations of dissociation with hypnotic suggestibility (Green, Lynn, Green, Bradford, & Rasekhy, 2020). Furthermore, when the scales are administered in two purportedly different and unrelated testing sessions, the correlation often vanishes to near zero (Kirsch & Lynn, 1998).

Researchers have been more successful in linking hypnotic responsiveness with constructs that are conceptually closer to the sphere of hypnosis, namely absorption and fantasy proneness. Studies typically report low-to-moderate range correlations between hypnotic suggestibility and measures of fantasy proneness and absorption. For example, across three large samples of college students, Green and Lynn (2008, 2011) obtained correlations between fantasy proneness and hypnotic suggestibility that hovered around the  $r=.30$  mark ( $r$ s ranged from .28 to .33). Council, Kirsch, and Grant (1996) summarized a number of findings and reported that the correlation between absorption and hypnotic suggestibility averaged  $r= .21$  for behavioral responses to hypnosis and  $r = .25$  for subjective response to hypnosis when the measures were administered in the same test context and  $r = .12$  (behavioral) and  $r= .09$  (subjective) when the measures were administered in separate test contexts. These findings imply that the absorption-hypnotizability link also is sensitive to context effects (e.g., see Council, Kirsch, & Hafner, 1986; Green & Council, 2004; Green & Lynn, 2008; Green et al., 2020) and may be affected by motivation to present oneself in a consistent manner (Council & Green, 2004). In contrast, the hypnotic suggestibility-fantasy proneness link is not so sensitive to context effects ( $r = .29$  measured out of context, Silva & Kirsch, 1992).

It is widely believed that hypnosis involves a state of focused attention or relies on imaginative abilities; however, multiple high-powered studies have failed to find support for

atypical attentional abilities in highly suggestible individuals (e.g., Dienes, Brown, Hutton, Kirsch, Mazzoni, & Wright, 2009), and the evidence for superior imaginative abilities in this group is mixed (Terhune & Oakley, 2020). By contrast, multiple studies have reported negative associations between working or short-term memory and hypnotic suggestibility, such that highly suggestible individuals display poorer memory performance (e.g., Farvolden & Woody, 2004). At least two studies suggest that highly suggestible participants have poorer metacognition regarding their motor intentions (Lush, Naish, & Dienes, 2016) and the factors influencing their sense of agency (Terhune & Hedman, 2017). The latter results are broadly consistent with the proposal that responsiveness to hypnotic suggestions is facilitated by reduced awareness of one's intentions (Dienes & Perner, 2007), resulting in the classical suggestion effect (i.e., the subjective experience that the response is automatic; Weitzenhoffer, 1974). Both working memory and metacognitive functions depend on lateral and medial prefrontal cortex and thus both sets of results are arguably consistent with the finding that highly suggestible individuals display lower frontal-parietal functional connectivity than controls (Terhune et al., 2011). Other cognitive traits relevant to hypnotic responding include the capacity to develop strong expectations and/or form precise priors (e.g., expectations; Martin & Pacherie, 2019), although no systematic evidence relates such a trait to hypnotic suggestibility as of yet.

A perennial challenge in identifying correlates of hypnotic suggestibility is that standardized hypnotic suggestibility scales tend to have poor internal consistency (Woody & Barnier, 2008) rendering it difficult to identify robust correlations and placing low upper limits

on the maximum possible correlations observable. Behavioral hypnotic suggestibility scales index an admixture of responses characterized by distortions in the sense of agency (Polito, Barnier, Woody, & Connors, 2014) and compliant responding (Bowers, Laurence, & Hart, 1988), and few correlational studies have sought to correct for compliance. Although behavioral and experiential responses to hypnotic suggestions tend to strongly covary (Kirsch, Milling, & Burgess, 1998), previous research suggests that self-report measures tapping personality constructs (e.g., absorption) correlate more strongly with experiential than behavioral measures of hypnotic responding (Cardeña & Terhune, 2014). This implies that traits associated with experiential involvement might relate more to the subjective changes that accompany responses to suggestion, such as distortions in the sense of agency.

**8. Responsiveness to suggestions reflects nothing more than compliance or faking**

Suggested behaviors during hypnosis can seem so much a departure from the mundane that questions inevitably arise regarding whether hypnotic responses are genuine. However, neuroimaging studies, which reveal that the effects of hypnotic suggestions activate brain regions consistent with suggested events (e.g., visual hallucinations activate visual cortex; see Oakley & Halligan, 2013), provide convincing evidence that hypnotic effects are represented at the neurophysiological level consistent with participant reports.

Although compliance figures into some responses, hypnotic suggestibility cannot be reduced to mere compliance or faking. For example, participants led to believe they were alone in a room, while videotaped surreptitiously, continue to respond to suggestions (delivered via audiotape) in the experimenter's absence, whereas low suggestible simulating



participants, instructed to fake or role-play hypnosis, were less suggestible and engaged in substantially more behaviors unrelated to the suggestions (Kirsch, Silva, Carone, Johnston, & Simon, 1989; Perugini, Kirsch, Allen, Coldwell, Meredith, Montgomery, & Sheehan, 1998; see also Evans & Orne, 1971). Apparently, many suggestible participants genuinely experience the effects of hypnotic suggestions in an involuntary manner.

#### **9. Hypnotic suggestibility cannot be modified**

Given that absent intervention, hypnotic responsiveness is reasonably stable over time (Piccione, Hilgard, & Zimbardo, 1989), many assume that hypnosis cannot be enhanced appreciably. However, this assumption is not accurate. At least 15 studies (Lynn, Kirsch, & Hallquist, 2010) investigating the Carleton Skills Training Program (CSTP; Gorassini & Spanos, 1999) have documented substantial enhancements in hypnotic suggestibility (i.e., between 25 and 50 percent of initially low suggestible individuals who completed the program later tested as high suggestible) following training to (a) increase motivation, (b) dispel hypnosis myths, (c) increase positive expectancies, (d) use instructed imaginal strategies and interpret suggestions correctly, alongside exposure to a videotaped person who models treatment components and, finally, (e) practice responding to test suggestions. Researchers have replicated positive outcomes on a cross-cultural basis that persist for up to 2.5 years and are not readily explicable in terms of compliance as gains transfer from the original training context (see Lynn et al., 2008). Additional research is needed to probe the influence of demand characteristics on treatment effects and to examine whether these effects generalize to more advanced measures of hypnotic suggestibility, such as computerized behavioral tasks.

Other studies have revealed that manipulating expectancy enhanced hypnotic suggestibility. David Wilson (1967) surreptitiously provided experiential feedback (e.g., imparting a faint red tinge to a room after suggesting that the room is turning red) aimed at convincing participants that they could experience whatever was suggested. Subsequent suggestibility testing revealed substantially higher scores among these subjects than among controls. This study was replicated successfully in two subsequent studies (Wickless & Kirsch, 1989; Kirsch, Wickless, & Moffitt, 1999), but not in a third (Benham, Bowers, Nash, & Muenchen, 1997). Most impressively, in Wickless and Kirsch (1989), after the expectancy manipulation, 73% of participants scored as “high hypnotizable” and none as “low hypnotizable.” Moreover, non-hypnotic and hypnotic suggestibility can be enhanced through pharmacological agents (Whalley & Brooks, 2009) and non-invasive brain stimulation (e.g., Dienes & Hutton, 2013), independently of changes in response expectancies thereby implicating executive functioning or metacognition.

#### Myths and Misconceptions About Inducing Hypnosis

##### **10. Hypnotic methods require great skill to administer, and responsiveness to hypnosis is greatly determined by the skills of the hypnotist**

One popular misconception is that of the mesmerist, or magician-like hypnotist with special powers of influence who can “hypnotize” anyone. In the Green et al. (2006) survey, 79% of participants agreed that “the extent to which hypnosis is successful depends on the skills of the hypnotist.” This widespread idea is pure myth; in actuality, administering a hypnotic induction and specific suggestions do not require any special skills or abilities beyond those required for basic social interactions and administration of experimental or clinical procedures,

such as the ability to establish rapport. At least one study showed that inexperienced experimenters yielded hypnotic suggestibility scores comparable to the respective scale's norms (Coe, 1976). It is occasionally anecdotally reported either that women or men are more effective hypnotists, although data indicate that hypnotic suggestibility is not related to a hypnotist's gender (Coe, 1976; Nash & Spinler, 1989). Nevertheless, certain characteristics of an experimenter or clinician might enable them to be more effective in administering suggestions, such as the ability to present oneself as a convincing authority (Woody & Szechtman, 2007), or the ability to develop rapport with a participant (Lynn, Snodgrass, Rhue, Nash, & Frauman, 1987). Still, these skills do not require extensive training. Moreover, they are likely to predict success with a range of therapeutic and experimental techniques and thus are in no way unique to hypnosis. Finally, a convincing body of evidence indicates that responsiveness to various hypnosis procedures reflects the set of characteristics and abilities that comprise hypnotic suggestibility (Laurence, Beaulieu-Prévost, D., & du Chéné, 2008).

#### **11. Some hypnotic inductions are much more effective than others**

A wide variety of inductions have been developed over the years, particularly in clinical practice, which raises the question of whether some induction procedures are more effective than others in enhancing responsiveness to suggestion. Several reviews largely concluded that no systematic evidence points to the utility of some inductions over others (Lynn, Maxwell, & Green, 2017; Terhune & Cardeña, 2016). Similarly, in a Bayesian re-analysis of previous studies comparing different types of inductions, Martin and Dienes (2019) primarily found that different inductions were comparable and not reliably different in terms of their efficacy. Terhune and Cardeña (2016) similarly concluded that no robust evidence exists that

special features of an induction, such as the use of props, were especially beneficial in modulating responsiveness to suggestion. Thus, there is no clear evidence for the utility of specific induction techniques, and any claims to the contrary should be critically evaluated.

Nevertheless, Terhune and Cardeña (2016) cautioned that our knowledge regarding the utility of inductions is relatively poor and results are often highly variable. Further research is required to more robustly investigate the utility of certain inductions. What is clear, however, is that widely used standard inductions are sub-optimal in terms of their length, their inclusion of instructions and suggestions (e.g., for relaxation), and their reference to outdated, unhelpful concepts (e.g., hypnosis as a sleep-like state) (Shor & Orne, 1962).

A promising strand of research concerns the impact of pre-instructions and/or meta-suggestions on hypnotic suggestibility. Brown, Antonova, Langley, and Oakley (2001) found that pre-induction instructions for reduced critical thinking were associated with greater hypnotic suggestibility than instructions for relaxation, which is arguably commensurate with work pointing to poorer metacognition in high hypnotic suggestibility (Lush et al., 2016; Terhune & Hedman, 2017). More recently, Scacchia and De Pascalis (2020) found that different hypnotic suggestibility scales correlated more strongly when both were preceded by meta-suggestions pertaining to hypnosis (assessment is presented as a measure of hypnosis and participants are encouraged to "let happen whatever is about to happen") compared with when one was preceded by meta-suggestions pertaining to imagination (assessment is presented as a measure of imagination and participants are encouraged to use their imagination), despite relatively comparable performance in the different contexts. Gandhi and Oakley (2005) found that the use of the word "hypnosis" alone was effective in enhancing responsiveness relative to

labeling an induction procedure "relaxation, highlighting the sociocultural impact of this word to create expectations that amplify suggested effects. In contrast, Lynn, vanderhoff, and Shindler (2015) determined that describing hypnotic responsiveness as depending on achieving an altered state of consciousness or "trance" suppressed hypnotic suggestibility compared with describing hypnosis in terms of cooperation, as per standard instructions (CURSS: Spanos, Radtke, Hodgins, Bertrand, Stam, & Moretti, 1983). Future studies will be necessary to determine whether defining hypnosis as a trance affects hypnotic responsiveness comparably in clinical contexts, and whether the term should be invoked at all in such contexts. Research could also examine whether the use of the term "trance" could be useful in delimited clinical contexts in which clients who responded previously and successfully to hypnosis use the term "trance" to capture their experience of hypnosis. The various factors reviewed highlight the moderating role of contextual information and suggest potentially fruitful means of optimizing inductions in experimental and clinical contexts.

#### Myths and Misconceptions about the "State" of Hypnosis

##### **12. Hypnosis greatly reduces or eliminates peripheral awareness.**

The idea that hypnosis instills a special state of consciousness is very much alive. The latest hypnosis definition formulated by the American Psychological Association (Elkins et al., 2015, p. 6) defines hypnosis as a state of "focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion." Researchers have criticized the APA definition (e.g., Lynn et al., 2015) because it endorses misconceptions that are inconsistent with existing evidence.

With respect to peripheral awareness, Green et al. (2006) reported that 62% of participants agreed that, "*During hypnosis, responsive subjects are aware only of what the hypnotist is suggesting and are not aware of anything else.*" Yet Sheehan and McConkey (1982) recounted numerous examples of the ability of hypnotized participants to respond to suggestions while they were attuned to their surroundings and aware of happenings outside the framework of suggestion. Lynn, Weekes, and Milano (1989) later confirmed these observations: Highly suggestible participants, who indicated they were deeply hypnotized, nevertheless, recounted, almost word for word, a telephone conversation they overheard during hypnosis. Even if hypnosis reduced peripheral awareness to some extent, the effect could be due to relaxation and eye closure, for example, rather than a trance or special state.

### 13. **Focused attention is essential to successful hypnotic responding**

Research clearly contradicts ascribing a key role to focused attention, as per the APA definition. Zamansky (1977) instructed participants to focus attention on imagery and suggestions that directly contradicted what the hypnotist suggested (e.g., bending the arm in response to suggestions for arm stiffness). Participants still responded to suggestions, despite focusing attention on incompatible imagery. As Zamansky stated, "The behavior of most subjects was more closely related to their beliefs about how the experimenter expected them to respond than to whether they engaged in incompatible cognitive activities" (p. 346). Later research (e.g., Zamansky & Clark; 1986) confirmed the ability to respond to suggestions in the face of incompatible images and suggestions, even among highly suggestible participants. As Dienes (2012) stated, "Thus, the theory that highs attend to one idea and inhibit all else in order to achieve hypnotic response is false" (p. 273).

#### **14. The effects of hypnosis are attributable to relaxation**

Edmonston (1981) proposed that the effects of hypnosis could be attributed to relaxation. However, a now classic study found that an exercise-based induction (e.g., riding on a bicycle ergometer) was not less effective than a relaxation-based induction (Bányai & Hilgard, 1976), and subsequent alert inductions are also as effective as relaxation-based inductions (Capafons, 2004; Wark, 2006). One study found that pre-induction instructions encouraging relaxation were less effective than instructions for reduced critical thinking (Brown et al., 2001).

#### **15. Hypnosis produces a sleep-like state**

The misconception of hypnosis as sleep is enshrined in popular images of the somnambulistic subject, slumped down with eyes closed, and in some standardized hypnotic inductions that trade on the metaphor of sleep and drowsiness (e.g., "You are becoming sleepy and drowsy."). However, psychophysiological studies disconfirm the link of hypnosis with sleep (Lynn & Kirsch, 2006). Participants remain awake and aware of their surroundings during hypnosis, although we occasionally encounter tired subjects who have fallen asleep after suggestions for eye closure, drowsiness, and relaxation.

#### **16. Hypnosis is like mindfulness**

Our clients often confuse mindfulness with hypnosis. It is true that both interventions rely on suggestion and participants often report they feel relaxed (Raz & Lifshitz, 201; Yapko, 2011). Yet whereas hypnosis steers spontaneous mental activity toward suggested events, mindfulness practice calls for observation of spontaneous thoughts and emotions with an accepting, nonjudgmental attitude. Thus, mindfulness practitioners display superior metacognition (Lush et al., 2016), whereas the opposite is generally true for highly suggestible

individuals (Dienes, Lush, Semmens-Wheeler, & Naish, 2016). Consistent with these findings, Grover, Jenson, Patterson, Gertz, and Dau (2018) reported a negative correlation between hypnotic suggestibility and facets of mindfulness. Mindfulness and hypnotic suggestibility are thus discriminable, although they can be combined in multifaceted clinical interventions (see Green & Lynn, 2019; Lynn, Das, Hallquist, & Williams, 2006).

#### 17. **There are reliable markers of a hypnotic state**

Despite concerted attempts, researchers have not succeeded in finding purported markers of the hypothesized hypnotic state. For example, Lynn et al. (2008; see also Lynn & Rhue, 1991) found no reliable evidence that hypnotic and nonhypnotic conditions differ in terms of (a) literalness of response to a series of questions (e.g., saying "no" to the question or negative shaking of the head in response to the question, "Do you mind telling me your name"); (b) trance logic (i.e., heightened tolerance for logical incongruity/saying a hallucinated person appears transparent), or the hidden observer phenomenon (i.e., a hidden part of consciousness directs behaviors/experiences, while another part, separated by an amnesic barrier, is unaware and responds in a manner consistent with suggestions). Either no differences are evident across hypnotic and nonhypnotic comparison conditions (e.g., non-hypnotized imagining participants or individuals who role play or simulate hypnotic responses: literalism, trance logic) and/or the findings are determined to be the product of suggestion or experimental demands (i.e., hidden observer) rather than an altered state unique to hypnosis (Kirsch & Lynn, 1998).

More recently, Kallio, Hyönä, Revonsuo, Sikka, & Nummenmaa (2011) claimed to find evidence for "the hypnotic state" via eye movements based on one highly suggestible participant compared with 14 individuals who were not evaluated for hypnotic responsiveness.



## Myths and Misconceptions About Hypnosis and Suggestion

However, Cardeña, Nordhjem, Marcusson-Clavertz, and Holmqvist (2017), using a larger sample of high and low suggestible individuals, failed to find support for the claim that eye behaviors index a hypnotic state.

The quest for biological markers has proved similarly lackluster. Landry, Lifshitz, and Raz (2017) conducted a meta-analytic review of neural correlates of hypnosis and reported “few reliable brain patterns emerge across studies” (p. 75) and “little consensus concerning the neural mechanisms and a great deal of inconsistency among findings” (p. 92) exists. In contrast, research consistently finds evidence for psychophysiological correlates of responses to different suggestions (rather than a uniform “trance state”), underlining the role of suggestion in producing the various changes in consciousness called for by diverse suggestions (see Lynn, Kirsch, Knox, Fassler, & Lilienfeld, 2007).

### Myths and Misconceptions About Control

#### **18. The perception of involuntariness during hypnosis is the product of a trance**

Popular myths feature the idea that hypnosis produces a state in which people respond to suggestions involuntarily and cannot resist or oppose suggestions. Although the classical suggestion effect (i.e., suggested responses feel involuntary and subjectively convincing) often accompanies hypnotic responses (Polito et al., 2014), it also accompanies responses to the same suggestions not labeled as “hypnosis.” Furthermore, the experience of nonvolition is not conferred by a trance. Rather, it is largely the byproduct of the fact that many everyday intentional behaviors are initiated automatically (Kirsch & Lynn, 1999) combined with beliefs that hypnotic responses are involuntary, which are reinforced by the passive wording of

suggestions (see Lynn et al., 2008). In short, the experience of nonvolition is not dispositive of a hypnotic state or trance but a characteristic of response to suggestion.

**19. People cannot resist or oppose hypnotic suggestions**

In Green et al.'s survey, 44% of participants agreed that "*A deeply hypnotized person is robot-like and goes along automatically with whatever the hypnotist suggests,*" and 36% agreed that "*Suggestions given during hypnosis cannot be resisted by subjects.*" A crucial test of whether hypnotic responses are truly involuntary is whether participants can resist or oppose them. The experience of involuntariness varies not as a function of the presence or absence of a trance state but in keeping with prehypnotic expectations regarding whether or not participants retain voluntary control during hypnosis (Lynn et al., 1984). Spanos, Cobb, and Gorassini (1985) demonstrated that when participants were told that they could get deeply immersed in suggestions yet resist them, they did not respond to 95% of the suggestions. Spanos, Weekes, and deGroh (1984) reported that participants could directly oppose suggestions while they construed their responses as nonvolitional. Finally, Silva and Kirsch (1987) reported that highly responsive participants were enabled to breach hypnotically-induced amnesia when they were informed that the ability to do so was a characteristic of a sufficiently deep trance and told to "go even deeper into trance."

Myths and Misconceptions About Memory

**20. Hypnosis is a reliable method to improve recent memories**

Simons and Chabris (2011) reported that as many as 55.4% of the U.S. general public agreed that "*Hypnosis is useful in helping witnesses accurately recall details of crimes.*" However, although hypnosis can produce increases in accurate memories, it also produces

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increases in inaccurate memories (Scoboria, Mazzoni, Kirsch, & Milling (2002). Courts in 27 states in the U.S. have barred admitting testimony based on concerns about false memories and unwarranted confidence in such memories (see Lynn, Boycheva, Deming, & Hallquist, 2009). For example, in 23 studies Lynn et al. (2009) reviewed, hypnotized individuals either expressed greater confidence in recollections during or after hypnosis compared with individuals who were not hypnotized, or hypnotized individuals expressed confidence in inaccurate memories regarding events they had previously denied (see Lynn et al., 2009). In an additional nine studies, participants in hypnotic and nonhypnotic conditions were equally confident in their recollections. However, in five of the studies, hypnosis engendered more errors or less accurate information on some or all measures, and in all but one of the remaining studies, there were no differences in hypnotic vs. nonhypnotic memory accuracy. The role of misleading questions in hypnotic versus nonhypnotic recall and the extent to which hypnosis impacts "don't know" responses and unanswerable questions remain unclear (Scoboria, Mazzoni, Kirsch, & Milling, 2002; Scoboria et al., 2006; Scoboria, Mazzoni, & Kirsch, 2008). In sum, hypnosis is not a reliable recall enhancement tool (Mazzoni, Heap, & Scoboria, 2010).

**21. Hypnotic age regression can retrieve accurate memories from the distant past**

Nash (1986) reviewed six decades of research on hypnotic age regression in which participants receive suggestions to recover childhood memories. He concluded that what participants "remember" during age regression often diverges sharply from memories or characteristics of actual children of the suggested age. The hypnotically retrieved memories of adults often reflect (mistaken) assumptions of childhood and age-normative behaviors. Indeed, researchers have structured expectancies such that most participants who were age regressed

## Myths and Misconceptions About Hypnosis and Suggestion

with hypnotic and nonhypnotic procedures reported memories of infancy (Spanos, Burgess, Burgess, Samuels, & Blois, 1999), a time covered by infantile amnesia (see also Green, 1999).

The popular Dr. Oz show; psychiatrist Dr. Brian Weiss, who touts the value of "past life therapy" and movies like *A Stir of Echoes* legitimize past life age regression in popular culture. But research suggests a contrary view. When the accuracy of memories of age regressed subjects is checked against factual information from the suggested time period (e.g., 10th century), the information provided is almost invariably incorrect (Spanos, Menary, Gabora, DuBreuil, & Dewhirst, 1991) and is mostly consistent with information experimenters provide regarding their supposed past life identities (e.g., different race, culture, sex). These findings imply that recall reflects expectancies, fantasies, and beliefs regarding personal characteristics and events during a given historical period.

### Conclusion

We reviewed 21 myths that potentially exert an impact on (a) how hypnosis is viewed in the public eye and by patients who seek help, (b) the practice of hypnosis, (c) treatment outcomes, and (d) future research. In presenting these myths, we have summarized a sizeable body of evidence regarding what theorists and researchers have learned about hypnosis. Still, we argue, some of the myths we identified have stifled inquiry and interest in hypnosis as a potential therapeutic intervention and as a modality for studying the many facets of human consciousness. We hope our review will steer clinical work toward evidence-based practice of hypnosis and stimulate research and theoretical advances to more sharply delineate the boundaries of our knowledge of hypnosis. By demarcating myth from mystery and fact from

fiction, and by highlighting what is known as well as what remains to be discovered, we can advance the science and practice of hypnosis grounded on an even firmer empirical footing.

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