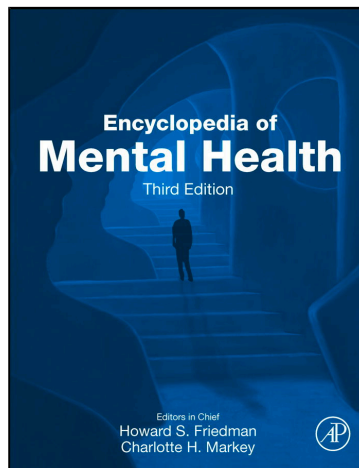


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Hypnosis and hypnotherapy

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Key points

- Define hypnosis and summarize its history.
- Characterize individual differences in hypnotizability, their correlates, and the neural substrates of hypnosis.
- Summarize salient findings of laboratory research on hypnotic phenomena and current theories of the nature of hypnosis.
- Summarize research bearing on clinical applications of hypnosis.

Glossary

Absorption A general disposition to experience cognitive states of either narrowed or expanded attention, resulting in a blurring of the boundaries between self and object.

Conversion Disorder Psychiatric syndrome involving disruptions in perception and motor behavior, such as blindness, deafness, tactile anesthesia, and paralysis, in the absence of brain insult, injury, or disease.

Delusion An incorrect belief that is firmly held despite all evidence to the contrary, a common symptom in paranoid schizophrenia.

Dissociative Disorder Psychiatric syndromes involving disruptions in memory and identity, such as amnesia, fugue, depersonalization/derealization, or multiple personality, in the absence of brain insult, injury, or disease.

Hysteria Outmoded collective term for what are now known as the conversion and dissociative disorders, involving pseudoneurological symptoms such as blindness, deafness, and amnesia, but lacking evidence of brain insult, injury, or disease.

Placebo a psychological, medical, or surgical treatment which effectively ameliorates a symptom, illness, or disease, without being specifically effective for that condition.

Psychosomatic A category of physical illnesses where there are actual alterations in bodily structure or function, with psychological rather than biological origins; also known as psychophysiological illnesses.

Suggestibility The tendency to accept and act upon to suggestions of various sorts, typically assessed in the normal waking state.

Abstract

Hypnosis is a social interaction in which one person responds to suggestions by another person for experiences involving alterations in perception, memory, and the voluntary control of action. As such, hypnosis is an altered state of consciousness which occurs in the context of a social interaction. This article traces the history of hypnosis and summarizes the findings of empirical research pertaining to individual differences in hypnotizability, their correlates, neural bases of hypnosis, the findings of experimental and clinical research, and modern theories of the nature of hypnosis.

Introduction

Hypnosis is a social interaction in which one person (the subject) responds to suggestions given by another person (the hypnotist) for imaginative experiences involving alterations in perception, memory, and the voluntary control of action. In the classic case, these responses are associated with a degree of subjective conviction bordering on delusion, and an experience of involuntariness bordering on compulsion. As such, hypnosis qualifies as an altered state of consciousness (Kihlstrom, 2008, 2018).

History of hypnosis

The origins of hypnosis extend back to the ancient Greek temples of Esculapius, where advice and reassurance uttered by priests to sleeping patients was interpreted by the patients as the gods speaking to them in their dreams. Its more recent history, however, begins with Franz Anton Mesmer, an 18th-century physician working first in Austria and later in France, who theorized that disease was caused by imbalances in a physical force, called animal magnetism, affecting various parts of the body. In this, he was actually following some speculations by Newton about the effects of gravity on the body. Accordingly, Mesmer thought that cures could be achieved by redistributing this magnetic fluid—a procedure which typically resulted in pseudoepileptic seizures known as “crises”. Mesmer’s techniques, theories, and cures were very controversial, and in 1784 Louis XVI appointed not one but two Royal Commissions to investigate him. While working in Austria in 1775, Mesmer himself had conducted just such an investigation of Johann Gassner, a famous priest-exorcist, arguing that his cures were genuine but mediated by animal magnetism rather than the expulsion of evil spirits. Later, in Paris, Mesmer had repeatedly called for a similar investigation of his own claims.

The more famous of these royal commissions was comprised of members of the Faculty of Medicine at the University of Paris and the Royal Academy of Sciences. It was chaired by Benjamin Franklin, then the American ambassador to France, and included Jean Sylvain Bailly, an astronomer; Antoine Lavoisier, the chemist who discovered oxygen; and Joseph-Ignace Guillotin, a physician (during the Reign of Terror, Bailly and Lavoisier both fell victim to his eponymous machine). In the course of their proceedings, the commissioners conducted what may well have been the first controlled psychological experiments, mostly designed by Lavoisier. For example, a subject known to be susceptible to mesmerism was brought to a grove of trees, and falsely told that four of them had been magnetized (but not which ones). As he successively approached each tree in the grove, he reported feeling progressively stronger effects, until at the fourth one he fell into a crisis—even though he was still far away from the one tree that had actually been magnetized. From this sort of evidence, the Commission concluded that the effects of mesmerism, while genuine in many cases, were achieved by means of “imagination” and not any physical force.

Mesmer’s theory was discredited, but his cures were accepted as genuine and so his practices lived on. A major transition occurred when one of Mesmer’s followers, Amand-Marie-Jacques de Chastenay, the Marquis de Puységur, magnetized Victor, a young shepherd on his estate. Instead of undergoing a magnetic crisis, Victor fell into a somnambulistic state in which he was highly responsive to suggestions, and from which he awoke with no memory for what he had done. In the 1840s, two physicians, James Esdaille and John Elliotson, reported the successful use of mesmeric somnambulism as an anesthetic for surgery (although ether and chloroform soon proved to be more reliably effective). James Braid, a British physician, speculated that somnambulism was caused by the paralysis of nerve centers induced by ocular fixation, and renamed the state “neurohypnotism” (nervous sleep), a term later shortened to hypnosis. Later, Braid suggested that hypnosis was due to the subject’s concentration on a single thought (monoideism) rather than physiological fatigue. The focus of attention has been a dominant factor in theories of hypnosis ever since.

In France, interest in hypnosis was revived in the late 1880s by Jean-Martin Charcot, a pioneering French neurologist, who thought hypnosis was related to hysteria, both reflecting a functional disorder of the central nervous system. In opposition to Charcot’s neurological theories, other French physicians, such as Ambroise-Auguste Liebeault and Hyppolyte Bernheim, emphasized the role of suggestibility in producing hypnotic effects. Pierre Janet and Sigmund Freud also studied with Charcot, and Freud began to develop his psychogenic theories of mental illness after observing the suggestibility of hysterical patients when they were hypnotized.

In America, William James and other early psychologists became interested in hypnosis because it seemed to involve alterations in conscious awareness and will. The first systematic experimental work on hypnosis was reported by Paul C. Young, in a doctoral dissertation completed at Harvard in 1923, and by Clark Hull in an extensive series of experiments initiated at the University of Wisconsin in the 1920s. Also at Wisconsin during Hull’s time was Milton Erickson, whose provocative clinical and experimental studies stimulated interest in hypnosis among psychotherapists. Ainslie Meares performed much the same role in Australia. In England, Hans Eysenck studied hypnosis and suggestibility as part of his classic explorations of personality structure.

After World War II, interest in hypnosis rose rapidly after Ernest Hilgard established a laboratory for hypnosis research at Stanford University. Hilgard’s status as one of the world’s most distinguished psychologists (he coined the term “classical

conditioning”) helped establish hypnosis as a legitimate subject of scientific inquiry. Other individuals important in this revival were Theodore Sarbin, Martin Orne, Theodore Barber, and Erika Fromm in the United States, and J.P. Sutcliffe and A. Gordon Hammer in Australia.

Hypnosis is now a thriving topic for both scientific inquiry and clinical application, and is represented by such professional organizations as the Society for Clinical and Experimental Hypnosis, the American Society of Clinical Hypnosis, the British Society of Clinical and Academic Hypnosis, and other affiliates of the International Society of Hypnosis. The *International Journal of Clinical and Experimental Hypnosis*, the *American Journal of Clinical Hypnosis*, the *Australian Journal of Clinical and Experimental Hypnosis*, and *Contemporary Hypnosis and Integrative Therapy* (formerly the *British Journal of Experimental and Clinical Hypnosis*) are among the leading journals publishing hypnosis research.

Individual differences in hypnotizability

Hypnosis has little to do with the hypnotist’s technique, and very much to do with the subject’s capacity, or talent, for experiencing hypnosis. Individual differences in hypnotizability are measured by standardized performance-based psychological tests such as the Stanford Hypnotic Susceptibility Scale or the Harvard Group Scale of Hypnotic Susceptibility, an adaptation of the Stanford scales for group administration. These instruments begin with a hypnotic induction in which subjects are asked to focus their eyes on a fixation point, relax, and concentrate on the voice of the hypnotist. The hypnotist then gives suggestions for further relaxation, focused attention, and eye closure. After the subjects close their eyes, they receive further suggestions for various imaginative experiences: for example, that there is heavy object pushing their extended hand and arm down; or that a voice is asking them questions over a loudspeaker; or that when they open their eyes, they will not be able to see an object placed in front of them. Posthypnotic suggestions may also be given for responses to be executed after hypnosis has been terminated, including posthypnotic amnesia, the inability to remember events and experiences which transpired during hypnosis. Response to each of these suggestions is scored in terms of objective behavioral criteria—do the subjects’ arms drop a specified distance over a period of time, do they answer questions realistically, do they skip the object when counting things in their field of vision, etc.?

Hypnotizability, so measured, yields a roughly normal (i.e., bell-shaped) distribution of scores. Most people are at least moderately responsive to hypnotic suggestions, while relatively few people are entirely refractory to hypnosis and relatively few (so-called hypnotic virtuosos) fall within the highest level of responsiveness. Cross-sectional studies of different age groups show a developmental curve, with very young children relatively unresponsive to hypnosis, and hypnotizability reaching a peak at about the onset of adolescence; scores drop off among middle-aged and elderly individuals. Hypnotizability assessed in college students remains about as stable as IQ over a period of 25 years.

While hypnotizability is generally assessed in terms of a single sum score, factor-analytic studies reveal some degree of multidimensionality. There are two types of ideomotor suggestions—direct (involving the facilitation of motor responses) and challenge (involving the inhibition of motor responses)—and a third category of cognitive suggestions involving alterations in perception and memory. These factors are themselves intercorrelated, so that a general dimension of hypnotizability emerges at a superordinate level, much like Thurstone’s solution to the structure of intelligence in terms of primary mental abilities and a superordinate general intelligence.

Even though hypnosis is a product of suggestion, it is a mistake to identify hypnotizability with suggestibility. In fact, suggestibility itself is also factorially complex (Evans, 1967). At the very least, we should distinguish among primary (e.g., direct suggestions for the facilitation and inhibition of motor activity), secondary (implied suggestions for sensory-perceptual changes), and tertiary (e.g., attitude changes resulting from persuasive communications) forms of suggestibility; other forms of suggestibility are the placebo response and interrogative suggestibility. Hypnotizability is correlated only with primary suggestibility, and this is carried mostly by the relation between primary suggestibility and the ideomotor components (direct and challenge) of hypnotizability.

There is some controversy over whether hypnotizability can be modified. Some clinical practitioners believe that virtually everyone can be hypnotized, if only the hypnotist takes the right approach, but there is little evidence favoring this point of view, and some of the most successful techniques proposed are heavily laced with demands for overt behavioral compliance (Bates and Kraft, 1991). As with any other skill, hypnotic response is probably a matter of both aptitude and attitude: negative attitudes, motivations, and expectancies can interfere with performance, but positive ones are not by themselves sufficient to create hypnotic virtuosity.

The role of individual differences makes it clear that, in an important sense, all hypnosis is self-hypnosis (Orne and McConkey, 1981). The hypnotist does not hypnotize the subject. Rather, the hypnotist serves as a sort of coach, or tutor, whose job is to help the subject become hypnotized. While it takes considerable training and expertise to use hypnosis appropriately in clinical practice, it takes very little skill to be a hypnotist. Beyond the hypnotist’s ability to develop rapport with the subject, the most important factor determining hypnotic response is the hypnotizability of the individual subject.

Correlates of hypnotizability

Hypnotizability is not substantially correlated with most other individual differences in ability or personality, such as intelligence or adjustment, conformity, persuasibility, or response to other forms of social influence. In particular, it is not correlated with

neuroticism, psychoticism, or other risk factors for mental illness. However, in the early 1960s, a number of investigators found that hypnotizability was correlated with subjects' tendency to have hypnosis-like experiences outside of formal hypnotic settings, such as imaginative involvement in reading or drama. The most reliable correlate of hypnotizability is *absorption*, or the tendency to have subjective experiences characterized by the full engagement of attention (narrowed or expanded), and blurred boundaries between self and object. By contrast, vividness of mental imagery is essentially uncorrelated with hypnosis. However, the relation between absorption and hypnotizability is too weak to permit confident prediction of an individual's actual response to hypnotic suggestion. Whether in the laboratory or the clinic, there is no substitute for performance-based measures such as the Stanford and Harvard scales.

Absorption itself seems to be a heretofore unappreciated aspect of individual differences. The scales of the Minnesota Multiphasic Personality Inventory, California Psychological Inventory, and other such instruments generally do not contain items related to absorption, which may explain their failure to correlate with hypnotizability. However, absorption is not wholly unrelated to other individual differences in personality. Recent multivariate research has settled on five major dimensions—the “Big Five”—which provide a convenient summary of personality structure: neuroticism (emotional stability), extraversion, agreeableness, conscientiousness, and a fifth factor often called *openness to experience*. Absorption is one facet of openness, along with intellectance (or culturedness) and sociopolitical liberalism. Hypnotizability is correlated with the absorption component of openness, but not with liberalism or intellectance.

Neural substrates of hypnosis

Modern brain-imaging technologies, including EEG and fMRI, now enable researchers to investigate the neural correlates of hypnotic experiences (Kihlstrom, 2013). Although hypnosis is commonly induced with suggestions for relaxation and even sleep, brain activity in hypnosis more closely resembles that of a person who is awake. The most thorough EEG study to date examined alpha, beta, and theta activity recorded separately from frontal, temporal, parietal, and occipital sites of both left and right hemispheres. Although there were some baseline differences between hypnotizable and insusceptible subjects, the induction of hypnosis increased alpha activity across all sites in all subjects, consistent with enhanced relaxation and reduction of visual activity following eye closure.

The discovery of hemispheric specialization, with the left hemisphere geared to analytic and the right hemisphere to nonanalytic tasks, led to the speculation that hypnotic response is somehow mediated by right-hemisphere activity. Some studies, employing both behavioral and electrophysiological paradigms, have been interpreted as indicating increased activation of the right hemisphere among highly hypnotizable individuals, but positive results have proved difficult to replicate and interpretation of these findings remains controversial. Because hypnosis is mediated by verbal suggestions, which must be interpreted by the subject in the course of responding, the role of the left hemisphere should not be minimized. One interesting proposal is that hypnotizable individuals show greater flexibility in deploying the left and right hemispheres in a task-appropriate manner, especially when they are actually hypnotized.

Because involuntariness is so central to the experience of hypnosis, it has also been suggested that the frontal lobes (which organize intentional action) may play a special role. One suggestion is that hypnotized subjects are similar to patients with lesions in the prefrontal cortex. Another is that hypnosis involves the activation of anterior fronto-limbic inhibitory processes. Yet a third is that highly hypnotizable subjects have more effective and flexible frontal systems for both attention and inhibition.

A related hypothesis implicates the “default mode network” (DMN) in the brain, involving cortical midline structures such as the medial prefrontal cortex, superior frontal cortex, and the anterior and posterior cingulate cortex. The DMN is so named because it is active when subjects are *not* engaged in a particular task-oriented activity. The DMN is deactivated when subjects engage in daydreaming and other task-unrelated mental activity, and these studies find that it is also deactivated during neutral hypnosis—a term referring to a subject's state following completion of a hypnotic induction procedure, before receiving any further suggestions. It remains to be seen whether the precise pattern of DMN deactivation in hypnosis differs from that observed in daydreaming and other such states.

In addition to studies of baseline differences between hypnotizable and insusceptible subjects, and changes from baseline following the induction of hypnosis, a number of studies have examined changes in neural activity in response to specific hypnotic suggestions. One PET study found that auditory hallucinations activated widespread regions in temporal cortex, just as normal hearing does. Another studied the effects of hypnotic suggestion on color perception. Perception of a colored stimulus activated the “color area” in the fusiform gyrus, compared to a stimulus presented in greyscale. Moreover, suggestions to drain color from a colored stimulus reduced fusiform activity, while suggestions to add color increased activity in that same region. A third study focused on the cognitive and affective components of pain: Suggestions to reduce the sensory experience of pain reduced activity in somatosensory cortex, while reductions in suffering altered activity in frontal regions, including the anterior cingulate cortex. Suggestions for hypnotic agnosia—i.e., that words are meaningless gibberish—can reduce or even eliminate color-word interference in the Stroop task, and this reduction in cognitive conflict is correlated with decreased activation in the anterior cingulate cortex.

Experimental studies of hypnotic phenomena

Right from the beginning of the modern era, a great deal of research effort has been devoted to claims that hypnotic suggestions enable individuals to transcend their normal voluntary capacities—to be stronger, see better, learn faster, and remember more. However, many early studies, which seemed to yield positive results for hypnosis, possessed serious methodological flaws such as the failure to collect adequate baseline information. In general, it appears that hypnotic suggestions for increased muscular strength, endurance, sensory acuity, or learning do not exceed what can be accomplished by motivated subjects outside hypnosis.

A special case of performance enhancement has to do with hypnotic suggestions for improvements in memory—what is known as hypnotic hypermnesia. While some practitioners have claimed that hypnosis can powerfully enhance memory, their mostly anecdotal reports have not been duplicated under laboratory conditions (Mazzoni et al., 2014). To make things worse, any increases obtained in valid recollection are equaled or exceeded by increases in false recollections. Moreover, hypnotized subjects (especially those who are highly hypnotizable) may be vulnerable to distortions in memory produced by leading questions and other subtle, suggestive influences.

Similar conclusions apply to hypnotic age regression, in which subjects receive suggestions that they are returning to a previous period in their lives. Although age-regressed subjects may experience themselves as children, and may behave in a childlike manner, there is no evidence that they actually undergo either abolition of characteristically adult modes of mental functioning, or reinstatement of childlike modes of mental functioning. Nor do age-regressed subjects experience the revivification of forgotten memories of childhood.

One phenomenon which has received a great deal of attention is hypnotic analgesia—in large part because of the obvious clinical uses to which it can be put (Hilgard and Hilgard, 1975). One comparative study of experimental pain found that, among hypnotizable subjects, hypnotic analgesia was superior to morphine, diazepam, aspirin, acupuncture, and biofeedback. Hypnotic analgesia relieves both sensory pain and suffering. It is not mediated by relaxation or self-distraction and similar cognitive strategies, and the fact that it is not reversed by narcotic antagonists would seem to rule out a role for endogenous opiates. There is a placebo component to all active analgesic agents, and hypnosis is no exception; however, hypnotizable subjects receive benefits from hypnotic suggestion that outweigh what they or their unsusceptible counterparts achieve from plausible placebos.

Psychological explanations of hypnotic analgesia come in two primary forms. On the one hand, it is argued that hypnotized subjects employ such techniques as self-distraction, stress-inoculation, cognitive reinterpretation, and tension-management. While there is no doubt that cognitive strategies can reduce pain, their success, unlike the success of hypnotic suggestions, is not correlated with hypnotizability, and thus is unlikely to be responsible for the effects observed in hypnotizable subjects. Rather, hypnotic analgesia seems to be associated with a division of consciousness which prevents the perception of pain from being represented in conscious awareness, without altering the physiological effects of the pain stimulus.

A great deal of research has also been devoted to the posthypnotic amnesia frequently displayed by hypnotizable subjects (Kihlstrom, 2020). This form of forgetting does not occur spontaneously, and may be reversed by administration of a prearranged signal without the reinduction of hypnosis, so it does not represent a form of state-dependent learning. However, the reversibility of amnesia does indicate that its mechanisms may be located at the retrieval stage of memory processing, rather than at the encoding or storage stages. Posthypnotic amnesia disrupts episodic, but not semantic or procedural memory. While posthypnotic amnesia disrupts explicit expressions of episodic memory (such as recall), it spares implicit expressions of memory, in the form of priming effects, retroactive interference, savings in relearning, or source amnesia. Among explicit memory tasks, posthypnotic amnesia has a greater impact on recall than recognition. This is because successful recognition can be mediated by a priming-based feeling of familiarity, as well as by conscious recollection of an event.

Other phenomena of hypnosis can also be understood in terms of the explicit-implicit distinction. For example, hypnotizable subjects given suggestions for deafness deny hearing anything; yet they show speech dysfluencies under conditions of delayed auditory feedback. And when given suggestions for blindness they deny seeing anything, yet show priming effects from stimuli presented in their visual fields. Based on an analogy between explicit and implicit memory, we may say that hypnotic suggestions for blindness, deafness, and the like impair explicit perception, while sparing implicit perception.

Hypnosis and experimental psychopathology

The relevance of hypnosis to mental health and illness was understood from the beginning of the modern era of hypnosis research, which is why hypnosis was explicitly included in the mission statement of the *Journal of Abnormal Psychology*, founded by Morton Prince in 1909 (he also founded the Harvard Psychological Clinic and the American Psychopathological Association). Prince was famous for his studies of “Miss Beauchamp” and other cases of multiple personality (now known as dissociative identity disorder), and he often used phenomena such as automatic writing, posthypnotic suggestion, and posthypnotic amnesia as examples of dissociation. Even earlier, Charcot had hypothesized that patients diagnosed with hysteria were especially hypnotizable, though he also distinguished between the *grand hypnotisme* of his patients from the *petit hypnotisme* of normal individuals. Based on the phenotypic similarities between the phenomena of hypnosis and the symptoms of hysteria, hypnosis has long served as a laboratory model for the study of the conversion and dissociative disorders—both for those who take the concept of dissociative disorder seriously, and those who take a skeptical approach to both hypnosis and hysteria.

Conflict is a central theme in psychodynamic theories of mental illness. Alexander Luria, the pioneering Soviet neuropsychologist, employed hypnosis in the studies described in his 1932 treatise on *The Nature of Human Conflict*, by giving subjects post-hypnotic suggestions that were contrary to instructions received in the normal waking state. Shifting theoretical bases from Pavlov to Freud, some investigators suggested to subjects that some conflict-inducing event occurred during their early childhood, or that they are the protagonists in a story designed to arouse socially disapproved sexual and aggressive ideas, wishes, and impulses, and then observed the impact of these suggestions on psychological test performance and other aspects of behavior.

Hypnotized subjects see things that aren't there, and fail to see things that *are* there; they believe they are five years old again when they are not: for that reason, some theorists have suggested that hypnotized subjects are in some sense deluded about the actual stimulus state of affairs. Age-regression is a familiar example: subjects believe that they are children again, but they do not grow smaller in the chair; nor do they lose adult cognitive capacities, reinstate modes of thinking characteristic of childhood, or recover childhood memories. Accordingly, hypnosis has provided a valuable laboratory model for the study of pathological delusions, such as are seen in paranoid schizophrenia and certain neuropsychological syndromes (Connors et al., 2014; Kihlstrom and Hoyt, 1988). Among these are changes in gender identity, mirror self-misidentification (the belief that a face in a mirror is that of a stranger), and somatoparaphrenia (the belief that a body part is not one's own). However dramatic they may be, clinical delusions can be difficult to study in the controlled environment of the laboratory. But with hypnosis, investigators can develop a better understanding of the phenomenology of delusions, how best to challenge them, and their neural correlates.

Hypnosis in treatment

Hypnosis has been employed in the clinic for both medical and psychotherapeutic purposes since the late 19th century. Both Pierre Janet and Sigmund Freud employed hypnosis in the treatment of hysteria and other forms of mental illness, although Freud quickly abandoned the technique in favor of his own invention, psychoanalysis.

By far the most successful and best documented of these applications has been hypnotic analgesia for the relief of pain (Jensen and Patterson, 2014). Clinical studies, including randomized trials, indicate that hypnosis can effectively relieve pain in patients suffering pain from burns, cancer, and leukemia (e.g., bone marrow aspirations), childbirth, and dental procedures. In such circumstances, as many as half of an unselected patient population can obtain significant, if not total, pain relief through hypnosis. Hypnosis may be especially useful in cases of chronic pain, where chemical analgesics such as morphine pose risks of tolerance, addiction, and overdose. Although it seems unlikely that more than about 10% of patients can tolerate major surgical procedures with hypnosis alone, clinical studies show that the adjunctive use of hypnosis decreases the need for chemical analgesia, reduces negative side-effects, and reduces the cost of care. There is also evidence that hypnosis can ameliorate chemically induced nausea and vomiting in cancer patients, especially children.

Hypnotic suggestion can have other psychosomatic effects, besides its effect on clinical pain. For example, several well-controlled laboratory and clinical studies have shown that hypnotic suggestion can affect allergic responses, asthma, and the remission of warts (Spanos et al., 1990). Such successes have led some practitioners to offer hypnosis in the treatment of cancer. While there is some evidence that hypnosis can have effects on immunological processes, more research in this area is needed, and hypnosis should never be substituted for conventional medical treatments in such cases. As with pain, the most effective use of hypnosis is probably as an adjunct to the current standard of care.

Hypnosis has also been used in psychotherapy, whether psychodynamic or cognitive-behavioral in orientation. In the heyday of psychoanalysis, some psychotherapists employed "hypnoanalysis" in an attempt to facilitate relaxation and the flow of free associations, enhance imagery, promote transference, and recover repressed memories (whether of real or fantasized events). Alternatively, hypnotherapy may entail direct suggestions for symptom relief. In other cases "hypnotherapy" simply refers to instances where all or part of a therapeutic session is conducted while the patient is hypnotized, without capitalizing on the ability of hypnosis to enable alternations in perception, memory, and the control of behavior.

There is little evidence from controlled outcome studies that hypnoanalysis or hypnotherapy are more effective than nonhypnotic forms of the same treatment—although, to be fair, these techniques have not often been put to rigorous empirical test. By contrast, several meta-analyses have found a significant advantage when hypnosis is used adjunctively in cognitive-behavioral therapy for a number of problems (Cuijpers et al., 2014; Kirsch et al., 1995; Ramondo et al., 2021; Valentine et al., 2019). In an era of managed mental health care, it will be increasingly incumbent on practitioners who use hypnosis to document, quantitatively, the clinical benefits of doing so.

Hypnosis is sometimes employed therapeutically to recover forgotten incidents, as for example in cases of child sexual abuse and other traumatic events. Although the literature contains a number of dramatic reports of the apparently successful use of this technique, most of these reports are anecdotal in nature, insufficiently documented, and lack independent corroboration. Given what we know about the unreliability of hypnotic hypermnesia, and the risk of increased responsiveness to leading questions and other sources of bias and distortion, such clinical practices are not recommended. It is important to obtain independent corroboration of any memories recovered with hypnosis.

Similar considerations obtain in forensic situations. In fact, many legal jurisdictions severely limit the introduction of memories recovered through hypnosis, out of a concern that such evidence might be tainted. At the height of the “satanic abuse” panic of the 1970s and 1980s, the Federal Bureau of Investigation published a set of guidelines for those who wish to use hypnosis forensically, and similar precautions should be employed in the clinic (Ault, 1980).

Returning to strictly therapeutic situations, an important but unresolved issue is the role played by individual differences in the clinical effectiveness of hypnosis. Unfortunately, clinical practitioners are often reluctant to assess hypnotizability in their patients and clients. In some cases, this is due to the clinician’s unwarranted belief that everyone is hypnotizable. In other cases, the clinician relies only on the placebo component of hypnosis—including exaggerated beliefs in its power to control behavior. Others are reluctant to measure hypnotizability, out of a concern that patients who prove relatively unsusceptible to hypnosis will lose motivation for treatment. This danger is probably exaggerated. Others object to the length of the standardized procedures developed for laboratory use, such as the Stanford and Harvard scales. Fortunately, abbreviated scales are now available specifically designed for clinical use, such as the Stanford Hypnotic Clinical Scale (in two forms, for adults and children), and the Elkins Hypnotizability Scale. Assessment of hypnotizability by clinicians contemplating the therapeutic use of hypnosis would seem to be no different, in principle, than assessing allergic responses before prescribing an antibiotic. In both cases, the legitimate goal is to determine what treatment is appropriate for what patient.

It should be noted that clinicians sometimes use hypnosis in non-hypnotic ways—practices which tend to support the hypothesis that whatever effects they achieve through hypnosis are related to its placebo component (every treatment, including surgery, has a placebo component). There is nothing particularly “hypnotic”, for example, about having a patient in a smoking-cessation treatment rehearse therapeutic injunctions not to smoke and other coping strategies while hypnotized. It is likely that more successful use of hypnosis as an adjunct to the cognitive-behavioral treatment of smoking, overweight, and similar habit disorders would be to use analgesia-like suggestions in order to control the patient’s awareness of cravings for nicotine, sweets, and the like. Given the ability of hypnotic suggestions to control conscious perception and memory, such strategies might well have therapeutic advantage—but only, of course, for those patients who are hypnotizable enough to respond positively to such suggestions.

The best-documented clinical applications of hypnosis are as an adjunct to other, traditional treatments. In other cases, the lack of evidence from randomized clinical trials that hypnosis is effective may preclude third-party payments for treatment. Individuals contemplating hypnosis for medical treatment of psychotherapy should seek referral through their general practitioners or health plans. Individuals who lack proper professional credentials should be avoided. No one should undertake to treat a problem with hypnosis who is not otherwise qualified to treat that same problem *without* hypnosis.

Theories of hypnosis

The dual nature of hypnosis—in which alterations in consciousness occur in an interpersonal context—has meant that theoretical attempts to understand the phenomenon have been entangled in dichotomies. Mesmer thought his effects were due to a magnetic fluid, while the French royal commission attributed them to imagination. Charcot thought hypnotizability was a matter of neurology, while Liebeault and Bernheim emphasized suggestion. Braid began with ideas about the paralysis of nerve centers, and ended up emphasizing attention, imagination, expectation, and personality.

In the modern era these dichotomies are still visible, if somewhat obscured by theoretical nuance. Thus, the traditional (if perhaps somewhat tacit) view that hypnosis involves a “special” or “altered” state of consciousness, is opposed by a variety of social-psychological or cognitive-behavioral views which assert that hypnotic behavior is a result of processes that are in every sense ordinary. However, there is considerable heterogeneity of viewpoints within each camp, which is sometimes ignored by the other side. Among those sometimes labeled “state theorists” are cognitive psychologists who think that hypnosis involves dissociative processes, psychoanalysts who invoke adaptive regression in the service of the ego, and neuroscientists who emphasize the inhibition of cortical structures. Among the critics of the state view are found some who claim that hypnotic effects can be produced in anyone who is appropriately motivated and instructed; others who emphasize the importance of prescriptive social roles played out by both hypnotist and subject; others the self-fulfilling effects of expectancies; and others the role of attributional processes and self-deception. While some social-psychological and cognitive-behavioral theorists have spent a great deal of time debunking exaggerated or erroneous claims about hypnosis, this has been no less true for some state theorists.

Although it is sometimes popular to portray this theoretical dispute as a kind of enduring debate, in the final analysis most hypnosis research is designed more to illuminate the nature of specific hypnotic phenomena such as analgesia or amnesia than to provide evidence for any overarching theory of hypnosis. Nevertheless, scientists are trained to test hypotheses derived from theories, and if possible, to test single hypotheses that will decide between competing theories, so that any empirical evidence obtained tends to be construed as evidence for one view or another.

In the early 1960s, J.P. Sutcliffe published a pair of seminal papers which contrasted a credulous view of hypnosis, which holds that the mental states instigated by suggestion are identical to those that would be produced by the actual stimulus state of affairs implied in the suggestions, with a skeptical view which holds that the hypnotic subject is acting *as if* the world were as suggested. This is, of course, a version of the familiar dichotomy, but Sutcliffe also offered a third view: that hypnosis involves a quasi-delusional alteration in self-awareness—a delusion that is constructed out of the interaction between the hypnotist’s suggestions

and the subject's interpretation of those suggestions. Hypnosis is simultaneously a state of (sometimes) profound cognitive change, involving basic mechanisms of perception, memory, and thought, and a social interaction, in which hypnotist and subject come together for a specific purpose within a wider sociocultural context. A truly adequate, comprehensive theory of hypnosis will seek understanding in both cognitive and interpersonal terms.

Conclusion

From the beginnings of psychology and psychiatry in the late 19th century, hypnosis has been of interest to both researchers and practitioners in psychology and related mental health fields. Experimental research, employing both behavioral and neuroscientific paradigms, continues to shed light on the mechanisms of hypnosis, just as this same research affords new perspectives on fundamental psychological processes of perception, memory, and the distinction between voluntary and involuntary behavior. Clinical research, especially studies employing randomized clinical trials, will continue to document where hypnosis, whether standing alone or as an adjunctive treatment, can be useful in medicine and psychotherapy.

References

- Ault, R.L., 1980. FBI guidelines for use of hypnosis. *Int. J. Clin. Exp. Hypn.* 27 (4), 449–451. <https://doi.org/10.1080/00207147908407578>.
- Bates, B.L., Kraft, P.M., 1991. The nature of hypnotic performance following administration of the Carleton Skills Training Program. *Int. J. Clin. Exp. Hypn.* 39 (4), 227–242. <https://doi.org/10.1080/00207149108409638>.
- Connors, M.H., Barnier, A.J., Langdon, R., Cox, R.E., Polito, V., Coltheart, M., 2014. Delusions in the hypnosis laboratory: modeling different pathways to mirrored-self misidentification. *Psychol. Conscious.* 1 (2), 184–198. <https://doi.org/10.1037/css0000001>.
- Cuijpers, P., Sijbrandij, M., Koole, S., Huibers, M., Berking, M., Andersson, G., 2014. Psychological treatment of generalized anxiety disorder: a meta-analysis. *Clin. Psychol. Rev.* 34 (2), 130–140. <https://doi.org/10.1016/j.cpr.2014.01.002>.
- Evans, F.J., 1967. Suggestibility in the normal waking state. *Psychol. Bull.* 67 (2), 114–129. <https://doi.org/10.1037/h0024086>.
- Hilgard, E.R., Hilgard, J.R., 1975. *Hypnosis in the Relief of Pain*. Kaufman, Los Altos, CA.
- Jensen, M.P., Patterson, D.R., 2014. Hypnotic approaches for chronic pain management: clinical implications of recent research findings. *Am. Psychol.* 69 (2), 167–177. <https://doi.org/10.1037/a0035644>.
- Kihlstrom, J.F., Hoyt, I.P., 1988. Hypnosis and the psychology of delusions. In: Oltmanns, T.F., Maher, B.A. (Eds.), *Delusional Beliefs*. John Wiley & Sons, New York, NY, USA, pp. 66–109.
- Kihlstrom, J.F., 2008. The domain of hypnosis, revisited. In: Nash, M., Barnier, A. (Eds.), *Oxford Handbook of Hypnosis*. Oxford University Press, Oxford, pp. 21–52.
- Kihlstrom, J.F., 2013. Neuro-hypnotism: hypnosis and neuroscience. *Cortex* 49 (2), 365–374. <https://doi.org/10.1016/j.cortex.2012.05.016>.
- Kihlstrom, J.F., 2018. Hypnosis as an altered state of consciousness. *J. Conscious. Stud.* 25 (11–12), 53–72.
- Kihlstrom, J.F., 2020. Posthypnotic amnesia: using hypnosis to induce forgetting. In: Groome, D., Eysenck, M. (Eds.), *Forgetting: Explaining Memory Failure*. SAGE, Thousand Oaks, Ca.
- Kirsch, I., Montgomery, G., Sapirstein, G., 1995. Hypnosis as an adjunct to cognitive-behavioral psychotherapy: a meta-analysis. *J. Consult. Clin. Psychol.* 63 (2), 214–220. <https://doi.org/10.1037/0022-006X.63.2.214>.
- Mazzoni, G., Laurence, J.-R., Heap, M., 2014. Hypnosis and memory: two hundred years of adventures and still going! *Psychol. Conscious.* 1 (2), 153–167. <https://doi.org/10.1037/cns0000016>.
- Orme, M.T., McConkey, K.M., 1981. Toward convergent inquiry into self-hypnosis. *Int. J. Clin. Exp. Hypn.* 29 (3), 313–323. <https://doi.org/10.1080/00207148108409164>.
- Ramondo, N., Gignac, G.E., Pestell, C.F., Byrne, S.M., 2021. Clinical hypnosis as an adjunct to cognitive behavior therapy: an updated meta-analysis. *Int. J. Clin. Exp. Hypn.* <https://doi.org/10.1080/00207144.2021.1877549> in press.
- Spanos, N.P., Williams, V., Gwynn, M.I., 1990. Effects of hypnotic, placebo, and salicylic acid treatments on wart regression. *Psychosom. Med.* 52 (1), 109–114. <https://doi.org/10.1097/00006842-199001000-00009>.
- Valentine, K.E., Milling, L.S., Clark, L.J., Moriarty, C.L., 2019. The efficacy of hypnosis as a treatment for anxiety: a meta-analysis. *Int. J. Clin. Exp. Hypn.* 67 (3), 336–363. <https://doi.org/10.1080/00207144.2019.1613863>.

Further reading

- Gauld, A., 1992. *A History of Hypnotism*. Cambridge University Press, Cambridge, U.K.
- Hilgard, E.R., 1965. *Hypnotic Susceptibility*. Harcourt, Brace, & World, New York.
- Jamieson, G.A. (Ed.), 2007. *Hypnosis and Conscious States: The Cognitive Neuroscience Perspective*. Oxford University Press, Oxford.
- Laurence, J.-R., Perry, C., 1988. *Hypnosis, Will, and Memory: A Psycho-legal History*. Guilford, New York.
- Lynn, S.J., Rhue, J.W., 1991. *Theories of Hypnosis: Current Models and Perspectives*. American Psychological Association, Washington, D.C.
- Lynn, S.J., Rhue, J.W., Kirsch, I., 2010. *Handbook of Clinical Hypnosis*, second ed. American Psychological Association, Washington, D.C.
- Nash, M.R., Barnier, A.J., 2008. *Oxford Handbook of Hypnosis*. Oxford University Press, Oxford.
- Raz, A., Lifshitz, M. (Eds.), 2016. *Hypnosis and Meditation: Towards an Integrative Science of Conscious States*. Oxford University Press, Oxford, U.K.
- Sheehan, P.W., Perry, C., 1976. *Methodologies of Hypnosis: A Critical Appraisal of Contemporary Paradigms of Hypnosis*. Erlbaum, Hillsdale, N.J.

Relevant websites

- Division of Psychological Hypnosis (Division 30) of the American Psychological Association, consisting of APA members with clinical or research interests in hypnosis: <https://www.apadivisions.org/division-30>.
- American Society of Clinical Hypnosis, an offshoot of SCEH geared more towards the interests of clinical practitioners: https://www.asch.net/aws/ASCH/pt/sp/home_page.

International Society of Hypnosis, an umbrella group of national hypnosis societies: <https://www.ishhypnosis.org/>.

Society for Clinical and Experimental Hypnosis, the oldest such organization in the United States, with an international membership as well: <https://www.sceh.us/>.

For a thoroughly documented, definitive account of the Royal Commission on Animal Magnetism, see: https://en.wikipedia.org/wiki/The_Royal_Commission_on_Animal_Magnetism.