Chapter 13
Hypnosis in the Management of Stress Reactions

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The modality known in modern times as hypnosis has been a useful and recognized remedial method for more than 200 years. Originally conceptualized by Franz Anton Mesmer (1734–1815) as a physical fluid (animal magnetism) that could be transferred from one person to another, that theory has since been discredited; but even today, the fundamental principles and mechanisms underlying hypnosis have not yet been definitively established. Even so, there are useful applications of hypnosis in numerous areas, including stress management.

Historical Perspectives

Originating as a medical dissertation submitted to the University of Vienna in the late 1700s, Mesmer's techniques soon became controversial, even though they were undeniably effective with many of his patients. That was understandable, because the medical establishment was threatened by his thesis that there was only one sickness (so-called magnetic illness) and only one treatment (*animal magnetism,* or *mesmerism,* as it was soon termed). Consequently, he was compelled to relocate to Paris, where, once again, his practice flourished and his techniques proved to be ameliorative for many. Controversy again dogged his steps, however, and his opponents prevailed on the king to initiate an investigation. Two commissions comprising prominent figures in science and medicine conducted a series of generally well-designed studies, although, curiously, they never interviewed Mesmer himself. Their finding, published in 1784, was that no fluid existed. They also concluded that the effectiveness of mesmerism was due to collusion and to deception of naive patients and, above all, to the force of imagination. Since the imagination at that time had no scientific status, Mesmer was labeled a charlatan, and he soon left France in disgrace. To his credit, one of the investigators, Laurent de Jussieu, an eminent botanist, dissented from the majority view and proposed that the imagination could have a therapeutic benefit. Mesmer's method survived him, however, and in France, elsewhere in Europe, and in the newly established USA, a number of

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followers modified his work and managed to keep mesmerism going for a number of years. During the first decade of the 1800s, several French investigators began using the nomenclature of *hypnotisme,* because they believed that it was a state of sleep, and Hypnos was the name of the ancient Greek god of sleep (Gravitz, 1997). By 1820, however, the modality was dormant.

In the mid-1800s, practitioners in England and elsewhere revived hypnotism (later to be termed *hypnosis*), principally as a form of pain management, but that use also faded as the more acceptable ether and chloroform were developed as surgical anesthetics. News of animal magnetism had earlier been brought to the USA in 1784 by Marquis de Lafayette, a dedicated disciple of Mesmer. Influential opponents, notably Benjamin Franklin, who had chaired one of the French investigative commissions while serving as the first American diplomatic representative to Paris, intervened, with the result that hypnosis did not flourish in the USA until decades later.

In the late 1800s, influenced by the earlier work of the British, notably James Braid, hypnotism was revived in France, and important French scientific figures became involved in practice and research. Within the same time frame, an Austrian physician studying hypnosis in Paris helped launch the new psychotherapy called *psychoanalysis:* this was Sigmund Freud, whose contributions to hypnosis, however, were minimal. By the turn of the century, mainly because of the rise of psychoanalysis, the modality had once again faded in significance, although a number of prominent workers in the field continued their efforts. Among others, these included Pierre Janet and Alfred Binet in France, Morton Prince and Boris Sidis in the USA, Ivan Pavlov in Russia, Albert Moll in Germany, and Charles Baudouin in Switzerland.

There was a brief revival of hypnosis during World War I, when it was employed by both sides as surgical anesthesia and front-line psychotherapy for the so-called shell shock and soldier's heart. These latter reactions to the effects of overwhelming stress became known in later times as combat fatigue and, in more recent years, posttraumatic stress disorder. During the 1920s, Clark L. Hull and Milton H. Erickson helped revive research and clinical interest in the method through their teaching and research. During World War II, clinical hypnosis became an important means of treating stress in the military services, where psychological problems comprised a large percentage of overall causalities. The current wave of professional and scientific interest in hypnosis had its origins in the demonstrated value of the modality during those years. The fact that hypnosis has always returned to the stage of history can be attributed to its undoubted effectiveness in assisting with the management of a wide variety of disorders, including those resulting from inordinate stress.

Hypnosis, Stress, and Mind–Body Interaction

Stress can be either physical or psychological, or, as is usually the case, both. Stress of whatever kind can impact negatively on bodily chemistry and function, as Hans Selye (e.g., 1976) demonstrated many years ago, and there is truly no demarcation between the mind and body—however, one may define those constructs. There are two ways of viewing the implication of these truisms. One is the recognition that

psychological forces can result in physical problems. The other is that psychological forces can positively impact the healing process. The demonstrated effectiveness of psychological means, including hypnosis, in treating psychosomatic disorders is a prime example of what is involved here. These considerations have evolved into the current interest in the so-called mind–body interaction, which in turn has generated important, and at times admittedly speculative, thinking about the underlying mechanisms involved. Rossi (1986), in particular, may be cited as a reference for further reading. Throughout these hypotheses, hypnosis has played significant historical and modern roles.

Theories of Hypnosis

A number of theories, at times conflicting, have been proposed (Gravitz, 1991) to explain the process of hypnosis. These have been broadly grouped into state versus non-state positions, and each view has presented scientific findings in support of its stance. A related approach has been the advocacy of either neurophysiological or sociocognitive perspectives, again, with evidence submitted for both positions. Recently, Gruzelier (2000) has proposed an overarching integration of these various viewpoints: His theory is that hypnosis is an altered state of brain function involving interrelations of, and between, certain brain regions initiated through the intervention of the hypnotist and the situation in which the process is undertaken. He has also emphasized the central role of cognitive and neuropsychological dissociation. Thus, Gruzelier has integrated social and interpersonal contexts, as well as psychological and neurobiological findings, into a comprehensive and coherent system that merits further study.

Despite the absence so far of a generally accepted understanding of the hypnotic process, the modality has proven effective in managing a broad array of problem areas, including stress management. The basis for such applications has been the observation that hypnosis can in many instances facilitate the enhancement of human behaviors and then apply them more effectively on behalf of the individual subject or client, as the case may be. The mechanisms for these applications have included the long-known, hypnotically induced phenomena of enhanced suggestibility, hypermnesia, distortion of the time sense, regression and revivification, response to posthypnotic instructions, dissociation, ideomotor communication, tolerance for distortion of reality, modified physiological processes, and suspension of critical thinking. These phenomena are a function of the individuals' unique talents as hypnotic participants and the source of individual differences.

Hypnosis and Stress

Hypnosis is not a therapy, but a technique to be used as an adjunct to therapy. For example, hypnosis has been used with Ellis's (1962) rational-emotive therapy (RET) by Stanton (1989) to reduce stress in high-school teachers. Ellis (1984) had previously suggested the use of hypnosis with RET to reduce the number of sessions

necessary to achieve positive results. Hypnosis has also been used with an extension of RET developed by Tosi (1974) called rational stage directed hypnotherapy (RSDH) to treat pathological non-assertiveness (Gwynne, Tosi, & Howard, 1978) and anxiety neurosis (Tosi, Howard, & Gwynne, 1982). RSDH combines cognitive restructuring, imagery, and hypnosis. A variation of RSDH was also used by Der and Lewington (1990) in the treatment of panic attacks to reduce panic symptoms in stressful situations.

The use of hypnosis with cognitive-behavioral therapies such as Wolpe's (1958) systematic desensitization is far from new: Wolpe and Lazarus (1966) reported using it with a number of their patients. Since then, a few examples of hypnosis used in conjunction with systematic desensitization include both Frankel (1976) and Seif (1982) in treating phobic behavior, Taylor (1985) in treating an obsession, Moore (1965) in treating bronchial asthma, and Barabasz and Spiegel (1989) in treating obesity. The literature is replete with such examples of hypnosis used with various therapies over several decades, including the more traditional insight-oriented therapies (e.g., Brenman & Gill, 1947; Crasilneck & Hall, 1975).

Support for the use of hypnosis as an adjunct to therapy has been mounting. An earlier argument by Holroyd (1987) that hypnosis serves to potentiate psychotherapy has been confirmed by Kirsch and his associates. In an initial meta-analysis of 18 studies, Kirsch, Montgomery, and Sapirstein (1995) found a substantial effect size (mean effect size = 0.87 standard deviations) when hypnosis was used as an adjunct to cognitive-behavioral psychotherapy (in the treatment of various presenting problems, including obesity) compared to the same therapy without hypnosis. This effect size is in the order of magnitude found by Smith, Glass, and Miller (1980) for psychotherapy compared to no treatment! Furthermore, long-term follow-ups of the obesity studies (ranging from 2 months to 2 years) indicated that participants who had received hypnosis continued to lose weight after the treatment had ended. These findings were confirmed by a second meta-analysis conducted by Kirsch (1996) that included additional data obtained from two of the original studies, corrected for computational inaccuracies, excluded results from a questionable study, and employed conservative calculation methods. The mean effect size for hypnosis compared to therapy without hypnosis for obesity studies was 0.66 standard deviations for the initial assessment and 0.98 standard deviations for the final assessment, leading Kirsch to conclude, "The addition of hypnosis appears to have a significant and substantial effect on the outcome of cognitive-behavioral treatment for weight reduction and this effect increases over time" (p. 519).

Given the well-established usefulness of hypnosis as a technique, a brief description of a "prototypical" hypnotic induction and suggestions as used in the treatment of stress is appropriate. The typical induction begins with the patient sitting comfortably while focusing on some target. Suggestions for progressive muscle relaxation are given, usually accompanied by counting as a deepening technique, while the patient is instructed to visualize a pleasant scene (e.g., lying on a beach on a warm, sunny day). A word of caution is in order here. Suggestions are most effective when tailored to fit the individual. For example, visualizing a beach may work perfectly well for a given patient, whereas being asked to visualize lying in front of

a cozy fire on a cold winter day may produce an adverse reaction if the patient is pyrophobic. This sort of reaction can be easily avoided by administering a checklist of fears, likes and dislikes, and so on, prior to the induction.

Following the induction, the stress-specific suggestions will vary depending upon the patient and the particular treatment regimen employed. For example, one may have a patient recall a pleasant memory while associating this with a cue (e.g., a simple motor act), then instruct the patient to self-present the cue (or perform the motor act) when faced with a stressful situation. Or, one may use a desensitization strategy in which the relaxation achieved through hypnosis is first paired with low stress-producing situations and eventually with high stress-producing situations. For examples of specific suggestions that have a variety of applications not only in psychology but also in medicine and dentistry, the reader is directed to the *Handbook of Hypnotic Suggestions and Metaphors* (1990) edited by Hammond, or *A Syllabus on Hypnosis and a Handbook of Therapeutic Suggestions* (1973) published by the American Society of Clinical Hypnosis Education and Research Foundation.

As we return to the primary focus of this chapter, the use of hypnosis with stress, our review of this body of work indicates that it can somewhat arbitrarily be divided into two broad types, with an admittedly gray area, without a sharp, clear-cut distinction between them. The first type would be studies that have involved reducing stress associated with a variety of *specific* situations (or external stressors). The second would be those studies dealing with stress in general and/or learning techniques to cope with it (stress management). We begin with the former.

In noting that both physical and psychological stressors have the *perception of threat* as a final common pathway for stress response, Bowers and Kelly (1979) created a list of four "generic stressors" that the relevant literature deems threatening and hence stressful: (a) a perceived lack or loss of control (together with related factors such as event uncertainty and unpredictability), (b) the anticipation and occurrence of physical or psychological pain, (c) the loss of close emotional and social supports, and (d) effortful "trying" to avoid aversive stimuli or conditions. (p. 491)

In the following examples, hypnosis was employed and often compared to other techniques in treating individuals exposed to various stressors, ranging from surgeries to college exams.

Enqvist, von Konow, and Bystedt (1995) utilized preoperative hypnosis to reduce stress during maxillofacial surgery, including suggestions to reduce bleeding and edema, and to improve recovery. Compared to control patients, hypnosis patients displayed reduced swelling, fever, and post-operative consumption of anxiolytics.

In a similar vein, Faymonville et al. (1997) conducted a randomized study comparing the effectiveness of hypnosis to stress-reducing strategies (including emotional support, deep breathing/relaxation, and positive emotion induction) in decreasing discomfort during plastic surgery under local anesthesia and intravenous sedation (midazolam and alfentanil) upon request. Patient anxiety, pain, and perceived control before, during, and after surgery, along with postsurgical nausea and vomiting, were recorded. Results showed that the hypnosis patients (during and following surgery) had significantly less anxiety, pain, nausea, and vomiting than controls. They also reported experiencing more intraoperative

control. The authors noted that the reduction in anxiety and pain were achieved in spite of the fact that the hypnosis group required significantly less midazolam and alfentanil during surgery! Furthermore, no direct suggestions for analgesia were given.

Another example of hypnosis used to control anxiety in a surgical setting is when oral surgical procedures are necessary in hemophiliacs. These procedures can be extremely stressful to the patient for obvious reasons. Lucas (1975) makes a case for the use of hypnosis, since anxiety can trigger (or complicate an ongoing) hemorrhagic episode, and this tendency (during and following surgery) is decreased considerably if the patient is relaxed and tranquil. An additional benefit is a reduction in pain and capillary bleeding through suggestion.

In a unique intervention for a psychosomatic condition, Gravitz (1995) successfully used a hypnosis-based paradigm to relieve functional infertility in several patients. Verbal suggestions coupled with mental imagery to relax fallopian tube musculature were provided to two patients. Since hypnosis is known to relax muscle tension, it was theorized that the consequent dilation of the tubular lumen would enable an ovum to travel successfully down the fallopian tube and achieve uterine implantation. In both cases, pregnancy resulted within several months.

Two final examples deal with what is commonly called test anxiety, admittedly a less dramatic stressor than surgery, but certainly far from mundane for those experiencing the stress. Boutin and Tosi (1983) employed the previously mentioned technique RSDH in the modification of irrational ideation and test anxiety in female nursing students. Participants were randomly assigned to one of four treatment conditions: RSDH, hypnosis-only treatment, placebo condition, or no-treatment control. Primary treatment was 1 h/week for 6 weeks. Dependent measures included the State-Trait Anxiety Inventory (STAI; Spielberger, 1983) and the Test Anxiety Scale (Sarason, 1957), among others. Results showed a significant advantage for the RSDH and hypnosis-only groups at both post-test and at 2-month follow-up, with RSDH being more effective than hypnosis-only at both test times.

The last example involving test anxiety is a study by Palan and Chandwani (1989) that compared hypnotic suggestions, waking suggestions, and passive relaxation in medical school students. In addition to the suggestions for reduced test anxiety, suggestions were also calculated to enhance self-image and improve study habits (e.g., suggestions that concentration and memory of material would improve). Although results showed that all treatment conditions produced a significant increase in motivation to study, only the hypnosis group reported significant increases in variables such as self-confidence, general health, sleep, and so forth.

The final type of study to be examined deals with reducing stress in general and/or stress management, i.e., techniques to cope with stress. This type of treatment falls into what Bowers and Kelly (1979), in describing attempts to treat psychosomatic disorders psychologically, called an "intermediate level of specificity… that focuses on the reduction of stress by altering the threatening character of the environment" (p. 494). One way this is typically accomplished is that "patients' resources to deal with threats are increased through some combination of enhancing their

ability to relax, to cope with a threat, and to defend themselves more adequately against its stress-producing characteristics". (p. 494)

A list of some stress management techniques *other than hypnosis* includes the following: progressive muscle relaxation (Jacobson, 1970), diaphragmatic breathing (Fried, 1987), meditation (including TM), listening to music, frontalis electromyographic feedback (EMG-FB; Budzynski, Stoyva, & Adler, 1976), distraction (and focused) imagery, and emotional support. Several studies have examined the effectiveness of these techniques compared to controls (usually sitting quietly with eyes closed), hypnosis, or other stress management techniques. For example, Avants, Margolin, and Salovey (1990) compared a brief (20 min) treatment of four different techniques (progressive muscle relaxation, distraction, focused imagery, and listening to music) to sitting quietly and found that only distraction imagery and listening to music reduced anxiety to a greater extent than sitting quietly.

Raskin, Bali, and Peeke (1980) compared the effectiveness of EMG-FB, TM, and progressive relaxation in reducing general anxiety. Although 40% of their participants showed marked anxiety relief, they found no differences between the treatments with respect to efficacy.

In an effort to reduce stress in high-school teachers, Stanton (1989) compared hypnosis combined with Ellis's RET to controls who spent an equal amount of time discussing stress management, with emphasis on cognitive restructuring to promote more rational thinking. Although both groups showed reductions on measures of irrational thinking and stress following treatment, the experimental group showed significantly more improvement than controls. Furthermore, they showed continued improvement at a 1-year follow-up, whereas control group scores were comparable to those immediately following treatment.

Elton (1993) compared the efficacy of hypnosis and hypnosis combined with EMG-FB in the treatment of stress-related conditions, including emotional problems such as frustration, anxiety, and low self-esteem, as well as conditions such as migraines and tension headaches. Although no control group was included, participants' scores on several variables (e.g., state and trait anxiety, self-esteem, and body stress) were compared to their baseline scores following treatment at 12 weeks and again at 24 weeks. Both groups showed significant improvement over baseline on all variables. At week 12, the hypnosis/EMG-FB group showed a significantly greater reduction on trait anxiety (as measured by Spielberger's STAI) than the hypnosis-only group; at week 24, the former group showed a significantly greater reduction in trait and state anxiety, and a greater increase in self-esteem. No significant differences were found between groups on other variables at either 12 or 24 weeks.

In a similar combinatory vein, Sapp (1992) employed relaxation therapy combined with hypnosis in treating anxiety and stress in adults with neurogenic impairment. Several measures of anxiety and stress were significantly reduced both post-test and at 4-week follow-up.

The next three studies explored the use of *self-hypnosis* for stress management, a skill that, once learned, can be practiced outside of the therapist's office, accounting in part for its growing popularity. Soskis, Orne, Orne, and Dinges (1989)

taught executives either self-hypnosis or meditation as part of "an organization stress-management program aimed at promoting health through the use of effective coping strategies" (p. 286). Depending upon their group assignment, participants were encouraged to practice self-hypnosis (or meditation) twice daily, 5 days per week for 2 weeks, and then as needed. Telephone follow-ups occurred 1 month and 6 months after the training session. The rate of use dropped equally for both groups over the 6-month follow-up interval (from 90% to 42% for all participants). In addition, the frequently described uses of self-hypnosis or meditation were similar for both groups (e.g., to relax, to aid in sleep onset, to reduce effects of external stressors, etc.), as were problems encountered (e.g., scheduling difficulties, obtaining the necessary privacy, etc.).

Whitehouse et al. (1996) trained first-year medical school students in the use of self-hypnosis as a means of coping with stress and potentially reducing the impact of stress on immune function. Although the self-hypnosis group did not differ from controls with respect to immune function at four measurement times, they did report lower anxiety and stress ratings at exam time, and less variability in the ratings of sleep quality throughout the measurement period.

Finally, Benson et al. (1978) compared self-hypnosis to meditation/relaxation in the treatment of anxious patients in an 8-week follow-up assessment. Both treatments showed moderate (and comparable) success in reducing anxiety at follow-up, with 37.5% of the self-hypnosis group and 31.3% of the meditation/relaxation group showing improvement.

This study, one of only a few thus far reviewed that assessed a key variable that can potentially moderate treatment outcome—hypnotic ability or hypnotizability—is worthy of further attention. To illustrate, Bowers and Kelly (1979) noted that when participants in the Benson et al. (1978) study were divided into low, moderate, and high hypnotic ability based on a pretest assessment, 47.6% (10 out of 21) of the moderate-to-high hypnotizable participants showed significant reductions in anxiety, while only 9.1% (1 out of 11) of low hypnotizable participants showed a comparable reduction. Bowers and Kelly concluded,

> Clearly, differences in hypnotic ability were far more important to treatment outcome than the ritualistic differences of the two therapeutic regimens being compared.... In sum, self-hypnosis and relaxation were equally effective in reducing psychological and physiological manifestations of anxiety in moderate to high hypnotizables, and equally ineffective for low susceptibles. (p. 499)

To reiterate, despite the importance of hypnotizability, few studies have formally assessed it. Although the aforementioned Elton (1993) study did assess hypnotizability, there was no analysis of how it may have affected treatment outcome. Although the Barber Suggestibility Scale (Barber 1969) was used in the Sapp (1992) study, it was administered without a prior hypnotic induction and was therefore a measure of *waking* suggestibility, which correlates only moderately with hypnotic susceptibility. In addition, only a single item was administered in hypnosis. Thus, it is not surprising that hypnotic susceptibility was not related to treatment gains. Finally, Whitehouse et al. (1996) obtained a pretest measure of hypnotizability and found that it was not related to treatment outcome, but their measure of self-hypnosis

correlated only a modest 0.42 with a standard susceptibility scale, suggesting that "self-hypnosis and heterohypnosis involve distinctive processes that may render standard heterohypnosis scales… poor predictors of self-hypnosis skill when used on their own". (p. 251)

A series of studies by Pekala and his associates (Pekala & Forbes 1988, 1990; Pekala, Forbes, & Contrisciani, 1988) is relevant to the importance of hypnotizability as a moderating variable. These studies, based on 300 nursing students who experienced progressive relaxation, deep abdominal breathing, and hypnosis, respectively, all following a baseline condition of sitting quietly with eyes closed, revealed not only that techniques such as progressive relaxation and hypnosis are *not* experienced as phenomenologically equivalent but also that the experience is moderated by an individual's hypnotic susceptibility. Specifically, high susceptible participants reported not only more hypnoidal effects than low susceptible across all conditions but also essentially equivalent hypnoidal effects for both progressive relaxation and hypnosis. (This suggests the possibility that high susceptible participants may be experiencing hypnosis, or something akin to it, when engaged in techniques such as progressive relaxation.) The low susceptible participants, however, experienced more hypnoidal effects during progressive relaxation than hypnosis, suggesting that for lows, progressive relaxation may be functioning as an indirect hypnotic technique (i.e., a technique not defined as hypnosis to the subjects, but possibly being hypnotic in nature; Barber, 1977).

Summary

In this chapter, we have discussed the potentially valuable role of hypnosis in the treatment of excessive stress. The information presented can be summarized as follows:

1. Hypnosis has been used for more than 200 years in the treatment of human ailments. It was first introduced by Franz Anton Mesmer; however, his controversial conceptualization of animal magnetism was discredited.
2. Hypnotism was later revived in France and Austria; however, with the rise and popularity of psychoanalysis, hypnosis faded in significance by the end of the twentieth century.
3. Interest in hypnosis was revived following the clinical applications that occurred during World Wars I and II primarily for stress-related disorders. The current interest in hypnosis is credited in part to the successes that occurred during those years.
4. There are a number of theories to explain the hypnotic process. Gruzelier (2000) has recently proposed a viewpoint that comprehensively integrates the social, interpersonal, psychological, and neurobiological contexts.
5. There are also several proposed mechanisms of action responsible for the hypnotic effect, including but not limited to enhanced suggestibility, hypermnesia, distortion of time, regression, and response to posthypnotic instructions.

6. It is important to emphasize that hypnosis is not therapy but a technique used as an adjunct to therapy. Hypnosis has been used with cognitive-behavioral therapies, insight-oriented therapies, rational-emotive therapy (RET), and rational stage directed hypnotherapy (RSDH), which is an extension of RET.
7. The use of hypnosis relative to stress can generally be divided into studies that address two broad categories. The first is the use of hypnosis to reduce stress associated with specific stressors that may fall with the generic categories of (a) loss of control, (b) anticipation of physical or psychological pain, (c) loss of emotional and social support, and (d) attempts to avoid aversive stimuli. Studies examining specific stressors such as surgeries, and college exams are examples of this first category. The second category includes studies examining how hypnosis compares to other stress management techniques such as biofeedback, progressive muscle relaxation, deep breathing, and meditation.
8. In summary, more research is needed that assesses relevant variables such as hypnotizability and expectancies, especially when comparing hypnosis to other stress management techniques. To date, the data suggest that hypnosis is at least as effective, if not more so, than other techniques for reducing stress and helping the individual learn to cope with stress. In addition, the efficacy of hypnosis seems to be enhanced when combined with other techniques such as biofeedback (see Chap. 14).

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