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TREATING ANXIETY WITH SELF-HYPNOSIS AND RELAXATION

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Abstract

The outcome and process of treating subclinical anxiety with self-hypnosis and relaxation were compared. Twenty individuals who presented for treatment for 'stress, anxiety, and worry' were assessed (for anxiety and self-hypnotizability), exposed to a 28-day treatment programme (which involved daily measures of outcome and process variables), and re-assessed (for anxiety). It was found that both self-hypnosis and relaxation alleviated anxiety pre- to post-treatment. Although there was no difference in the outcome data, throughout treatment self-hypnosis rather than relaxation was associated with a greater sense of treatment efficacy and expectation and with a greater sense of cognitive and physical change. The findings are discussed in terms of the expectational and experiential aspects of self-hypnosis, and their potential role in the perception, progress and impact of using self-hypnosis in therapy.

Key words: hypnosis, hypnotizability, anxiety, relaxation, self-hypnosis, treatment efficacy

Introduction

Self-hypnosis differs from hypnosis involving a hypnotist (hetero-hypnosis) in that subjects induce, manage and direct their own experience. Braid (1846) originally argued that hypnotic effects could be obtained without the influence of any other person and that they could be used to address one's own personal problems. Although there is broad recognition of the clinical potential of self-hypnosis (Sanders, 1991, 1993; Kahn and Fromm, 1992), there is only a limited understanding of the nature and application of self-hypnosis in the clinical setting. Clinical applications of self-hypnosis are characterized by three features (Sanders, 1991, 1993). First, self-hypnosis provides a way for clients to participate actively in the treatment programme, typically through cognitive activity that involves imagery and the use of suggestion. Second, self-hypnosis reinforces a sense of self-mastery, in that self-initiation and self-control of the hypnotic experience may strengthen clients' sense of self-reliance, counter any fears or fantasies about the supposed control of the therapist, and provide an experience of self-regulation. Third, self-hypnosis extends therapy beyond the immediate clinical setting, which can reduce the demand on the therapist's time by reducing the number and frequency of sessions required, and can allow the client to experience the benefits of suggestion independent of the availability of the hypnotist.

Self-hypnosis has been used to treat a wide range of clinical problems. Successful outcomes involving self-hypnosis with adults or children have been reported for the treatment of anxiety (including test anxiety, post-traumatic stress disorder, simple

phobia and panic disorder) (Davidson et al., 1978; Jiranek, 1993), chronic pain (including psychogenic dysphonia, post-traumatic contractures of the hand, abdominal pain and tension headaches) (Spiegel and Chase, 1980; Horsley, 1982; Sokel et al., 1991; Van Dyck and Roojimans, 1991; ter-Kuile et al., 1994) and habit disorders (including smoking, over-eating, alcoholism and drug addiction) (Kroger and Fezler, 1976) as well as in the management of mourning, hypertension, cancer, tinnitus, enuresis, insomnia and depression (Case et al., 1980; Fromm and Eisen, 1982; Brattberg, 1983; McBrien, 1990; Banjeree et al., 1993). The findings from empirical studies and case reports indicate merit in the clinical use of self-hypnosis, and point to some features of self-hypnosis that appear important in positive treatment outcomes. In terms of these features, Orne and McConkey (1981) argued that relaxation, imagery and self-suggestion were central components in the clinical effectiveness of self-hypnosis.

Accordingly, in the present experiment the focus was on these particular components in terms of both treatment process and treatment outcome. Also, emphasis was placed on anxiety as a clinical condition that could take advantage of these components of relaxation, imagery and self-suggestion. Contemporary approaches to the treatment of anxiety usually involve behavioural and cognitive techniques aimed at helping clients identify, evaluate and modify their unrealistic appraisals of danger and the behaviours that may maintain these appraisals (Clark, 1989). One specific goal of anxiety management is to teach clients strategies to use in anxiety-provoking situations so they perceive they have either behavioural control (i.e. they can do things to reduce anxiety) or cognitive control (i.e. they can think positively about the situation). Given this, self-hypnosis may be helpful because it focuses on individuals' self-control of their own behaviour and experience.

Although self-hypnosis has been reported to be an effective and relatively risk-free technique for coping with anxiety and stress-related tension (Soskis et al., 1989), only a few controlled clinical studies have been conducted. Davidson et al. (1978), for instance, reported that anxiety level and blood pressure remained low and within normal limits nine months after the implementation of self-hypnosis treatment for anxious adults. Various case studies have reported the successful use of self-hypnosis in treating post-traumatic stress disorder, public speaking, simple phobia and panic disorder (Gaffney, 1993; Ginsberg, 1993; Jiranek, 1993). Overall, previous speculations and empirical findings suggest that increases in a sense of self-reliance, self-control and self-efficacy may be central to the alleviation of anxiety through self-hypnosis.

In the present experiment, the focus was on the process and outcome of self-hypnosis in treating subclinical anxiety and it was expected that self-hypnosis would lead to a decrease in reported levels of anxiety. To better understand the specific contribution of self-hypnosis to the treatment of anxiety, self-hypnosis was compared with relaxation. Relaxation was selected because it is a commonly used procedure that has well-documented efficacy in anxiety reduction (Benson et al., 1978). Relaxation was also chosen because of the essential difference in the focus of the two techniques. Although relaxation focuses more on the physical components of individuals' experience of anxiety, self-hypnosis focuses more on the cognitive components of individuals' experience, including the use of imagery, suggestion or cognitive mastery. Thus, the interest was not only in whether subjects reported a decrease in anxiety levels, but also in how they experienced the treatment process and outcome.

To explore these issues, individuals with subclinical anxiety were given a treatment programme that involved either self-hypnosis or relaxation. The programme involved:

- A pre-treatment assessment session in which anxiety and hypnotizability were measured.
- A treatment session in which subjects were provided with anxiety education and taught self-hypnosis or relaxation.
- A 28-day period in which subjects were asked to use and to report on the treatment at home.
- A post-treatment assessment session in which anxiety was measured again.

In addition to treatment efficacy in terms of pre- to post-treatment changes in levels of anxiety, subjects' perceptions of the process and outcome of treatment were examined. Accordingly, subjects were asked to rate on a daily basis their perceptions of the outcome of treatment (including the frequency of treatment use, daily anxiety levels, changes in physical and cognitive experience and the efficacy of the treatment) and also their perceptions of the process of treatment (including the effort involved, the use of suggestions and imagery, and expectations for the outcome of treatment).

Overall, it was expected that both self-hypnosis and relaxation would be effective in treating subclinical anxiety (as indexed by the outcome measures), but given the different focus of the two techniques, self-hypnosis and relaxation were expected to have a differential effect in terms of clients' perceptions of the outcome and process of treatment. Further, it was expected that self-hypnotizability would play a role in outcome, with high self-hypnotizable rather than low self-hypnotizable subjects receiving more benefit from the self-hypnosis treatment.

In terms of outcome variables it was expected that, whereas ratings of daily anxiety and physical change might not differentiate the groups, self-hypnosis rather than relaxation subjects would report more cognitive change because their treatment focused on cognitive aspects of managing anxiety. Relatedly, the sense of cognitive-mastery engendered by self-hypnosis may lead these subjects to rate the treatment as more effective than did the relaxation subjects. In terms of process variables, it was expected that the more active cognitive and imagery focus of the self-hypnosis treatment would lead to higher ratings of treatment effort, suggestion use and imagery use by these subjects. Finally, it was uncertain whether self-hypnosis subjects would have higher expectations of the success of the treatment than relaxation subjects because of the traditional associations of 'hypnosis'. In general, though, differences in individuals' experiences of outcome and process were expected to be associated with their level of hypnotic ability.

Method

Subjects

Twenty (7 male and 13 female) individuals of mean age 40.85 years (SD = 14.33 years) participated in a programme for people who were 'stressed, anxious and worried', which was offered by the Psychology Clinic, University of New South Wales, Sydney, Australia. Subjects had been screened for current Axis 1 diagnosis using the DSM-IV structured interview (American Psychiatric Association, 1994). They were allocated randomly to either the self-hypnosis or relaxation treatment groups; ten (four male, six female, mean age = 42.40 years, SD = 15.20 years) subjects were allocated to the self-hypnosis treatment group, and ten (three male, seven female, mean age = 39.30 years, SD = 13.38 years) were allocated to the relaxation treatment group.

Materials

The *Inventory of Self-Hypnosis, Form A* (ISH:A) (Shor, 1978) was used to measure self-hypnotizability. The ISH:A is a self-administered inventory, adapted from the *Harvard Group Scales of Hypnotic Susceptibility, Form A* (HGSHS:A) (Shor and Orne, 1962), which includes a preliminary introduction explaining the nature of the procedure and hypnosis, instructions for 12 self-hypnosis suggestions, and instructions to rate the objective, behavioural response to each suggestion. Self-hypnotizability scores range from 0 (*'No suggestions passed'*) to 12 (*'All suggestions passed'*).

The Beck Anxiety Inventory (BAI) (Beck et al., 1988) and the *State-Trait Anxiety Inventory, Form Y* (STAI:Y) (Spielberger, 1983) were used to measure anxiety. The BAI asks subjects to rate on a four-point Likert scale (0 = *'Not at all'*, 3 = *'Severely'*) 21 items that include various physical symptomatology indicating how much they have been bothered by each symptom during the past week; BAI scores range from 0 to 63. The STAI:Y asks subjects to rate on a four-point Likert scale (1 = *'Not at all'*, 4 = *'Very much so'*) 40 statements indicating the intensity of feelings of anxiety they have experienced during the last week (State subscale), as well as more enduring levels of anxiety (Trait subscale); STAI:Y scores for the State and Trait subscales range from 20 to 80. For the other outcome and process variables, subjects were asked to rate each day on a seven-point Likert scale (1 = *'Not at all'*, 7 = *'Extremely'*) nine items that concerned their daily use of treatment, their perceptions of the outcome of treatment (including daily use of treatment, daily experience of anxiety, perception of efficacy so far, physical effect of treatment and cognitive effect of treatment), and their perceptions of the process of treatment (including the effort involved in treatment, the use of suggestions, the use of imagery and expectations for efficacy of treatment). Twenty-eight daily treatment rating forms were bound in a folder with a preliminary page of instructions and four reply-paid envelopes; subjects were instructed to mail the rating forms at the end of each of the four weeks.

Procedure

Phase 1

At the first appointment subjects completed the BAI and the STAI:Y. Self-hypnotizability was then assessed in small groups by use of the ISH:A. At this stage, the investigator discussed hypnosis and the self-hypnosis technique. In particular, subjects were told that the investigator was interested in how well they could hypnotize themselves and focus on different tasks. Subjects were told that they would follow a manual for the use of self-hypnosis, which included reading instructions and then attempting a number of tasks. During this discussion, hypnosis was defined as 'a state of intense relaxation and concentration, where the mind becomes detached from everyday cares and concerns. In this relaxed state, the mind can respond to suggestions and imagery or mental pictures.' Following this, subjects were given the ISH:A manual and asked to begin. After completing the ISH:A, the investigator answered any questions from subjects, arranged a second (individual) appointment for each person and ended the session.

Phase 2

At the second appointment subjects were allocated to either the self-hypnosis or the relaxation group. Identical anxiety education information was given to both groups (using self-hypnosis or relaxation terminology as appropriate). Subjects were then treated according to their allocation to either the self-hypnosis or relaxation group.

For those in the self-hypnosis group, the value of the procedure was outlined, it was described as a skill, and notions of how the treatment would be most beneficial (namely the optimal duration and number of sessions and the optimal context in which to practise the technique) were discussed. The induction or preparation phase of self-hypnosis was described as the phase where '*... using relaxation, deepening and visualization techniques, we prepare our mind to relax to the point where it is sensitive or open to suggestion and imagery*' and the therapeutic phase was described as the phase where '*... we can apply techniques such as general coping suggestions to help us change things we find unhelpful*'. Subjects were then given a sheet containing written instructions for practising the technique. Specifically, subjects were instructed to:

- Concentrate on their breathing.
- Relax their muscles group by group.
- Use deepening, counting or visualization techniques to feel completely relaxed and achieve a focused mind.
- Give themselves general coping suggestions, including suggestions to feel physically stronger, interested in things around them, more tranquil and better able to concentrate.
- Enjoy the feelings of warmth, comfort and relaxation.
- Count backwards from five to one and emerge from the experience of self-hypnosis.

Subjects were asked to read through the instructions a few times and then to practise the self-hypnosis technique for 15 minutes to learn the skill independently. Application of the technique was observed and, following the practice, any difficulties were discussed and any questions answered.

For those in the relaxation group, the investigator outlined the value of the procedure, described it as a skill, and discussed how the treatment would be most beneficial (namely the optimal duration and number of sessions and the optimal context in which to practise the technique). The relaxation technique was described as involving the tensing and relaxation of various muscles in the body one group at a time with the aim of noticing the difference between feelings of tension and relaxation. The investigator assisted subjects in identifying the 16 muscle groups and then gave them a sheet containing written instructions for practising the technique. Specifically, they were instructed to:

- Concentrate on their breathing.
- Relax their muscles group by group.
- Enjoy the feelings of relaxation.
- Use visualization techniques to imagine a pleasant scene.
- Count backwards from five to one and emerge from the relaxed state.

Subjects were asked to read through the instructions a few times and then to practise the relaxation technique for 15 minutes in order to learn the skill independently. The application of the technique was observed and following the practice any difficulties were discussed and any questions answered.

The investigator then gave each subject a treatment kit that contained procedure instructions and daily rating forms. The instructions and the contents of the rating form were explained. In particular, subjects were told to practise the procedure every day for 28 days and to complete the daily rating form each day. Subjects were encouraged to answer the questions as honestly as possible and to return completed

and uncompleted forms each week. They were told that three questionnaires would be sent to them in approximately one month and subjects were asked to complete those questionnaires and return them in the envelope provided. The investigator said that she would contact subjects by telephone in approximately one month to assess the progress of their treatment and to remind them to return the questionnaires by mail. Finally, any questions were answered and subjects were thanked and encouraged before the session ended.

Phase 3

Approximately one month after the treatment session, the anxiety questionnaires (BAI and STAI:Y), a covering letter and a reply-paid envelope were posted to each subject. Each was contacted by telephone approximately three days later and enquiry made into their experiences of the treatment, subjects were also reminded to return the questionnaires if they had not done so. The investigator also assessed current levels of anxiety and the need for ongoing support. Finally, any questions were answered, subjects were thanked for their involvement and any referrals for further treatment were arranged.

Results

The major outcome data were the self-report measures from the anxiety questionnaires. The major process data were the daily ratings. The role of self-hypnotizability in treatment outcome and subjects' perceptions of outcome and process were also considered. Of the 20 subjects who commenced the study, 17 (85%; eight self-hypnosis, nine relaxation) completed both the pre-treatment and post-treatment anxiety questionnaires; thus, analyses focus on these 17 participants.

Anxiety measures

Table 1 presents the mean score on each anxiety measure. The self-hypnosis and relaxation groups did not differ on any measure at the beginning of treatment. Separate two-way (Group x Time) mixed-model analyses of variance (ANOVA) yielded a significant main effect for time for both of the measures, but no other main or interaction effects. Post-treatment scores were significantly lower than pre-treatment ones (BAI pre-treatment: mean = 12.94, SD = 9.70, BAI post-treatment: mean = 6.41, SD = 4.39, $F(1,15) = 7.91$, $p<0.02$; STAI Trait pre-treatment: mean = 66.93, SD = 13.90, STAI Trait post-treatment: mean = 59.13, SD = 9.07, $F(1,12) = 6.86$, $p<0.02$; STAI State pre-treatment: mean = 57.82, SD = 11.62; STAI State post-treatment: mean = 51.00, SD = 8.02, $F(1,15) = 5.27$, $p<0.05$). Thus,

Table 1. Mean scores on the anxiety measures (pre-treatment and post-treatment)

	BAI (SD)		STAI:Y (SD)			
			State		Trait	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
Self-hypnosis (n = 8)	11.50 (11.6)	4.75 (2.92)	56.38 (14.28)	50.75 (5.4)	63.86 (17.14)	58.63 (7.13)
Relaxation (n = 9)	14.22 (8.09)	7.89 (5.09)	59.11 (9.36)	51.22 (10.15)	69.63 (10.81)	59.63 (11.17)

SD = Standard deviation

subjects in the self-hypnosis and the relaxation groups showed similar levels of improvement on the anxiety measures.

Self-hypnotizability was measured by use of the 12-item ISH:A. There was no significant difference in the self-hypnotizability of individuals in the two treatment groups (Self-hypnosis: mean = 5.75, SD = 4.98; Relaxation: mean = 5.57, SD = 3.41). There were no significant relationships between self-hypnotizability and change scores on either of the anxiety measures (i.e. the difference between pre-treatment and post-treatment scores). Thus, self-hypnotizability was not related to treatment outcome as indexed by the anxiety measures.

Outcome and process variables

Subjects rated their experiences of the outcome and process of treatment each day for 28 days. Across these 28 days there was no difference in the total number of days that subjects in the self-hypnosis (mean = 18.38 days, SD = 10.36; 66% use) and the relaxation (mean = 18.44 days, SD = 8.72; 66% use) groups reported using the treatment. Thus, any differences in subjects' perceptions of the outcome or process of treatment cannot be explained in terms of different levels of treatment use.

Variables involved in subjects' perceptions of the *outcome* of treatment were:

- Daily anxiety rating.
- Perception of treatment efficacy.
- Degree of physical change.
- Degree of cognitive change.

Variables involved in subjects' perceptions of the *process* of treatment were:

- Effort involved in using the treatment.
- Use of suggestions.
- Use of imagery.
- Expectancies for the future.

For each variable, daily ratings were averaged across the week to determine four weekly means. Separate 2 x 4 (Group x Week) mixed model ANOVAS were conducted; these analyses included those subjects who used the treatment four or more days in the week across each of the four weeks. Ten subjects (59%; five self-hypnosis, five relaxation) met this criteria. Therefore, the analyses focused on the treatment outcome and process variables that were rated at least 16 times during the treatment period.

Perception of outcome

Analysis of ratings of anxiety (*'How much anxiety have you experienced in the last day?'*) indicated no significant main or interaction effects. Analysis of ratings of treatment efficacy (*'How well is the treatment working so far?'*) yielded a significant main effect for group ($F(1,8) = 4.99$, $p<0.06$) and a marginal main effect for week ($F(3,24) = 2.43$, $p<0.09$); self-hypnosis subjects (mean = 4.71, SD = 0.73) rated the treatment as more effective than relaxation subjects (mean = 3.76, SD = 0.61) and ratings increased from Week 1 (mean = 3.86, SD = 0.87) to Week 4 (mean = 4.45, SD = 1.01). Thus, despite the similarity in treatment outcome, as indexed by the anxiety measures, self-hypnosis subjects were more positive in their perception of the efficacy of the treatment. Analyses of ratings of physical change (*'How much is the treatment changing how your body feels?'*)

and cognitive change (*'How much is the treatment changing how your mind thinks?'*) yielded significant main effects for group ($F(1,8) = 4.56$, $p<0.05$ and $F(1,8) = 6.65$, $p<0.05$, respectively). Individuals in the self-hypnosis group (physical: mean = 4.88, SD = 0.81; cognitive: mean = 5.00, SD = 0.99) reported a greater degree of physical and cognitive change than those in the relaxation group (physical: mean = 3.57, SD = 1.11; cognitive: mean = 3.67, SD = 0.60). Thus, as for perceptions of treatment efficacy, there were differences in self-hypnosis and relaxation subjects' perceptions of the physical and cognitive effect of treatment.

Perception of process

Analysis of ratings of effort involved in treatment (*'How much effort are you putting into using the treatment?'*), use of suggestions (*'How much are you giving suggestions to yourself during the treatment?'*) and use of imagery (*'How much imagery do you use during the treatment?'*) indicated no significant main or interaction effects. Analysis of expectations of the success of the treatment (*'Overall, at this point, how improved do you think you will be at the end of the treatment?'*) yielded a significant main effect of group ($F(1,8) = 8.70$, $p<0.02$); self-hypnosis subjects (mean = 5.88, SD = 1.22) reported higher expectations for successful treatment than did relaxation subjects (mean = 3.95, SD = 0.80).

In summary, in terms of perceptions of outcome, self-hypnosis subjects rated the treatment as more effective and reported greater physical and cognitive changes than did relaxation subjects; however, their ratings of anxiety were similar. In terms of perceptions of process, self-hypnosis and relaxation subjects did not differ in the extent to which they put effort into the treatment, used suggestions or used imagery; however, self-hypnosis subjects expected that the treatment would be more successful than did relaxation subjects.

To examine the relationship between perceptions of outcome and process of treatment and outcome of treatment as indexed by the anxiety measures, a bivariate correlational analysis was conducted using the mean ratings on the subjective variables from the fourth week of treatment and the change scores for the anxiety measures. Significant correlations ($p<0.1$) were found for three outcome and process variables:

- Perception of treatment efficacy correlated with the STAI State score (0.56).
- Effort involved in treatment use correlated with the BAI (0.8).
- The use of suggestion correlated with the BAI (0.66).

Those who showed greater improvement at the end of treatment also rated the treatment as more effective, reported using more rather than less effort in the treatment and reported using suggestions. Notably, these variables were associated with anxiety outcome measures regardless of treatment group.

To explore the relationship between perceptions of the outcome and process of treatment and self-hypnotizability, a bivariate correlational analysis was conducted using the mean ratings on the subjective variables for each week of treatment and ISH:A scores. In terms of perceptions of outcome, significant correlations ($p<0.05$) were found between self-hypnotizability and ratings of the efficacy of treatment across three of the four weeks (0.78, 0.73, 0.71, respectively), between self-hypnotizability and physical change across three of the four weeks (0.61, 0.76, 0.78, respectively) and between self-hypnotizability and cognitive change across three of the four weeks (0.84, 0.83, 0.78, respectively). High self-hypnotizability was associated with perceptions of greater treatment efficacy and greater physical and cognitive effects of the

treatment. In terms of perceptions of process, significant correlations ($p<0.05$) were found between self-hypnotizability and expectation of successful outcome across the four weeks (0.69, 0.78, 0.82, 0.78, respectively) and between self-hypnotizability and suggestion use during the second week (0.67). High self-hypnotizability was associated with greater expectations of success and use of suggestions. These associations between self-hypnotizability and subjective outcome and process variables were independent of treatment group.

Commitment to treatment

The analyses focused on those subjects who were 'committed' to the treatment; that is, they used the treatment at least four times a week across the four weeks. To examine whether these subjects were different from those who were not committed to the treatment to the same degree, the anxiety change scores of the ten 'committed' subjects were compared those of the seven 'less committed' subjects. *T*-tests indicated no significant difference in any anxiety change score; also, correlations between the anxiety change scores and the total number of days the treatment was used were all non-significant (range: r = –0.06–0.26). Committed and less committed subjects also did not appear to differ on any other measured variable; there was no significant difference in their level of self-hypnotizability (Committed: mean = 6.50, SD = 4.01; Less committed: mean = 4.00, SD = 4.42), their average age (Committed: mean = 47.10, SD = 10.86; Less committed: mean = 39.00, SD = 15.33) or in the distribution of males and females in the committed (four males, six females) and less committed (one male, six females) subjects. Thus, those committed to treatment did not appear to be different from those who were less so; notably, commitment did not appear to confer any treatment advantage. Of course, calculating commitment in terms of the number of days the treatment was used ignores the degree to which the treatment was successful in decreasing anxiety each day.

Discussion

Our aim was to explore self-hypnosis as a treatment for subclinical anxiety. We focused on the objective treatment outcome and the subjective treatment outcome and treatment process involved in self-hypnosis and relaxation, and we investigated the role of individual differences and abilities in self-hypnosis. Both self-hypnosis and relaxation alleviated anxiety across time and there were no differences in treatment efficacy between these groups. This finding is consistent with previous research that has found both techniques to be useful in the management of anxiety (Benson et al., 1978; Soskis et al., 1989). However, we were interested also in how the treatments differed in terms of subjects' experience of their impact and effects. Consistent with this, the self-report measures used on a daily basis throughout the treatment period highlighted differences in perceptions of treatment outcome and process. Specifically, the findings indicated that cognitive changes, physical changes and the perception of treatment efficacy were greater for self-hypnosis than relaxation. Further, subjects who used self-hypnosis reported higher expectations of success than did those who used relaxation. Both groups, however, perceived increased treatment success over time.

Our findings indicate that self-hypnosis is effective in the management of subclinical anxiety, as measured by pre-treatment and post-treatment measures. This outcome provides an important contribution to the increasing understanding of self-hypnosis as a treatment procedure. The finding also supports the notion that

self-hypnosis is considered an appropriate or 'congruent' treatment for subclinical anxiety. Self-hypnosis has been conceptualized by its use of relaxation, imagery, self-suggestion, cognitive activity and self-control (Orne and McConkey, 1981), and is matched to the goals of anxiety management, which include adjusting physical and cognitive components, the use of self-regulation skills, and the use of heightened imagery. Given the similarities of self-hypnotic features and anxiety management goals, the use of self-hypnosis in the treatment of anxiety is justified.

Self-hypnosis was compared to relaxation to further distinguish the nature of self-hypnosis and it was found that self-hypnosis and relaxation were equally effective in the management of subclinical anxiety. However, this result of similar positive outcomes in treatment efficacy is limited to some extent. Subclinical anxiety was chosen to examine the impact of self-hypnosis in isolation, as clinical anxiety is commonly treated in a package of techniques. The present study used a less severe form of anxiety to investigate the nature of self-hypnosis and to compare the procedure to progressive muscle relaxation with minimal contamination. We acknowledge that non-specific therapeutic variables or placebo effects may have contributed to the treatment outcomes (e.g. Luborsky et al., 1975; Strupp, 1986). For instance, the contact with the clinician for the initial interview, the self-hypnotizability assessment and presentation of the treatment rationale, and clinician factors such as warmth, empathy and positive regard may all have resulted in successful outcome, regardless of treatment modality. The limitation of a subclinical population is also recognized. Because the participants were less severe in their experience of anxiety, a floor effect may have limited the expression of differential effects according to treatment. In other words, the degree of anxiety change from pre-treatment to post-treatment associated with the successful treatment of subclinical anxiety might be expected to be considerably less than the degree of change in clinical anxiety and may not have been sufficient to identify differential outcomes between self-hypnosis and progressive muscle relaxation. Finally, we acknowledge that the study indicated equivalent outcomes directly following treatment completion and did not evaluate outcome comparisons at a longer-term follow-up assessment. Future research should address treatment differences between self-hypnosis and relaxation in the maintenance of therapeutic gains over time.

Self-hypnotizability was expected to play a role both in changes in anxiety scores and in the process variables. Analysis indicated no relationship between self-hypnotizability and improved anxiety scores, but we found significant relationships for perception of treatment effectiveness, the experience of cognitive and physical change, the use of suggestions and imagery and the expectation for treatment success. Although previous clinical research has highlighted a relationship between hypnotizability and treatment success (Kirsch et al.,1995; Kirsch et al., 1999), the majority of studies have conceptualized self-hypnosis as an extension of hetero-hypnosis, and most have measured hetero-hypnotic ability rather than self-hypnotic ability. Thus, our findings concerning the role of hypnotizability in treatment outcome could be interpreted in a number of ways. First, self-hypnotizability as measured by the ISH:A (Shor, 1978) has been found to correlate only weakly with the equivalent measure for hetero-hypnotizability, the HGSHS: A (Shor and Easton, 1973). Therefore, self-hypnotizability may be a different construct to hetero-hypnotizability, and may contribute to therapeutic outcome in different ways, as indicated by the relationship between self-hypnotizability and a number of the process variables. Alternatively, since participants' scores fell on the lower end of the scale of self-hypnotic susceptibility (the median score was four, in the range 0–12), they may not have applied self-hypnotic abilities and responsiveness to the same degree as those who represent a broader range of self-hypnotizability. Thus, this study cannot make strong

comment about the contribution of self-hypnotizability to either treatment modality in anxiety outcomes, without a larger sample.

Both treatment groups perceived the treatment to become more effective across time, a finding that is consistent with the anxiety measures. However, self-hypnosis subjects reported a greater perception of treatment efficacy than the relaxation group. This finding is somewhat paradoxical given the lack of differences between the groups on the anxiety measures. Nevertheless, the result is consistent with clinical and theoretical components of self-hypnosis that are recognized in the literature. Self-hypnosis has been conceptualized by its alterations of subjective experience (Sanders, 1991, 1993) as well as its use of self-control and regulation and its potential for self-mastery (Orne and McConkey, 1981). In this sense, self-hypnosis may be effective in managing anxiety because it helps subjects believe they can do things to manage anxiety. Relatedly, it was found that subjects who used self-hypnosis reported a heightened experience of cognitive change throughout the treatment period. This finding is consistent with previous work that has recognized cognitive activity, imagery and self-control (Fromm et al., 1981; Orne and McConkey, 1981) as being distinctive to self-hypnosis. This finding contributes to a better understanding of both self-hypnosis and relaxation, since virtually no controlled studies have explored the use of these variables in relaxation. Also, we found that the self-hypnosis group experienced a greater degree of physical change. This is somewhat surprising given that no differential effects in anxiety outcome were found between groups, and that self-hypnosis has received greater acknowledgment for its cognitive activity than its ability to change physical sensations. The degree of cognitive activity and change in the self-hypnosis group may have prompted a reinterpretation of physical sensations. Overall, self-hypnosis was perceived in a superior light to relaxation in treatment efficacy, and its capacity to alter cognitive and physical experiences. Self-hypnosis subjects reported significanly higher expectations for successful treatment than the relaxation group. The finding is consistent with the importance of expectations and attitudes to hypnotic procedures (Shor, 1971), and suggests that expectations for treatment success may have different effects for treatment outcome in the domain of self-hypnosis. Importantly, the result highlights that the process of self-hypnosis is stronger than that of relaxation in the expectation of treatment success.

In summary, this study has contributed to the understanding of the nature of self-hypnosis as a clinical treatment. Self-hypnosis can be implemented as an effective treatment for subclinical anxiety. Although its positive effect is not different to that of relaxation at the end of treatment, there are meaningful differences in the way individuals interpret outcomes and processes that are particular to self-hypnosis. Importantly, the use of self-hypnosis produces greater experiences of treatment efficacy and expectation, as well as cognitive and physical change, and this may have implications for individuals' involvement in therapy and for their longer-term use of coping strategies in the maintenance of treatment gains.

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