Hypnotizability and Dental Phobic Disorders

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Anxiety and fear are significant determinants of both attendance patterns and behavior during dental treatment. Despite the development of many new procedures these factors are still issues of major concern to many dental patients.

There is both a lack of agreement as to the nature of the syndrome or the condition from which these individuals suffer as well as the importance of the separate social, psychological and physiological phenomena that underlie and maintain these problems. The need for further research into these areas is pertinent, with the continuing low percentage of regular dental attenders, as shown by recent American, British, Swedish, and Australian surveys. Fear motivated dental avoidance in these studies ranged from 8% to 16%, which is considerably higher than the often quoted estimates of 5–6% of some two decades ago.

Behavioral psychotherapy techniques, relaxation and hypnototherapy have in recent years assumed increasing prominence as effective treatment regimes. Dentists have used a number of methods in the management of dental phobic disorders through hypnosis. They have treated the anxiety directly and symptomatically, relying largely on relaxation. Behavioral techniques have also been found to combine effectively within the hypnotic framework. Hypnosis has also been found to be useful in more sophisticated uncovering techniques of age-regression and hypnoanalysis as part of more analytical insight-oriented psychotherapies.

Hypnotizability (also termed hypnotic responsivity or hypnotic susceptibility) has been found to be a relatively stable characteristic of the individual. Approximately 20% of the population is highly susceptible, 20% is unresponsive and the remaining 60% is moderately susceptible to varying degrees. Hypnotizability has been related positively to the degree of improvement in chronic pain problems and asthma, and various dermatological conditions. Recent studies indicate that some specific clinical populations are characterized as more hypnotizable than the general population.

Frankel was the first to report this relationship. He found that 58% of a group of 24 phobic patients was highly responsive to hypnosis when evaluated on the Harvard group scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor and Orne 1962). The phobic group
was also found to be significantly more hypnotizable than a control group of patients wishing to stop smoking. He further suggested that there was a relationship between hypnotizability and the etiology of phobias. Further supporting data was presented by Frankel and Orne and Frankel. Gershman et al obtained similar results with dental phobics—48% of the sample of 40 patients scored within the high susceptible range of hypnotizability on the Diagnostic Rating Procedure (DRP, Orne and O'Connell (1967). In a further study, Foenander et al reported similar findings for a group of 33 mixed phobic patients, 45.5% were highly susceptible on the HGSH:A.

Rodey et al using the HGSH:A found that 55% of a sample of 20 patients who were phobic to snakes, spiders or rats were highly responsive to hypnosis. Kelly comparing 112 patients with a variety of complaints with 22 phobic patients, using the Hypnotic Induction Profile (H.I.P. Spiegel 1970) and the Stanford Hypnotic Clinical Scale (SHCS Morgan and Hilgard 1975) found that the phobic patients were higher in hypnotic responsivity than are the population in general and non phobic patients seeking hypnosis in particular.

Although five cited studies have found an increased level of hypnotizability in phobics, only one study by Frischolz et al using the Hypnotic Induction Profile found no statistical differences in the mean hypnotizability of 95 phobics, 226 smokers, and 65 chronic pain sufferers.

The aim of the present study was to further investigate the relationship between hypnotizability and dental phobic disorders using a larger sample size, additional measures of phobic behavior and a more stringent methodology.

MATERIALS AND METHODS

In 1974 a multidisciplinary outpatient clinic (The Orofacial Pain Clinic) was established conjointly by the Department of Dental Medicine and Surgery in the Royal Dental Hospital of Melbourne and the Department of Psychiatry of the University of Melbourne. The clinic team has focused on a number of research areas: chronic oro-facial pain, comparison of patients with pain or fear of pain, the determinants of dental phobic disorders and, in this particular study, hypnotizability and dental phobic disorders. Clinic team members included dentists, nurses, psychiatrists, psychologists, and a social worker. Other specialists were involved when their expertise was required.

Patients were referred to the clinic with previously unmanageable dental phobic disorders. All patients initially received intensive medical, dental, and psychiatric assessment.

Psychometric assessment included objective and subjective rating scales and questionnaires. These consisted of a social and demographic profile (e.g., age, sex, occupation, marital status, ethnicity, etc.); visual analogue scales of pain, discomfort, anxiety and depression modified from Aitken, the Hamilton rating scales of depression and anxiety; a rapid symptom check list, the Eysenck Personality Inventory (E.P.I. form B). Hypnotizability was assessed by the Diagnostic Rating Procedure. Dental fear ratings were measured by a visual analogue fear rating scale (The Fear Thermometer), the Dental Anxiety Scale, the Fear Survey Schedule, a Dental Fear Scale and a positive reaction to dentistry scale.

Patients were also grouped according to the type of phobia (single or multiple) on the basis of their predominating symptom present. Clinical and psychometric data was recorded in a standardized form suitable for statistical analysis. Treatment consisted of behavior therapy and cognitive therapy in association with hypnotherapy. Patients were seen individually at two to four weekly intervals.

Outcome of treatment was assessed in the following ways: change in presenting symptoms, subjective reports of improvement, changes in functional impairment, i.e., manipulative behavior, social activities, work performance, change in psychological status. Patient assessment was made by the clinic team to minimize any possible bias on the part of the primary therapist.

Follow-up was carried out by assessment of all patients at the clinic and by means of a standard postal questionnaire. The following features were recorded: 1) the nature of the original complaint, 2) the period of follow-up, 3) the state of the patient with respect to the original problem, 4) whether the patient had sought further treatment from other health professionals.

DATA ANALYSIS

There were two broad questions addressed by the present study. The first concerned the characteristics of the patients. The analysis of these data involved the calculation of descriptive statistics on proportions of cases falling into various categories and, when appropriate, mean scores on continuous variables.

The second set of questions concerned the relationships between hypnotizability and various characteristics of the patients and their response to treatment. Both univariate and multivariate statistics were used. Univariate analyses were used to compare the data with Frankel's original data. However, the commonly adopted
strategy of evaluating all possible correlations between patient variables and outcome is unsatisfactory; if no adjustment is made for the large number of tests conducted many spuriously significant results may be obtained. Appropriate adjustments have thus been made by means of the Bonferroni inequality adjustments.

The strategy of statistical analysis adopted was a three-stage one. The first stage consisted of data reduction by means of principal components analysis. The object of this stage was to achieve an economical description of the original variables in terms of a small number of combinations of variables which could be interpreted in theoretically interesting ways. To this end, principal components analyses were performed within the fear measures and outcome variables.

The second stage of the analysis consisted of the exploration of correlations between the factors emerging from the principal components analyses. Because of the data reduction achieved by the principal components analysis a comparatively small number of significance tests were conducted with an appropriate Bonferroni adjustment.

The third stage of the analysis examined relationships between groups of factors and outcome. This was carried out to examine the possibility that combinations of psychosocial and fear variables might be better predictors of outcome than individual psychological and fear factors. The method chosen was multiple regression.

RESULTS

Descriptive Data

The study of the population consisted of 130 patients, these being 50% random sample of consecutive patients presenting to the clinic over an 8-year period.

There were 88 women (67.7%) and 42 men (32.3%) with a mean age of 27.2 years (range 5–60 years). The mean duration of symptoms was 134.7 months (range 8–630 months) with the mean time elapsed since the previous dental visit being 69.5 months (range 2–88 months).

Most patients presented with a combination of dental fears. The most common fears were fear of not being able to express or cope with feelings of helplessness and defenselessness (87.7%), fear of pain (86.2%), fear of injections (84.6%), generalized dental anxiety (78.5%), fear of drilling (76.9%) and fear of extractions (63.8%).

The majority of patients, 108 (83.1%), had other phobic symptoms besides their dental phobia, i.e., multiple phobias.

Hypnotizability was assessed for 120 out of the 130 patients. The others were selected out because their psychiatric problems, including schizophrenia and severe depressive illness, was a contra-indication for the use of hypnosis. No patients were unhypnotizable, 6 (5.0%) were low, 57 (47.5%) were medium and 57 (47.5%) were high (Table 1). Other descriptive details have been detailed elsewhere.2

Assessment of outcome of treatment showed that there was no response in 5 (4.2%), a poor response in 16 (13.3%), a fair response in 24 (20.0%), a good response in 40 (33.3%) and an excellent response in 35 patients (29.2%). The mean period of follow up was 35.1 months (range 0–72). The majority of patients (74.2%) maintained their level of improvement.

STATISTICAL ANALYSIS

Univariate Analysis

1. Distribution of Hypnotizability Scores on the Diagnostic Rating Procedure. Patients were classified as low, medium or highly hypnotizable according to their scores on this scale. A Chi-square analysis was carried out in order to compare the distribution of these scores from that expected in the normal population. The expected frequencies were calculated on the basis that in the normal population 20% are low in hypnotizability, 60% are medium and 20% are highly hypnotizable.

A further Chi-square analysis compared the distribution of phobic patients with chronic facial pain patients being investigated in the clinic for whom hypnosis was being used. There were 35 pain patients with a mean age of 35.4 years and a sex distribution of 75% female and 25% male.

The Chi-square analysis (Table 1) showed that the distribution of the scores of phobic dental patients were significantly different from that expected in the normal population ($\chi^2 = 62.0, df = 2, p < 0.001$) and from the chronic pain patients, Table 2 ($\chi^2 = 46, df = 2, p < 0.001$).

Patients with dental phobic disorders were thus significantly more hypnotizable than chronic pain patients and the normal population.

| Table 1. Distribution of Hypnotizability Scores on the Diagnostic Rating Procedure |
|-----------------------------------------------|-----------------|---------------|--------|
| Frequencies | Low  | Medium | High  |
|Observed     | 6    | 57     | 57    | 120   |
|Expected     | 24   | 72     | 24    | 120   |
| $\chi^2 = 62.00, 2 \text{ df } p < 0.001$ |
Table 2. Comparison of Hypnotizability Scores on the Diagnostic Rating Procedure Between Patients with Dental Phobic Disorders and with Chronic Facial Pain

<table>
<thead>
<tr>
<th>Frequencies</th>
<th>Hypnotizability</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Dental Phobic Disorders</td>
<td>6</td>
</tr>
<tr>
<td>Chronic Facial Pain</td>
<td>19</td>
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<tr>
<td>( \chi^2 = 49.00, 2 , df )</td>
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<td>( p &lt; 0.001 )</td>
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2. The Distribution of Hypnotizability According to the Type of Phobia

Patients were divided into those reporting multiple phobias and those complaining of only a single phobia (dental phobia).

A Chi-square analysis demonstrated that there was a significant relationship between Hypnotizability and the type of phobia (single or multiple) (\( \chi^2 = 85.92, \, df = 2 \, p < 0.001 \)) (Table 3).

Patients with multiple phobias were significantly more hypnotizable than those with single phobias.

**MULTIVARIATE ANALYSIS**

The principal components analysis of the Fear Measures produced three interpretable factors accounting for 73% of the variance in the original variables. The first factor was a measure of the fearfulness of individual stimuli. The second factor was a measure of global dental anxiety. The third factor reflected the origins of dental fear.

The principal components analysis of the outcome variables produced three factors accounting for 78% of the variance. The first factor was a measure of changes in various aspects of dental fear, such as change in presenting symptom, co-operation during treatment etc. The second factor was a measure of improvement in general social functioning. The third factor was a measure of whether further treatment had been sought with another dentist.

The only correlations reported are those tested for significance after the Bonferroni correction has been used to account for the number of tests performed.

There was a weak relationship between hypnotizability and global dental anxiety (first fear measure factor) (\( r = 0.19, \, p < 0.001 \)).

There was a positive relationship between hypnotizability and outcome of treatment as measured by changes in various aspects of dental fear (second outcome factor) \( r = 0.54, \, p < 0.001 \).

A stepwise multiple regression of social factors and hypnotizability on fear measures showed that hypnotizability accounted for 20% of the variance.

More detailed analysis of the various Principal Components Analysis and other correlations are described elsewhere.2

**DISCUSSION**

The present study is the sixth major study to find a relationship between hypnotizability and phobic behavior, and the third study confirming the association of hypnotizability and dental phobic disorders.

The data of Frankel, who first proposed the relationship between hypnotizability and phobic behavior, was suggestive of such a relationship, but only weakly. His test was not very powerful because both variables were categorical (three levels of the Stanford Hypnotic susceptibility scale and two levels of phobic behavior, i.e., single and multiple phobias). The other cited studies except for those from our own group have only measured hypnotizability.

The analysis used in this study, using principal components analysis, and the correlation of scores on the principal components with hypnotizability provides a more powerful test and a quantitative index of strength of relationship. For the purposes of comparing Frankel’s results and the results of this study, the data was also reported in categorical form and subjected to univariate analysis. The distribution of hypnotizability in the dental phobic population was compared with population norms and the patients with chronic oro-facial pain having hypnosis.

The results of the various analyses strengthened the support for the hypothesis that there is a relationship between hypnotizability and phobic behavior.

The correlation of scores on the principal components with hypnotizability indicated that there was a weak relationship between hypnotizability and global dental anxiety (\( r = 0.19, \, p < 0.001 \)). There was a stronger relationship between hypnotizability and successful out-
come of treatment ($r = 0.54$, $p < 0.001$). Hypnotizability also accounted for 20% of the variance of the fear measures.

Frankel's method of determining the relationship between hypnotizability and the severity of phobia was to compare the hypnotizability scores of patients with multiple or single phobias. He found that the multiple phobic group had a significantly higher mean hypnotizability score than the single phobic group.

Comparison of hypnotizability scores of patients with multiple phobias and single phobias (i.e., only dental) in the present study also demonstrated that there was a significant relationship between hypnotizability and the severity of the phobic disorder ($\chi^2 = 85.92$, $p < 0.001$), viz. patients with multiple phobias were significantly more hypnotizable than patients with a single phobia.

Frankel further investigated the hypnotizability of 24 patients complaining of phobic symptoms by comparing them with the rating of an equal number of smokers keen to quit smoking through hypnosis. He found that the phobic patients were significantly more hypnotizable than the smokers ($\chi^2 = 5.73$, $p < 0.015$). He emphasized that 30% of the smokers were essentially non-responsive, a number resembling the occurrence of low hypnotic responsiveness in the general population, while not a single phobic patient was found to be unresponsive.

In the present study a Chi-square analysis similarly demonstrated that the distribution of scores of hypnotizability of phobic dental patients was significantly different from that expected in the normal population ($\chi^2 = 62.0$, df = 2, $p < 0.001$) and from a group of chronic facial pain patients ($\chi^2 = 46$, df = 2, $p < 0.001$) receiving hypnosis.

Frankel's findings that none of his group of 24 phobic patients receiving hypnosis were non hypnotizable and a similar finding in a group of 30 phobic patients was corroborated in the present study. No patients were considered non hypnotizable in the 120 patients investigated. The finding of five out of six cited studies similarly found that in both undifferentiated and multiple phobic populations the level of hypnotizability was higher than expected in the general population.

The implication of these findings has significance for both the genesis of dental phobic disorders as well as for their management.

Frankel has postulated that phobic patients show a tendency to the same kind of mental functioning that is involved in responding to hypnotic induction and that these patients must also have the capacity to manifest the kind of cognitive functioning that characterizes the hypnotized individual.

This implies the kind of mental process where images and fantasies can become sufficiently vivid and real as to be confused with the world outside, incongruities cease to be troublesome, logic can become temporarily superfluous, present experience takes precedence over the past and future, and a sense of time ceases to be important. This kind of mental process is common to the event of hypnosis and the phobic experience. In highly hypnotizable persons, the process can and does occur spontaneously. The observation that phobic patients with multiple phobias were more highly hypnotizable than those with a single phobia reinforces the hypothesis that the capacity for spontaneous trance-like occurrences is related to the origin of phobic symptoms. Thus, the individual who already has a propensity for phobic symptoms, who is more hypnotizable, appears to be at greater risk of acquiring several symptoms than those phobic individuals of less hypnotic ability.

Frankel further argued that a useful treatment strategy offers itself once one recognizes that the phobic patient’s propensity for spontaneously occurring trance phenomena may provide the context for the symptoms to emerge. In such an individual, the hypnotic experience can provide the means of helping the patient learn to understand more about the special mode of functioning that represents one of his assets as well as one of his liabilities. Therapeutically, the approach becomes neither one of suggesting away the symptoms nor one primarily based on using hypnosis to look for the specific dynamic factors embodied in symptom formation. Instead hypnosis is utilized to facilitate the patient’s understanding of his special mode of mental functioning. The state of hypnosis can provide the context in which to conduct an accelerated program of imaginal desensitization or it may be used to produce an analogous symptom in the surgery, that closely resembles the psychologic abnormalities most troublesome to the individual. If one can produce the symptom and guide the patient to a degree of familiarity with and mastery over this experimentally induced situation, he begins to learn something about the shift in functioning that is involved in causing and in controlling his own psychopathological manifestations. At times the trance process can help the patient to experience feelings previously seen as frightening and ego alien, as familiar, under his control, and perhaps even as comfortable.

Furthermore the careful integration of self hypnosis into the strategy reinforces the patients’ conviction that they can exert effective control. This method also articulates well with the procedures involved in counter-conditioning implosion and shaping behavior.

The role of hypnotizability as a possible facilitator in the acquisition of dental phobias should be recognized. The recognition and management of spontaneous trance states particularly in children deserve special attention.

Children have been considered as being particularly hypnotizable and the association of trance states with actual or perceived dental trauma warrants careful con-
consideration. Studies of hypnotizability particularly in phobic children may add further evidence as to the involvement of hypnotic responsivity in the development of dental phobias.

The results and foregoing discussion would suggest that hypnosis would be eminently suitable in the management of dental phobias. The literature is replete with accounts of techniques and a multitude of applications of hypnotic techniques to dentistry. Hypnosis has in fact had varying periods of popularity followed by its rejection and appears to warrant far wider use than it receives. This may be related in the past to the lack of undergraduate training, misinformation, superstition, exaggerated claims, and the re-introduction of conscious sedation techniques.

In more recent times, the attempts to relate hypnotic responsivity to the production of dental analgesia have ranged from the excellent work and more or less expected findings of Gottfredson, who found a moderate relationship between hypnotizability and pain reduction and the remarkable claims of Barber, who found that hypnosis was effective in pain reduction in virtually all cases and was not related to hypnotizability.

This study adds further support to a growing body of evidence relating hypnotizability to both the acquisition and management of phobic disorders. The dental situation in particular lends itself to carefully controlled investigation providing further evidence to support a robust theory.

REFERENCES

31. Eysenck HJ: Principles and methods of personality
Uses of Hypnosis in General Practice

This presentation is based on the premise that suggestion and hypnosis are part of a continuum. It discusses some of the practical uses of hypnosis for those who are as yet inexperienced, and also suggests ways to expand the usefulness of hypnosis to those who are already aware. Most of all, this paper’s purpose is to arouse curiosity so that one may look at one’s total communication with patients.

A BROADER DEFINITION

Hypnosis comprises a range of procedures that can be used to help a patient achieve a psychological state which we call a trance. This definition emphasizes that it is the patient who has control, not the “hypnotist”. It is also important to recognize that the trance state is not always accompanied by eye closure or even relaxation. These are only physical signs. Whereas they do often accompany trance states, eye closure or relaxation are only indicators of the underlying psychological changes.

Trance has traditionally been divided into light, medium, and deep levels, with varying associated psychological and physiological phenomena. Pain control is associated with deep trance. This level takes time to achieve with traditional hypnotic induction methods, and for this reason many dentists have been reluctant to use hypnosis. Some excellent rapid hypnotic induction techniques have been developed, but they are usually very authoritarian and may not appeal to clinicians or their patients.

A very convincing demonstration was given by the Turkish delegates at a recent International Hypnosis Congress. “I am going to hypnotize you. When I count to three you will go into a very deep trance immediately. You will not wake up until I tell you to do so. You will feel no pain, you will be in a very deep trance, and you will not wake up until I tell you—one, two, three! Go deep asleep!” Apparently, it works for the Turks.

The most important part of hypnosis is establishing communication and rapport with a patient. Rapport, or trust, is not necessary for trance, but in a clinical situation it makes work much easier. Part of developing a rapport is listening to the patient. Mrs. L. has certain ideas about dentistry, and her clinician has a great deal of knowledge about dentistry, but it is unlikely that both understand things in the same way. If the clinician does not learn to listen carefully, he or she cannot be sure that what is said is necessarily what is meant.

The clinician must also learn to listen to what the patient is hearing rather than what the clinician thinks he or she is saying to the patient. The difference can sometimes be surprising. For example, if one says to a patient going into surgery, “Would you like to sit in the chair?” what does the patient think? What is meant is “Please sit down,” and what could be said is “You can sit down and relax.” This statement is not very objectionable. There is no doubt that the patient can sit down, and by doing so he or she unconsciously accepts the suggestion in the second part of the clinician’s statement.

Communication is not confined to words alone. Facial expression, eye contact, posture (“body language”), and the way physical contact is made with the patient all