Hypnotizability, absorption and negative cognitions as predictors of dental anxiety

Two pilot studies

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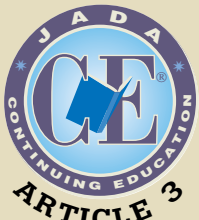
ABSTRACT



Background. The authors conducted two pilot studies that investigated the roles of hypnotizability, absorption (defined as the ability to maintain focused attention on a task or stimulus) and state versus trait anxiety as predictors of dental anxiety. One of the studies also examined the effectiveness of hypnosis in managing dental anxiety.

Methods. Participants in study 1 completed measures of hypnotizability and anxiety, viewed a video of a dental procedure either under hypnosis or not, and completed dental anxiety questionnaires. Participants in study 2 were told either that the video showed major dental work or a routine polishing. All subjects watched the video and then completed measures assessing their perceptions of the video and their anxiety.

Results. The authors found a positive relationship between hypnotizability and scores on the Dental Anxiety Scale (DAS) ($F_{1,290} = 3.45$, $P = .06$), as well as an interaction between hypnotizability and hypnosis ($F_{1,290} = 6.55$, $P = .01$). An analysis of covariance found a relationship between trait and dental anxiety ($F_{1,290} = 11.50$; $P = .001$). A two-way analysis of variance found a main effect for hypnosis ($F_{1,290} = 3.20$, $P = .07$). The authors found an effect for group on the DAS ($F_{1,228} = 3.67$, $P = .057$), such that subjects in the negative-cognition group scored higher on the DAS. The authors found an interaction between absorption and cognition in perceptions of pain experienced by the patient in the video ($F_{1,228} = 3.70$, $P = .05$) and in ratings of one's own pain level if in the same situation ($F_{1,228} = 4.38$, $P < .05$).

Conclusions. Hypnotizability or absorption, pre-existing anxiety and cognitions about dental procedures predict dental anxiety, and hypnosis may be helpful for some, but not all, patients.

Clinical Implications. Characteristics such as hypnotizability, trait anxiety and negative cognitions predict which people develop dental anxiety and who will be more responsive to hypnosis. The authors provide suggestions for dentists treating anxious patients.

Key Words. Dental anxiety; hypnotizability; cognitions; anxiety.

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As many as 75 percent of adults experience some anxiety about dental treatment,[1] and as many as 25 percent of the population avoids dental care altogether until symptoms force them to seek help.[2] In some cases, dental anxiety evolves into a more extreme phobic reaction, and estimates of extreme dental fear are as high as 15 percent of the population.[1]

DENTAL ANXIETY

Attempts to delineate specific antecedents of dental anxiety and phobia have been only moderately successful. Some authors report that women have more dental anxiety than do men.[3,4] Others point to multiple invasive dental procedures,[5] fear and dislike of the dentist,[2] and psychological and conditioning variables as causing dental anxiety.[6] Ost[7] discussed a classic example of vicariously learned dental fear. A teenager sitting in the dentist's waiting room heard another patient yell in pain; the teenager ran from the clinic and subsequently developed a lifelong dental phobia.[7] It is clear that dental anxiety likely results from a combination of factors.

Anxiety is a future-oriented mood state typified by high negative affect accompanied by a fear component.[8] In other words, the anxious person fears a future, rather than a current, event. In the cognitive literature, anxiety is assumed to be the result of cognitions about a real

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or perceived threat. If people believe that an event is going to be uncomfortable or painful, their anxiety and perception of discomfort or pain increase. People who are particularly anxiety-prone also may tend to engage in highly selective attentional processes, as research on panic disorder has shown.[8,9] According to this research, people with panic disorder tend to focus their attention selectively on interoceptive cues, to the exclusion of external or peripheral information.[8]

Other researchers refer to this tendency to sustain focused and undivided attention as being part of the process of absorption, a component of hypnotizability. People who are more hypnotizable become more absorbed in tasks.[10-12] Highly hypnotizable people may become so absorbed in a task or stimulus that they are not even aware of other tasks or stimuli.[11,13] For example, students who were more hypnotizable were found to be more absorbed in, and adherent to, a complex task regimen than were students with low hypnotizability.[14] Other researchers have found that highly hypnotizable people, or people with high absorption, pay greater attention to their own physical sensations and/or changes.[15,16] The mechanisms for absorption and anxiety appear to overlap, in that both are associated with greater vigilance to interoceptive cues.

Hypnotizable people preparing to go to a dental appointment may be so focused on their physiological responses (for example, their experience of the pain or recall of the pain stimuli, such as the drill) that they may not recall anything else. Patients with low hypnotizability, on the other hand, may be more engaged in processing other information, such as remembering what the dentist said to them. If the more hypnotizable person also is highly anxious, then the appointment could be very uncomfortable for both the patient and the dentist.

We conducted two pilot studies to investigate the role of hypnotizability, absorption (a component of hypnotizability), beliefs and anxiety in predicting patients' responses to dental care. In the first study, we also investigated the role of hypnosis in attenuating people's responses to dental procedures.

STUDY 1

The hypotheses for this study were the following:

- Participants who were higher in hypnotizability would be more anxious in response to cues associated with dentistry.
- The sound of the dental drill would increase anxiety.
- Hypnosis would attenuate dental anxiety.
- State anxiety would increase the level of dental anxiety.

SUBJECTS AND METHODS

This study used two manipulated variables (hypnosis versus no hypnosis and sound versus no sound) and two covariates (hypnotizability and pre-existing anxiety). The score on a measure of dental anxiety served as the dependent variable. Participants were 291 undergraduate psychology students (196 women and 95 men) attending the regional campus of a Midwestern university system.

MEASURES AND PROCEDURES

Harvard Group Scale of Hypnotic Susceptibility (HGSHS).[17] This structured technique measures behavioral, perceptual and cognitive responses to suggestions. It is begun in the form of an imagery technique guided by an examiner. We presented this measure on a tape recording to ensure standardized administration. The procedure includes a relaxation induction followed by suggestions of floating, arm levitation and immobilization, eye catalepsy, rigidity and head falling. At the conclusion of the taped session, participants completed a response booklet in which they reported their responses to the suggestions (for example, their physical sensations, perceptions of dissociation and involuntariness of actions).

The measure of 12 objective behaviors consisted of forced-choice responses for each item. For example, for the eye catalepsy item, participants were asked what an onlooker who had been observing might have seen. The responses were either that the participant's eyes remained closed (scored as a plus) or that they had opened (scored as a minus). The total score is the number of plus responses out of a maximum of 12.

State-Trait Anxiety Inventory (STAI).[18] This self-report questionnaire consists of 20 questions that measure how participants feel "right now" (that is, state anxiety), as well as 20 questions that measure how people "generally feel"

ABBREVIATION KEY. BSI: Brief Symptom Inventory. **DAS:** Dental Anxiety Scale. **GSI:** General Severity Index. **HGSHS:** Harvard Group Scale of Hypnotic Susceptibility. **STAI:** State-Trait Anxiety Inventory. **TAS:** Tellegen Absorption Scale.

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