Hypnosis in Dentistry and Its Use in the IDF

ABSTRACT

Background: Dental phobia is a common phenomenon. It is estimated that around one in ten people experience a significant level of dental fear and, as a result, avoid dental care treatment. It is reported that 17% of IDF recruits showed a high level of dental fear. This article aims to briefly review the current academic knowledge of dental fear and anxiety and how hypnosis is a key instrument in treating phobic patients through a series of case reports.

Methods: Overall review of dental anxiety and retrospective case reports of three soldiers who had dental phobia and could finally be treated thanks to hypnosis after years of neglect.

Results: As shown in three case reports, hypnosis can be a very useful tool for dentists in order to treat patients with dental anxiety. After hypnosis, patients could finish entire complicated treatment plans and experience success, which enabled them to even overcome their phobia.

Conclusions: Hypnosis in treating patients with dental anxiety has a very high success rate, allowing patients to overcome dental fear and complete dental treatment plans without using pharmacological medications. Since the October 7, 2023 terrorist attack, we assume that more soldiers will suffer from dental phobia, and therefore, it is important to establish a special dental center that can provide dental treatments under hypnosis and help patients improve their quality of life.

Keywords: hypnosis, dental anxiety, dental phobia, dental fear

Authors:
Shany Gonen Sultan, DMD, M.Sc [1] [3]
Moshe Porat-Wojakowski, DMD [2] [3]

[1] Department of Periodontology, Israel Defense Forces (IDF) Medical Corps, Tel Hashomer, Israel.
[2] Department of Oral Medicine, Israel Defense Forces (IDF) Medical Corps, Tel Hashomer, Israel.
[3] "Bina" Program, Faculty of Dental Medicine, Hebrew University, Jerusalem, Israel.

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Corresponding Author:
Shany Gonen Sultan
shany.sultan@mail.huji.ac.il

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Introduction

Dental phobia is a well-known and common phenomenon[1]. Approximately 6-15% of the world's population suffers from a high level of dental fear and avoidance[2]. It is reported that 17% of Israeli army recruits showed a high level of dental fear[3]. Until 2021, the treatment options for a soldier with dental phobia were only pharmacological, excluding general anesthetics. In this article, we will review the current academic knowledge of dental fear and anxiety and the common ways to handle and treat dental phobic patients, with a focus on hypnosis as a key tool.

Dental anxiety and fear

Anxiety is an emotional state that precedes an encounter with a feared object or situation, whereas fear refers to the actual, or "activated", response to the object or situation. It is generally the case, however, that a person will have a fear response to something that they experience anxiety about. Both fear and anxiety can involve

physiological, cognitive, emotional, and behavioral components, although how these are expressed may well vary from one person to another[4].

Dental phobia is a well-known specific phobia that usually expresses itself in the form of verbal utterances, fears related to dental care procedures, stressful and interruptive behaviors during dental treatment, and avoidant behaviors concerning dental management opportunities[1].

To pick the appropriate anxiety management approach, it is important to be aware of the nature of the specific patient's dental anxiety and fear, systemic health and mental state, and history because this can be a crucial determining factor in managing the case. While it has generally been presumed that the underlying cause of anxiety is direct negative dental experiences[5], the nature of dental anxiety is more complicated.

One important observed association with dental anxiety is having been the victim of past sexual abuse[6,7].

Dental anxiety and fear are commonly associated with various aspects of dental treatment and experience. The source of a patient's anxiety might be fear of gagging or choking, fear of injection, fear of the noises of the dental instruments, or a strong aversion to the sight or thought of blood. Patients might have concerns about perceived problems with getting numb, a low pain threshold, or issues with trusting dental practitioners. A patient might report a single factor that makes them anxious or multiple ones, or outright say that they dislike dental treatment as a whole.

There are multiple methods used to treat dental phobia patients, generally divided into pharmacologic and non-pharmacologic methods. The pharmacologic methods vary and may use inhaled (nitrous oxide), oral (benzodiazepines, etc.), or intravenous sedation[8]. The non-pharmacological methods include behavioral and cognitive techniques that need to be tailored to the patients' needs and concerns[4]. In this article we will focus on hypnosis, a well-known and effective method when used by a trained professional.[1]

Most simple dental phobia cases may be treated by a trained dentist, but others might be the manifestation of a defense mechanism that serves as an inadequate solution to some deep-seated psychodynamic conflict[9]. A multidisciplinary and integrative approach involving a mental health professional and a dentist experienced in handling these problems may contribute greatly to the successful treatment of such patients.

Furthermore, high dental anxiety has been observed in sexual assault victims; it is crucial to notice the sensitivity of this population within the dental environment, which includes a hierarchic situation, handling of the oral region, and the sensation of being out of control[6,7]. It is advised to consider a multidisciplinary integrative approach in suspected cases that might include such elements.

Dental Anxiety in Military Dentistry

Many militaries provide comprehensive dental care to their personnel, and within these settings, a significant number of patients face dental anxiety. The fact that all of these militaries address the needs of anxious patients highlights the prevalence of the problem and underscores that it ought to be taken seriously across the board. Different militaries employ different methods to manage and treat dental anxiety among their soldiers.

For instance, the use of nitrous oxide is common in the militaries of Israel, the USA, and the Netherlands. Sedative drugs are utilized in the militaries of Israel, the United Kingdom, Germany, and the Netherlands. Hypnosis is employed in the militaries of Israel and Germany. General anesthesia is available in the militaries of Israel, the United Kingdom, and the Netherlands. These variations in practice highlight the diverse approaches and patient management tools adopted by different countries to address dental anxiety in military settings (Table 1).

Dental anxiety has been extensively studied in the Israel Defense Forces (IDF)[10]. This study covers a variety of topics, from the triggers that evoke dental anxiety[11], the relation between dental anxiety and gag reflex[12], and treatment strategies that include sedation, relaxation, and hypnosis[13].

	Israel	United kingdom	USA	Germany	Nederland
Nitrous oxide	V		V		V
Sedative drugs	V	V		V	V
hypnosis	V			V	
General anesthesia	V	V		V	V

Table - Treatment methods comparison for dental anxiety in medical corps around the world

Hypnosis

From ancient times to the present day, hypnosis has remained a powerful and effective technique that may be adapted for use in many areas of medicine in general and psychiatry particularly. Because of the mystique and misconceptions that have surrounded the subject for so many years, a fair amount of folklore has developed[14].

In modern scientific literature, with the advancement of electroencephalographic and other research methods and the development and extension of experimental laboratories worldwide, neurophysiological and psychological research has expanded and the role of hypnosis as an effective clinical tool has been established[14].

Hypnosis is mostly considered as a safe procedure with minor to no side effects, but when performed incorrectly, especially by practitioners who have inadequate training or when used for entertainment purposes, it may cause harmful effects[15]. To prevent these adverse effects, several countries have enacted laws to regulate the use of hypnosis and created professional training programs[16]. According to Israeli law, only physicians, dentists, and expert psychologists who complete an accredited licensing process may practice hypnosis.

Hypnosis is defined as “a state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion”[17]. During hypnosis, the patient experiences a particular state of mind characterized by increased attention to the suggestion and dissociation with extraneous stimuli, which is not entirely dissimilar to what is experienced when a person is mind-wandering, in a daydream, or absorbed in a book[18] (Table 2A). While hypnosis can be used for a wide variety of dental applications such as needle phobia, gag reflex, control of chronic facial and oral pain, bruxism, and hyposalivation[14,19], its benefit for managing dental anxiety is that "suggestions" can be made to a patient which result in behavioral, cognitive or emotional change (Table 2B).

Specifically, hypnosis can be used to reveal and understand the etiology of one’s anxiety, resolve feelings about past experiences, rehearse future treatments, help desensitize the patient to them, and overcome embarrassment. This method can be used instead of local anesthetics or to complement them[20].

The dentist should confine their treatment entirely to the dental field, even at the risk of upsetting their patients by declining to treat them for other conditions[14].

Patient selection and deciding to incorporate hypnosis in the dental treatment plan require a detailed intake. In mental illness, perhaps more than in any other discipline of medicine, an error in judgment and insufficient anamnesis of the patient's medical, psychosocial, and mental state and history could lead to unwanted

Term	Definition
Hypnotizability	An individual's ability to experience suggested alterations in physiology, sensations, emotions, thoughts, or behavior during hypnosis. People with high hypnotizability have a higher potential to be hypnotized and are more likely to benefit from hypnotic therapy.23, 21
Dissociation	In hypnosis, dissociation refers to a mental process that causes changes in the awareness of the person, enabling the hypnotist to treat the person with less resistance.21
Rapport	A state of affinity existing between the subject and hypnotist that should be present at the very onset of hypnosis.6
Desensitization	A process of "de-conditioning" and "re-conditioning" a person to respond calmly to situations formerly interpreted as stressful. For example, gradual exposure can help a person practice coping with previously stressful stimuli.14
Safe Place	A mental imagery technique used in hypnosis where the subject is guided to imagine a place where they feel safe and comfortable, which helps to induce relaxation and reduce anxiety.
Abreaction	The expression and emotional discharge of repressed emotions, often experienced during hypnosis, which can lead to therapeutic resolution.
Imagery	The use of vivid mental images and visualization techniques during hypnosis to achieve therapeutic goals, such as relaxation or behavior change.
Suggestion	The process of guiding thoughts, feelings, or behaviors through verbal and non-verbal communication during hypnosis, often used to bring about desired changes.
Ideo-Response	A phenomenon where thoughts or ideas lead to involuntary physical responses or actions, often utilized in hypnosis to achieve specific outcomes or demonstrate suggestibility.

Table 2A – hypnosis basic terms
(Advancing research and practice: The revised APA Division 30 definition of hypnosis)(25)

Cognitive	Physiological	Motor	Sensory
• Dissociation • Hypomnesia and amnesia • Time distortion • Heightened focus and concentration • Enhanced imagery • Emotional detachment • Altered sense of self • Heightened suggestibility	• Decrease in breathing rate • Lowered blood pressure • Slowed heart rate • Reduced metabolic rate • Changes in skin conductance • salivation	• Gradual decrease in body movements • Relaxation of the face muscles • Catalepsy • Involuntary movements • Changes in vocal tone	• Altered pain perception • Sensory distortion • Smell sensitivity

Table 2B - hypnotic trans manifestations

results. Poor case selection for applying hypnosis may cause unwanted reactions and abreactions, which is why the diagnosis and technique should be accurate. The hypnosis treatment must be made to fit the patient, rather than the patient to the treatment[21].

There are certain conditions under which hypnotherapy is definitely contraindicated, such as depression, alcohol or drug psychosis, schizophrenia, and pathological personalities; these patients require multidisciplinary work with mental health professionals.

Methods

This study utilized a retrospective review of case files to assess the effectiveness of hypnosis in treating dental anxiety among soldiers in the Israel Defense Forces (IDF). By analyzing detailed records of individual cases, the study aims to highlight the specific circumstances under which hypnosis facilitated dental treatments that would have otherwise been unmanageable due to high levels of dental anxiety.

The study included IDF soldiers who presented with significant dental anxiety or phobia, which had previously prevented them from undergoing necessary dental treatments. Participants were identified through a review of medical records from specialized clinics where hypnosis was part of the treatment protocol.

Ethical Considerations

All patient cases are presented with altered details and anonymized to ensure medical confidentiality.

The hypnotic interventions were conducted by licensed dentists trained in hypnosis, adhering to Israeli regulations that require certification for such practice.

Results

Under formal hypnosis, nine out of ten patients successfully completed dental treatments. Candidate 1 was not a good hypnosis candidate due to low hypnotizability. Out of the nine patients, one was discharged from the IDF before finishing the entire treatment plan, and one didn't return to finish the treatment plan.

In addition, patients with mild dental fear were treated successfully not by getting them into a hypnotic trans but only by using the main principles of hypnosis, such as suggestibility, good reinforcement, slow pace, and gradual dental treatment.

Case reports

I. T, a 21-year-old soldier, arrived for a regular dental examination. During the examination, the soldier appeared to be nervous. He contracted his lips during the oral cavity check and moved a lot in the dental chair. He was asked why he was behaving this way and said he was afraid of dentists. It was suggested that the soldier visit a behavioral clinic session and be treated under hypnosis.

During the second appointment, a very detailed hypnotical intake was done. The soldier indicated that at the age of 17, he went through surgical extraction of an impacted canine. He mostly remembers the bad smells and noises. Since that extraction, he has avoided dental care of any kind, even when he suffered from dental pain. His fear was not of anesthesia but of the noises that the dental instruments make. Subsequently, two tests were performed to check how well the soldier would respond to hypnosis (his level of hypnotizability). The session ended with relaxation.

In the third session, clinical in-vivo desensitization was done. The soldier was allowed to operate the dental device. He could activate the dentist's instruments ("high speed," "low speed," "scaler," etc.). After that, he practiced relaxation and continued to desensitize to the smell and noises that exist in the dental clinic by guided imagery. The patient received a recording of the dental instruments' noises.

Only during the fourth appointment, after a relaxation and guided imagery desensitization, was the first treatment performed, which included anesthesia, decay removal, and filling of one tooth. The patient described the treatment as the best dental treatment he had ever received. After the patient experienced this therapy as a very successful experience, he asked to do the next tooth filling without hypnosis, just like a regular dental appointment. After he experienced good dental treatment with no hypnosis, it was agreed to continue to remove all his caries. T underwent three root canal treatments (RCT), and above them, three cores and 12 fillings (Figure 1d-f).

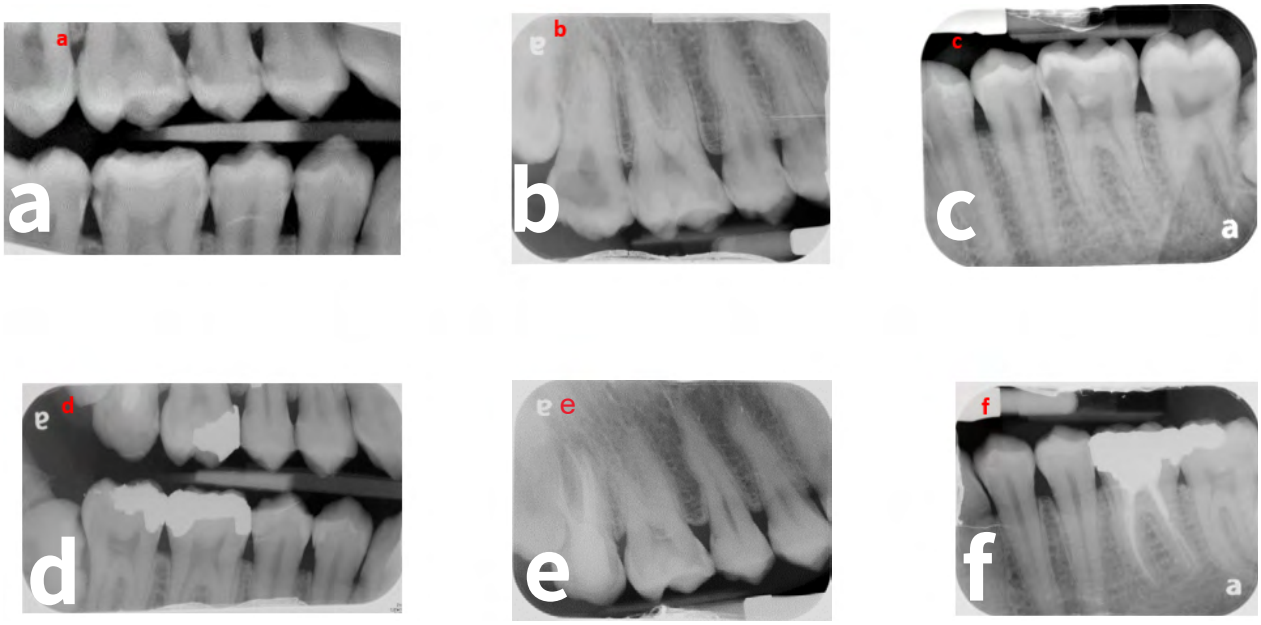

Figure 1- case report 1- patient with dental phobia due to complicated surgical extraction.
a- right bitewing accomplished at his first dental treatment demonstrating a lot of caries
b- PA X-ray demonstrating Q1 Prior to RCT of tooth 17 due to deep caries.
c- PA X-ray of Q3 demonstrating tooth 36 with deep caries
d- right bitewing after all the treatments: RCT and composite core with a post in tooth 17 and amalgam and composite restorations of teeth: 14,15,16,44,45,46,47
e- PA X-ray demonstrating Q1 after RCT of tooth 17 and a post and composite core.
f- PA X-ray demonstrating Q3 after RCT of tooth 36 and a post and amalgam core.

II. E, a 43-year-old colonel, was referred to hypnosis therapy by a periodontist who couldn't do proper root planning for him because of his anxiety. According to his account, he moved often during that appointment and contracted his fists and lips. During the intake, he said that the last time he had seen a dentist was 15 years earlier. At his last routine dental examination, the dentist told him that he had periodontitis; he was afraid of the consequences of this diagnosis and thought he might need extractions and surgical therapy, so he had avoided dental treatment until this point. He stated that his dental fear caused him distress and that the lack of control is a very strong factor in his dental anxiety. In his dental x-ray status, it was shown that he suffered from a generalized chronic severe periodontitis with pathological tooth migration: his upper centrals, for example, had less bone support than 1/3 of the root (figure 2a-d). After his hypnotizability was measured, we focused on relaxation, giving him the feeling of control and emphasizing that, at the moment, we needed to improve his oral hygiene and stabilize his severe periodontitis, and extractions were not a part of the treatment plan for now. E completed two root plannings with the dentist and proceeded to four deeper root plannings under anesthesia by the dental hygienist (figure 2e-h).

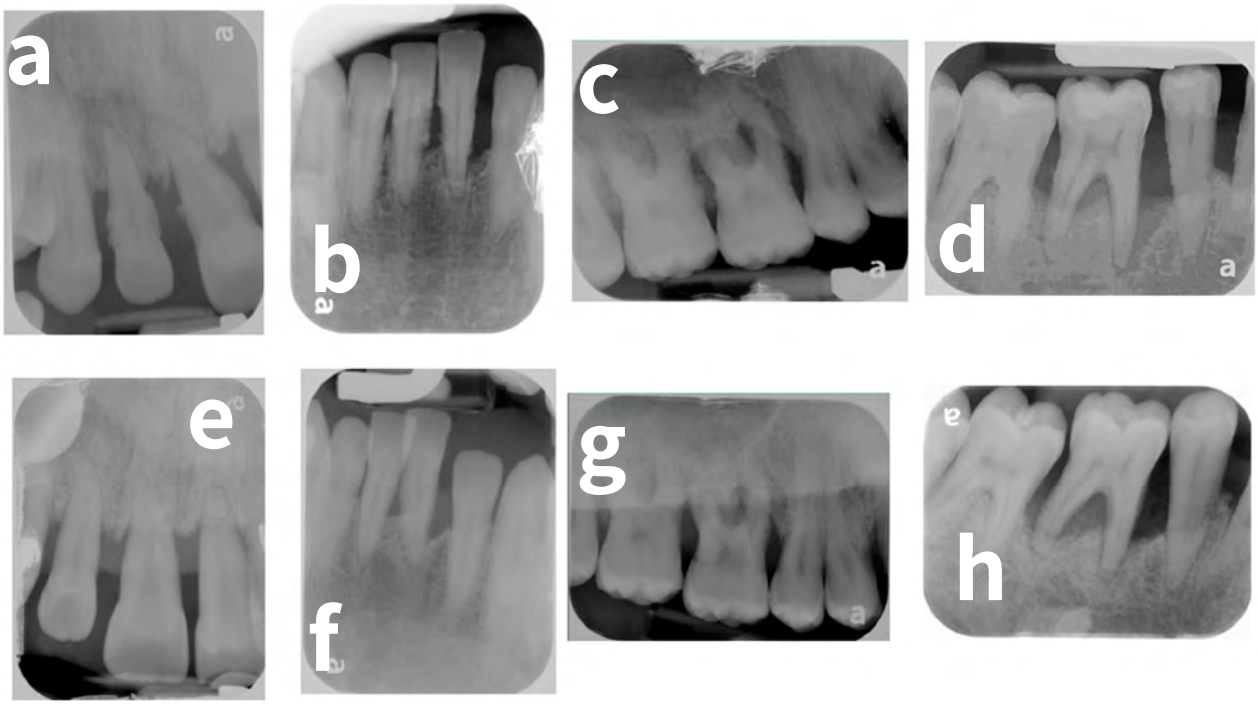

Figure 2- Case report 2 - patient with dental anxiety, previously couldn't not be able to accomplished root planning

a,b,c,d- PA x-rays demonstrating severe periodontitis and a lot of calculus at the first examination.

e.f.g.h- PA x-rays after hypnosis and root planning demonstrating the progress of the patient in dental treatment and managing his dental anxiety.

III. Appointment 1

B, a 21-year-old soldier, presented with a complaint of pain. He reported an inability to undergo radiographic imaging due to a severe gag reflex. The dentist prescribed antibiotics and dismissed him.

Appointment 2

B returned with severe pain on the left side, which was disturbing his sleep. He reiterated his struggle with a gag reflex and refused painkillers. Tooth 35 exhibited a deep carious lesion (OD), with positive sensitivity to cold and a prolonged response. There was no swelling or tenderness. Attempts to take bitewing radiographs failed due to the gag reflex. B requested treatment under general anesthesia.

Appointment 3

A specialist in restorative dentistry evaluated B, who reported multiple painful sites and a significant gag reflex, impairing function and causing intense pain and aesthetic concerns. B had not received dental treatment since age 11 and insisted on general anesthesia. Several amalgam restorations were noted. Upon a subsequent consultation with the head of oral medicine, the possibility of treatment by a dentist licensed in hypnosis was suggested, as B had declined nitrous oxide due to previous unsuccessful attempts.

Appointment 4

B attended a comprehensive assessment with a dentist licensed in hypnosis, which included psychosocial and dental history. B had previously received general anesthesia at age 11 and had unsuccessful attempts with nitrous oxide. He arrived on time, demonstrating motivation for treatment. Psychoeducation regarding the gag reflex was provided, along with a recommendation for relaxation, hypnosis, and desensitization. Despite initial skepticism, B was willing to try. His gag reflex triggered even before any oral contact. Induction was performed, followed by imagery of a dental examination, which initially triggered the gag reflex. Repeated trials showed improvement, and subsequent in-vivo exercises revealed slight

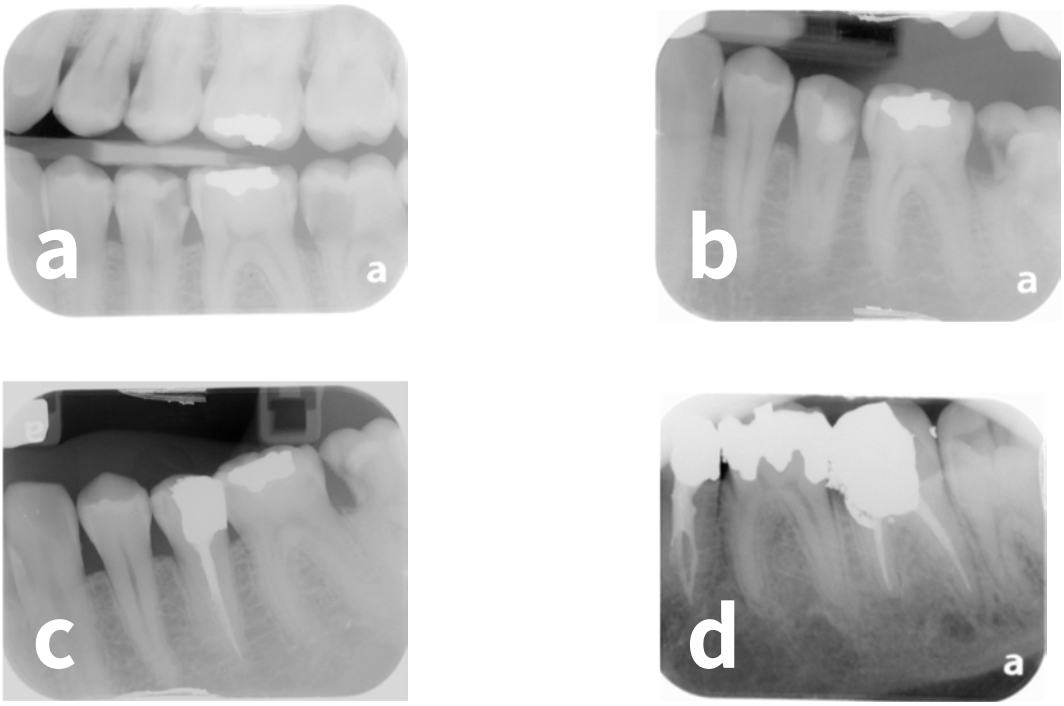

Figure 3- Case report 3- patient with gag reflex, previously couldn't manage taking intra oral x-rays
a- left bitewing accomplished at second visit of hypnosis practicing dental clinic
b- PA X-ray demonstrating Q4 Prior to RCT of teeth 35,37 and MOD restoration of 36
c- PA X-ray of tooth 35 after RCT and amalgam core
d- PA X-ray demonstrating Q3 after treatments, RCT and amalgam cores -teeth 35 and 37 and amalgam restoration of tooth 36

improvement, with difficulties focused on the lingual area. B was given instructions to practice during meals and was provided a suggestion that chewing on the posterior dentition would remind him of his control over the gag reflex, which might diminish over time.

Appointment 5

Preparation and desensitization were conducted using hypnotic imagery and relaxation. B practiced self-inserting the radiographic device into his mouth and successfully completed two high-quality bitewing radiographs (Figure 3a). A treatment plan was then established, allowing B to prioritize procedures to reinforce control.

Appointments 6-14

As the treatment sessions progressed, B demonstrated significant improvement in managing his gag reflex. The dental procedures, including various restorations, root canal treatments, and extractions, were performed with the assistance of the techniques learned during the hypnosis sessions (Figure 3b-d). Minor adjustments in the chair position were made to accommodate B's comfort, but there were no significant difficulties reported. B independently implemented relaxation exercises, and less guidance was required in the later sessions.

Discussion

The results of this study illustrate the potential effectiveness of hypnosis in treating dental anxiety among soldiers within the IDF. Given the unique environment and psychological stressors associated with military service, it is crucial to employ diverse and adaptive strategies for managing dental phobia. Hypnosis, a non-pharmacological approach, has shown promise in this context.

Patients with dental anxiety are very hard to treat in an ordinary clinic by dentists with no specific training

or experience, especially under time pressure and with limited medications or equipment. These patients require slower treatment in a relaxed environment. Approaches to treating dental phobia vary greatly across different militaries, with some offering a narrow range of tools and others, like the IDF, utilizing nitrous oxide, sedative drugs, hypnosis, and general anesthesia. The findings indicate that a significant majority of patients were able to successfully complete dental treatments under hypnosis. This suggests that hypnosis can be a valuable tool in the dental treatment of phobic patients, especially when traditional pharmacological methods are insufficient or inappropriate. Moreover, using hypnosis principles, such as suggestibility and positive reinforcement, also benefited patients with milder forms of dental fear, underscoring its versatility.

The IDF currently has only three dentists officially licensed to practice hypnosis, highlighting a critical need for more trained professionals. Furthermore, while the Sheba Hospital has a dental expert center with dedicated departments for most major dental fields, there is no specialized dedicated department for dental phobic patients, indicating a gap that needs to be addressed. The recent trend towards "whole-person integrative care" emphasizes the importance of addressing emotional and mental health alongside physical health, aligning well with the principles of hypnosis.

The biopsychosocial model of health underscores the complex interplay between biological, psychological, and social factors in influencing an individual's overall health. This comprehensive approach is critical in understanding and addressing dental anxiety22. In recent years, there has been a growing trend of "whole-person integrative care," which emphasizes the importance of the emotional, social, biological, and mental aspects of patients, along with even more specific considerations important to them23. Treating patients with hypnosis embraces this approach and provides accessibility to dental treatments for different soldiers with different needs and behaviors, as demonstrated in the case reports.

Due to the October 7, 2023 terrorist attack and the Israel-Hamas war that is still ongoing, we expect that more troops will develop trauma or PTSD that could lead to dental phobia and avoidance of dental treatment, because such treatment can trigger psychological stress due to feelings of lack of control and exposure to strong noises, making the need for specialized care even more pressing.[24].

Conclusion

In conclusion, the integration of hypnosis into dental care within the IDF has demonstrated significant success in treating soldiers with severe dental anxiety and phobia. The cases reviewed highlight the effectiveness of hypnosis in facilitating necessary dental treatments that would otherwise be unmanageable by general practitioners not trained in this field. Given the unique stressors that affect military personnel, including potential trauma and PTSD, there is a critical need for specialized and holistic approaches to dental care in different medical corps in different militaries.

The establishment of dedicated dental clinics that are equipped to provide treatments assisted by hypnosis and other patient-experience-focused care methods is crucial. Such centers would ensure that soldiers with dental anxiety receive the necessary treatments in a supportive and empathetic environment, reducing the risk of avoidance and subsequent dental health deterioration. As of today, the IDF is at the forefront in terms of holistic treatment for all service members, including both those dealing with dental anxiety and those who have traumatic characteristics and require adapted treatment. Therefore, it is recommended that every large center that provides dental service expand the availability of holistic service, thus improving the overall dental health and well-being of the patients.

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