

Hypnosis in the control of pain and anxiety in Pediatric Dentistry: a literature review

Hipnose no controle da dor e da ansiedade em Odontopediatria: uma revisão de literatura

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ABSTRACT

This study is a literature review on the physical and mental influence of hypnosis in pediatric patient in controlling anxiety and pain. The objective was to gather the evidence found in the analysis of articles, research and systematic reviews, in the period from 1994 to 2018. For a descriptive review were selected Internet portals as Medicine®, Pubmed, Capes, using keywords like: "hypnosis", "pediatric dentistry", "fear", "anesthesia", "anxiety", "children", "pain". Descriptively and concisely, they presented relevant findings regarding associations between hypnosis and dentistry and their applications in controlling anxiety and pain. It was concluded that hypnosis could increase the cooperation of the child patient and decrease the resistance during painful dental procedures. Despite the promising results observed, hypnosis in pediatric dentistry is still seldom used. This may be due to lack of knowledge about the procedure and the absence of formal education, indicating the importance of including Hypnosis in the healthcare professionals' curriculum and their practices.

Indexing terms: Anxiety. Child. Fear. Hypnosis. Pain. Pediatric dentistry.

RESUMO

Este estudo trata de uma revisão de literatura sobre a influência física e mental da hipnose no paciente Odontopediátrico no controle da ansiedade e da dor. Objetivou-se reunir as evidências encontradas em artigos de análise, pesquisa e revisões sistemáticas, compreendendo o período de 1994 até 2018. Para uma revisão descritiva foram selecionados portais na internet como Bireme, Pubmed, Periódicos Capes, por meio de palavras-chave como: "hypnosis", "pediatric dentistry", "fear", "anesthesia", "anxiety", "children" "pain". Foram apresentados de forma descritiva e concisa relevantes achados referentes às associações entre a hipnose e Odontopediatria e suas aplicações no controle da ansiedade e da dor. Concluiu-se que a hipnose pode aumentar a cooperação do paciente infantil e diminuir a resistência durante os procedimentos odontológicos dolorosos. Apesar dos resultados promissores observados, a hipnose em Odontopediatria ainda é pouco utilizada. Isto ocorre devido à ausência de conhecimento sobre o procedimento e a falta de treinamento durante a formação superior, demonstrando a importância da inclusão deste tema nos currículos dos profissionais de saúde e em suas práticas clínicas.

Termos de indexação: Ansiedade. Crianças. Medo. Hipnose. Dor. Odontopediatria.

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INTRODUCTION

Among the several particularities of children's emotional aspects, anxiety is one of the factors that deserves constant attention in pediatric dentistry. With most of these patients, the uncertainty is the main affliction source - fear of unknown. The careful interpretation of the childhood behavior helps the pediatric dentist to act with care and comprehension, using techniques that contribute to the child's positive behavior, establishing a confidence relationship with the child [1].

However, occasionally, the dentist may come across a situation where it is not possible to reach success only through a behavioral-psychological conversation, and, for some reason, the professional does not feel comfortable to indicate the medication or general anesthesia or they are rejected by the patient or their caregivers. Consequently, a different approach is needed [2].

Hypnosis has a long tradition in medical procedures, being widely used even as a model of therapy for pediatric patient with very advanced disease and a short life expectancy, with the purpose of offering the patient the possibility of accessing their internal capacities for the creation of psychological stillness and physical comfort. As a result, it has added space in the scientific literature as an auxiliary resource for professionals in several medical areas through two mechanisms: reducing suffering and directing patients' expectations with suggestions for positive results [3,4].

Hypnosis can be defined as an altered state of consciousness characterized by high suggestibility and responsiveness. Still, the opportunity in pediatrics can be great, where suggestions can be used to reduce pain and anxiety, creating a change on the patients' perceptions [5]. The technique becomes even more attractive because children are more prone than adults to hypnosis as a consequence of their imaginary capacities. By having their sense of criticism or conscious minds less mature, they accept uncritically directed ideas, easily reaching the state of relaxation [6].

However, its application in Dentistry, and more specifically in children's patients, has been little explored. This factor is attributed to absence in teaching the technique during the graduation and consequently little confidence by health professionals to endorsing their research. This study is intended to accomplish a literature revision that includes the theme "Hypnosis in the Control of

Pain's and Anxiety's on pediatric dentistry", by an analysis from the researches that evaluated the use of the hypnosis in pediatric dentistry indicating the inclusion importance of Hypnosis in the health professional's curriculum and in their clinical practices.

Definition of hypnosis

There are many myths and misconceptions about this theme. The professional needs to have an understanding on the hypnosis to be able to answer questions by parents / guardian and to obtain consent in its utilization to increase the comfort with the procedure to be executed [5].

An individual's mistaken perception about the hypnosis many times impedes him to submit on this experiment, in the same way that the absence of the scientific researchers' knowledge can impede the professional acceptance of the real experiences fully observed during the hypnosis [7].

A definition of hypnosis thoroughly spread and easy understanding is that hypnosis is a modified state of conscience produced by appropriate techniques or spontaneously. The techniques involve sensorial fatigue through the incentive of the word, monotonous and constant. For a better understanding, hypnosis can be defined as a kind of thinking in a single focus, such as daydreaming, being a state that can be spontaneously reached naturally during life [7].

The hypnosis can also be compared to a state of mind where the suggestions are put in practice much more powerfully than would be possible on normal conditions. Another important characteristic is that most of the people is hypnotized, obtaining different levels from sensibility and causing a greater or lesser effort from the hypnotist in his work [2].

Hypnosis and their risks

The hypnosis, when practiced by qualified professionals, with therapeutic purpose, is free from dangers. The stage hypnotism most often performed by lay people in health sciences, and occasionally also dishonest in their purposes, which demoralize a scientific resource of immeasurable value and application, doing of this, recreational instrument [8].

Regulation of the use of hypnosis by the Dentistry Surgery

The hypnosis is a practice that is summarized in methods and techniques that improve the therapeutic results in the Dentistry specialties, not needing additional resources as medications or instruments. It can be used in a clinical environment. Through his voice, the dentist expands the patient's conscience state directing him to access the natural resources of the body and mind in favor of his well-being [8]. Several terms can be attributed to the professional that uses this technique in dentistry, such as: hypnotist, hypnotist dental therapist, clinical hypnotist, hipnodontist and hipniatra [8].

Because it has often been used in stage performances, by people outside the medical area, the hypnosis until today is surrounded by skepticism. From President Jânio Quadros, shows for entertainment purposes were permanently banned (Decree No 51 009 of July 22, 1961, published in the Official Gazette - Year C - n. 165, July 22, 1961, page 6, 642). This decree allowed the technique to be used only by medical professionals. In 1966, President Castelo Branco approved the use of the technique to the dentist (Law 5,081 of August 24, 1966 - article 6 0 item VI) [8].

Because the hypnosis is one of the areas from medicine's knowledge, demanding understanding about the mind and body, if not properly applied and directed, could expose patients to health risks. In view of this, in Brazil, is demanded by the Federal Council of Dentistry (CFO) that all professionals who want to exercise that activity legally should undergo an updated training with a minimum of 180 hours duration. In a meeting accomplished on September 19, 2008, Federal Council of Dentistry, considering what disposes the article 6º, caput and interruptions I and VI, of the Law nº5081, of August 24, 1966, which regulates the practice of the dental profession; recognized and regulated the practice by the Dental Surgeon of the following integrative and complementary practices to oral health: Acupuncture, Phyto therapy, Floral Therapy, Hypnosis, Homeopathy and Laser Therapy. However, it became necessary for the professionals to be properly qualified [7].

I - treating and / or control of anxiety, fears and phobias related to dental procedures and/or psychosomatic conditions related to dentistry;

II - to condition the patient to adopt hygienic habits, adaptation to treatment, the use of medication, to diet, habits for functional, among others;

III - treat and control neuromuscular disorders and intervene on autonomic reflexes;

IV - preparation for surgery patients;

V - prepare patients to be treated by other professionals;

VI - to act in the adaptation and motivation directed to dental treatment;

VII - use hypnotic anesthesia in appropriate cases; and,

VIII - use hypnosis in other processes / situations related to the dentist field activity.

Art. 21. The dental surgeon, who, at the date of publication of this resolution, proves the use of hypnosis for five years in the last ten years, may request the authorization, gathering the documentation for analysis by the Federal Council of Dentistry.

Art. 22. May also be qualified the dentist approved in a exam that includes titles, written and oral practice by committee appointed by the Federal Council of Dentistry.

Single paragraph. In order to be entitled to the provisions of articles 21 and 22, the interested party must submit a request to the Regional Council, where have registration up to 180 (one hundred and eighty) days after the publication of this Resolution, together with the pertinent documentation.

Art. 23. It will also be enabled the dentist who present course certificate by the Federal Council of Dentistry, which meets the following provisions:

I - That the certificate be issued by:

a) higher education institutions; especially entities recognized by the MEC and / or CFO; and c) professional associations, societies and Hypnosis entities duly registered with the CFO.

II - that the minimum duration of the course is 180 hours between theory and practice;

III - That the course is coordinated by dentists qualified in Hypnosis by the Federal Council of Dentistry; and,

IV - The teaching staff is composed of dentists able in practice hypnosis and health professionals with proven technical and scientific knowledge.

Art. 24. The minimum curriculum should include knowledge that meet the following topics:

a) concepts and history of hypnosis; b) ethics in patient care; c) knowledge of theories of hypnosis mechanisms of action; d) knowledge of neurophysiology; e) operating principles of the psychic apparatus; f) main frames psychopathological; g) major therapeutic lines; h) knowledge of psychosexual development of children and adult personality aspect teenager and notions of family dynamics; i) aspects of professional-patient relationship; j) aspects of the first dental visit aimed at the use of hypnosis; l) hypnotic language - indirect communication; m) features and phenomena of the hypnotic state; n) hypnotic induction techniques; o) self-hypnosis induction techniques; and p) Hypnosis application in the dental clinic [8].

Hypnosis in Pediatric Dentistry

One of the most challenging aspects in pediatric dentistry is to convince the patient on accept the treatment promptly. Most children's dental patients show great anxiety and fear during routine oral procedures specially, the fear of injections or local anesthesia. In addition, during the dental treatment the child is presented to a context of care very different from the usual experiences; sounds, instruments and odors that, depending on the procedure to be performed and the skill of the dental surgeon, can generate a variation in the perception of psychological pain and suffering, expressed by behaviors that indicate discomfort and stress [1,6].

For Pediatric Dentistry, the need to work with the patient's affliction, requests differentiated strategies of handling the behavior, besides the whole demand for the technical perfection and updating of clinical knowledge, it can turn stressful the work routine. Both anxiety and fear can trigger physical, cognitive, emotional, and behavioral responses in a child. The situation becomes worse because dentistry professional's formation is scarce in the acquisition of theoretical and practical knowledge about the professional-patient relationship [1,6,9].

According to the International Association of Pain, the official definition of pain is 'an unpleasant sensory and emotional experience associated with actual or potential tissue injury, or described in terms of such damage. Still, the pain can be influenced by faiths, attention, expectation and emotions independently of the fact of that to happen

during circumstances of physical trauma or emotional anguish.' For that, recently attention has been given to the interaction between the two dimensions of the pain: the sensorial and the emotional [5].

The anxiety aroused by the possibility of dental treatment is a feeling triggered by situations related to care that lead to apprehension and discomfort, causing a negative expectation to the patient. Among the most significant etiological factors for child fear and dental anxiety, are; to have had a bad / traumatic or painful previous experience, that results in the cause more common of dental phobia, negative experiences experienced by parents, siblings or friends and their opinions about dental treatments, including comments that are mentioned while the patient is on the dental chair, incomprehension for rumors, stories, newspaper reports, TV shows and scary depictions of the dentist in the media, possibility of using anesthesia and sensory triggers such as sounds and screams [1,10].

Children who present behaviors that impair the performance of the dental surgeon should be submitted to planned treatment sessions, in which they can allow behavior management without the need for aversive contingencies. Although protective stabilization increases the likelihood of care in relatively short sessions without the need for voluntary child collaboration there are still controversies involving the use of protective stabilization due to the risks of respiratory compromise and potential induction of trauma. Yet, the technique can interfere with subsequent and future consultations, resulting in enduring responses of fear or anxiety [9].

Although pharmacological sedation is also a widely used alternative in the management of child behavior, the existent literature needs studies about the parents perceptions concerning the theme. The authors of a qualitative study concluded that although sedation is widely accepted by parents / guardians, there is still the uncertainty of being home alone with the child after discharge without the dentist and/or physician and monitoring equipment [11].

Non-pharmacological interventions can be beneficial to reduce the mental suffering in patients submitted to dental procedures and, therefore, they can be considered as valuable associates to the standard treatment. Part of the solution is to approach the issues already known behind the unwanted behavior using psychological techniques,

such as “tell, show and do” or positive reinforcement. Alternatives to these, there are the sedation or even general anesthesia. These techniques have their indication but may be associated with morbidity or even mortality. Another possible alternative is the use of hypnosis, which can, at least, increase patient cooperation during the administration of local anesthesia [1,6,12].

Through hypnosis it becomes possible to capture the child's attention, reduce their distress and transform their experiences of pain. These aspects can be achieved through dissociation, and it may be suggested that the child take his thoughts to another place. In fact, lies are not told the patient, because the suggestion is not that the pain will disappear, but that it gradually becomes another sensation, which is more acceptable, like a tingle or heat [12,13].

Suggestions can be used with all children, and yet, hypnosis may turn out to be the only approach with a few as long as they can understand and respond to the suggestions given. This is not applicable, in most cases in children with intellectual disabilities. Regarding age, there is still divergence in the literature, and there is no consensus. Although children are more hypnotically responsive than adults, hypnotic capacity is believed to be limited only in children younger than 3 years peaking during the middle of childhood (7 and 14 years), decreasing during adolescence, and remaining stable during adult life. This argument, however, can be controversial, and the assessment of a patient's suitability for hypnosis should be based on chronological and cognitive age [2,5,14].

Gokli et al. [15] investigated the acceptance of local anesthetic injection using hypnosis in twenty-nine children (11 boys and 18 girls) aged four to thirteen and concluded that the hypnosis condition appeared to be more successful with younger children (four to six years). The patients studied required at least two restorative procedures, each of which was evaluated twice; once using hypnosis before the injection and once without. Hypnotic techniques of breathing and relaxation were used. As a result, children who were hypnotized demonstrated fewer undesirable behaviors (crying, hand movement, physical endurance, and leg movement) than those who did not undergo hypnosis. However, decreased crying with hypnosis was the only statistically significant behavior ($p = 0.02$), 17% cried with hypnosis versus 41% who cried without hypnosis. Regarding oxygen saturation and pulse rate, only the latter was significantly lower in the hypnosis

group ($p = 0.005$). No significant difference was found due to gender or race [15].

Further, Huet et al. [16], in order to verify if hypnosis could be effective in reducing anxiety and pain in children during dental anesthesia, evaluated thirty children from 5 to 12 years old randomly divided into two groups that received hypnosis (H) or not (NH) at the time of anesthesia. Exclusion criteria were allergy to local anesthetics, psychological impairment, specific medical conditions, severe medical conditions, previous experience with hypnosis, tooth extraction or other oral surgery, deep endodontic treatments, refusal by the parents and/or the child and deafness. The inclusion criteria were dental restorations or pulpotomies in canines and molars of the deciduous dentition that required buccal anesthesia for vestibular single infiltration. Hypnosis began once the patient was sitting in the dentist's chair. Speaking slowly in a monotone voice, the hypnotherapist turned the child's focus on his voice (hypnotherapist) and images to establish a “hypnotic relationship” considering items of child's bedroom and then using suggestions and stories. The suggestions or stories used during induction were related to the child's interests and were chosen according to the initial interview. A hypnotic trance was considered achieved when the hypnotherapist observed muscle relaxation and regular breathing. The dental anesthesia and the dental treatments were then performed. At the end of the treatment session, the hypnotherapist gradually brought the child to the initial state of consciousness. The same procedure was also performed in all children of the NH group, excluding hypnosis only. The children of the NH group were encouraged to breathe deeply during the anesthetic procedure. As a result, anxiety scores were significantly lower (50% lower) in the group H than NH group. Significantly more children of the group H did not feel pain or reported mild pain, demonstrating that hypnosis was effective in reducing preoperative anxiety [16].

In 2016, Al-harasi et al. [12] conducted a systematic review to evaluate the evidence (and the quality of them) for hypnosis in behavior management in children receiving dental care. However, the quality of the available evidence was low. Only three clinical trials filled the inclusion criteria. Statistical analysis and meta-analysis was not possible due to insufficient number of studies. The authors concluded that although there is a considerable number of studies indicating the benefits of using hypnosis in children, there is still insufficient evidence to suggest its beneficial effects

due to its inaccurate methodologies, highlighting the need for conducting more randomized and controlled clinical trials, evaluating the use of hypnosis in pediatric dentistry.

To determine whether hypnosis changes the resistance shown during the administration of local anesthetics in children aged 6 to 16 years, Oberoi, Panda and Garg selected 200 patients whose treatment plan consisted of pulp therapies in the lower first deciduous molars or permanents that required the administration of local anesthesia. In group 01 (experimental group) patients received local anesthetic and hypnotic induction. In group 02 (control group) the patients were administered with local anesthesia without hypnotic induction. In response, 68.1% of patients did not present resistance in experimental group, while 31.9% of patients did not present resistance in the control group. This difference in behavior between children in hypnotized and non-hypnotized states was attributed to the relaxed state of mind; increased pain tolerance threshold after hypnosis or being too involved in dentist's verbal instructions to notice the anesthetic procedure [6].

A systematic review and meta-analysis by Burghardt et al. [4] showed the benefits of non-pharmacological interventions (hypnosis, relaxation, music and cognitive behavioral approaches) in reducing the mental suffering during dental care, with the greatest effects demonstrated for hypnosis. However, analogous to the results of Al Harasi et al. [12], the authors concluded that more high-quality studies are needed to strengthen the promising evidence [4].

Hypnosis in the Odontopediatric clinical practice

There are two prerequisites before using hypnosis in children. The first is to establish a good therapeutic relationship, and the second is to adapt the techniques to the child's age according to the degree of their cognitive development and their preferences [5].

In addition, hypnosis requires time and patience on the part of the professional. Hypnosis does not work if the patient does not want to or are resistant. Although this technique can show good results, its use requires extra time and the availability of a quiet and isolated operating room [6].

To succeed with the technique and application properly, there are 5 basic rules. These would be: (1) obtain the consent of the patient or guardian; (2) understand

patient's expectations; (3) start with simple exercises; (4) allow the patient to emerge from the hypnotic state when necessary; (5) Keep records in medical records about the hypnotic information (goal of hypnotic practice), diagnosis of the case, methodology used, the progress of the hypnotic process, accomplished steps, sign-signal, treatment and clinical evolution. To each patient, the dentist will fill a record sheet through which he can orient himself in the next sessions, studying the clinical evolution of his patient [2,5].

DISCUSSION

The recognition and regulation of hypnosis by the Federal Council of Dentistry (2008) considered necessary for professionals to be properly enabled, making the technique become more properly applied and more safely. Despite this, we did not find in our searches the formal academic instruction in hypnosis in the courses of Dentistry in universities of the country, leading the Dentist even today, to resort to information coming from publications or to lectures often from outside the Dentistry's environment, resulting in lack of knowledge and confidence for the feasibility of the technique. The formation of dental professional is deficient in the acquisition of theoretical and practical knowledge about the professional / patient relationship and behavior management strategies [10]. Also, there are limited courses that allow the professional to qualify next to the Federal Council of Dentistry (CFO), being found, predominantly, in São Paulo and Rio de Janeiro, making it impossible to qualify Dental Surgeons from other States. This results in increased demand for courses, mostly of short duration, which do not provide adequate technical instruction and possible failure in the formation of professional hypnotist.

Children are more open to suggestions than adults because of their imaginative abilities and their uncritical thoughts except only the deaf and those who are completely unable to assimilate what is being expressed them [2,7]. Research that addresses the topic Hypnosis and Pain has broad results, demonstrating great interest on the part of health area researchers, corroborating with many positive results. However, hypnosis in dentistry, specifically in pediatric dentistry, remains little explored, and our findings are consistent with the findings of Al Harasi et al. [12] and Burghardt et al. [4] who found that the quality of the studies still needs to be improved, this factor has been a limitation in our search.

Among the advantages to use the technique is establishing a good therapeutic relationship with the child, due to the need to create an affective bond and a positive connection as a prerequisite for its success [5]. This aspect will allow the patient to feel more welcomed and relaxed for dental procedure. Another significant aspect is the possibility of changing awareness for contextual variables (instruments, sounds, smells, friction, etc.), reduce anxiety and vigor [2,6,15,16], avoiding thus the use of control techniques aversive behavior, pre-medication or general anesthesia. Moreover, hypnosis does not generate monetary expenditures for the dentist and does not require additional resources as medications or instruments [8].

Regarding the ideal age for applicability of the technique in children, there were conflicting opinions. In 1994, Gokli et al. [15], concluded that hypnosis condition seemed to have more success with younger children, aged 4 to 6 years. For Wood and Bioy [5], the technique is not applicable for children under six years, reaching its peak between 7 and 14 years. Peretz et al. [2] emphasize that this evaluation should not only be made based on the chronological age, but also mental. The different considerations strengthen the need for more research for an adequate comprehension of the most susceptible age.

The main limitation of hypnosis is the need for a minimum understanding of the patient that is being exposed and suggested by the hypnologist. Thus, not all patients can be hypnotized, standing among them the hearing impaired, certain patients with special needs (which must be carefully evaluated during the anamnesis to see if there is a limitation), very young children and children with extreme resistance service and dialogue. Another limitation of the use of hypnosis would be the need for more time for dental consultation and greater patience on the part of the professional, besides requiring a quiet and isolated operating room [6]. This makes it difficult to instruct and apply the technique in universities, where care is usually given in short time between patients and in shared rooms with other students, teachers and patients. space saturated with the most variable sounds, noises and agitation. One resource for this this difficulty would be to increase the time for the children's care and greater focus of the institutions to encourage their students to develop a trusting relationship with the child patient before beginning the clinical examinations.

Another important feature that is important is the need for parental / guardians consent for the use

of the technique [2,5] which, coupled with a lack of information with a scientific background and mysticisms surrounding the theme [5], could make parents / guardians fearful, requiring more time for communication and clarification to resolve doubts, contrary to what happens with the use of psychological behavior control techniques (tell-show-do, distraction, voice control, among others) that do not require approval. In the course of this research no study was found that approached the conception of parents / guardians regarding the hypnosis procedure. Since Hypnosis is already recognized and regulated by the Federal Council of Dentistry [8] and allowing only duly qualified Dental Surgeons to benefit from the technique, we do not find elements that justify the need for consent of parents / guardians to resort to the use of hypnosis as with other non-aversive behavioral techniques.

The choice of technique will vary according to the child temperament and problem [1] however, there is not a manual or step by step, which could continue contributing to the insecurity of Dental Surgeons during application of hypnotic technique.

FINAL CONSIDERATIONS

Children who evoke high frequency of behaviors that prevent the performance of the dentist should be subjected to well delineate treatment sessions, in which educational practices and cognitive and behavioral strategies, ideally, would enable the management of behavior without the need for aversive technique.

Hypnosis can increase the cooperation of the child patient and reduce the strength and anxiety during painful procedures, but despite the observed promising results, the use of hypnosis in pediatric dentistry is still scarce. This fact may be due to lack of knowledge about the procedure and the lack of training during graduation and specialized teaching, preventing the professional acceptance of the hypnotic experience and its real benefits, disregarding its further investigation and not endorsing its research and clinical use.

More incentives and research are needed in this area, so that hypnosis may one day regain the confidence of health professionals, who, by exercising the technique with scientific support, safety and humanization can provide greater well-being for the pediatric patient.

Collaborators

SA SANTOS responsible for: creating the idea that originated the work and formulating hypotheses; seeking and reviewing literature; writing the manuscript. R GLEISER responsible for: organizing the method of work; guiding research; solving fundamental research problems; presenting important suggestions embedded in the work; guiding the writing of the manuscript. TM ARDENGHI responsible for: guiding the writing of the manuscript; Present minor suggestions embedded in the work.

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