

Hypnodontics as an Alternative to Relieve Anxiety in Children: A Systematic Review

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Hypnodontics as an Alternative to Relieve Anxiety in Children: A Systematic Review

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ABSTRACT

Background: Oral health is an integral part of a child's overall health and wellbeing; good oral health will also maintain overall general health. However, it is not rare to find children avoiding dental visit due to fear and anxiety. Numerous techniques have been employed to tackle this problem ranging from pharmacologic to non-pharmacologic method. One of the less traveled alternative roads towards child behavior management in dentistry field is hypnosis technique. **Aim:** This article aims to review the use of hypnosis in the field of dentistry particularly in pediatric dentistry as mean of fear and anxiety management in pediatric patient.

Method: The article search was performed using online database from Google Scholar and Pubmed. Articles included were articles published from 2013-2020. Keywords used to perform the search were as follows: "hypnodontics", "hypnosis", "pediatric dentistry". In each article found according to keywords, the title and abstract of each article were checked and articles that meet the criteria were downloaded. Results: There were 17 articles that discussed the use of hypnosis in the field of pediatric dentistry to manage fear and anxiety.

Conclusion: Fear and anxiety can modify the behavior and level of cooperation of pediatric patients. One method that is rarely used but has broad benefits for managing fear and anxiety as well as modifying the behavior of pediatric patients is hypnosis or in the context of dentistry called hypnodontics. Hypnotherapy will make pediatric patients more relaxed, reduce anxiety, fear and pain felt by pediatric patients and can even overcome excessive gag reflex.

Keywords: Anxiety, Fear, Hypnosis, Hypnodontics, Pediatric Dentistry

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26 INTRODUCTION

Oral health is an integral part of a child's overall health and wellbeing, good oral health also maintain overall general health.¹⁻⁵ Good oral hygiene is a state of being where one is free from chronic orofacial pain, oral cancer, oral infection, periodontal disease, dental caries, tooth loss, and other debilitating disease which limits one's ability in biting, masticating, smiling, talking, and psychosocial wellbeing.^{2,6} The importance of oral health has been widely known, nevertheless it is not uncommon to find pediatric patients avoiding dental visit.¹⁰⁻¹² Children from different age group have different level of fear which could lead to lack of cooperation during dental treatment thus affecting the overall prognosis.^{10,13,14}

Children's fear and anxiety towards dental treatment has been a major concern in the field of pediatric dentistry. Numerous techniques have been employed to handle this

issue, ranging from pharmacologic and non-pharmacologic management. Several examples of behavioral management including Tell-Show-Do, positive reinforcement, voice control, desensitization, nitrous oxide, stabilization (physical restraining), and general anesthesia or sedation.¹⁵⁻¹⁷ Almost all child behavior management techniques aim to keep children relaxed and remain cooperative during dental treatment.¹⁰ Several techniques have their down side, for example in utilizing general anesthesia, this technique is costly, poses a death risk even though slight, long waiting time, and requires specialized professionals like anesthesiologist and specially trained nurse.^{18,19} Non-pharmacological techniques are not without problem either, physical restraining for example, cannot be employed all the time because it requires forcefully restricting children's movement.²⁰

One of the alternative behavioral managements that is

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27]cely discussed in dentistry is hypnosis techniques.²¹ According to American Psychological Association (APA) hypnosis is defined as "a state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion".²² Hypnosis in the field of dentistry²¹ known as hypnodontics. Hypnodontics is defined as the art and science of using hypnosis to dental practice and dental issues. There are techniques which dentists use to relax their patient (including waking hypnosis) and minimize pain, blood loss, during and after procedures.^{10,22} Patients³⁸ underwent hypnosis are not afraid to visit the dentist and will not experience anxiety or fear during dental treatment.²³

METHOD

SEARCH STRATEGY

The search was performed using online databases from Google Scholar and Pubmed. Articles included were articles published from 2013 to 2020. The keywords and terms used for the article search were as follows: "hypnodontics", "hypnosis", "pediatric dentistry". In each article found according to the keywords, the title and abstract of each article were checked and articles that meet the criteria were downloaded.

The flow chart in figure 1 identifies the articles that were included and excluded at each stage. A total of 37 articles were examined, and 19 were excluded³⁷ from the electronic database. Articles screened, excluded, full-text articles were checked for eligibility and full-text articles were included as articles to be reviewed.

Inclusion and Exclusion Criteria

1. Inclusion criteria:
 - a. Articles published within the last 7 years (2013-2020)
 - b. Articles written in English
 - c. Articles discussing the utilization, mechanism, and benefit of hypnosis/hypnodontics in dentistry
2. Exclusion criteria
 - a. Artikel in which only the abstract is written in English
 - b. Full text articles are not available in open access

RESULTS

All of the information obtained from all of the articles included and analyzed in this review article could be seen in table 1

DISCUSSION

Hypnosis has long been available to be incorporated in dentistry, however²² its technique is scarcely used and often misinterpreted.³⁸ The word hypnosis is derived from the Greek word 'hypnos' which means to sleep.^{22,32} Hypnodontics is the technique of incorporating hypnosis in dentistry, this technique was first employed in 1829 to facilitate tooth extraction.^{32,39} In the 20th century, hypnotic suggestion has been acknowledged by dentist as a method of patient³⁶ behavior management.^{32,40,41} During the 1900s, hypnosis is commonly used by dentists to manage⁸ fear and pain experienced by patients.^{12,21,41} Currently, hypnosis is widely used by dentists to effectively relieve fear of dental procedures, excessive gag reflex, treatment of orofacial pain conditions, moderate bleeding and salivary flow, and managing procedural pain.^{12,21,42-45}

Treating pediatric patients often possess challenge for² dentists. Children often feel anxious or uncooperative during dental treatment.³⁵ Anecdotal evidence as well as

published articles suggest hypnosis can be of great use in the management of children's behavior.^{10,23,24,26,32} Hypnotic suggestions are used regularly when treating pediatric patients, with techniques such as distraction, reframing, and image suggestion that are considered forms of hypnosis.^{30,32,46} Hypnosis is suitable for pediatric patients because the imagination of pediatric patients is more active than adult patients so they are more receptive to suggestions.³⁰ Children are easily persuaded to enter into a trance. This is because they are in a trance all the time. Children often play fantasy games using their imaginations, it is helpful to apply hypnotic techniques that distract the child before starting treatment, because children love stories that are intriguing, strange and magical. The use of a magic lion or a simple hand / finger puppet can help the patient to escape from the focus on treatment. In fact, children can enter deep trance phases with their eyes open, and can talk without leaving the trance phase.²³ The basic principles of hypnosis in pediatric patients consist of four basic principles, namely optimism, child-centered, according to developmental stage, and the world of the child is the main framework of care.²⁴ Medical hypnosis in general usually lasts between 20-50 minutes and is divided into several phases: verification (indication, explanation, goal), induction, consolidation, therapeutic suggestions, reorientation, discussion, and integration into daily routine.^{47,48}

Uncooperative patients or those who feel fear and anxiety during dental work can benefit from hypnotherapy. Hypnotherapists can easily relieve tension, anxiety and excessive fear of pain that these patients often exhibit with the help of hypnosis. This provides effective sedation while maintaining patient cooperation, but can also help patients recover from anxiety and dental phobia as well as those with severe gag reflex. Study conducted by Glaesmer *et al.*³⁶ demonstrated a statistically significant reduction in fear during treatment in the hypnotized patient (Figure 2). In addition, study conducted by Ramirez-Carrasco *et al.*²⁸ also showed a decrease in the heart rate of the patient who were given hypnosis (Figure 3).

Hypnosis can be used independently or as an additional treatment option to obtain the best results. During this state, the mind is focused on the suggestions given for comfort and ease. The subconscious mind can find it much easier to accept this suggestion now³² at the patient's mind is kept relaxed. In addition, the subconscious mind, where fear resides, is accessed in this relaxed trance.^{10,30,49} Hypnosis can also be used in patients who have excessive gag reflex and can be an option comparable to sedation, especially in patients who cannot be sedated. Hypnosis can help the patient to be more relaxed and less alert, thereby reducing or even eliminating the gag reflex.⁵⁰ In addition, this technique requires less cost because it does not require special equipment / medication, as well as the ability of hypnosis to help patients overcome excessive gag reflexes with a longer duration and can even last a lifetime.^{37,51,52,53} Hypnosis is useful as an adjunct intervention to reduce anxiety in dental patients undergoing treatment, especially regarding its non-invasive nature. In addition, the application of hypnosis is less time consuming and is associated with a rather low cost.³⁶ Through hypnosis, dentists can also attract children's attention, reduce distress, and change the pain experience of pediatric patients.^{2,6,54,55}

CONCLUSION

Fear and anxiety regarding dental treatment is a common

problem faced by dentists who treat pediatric patients. The feeling of fear and anxiety can modify the behavior and cooperation of pediatric patients. Several modalities have been used for behavioral management of pediatric patients including pharmacological and non-pharmacological methods. One method that is rarely used but has broad benefits for dealing with fear and anxiety as well as modifying the behavior of pediatric patients is hypnosis or in the context of dentistry it is called hypnodontics. Hypnotherapy will make pediatric patients more relaxed, reduce anxiety, fear and pain felt by pediatric patients and can even overcome excessive gag reflex. Hypnosis is suitable for pediatric patients because of their active imagination and the ease with which pediatric patients enter a trance.

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Table 1. Articles on the use of hypnosis in pediatric dentistry

No	Author	Year	Title	Conclusion
1.	S. Lakshmi Priya, R. Jayaprakash, M. Kameshwaran, K. Shubashini. ¹⁰	2019	Hypnodontics – An Overview	Hypnosis has multiple uses in dentistry, ranging from mild relaxation of the anxious patient to total analgesia for surgery. With proper knowledge, training and patient selection, it can be a very vital tool to manage children and even anxious adults in the dental operatory therefore making dental treatment successful in a very simple yet convenient way.

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2.	Mamta Malik, Pruthvi Raj H V, RajKumar Maurya, Sanjeev Laller, Chandresh Shukla, Ravinder S Saini. ²³	2016	Hypnodontics: Role of Hypnosis in Oral Health	The routine dental treatment or dentist efficiency and patient's response is mainly hampered by anxiety, fear, stress or so-called dental phobia. To overcome this dental hypnosis is non-invasive and acceptable alternative option to improve the conditions and comfort level for patients. Hypnosis may be used independently with the help of a professional hypnotist or as an adjunct with other forms of treatment.
3.	Binyamin Binyaminy, Eric J. Haas ²²	31 2016	A Short Profile of Hypnotherapy Licensure in Israel	Therefore, licensure of hypnotherapists could be useful for other countries that intend to improve the use of hypnosis for treatment, educational, or research purposes in their location. Moreover, using only trained professionals to use hypnosis might help in improving the attitude and beliefs about hypnosis among the general public as well as health professionals.
4.	Leora Kuttner ²⁴	2020	Pediatric Hypnosis: Treatment that Adds and Rarely Substracts	In the last 40 years, pediatric hypnosis has developed to maturity and now continues to expand, adding quality research, rich case reports, long-term follow-up studies, review papers, documentary and training films, and training workshops that continue to contribute well-trained pediatric professionals from around the world into the field of hypnosis. Hypnosis, which has a long history of being dismissed because of misunderstandings or misconceptions, is now fully integrated into hospitals, clinics, and practices as an effective intervention – and nowhere more than in pediatric pain management. There continues to be significant challenges to child health that stem from poverty, violence, and cultural divides. These can be well met with the resiliency, self-efficacy, and self-care afforded by integrating hypnosis into child healthcare. Pediatric hypnosis is an urgently needed and timely addition to the healthcare of young people. One of the most important contributions pediatric hypnosis is making is to help prepare children to live fulfilling lives and contribute meaningfully to the world. Children will need all their optimism, and particularly their ingenuity, focused concentration, creativity, adaptability, and imagination to deal with the life-altering problems already occurring in our world. These include, rising sea levels, mass animal extinction, wars, mass migration of people from affected areas, and the consequential disruptions to life as we know it. For the children who have the opportunity to benefit, pediatric hypnosis is helping to add and create capacities within the next generation so they can find optimal solutions for their own problems and for their externally challenging world.
5.	30 Mauro Cozzolino, Giovanna Celia, Kathryn L. Rossi, Ernest L Rossi ²⁵	21 2020	Hypnosis as Sole Anesthesia for Dental Removal in Patient with Multiple Chemical Sensitivity	In conclusion, we believe that this procedure offers the possibility to envisage new ways to tackle the pain-managing challenges posed by chronic, inflammatory, self-immune, and degenerative diseases. Although the results from this clinical case report are positive and encouraging, more research is needed on a larger number of MCS patients before we can state that this procedure can be used extensively. We therefore wish further studies would be pursued along this line of research.

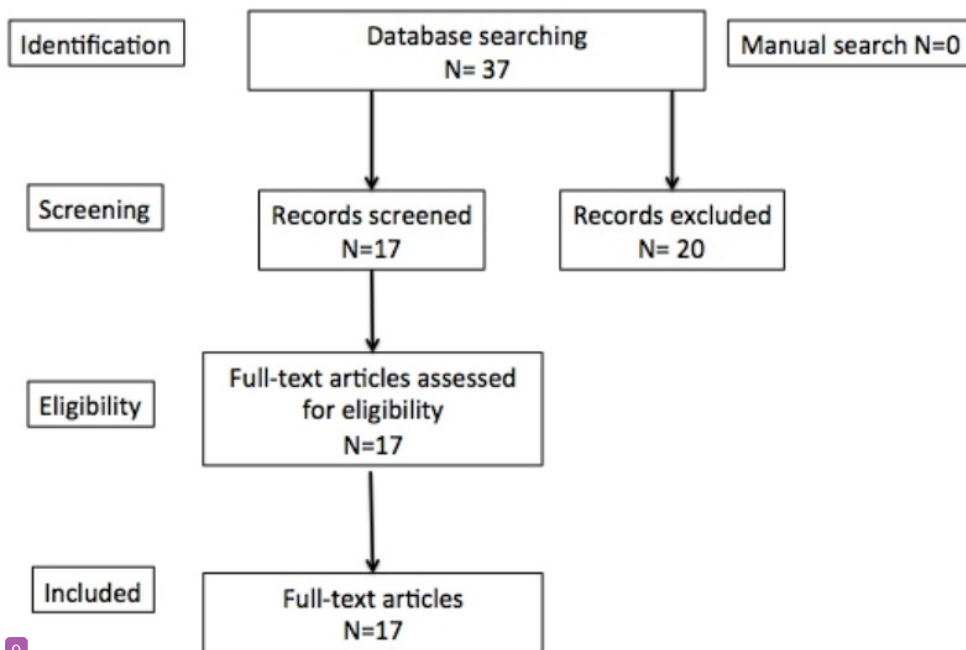
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6.	Susana Aguiar Santos, Rogério Gleiser, Thiago Machado Ardenghi ²⁶	2019	Hypnosis in the control of pain and anxiety in pediatric dentistry: a literature review	Hypnosis can increase the cooperation of the child patient and reduce the strength and 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.
7.	Ashley Allen Goodman ²⁷	2018	Cases: Clinical Hypnosis in Dentistry	<p>In summary, the cases in this article demonstrate three important aspects of the role of clinical hypnosis in dentistry. First, we can learn of its importance from the patient's perspective. In the first case, the patient felt so strongly that, despite the fact of her abilities and means to secure dental care from the finest and most experienced in providing her dental treatment, she chose to demonstrate the importance of hypnosis by subjecting herself to care by a student in dental school. She made sure that the entire college of dentistry (faculty and students) learned from her knowledge and experience. In the second case, we were able to provide a necessary adjunctive service not only for comfort and convenience to the patient but to provide for long-term care in a pleasurable and memorable manner. Years after initial contact with the young female patient, she and her father called to thank me for the care that I had provided and stated that they were moving back to Australia where they hoped to find a new dentist with similar skills. In the third case, I related a successful dental treatment on a patient under hypnoanesthesia—probably under the worst circumstances, given the distractions of a professional television production company. However, the incident has provided a valuable adjunct to learning by recording the event and augmenting this written case explanation. The utilization of hypnosis as an adjunct during dental treatment allows valuable supplementation in behavior or symptom control of difficult-to-treat patients without an added risk of chemical pharmacological medications. It also allows for patients, doctors, and staff relaxation during the dental treatments while providing an avenue for anxiety control and the elimination of fear in patients.</p> <p>While not the focus of this writing, other clinical experience has demonstrated that the complementary use of hypnosis can also be invaluable in quelling undesirable dental habits, tongue thrust, reverse swallowing, temporomandibular joint (TMJ) dysfunction, bruxism, clenching, the prevention of gagging and nausea, control of saliva and blood flow, restorative appliance tolerance, and pretreatment desensitization overall—all while allowing suggested amnesia for those unavoidable unpleasant occurrences during treatment. Along with the aforementioned advantages, patients can be expected, with proper further suggestions, to form a better self-image, self-esteem, and greater confidence regarding their role as patients.</p>

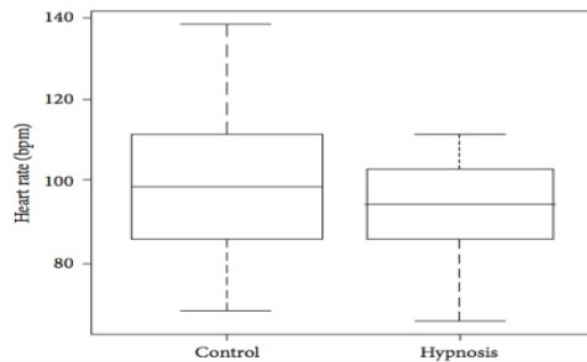
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8.	A. Ramírez-Carrasco, C. Butrón-Téllez, O. Girón, O. Sanchez-Armass, M. Pierdant Pérez ²⁸	2017	Effectiveness of Hypnosis in Combination with Conventional Techniques of Behavior Management in Anxiety/Pain Reduction during Dental Anesthetic Infiltration	In conclusion, evaluation using the FLACC conformity or pain scale did not present significant differences at the point of administering infiltration anesthesia for either of the two groups in this study. Similarly, the type of pain experienced by both groups was slight, with no significant differences recorded in the variation of skin conductance. However, the use of hypnosis combined with conventional pain management techniques did not show variations in terms of heart rate between the basal point and the point at which anesthesia was administered, which could show an improvement in the control of anxiety and pain in children receiving dental anesthesia.
9.	Kathryn A. Birnie, Melania Noel, Jennifer A. Parker, Christine T. Chambers, Lindsay S. Uman, Steve R. Kisely, Patrick J. McGrath ²⁹	2018	Systematic Review and Meta-Analysis of Distraction and Hypnosis for Needle-Related Pain and Distress in Children and Adolescents	Over the past 10-20 years, the field has made several leaps forward in the amount of evidence supporting the efficacy of distraction and hypnosis for needle-related pain and distress in children and adolescents (Kleiber & Harper, 1999; Wild & Espie, 2004). With the efficacy of these interventions established, we recommend that the field turn its efforts toward determining the best match of treatment and/or characteristics of treatments for individual children given their age, their previous experiences, the health care setting, and the given needle procedure. Critically, this can only be achieved by increasing the quality of the evidence produced. Researchers conducting trials in this area should draw from available guidelines and standards for designing pediatric trials generally (StaR Child Health) and specifically in pediatric pain regarding recruitment and consent (Caldwell et al., 2012), adequacy of sample size (van der Tweel et al., 2012), minimization of risk of bias (Hartling et al., 2012), considerations of child age (Williams et al., 2012), and selection, measurement, and reporting of outcomes (Sinha et al., 2012), including PedIMPACT (McGrath et al., 2008) and CONSORT (Altman et al., 2001). It would be unfortunate for future reviews in this area to continue reiterating the same limitations that have plagued the field for years.
10.	Houmayraa Dilmahomed, Mar Jovani-Sancho ³⁰	2019	Hypnoanalgesia in Dentistry: A Literature Review	We cannot conclude that hypnosis used alone as an individual treatment is effective in the complete ablation of pain sensation. However, hypnosis was found to reduce phobia and anxiety and produces relaxation, which could help in the reduction of pain, as pain has an important emotional component. The literature supports that when used as an adjunct to local anesthesia and analgesics, hypnosis facilitates the induction of their anesthetic effect, eventually leading to a reduced amount of both means of pharmacological consumption. Although hypnotic suggestion might not work for every patient, it can be used as a supplementary method for the management of pain and enhances traditional means of pain alleviation.
11.	Thomas Gerhard Wolf, Dominik Wolf, Dagna Below, Bernd d'Hoedt, Brita Willerhausen, Monika Daubländer ³¹	2016	Effectiveness of Self-Hypnosis on the Relief of Experimental Dental Pain: A Randomized Trial	The aim of this study was to investigate and evaluate the effect of self-hypnosis on experimental acute dental pain relief in a clinical setting by means of dental-pulp testing. The effect of using self-hypnosis during painful manipulation of vital teeth has the attribute of sedation and, has, as is often described in the literature for other hypnotic procedures, an anxiolytic effect. Self-hypnosis allows a comfortable and relaxing treatment. It is an easy method to experience medium trance states and to modulate and reduce experimental dental acute pain. A complete elimination of pain and thus treatment without any pharmacological drugs was possible only in some cases. Self-hypnosis cannot be used routinely as safe and effective like anesthetics. However, it can be easily used and is recommended as adjunctive therapy in a clinical setting. Further studies about the clinical outcome and pain-reducing effects with different treatments are required.

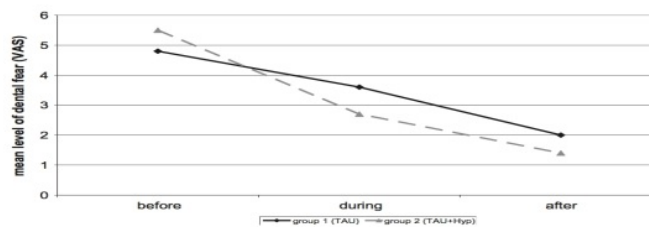
12.	Nicola Allison ³²	2015	Hypnosis in modern dentistry: challenging misconceptions	Hypnosis is an underused, yet powerful, benign tool in dentistry, it provides effective sedation, while leaving the patient in full control. Hypnosis has many uses within the dental field, ranging from simple relaxation of the anxious patient to complete analgesia for surgery. Used alone or in conjunction with sedation, it is a unique management option for many patients struggling with current anaesthetic and sedation methods. With proper training and appropriate patient selection, it can add value to a professional's practice and skill set. The current lack of use of hypnosis in general dentistry may be down to a lack of knowledge of the therapy and its applications. Widespread promotion of clinical hypnosis, emphasising its benefits and ease of use, alongside exploring the various types of hypnosis and introducing light hypnosis techniques to relax patients, may encourage practitioners to use it for other applications. The key to hypnodontics is to increase dentists' knowledge and promote courses in clinical hypnosis. In an era where dentistry is centred around both patient management and surgery, the key is to increase confidence with additional behavioural management skills, of which hypnosis is an excellent example.
13.	Enrico Facco, Gastone Zanello ³³	2017	The odyssey of dental anxiety: From prehistory to the present. A narrative review	The time is now ripe to reappraise the no longer tenable, unyielding materialist-mechanist paradigm of scientific medicine denying the value of patient's subjectivity and rediscover the holistic teaching of Hippocrates; only this may allow to rebuild a patient-centered approach and a veritable, effective doctor-patient relationship, focused on the "to care" instead of the "to cure" of the illness-centered medicine; as Hippocrates himself taught, "It is more important to know what sort of person has a disease than to know what sort of disease a person has".
14.	Joana Monteiro, Ajit Tandy, Paul F Ashley, Susan Parekh, Hamdan Alamri ³⁴	2020	Interventions for increasing acceptance of local anaesthetic in children and adolescents having dental treatment	We did not find sufficient evidence to draw firm conclusions as to the best interventions to increase acceptance of LA in children due to variation in methodology and nature/timing of outcome measures. We recommend further parallel RCTs, reported in line with the CONSORT Statement. Care should be taken when choosing outcome measures.
15.	Sharifa Al-Harasi, Paul F Ashley, David R Moles, Susan Parekh, Van Walters ³⁵	2017	Hypnosis for children undergoing dental treatment	There is considerable anecdotal evidence of the benefits of hypnosis in paediatric dentistry, however, on the basis of the three studies that were eligible to be included in this review there is not yet enough evidence to claim it is empirically supported. The limitations of this review are noted by the review authors.
16.	Heide Glaesmer, Hendrik Geupel, Reiner Haak ³⁶	2015	A controlled trial on the effect of hypnosis on dental anxiety in tooth removal patients	Our findings confirm that hypnosis is beneficial as an adjunct intervention to reduce anxiety in dental patients undergoing tooth extraction, particularly with regard to its no-invasive nature. Moreover, its implementation is not very time-consuming and is associated with rather low costs. Although the patients in our study had almost no experience with hypnosis, they had positive attitudes toward it. The majority of them would be willing to use hypnosis again. These findings underline that hypnosis is not only beneficial, but also highly accepted by the patients. Hence, hypnosis is not very widely implemented in dental care
17.	Mohsen Ramazani, Nafiser Zarenejad, Masoud Parirokh, Samir Zahedpasha ³⁷	2016	How Can Hypnodontics Manage Severe Gag Reflex for Root Canal Therapy? A Case Report	Gag reflex can be complicate dental treatment prevent optimal treatment results. Based on psychology and psychiatry research the psychotic part is closely integrated with the somatic part of medical conditions including gag reflex. This report shows that in case of severe gag reflex, especially with pronounced psychological background, hypnosis can be a safe, effective, and user-friendly method to modify patient's sensation, memory, and compliance.



9 **Figure 1.** A flow chart explaining the search methodology and the number of articles included / excluded at each stage



14 **Figure 2.** Graph of the difference in reduction in fear in patients who were given and not given hypnosis. **Source:** (Glaesmer H, et al. A controlled trial on the effect of hypnosis on dental anxiety in tooth removal patients. *Patient Educ Couns.* 2015;1-5)³⁶



17 **Figure 3.** Box diagram showing the difference in heart rates of patients who are given and not given hypnosis. **Source:** Ramirez-Carrasco A, et al. Effectiveness of hypnosis in combination with conventional techniques of behavior management in anxiety/pain reduction during dental anesthetic infiltration. *Pain Res Manag.* 2017;2017.²⁸

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