

Review Article

Overcoming Dental Fear with Sedation Dentistry – An Update

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ABSTRACT

Some people don't look forward to dental appointments any more than they look forward to visits to a physician. Most dental procedures aren't painful. However, just being examined can make people feel stressed. For those with dental phobia, however, the thought of a dental visit is terrifying. They may be so frightened, in fact, that they'll do just about anything to avoid a dental appointment. A phobia is an intense, unreasonable fear. People can fear a specific activity, object or situation. People with dental phobia often put off routine care for years or even decades. To avoid it, they'll put up with gum infections, pain, or even broken and unsightly teeth. For this, proper pharmacological interventions should be carried out. Sedation is sometimes touted as "the solution for overcoming dental anxiety or phobia".

Keywords: Dental fears, sedation, sleeping dentistry, relaxation, anaesthesiologist.

INTRODUCTION

Dental anxiety and phobia are extremely common. It has been estimated that 9% to 15% of Americans avoid seeing the dentist because of anxiety and fear. That's about 30 million to 40 million people. In a survey by the British Dental Health Foundation, 36% of those who didn't see a dentist regularly said that fear was the main reason^{1,2}. People often use the words "anxiety" and "phobia" to mean the same thing, but they are different. Those with dental anxiety will have a sense of uneasiness when it's time for their appointments. They'll have exaggerated or unfounded worries or fears. Dental phobia is a more serious condition. It's an intense fear or dread. People with dental phobia aren't merely anxious. They are terrified or panic stricken. People with dental phobia have a higher risk of gum disease and early tooth loss. Avoiding the dentist may have emotional costs as well. Discoloured or damaged teeth can make people self-conscious and insecure. They may smile less or keep their mouths partly closed when they speak. Some people can become so embarrassed about how their teeth look that their personal and professional lives begin to suffer. There is often a serious loss of self-esteem. People with dental phobia also may suffer from poorer health in general, and even lower life expectancy. This is because poor oral health has been found to be related to some life-threatening conditions, such as heart disease and lung infections. There are varying degrees of dental anxiety and phobia. At the extreme, a person with dental phobia may never see a dentist. Others may force themselves to go, but they may not sleep the night before. It's not uncommon for people to feel sick or, in some cases, to actually get sick while they're in the waiting room. Dental phobia, like other mental disorders, can be treated. Without treatment, dental phobia is likely to get worse over time. That's partly because emotional stress can make dental visits more uncomfortable than they need to be.

People who are unusually tense tend to have a lower pain threshold. This means they may feel pain at lower levels than other people. They may need extra anaesthetic or other pain treatments. They may even develop stress-related problems in other parts of the body like headaches or muscle stiffness in the neck or back^{3,4}.

Causes for Dental Anxiety and Phobia

People develop dental anxieties and phobias for many different reasons. When researchers interview patients, however, a few common themes emerge. One reason is pain. In a survey of people who had not seen a dentist for 12 months, 6% reported fear of pain as the main reason. The fear of pain is most common in adults 24 years and older^{5,6}. This may be because their early dental visits happened before many of the advances in "pain-free" dentistry. Many people develop phobias about situations such as flying in an airplane in which they feel they have no control. When they're in the dental chair, they have to stay still. They may feel they can't see what's going on or predict what's going to hurt. It's common for people to feel helpless and out of control, which may trigger anxiety. Another reason is embarrassment. The mouth is an intimate part of the body. People may feel ashamed or embarrassed to have a stranger looking inside. This may be a particular problem if they're self-conscious about how their teeth look. Dental treatments also require physical closeness. During a treatment, the hygienist's or dentist's face may be just a few inches away. This can make people anxious and uncomfortable. Negative past experiences is a key factor. Anyone who has had pain or discomfort during previous dental procedures is likely to be more anxious the next time around. Dental anxiety, unfortunately, is sometimes a shared family experience. Whether it's just a bout of sweaty palms or acute anxiety, the fears and attitudes of parents can easily be passed along to children unintentionally⁷. Perhaps they grew up without the

technical advantages available today. Their memories of pain can be fierce enough to interfere with family dental education and health.

Sedation Dentistry

Sedation dentistry uses medication to help patients relax during dental procedures. It's sometimes referred to as "sleep dentistry" although that's not entirely accurate. Patients are usually awake with the exception of those who are under general anaesthesia. Sedation is the reduction of irritability or agitation by administration of sedative drugs, generally to facilitate a medical procedure or diagnostic procedure⁸. It is a state or condition induced by a sedative which includes the reduction of anxiety, stress, irritability, or excitement by administration of the sedative agent or drug. It is a state of calm or reduced nervous activity by bringing about mental or physiological relaxation. The pharmacological agents usually belong to a class of drugs called sedatives, which exert their action by depressing the central nervous system, specifically those areas concerned with conscious awareness⁹. Sedation can be used for everything from invasive procedures to a simple tooth cleaning. Odontophobia is a genuine phobia with no logic to it. The person knows the pain will be bearable and they will be fine, but still can't handle it, can be attended with sedation dentistry. Patients are treated with an intravenous drug similar to diazepam (valium)¹⁰. They are still awake, but don't really know what's going on. It's much safer than general anaesthetic; the patient just needs to be medically fit to qualify¹¹. People can come in and get as many treatments they need in one go, without discomfort. It's far better to fix a cavity under sedation than have the person ignore the problem out of fear, and end up in hospital under a general anaesthetic needing a more complicated treatment.

Levels of Sedation

There are different degrees of central nervous system depression, each corresponding to a level of relaxation which ranges from minimal, moderate, to deep sedation. Sedation scales are used in medical situations in conjunction with a medical history in assessing the applicable degree of sedation in patients in order to avoid under-sedation (the patient risks experiencing pain or distress) and over-sedation (the patient risks side effects such as suppression of breathing, which might lead to death)¹². Basically, the levels are (i) agitation, (ii) calm, (iii) responsive to voice alone, (iv) responsive to tactile stimulation, (v) responsive to painful stimulation only, and (vi) unresponsive to painful stimulation. Some of the important sedation scales include MSAT (Minnesota Sedation Assessment Tool), UMSS (University of Michigan Sedation Scale), the Ramsay Scale and the RASS (Richmond Agitation-Sedation Scale)¹³. The levels of sedation include¹⁴:

Minimal Sedation - Normal response to verbal stimuli.

Moderate Sedation - Purposeful response to verbal/tactile stimulation. (This is usually referred to as "conscious sedation")

Deep Sedation - Purposeful response to repeated or painful stimulation.

General Anaesthesia - Unarousable even with painful

stimulus.

Drugs Used in Sedation Dentistry¹⁴⁻¹⁷

Diazepam (Valium): is the most widely used drug and has amnesic properties. It has a longer half-life than some of the other medications, so it is particularly useful for appointments where extensive dentistry is being performed.

Triazolam (Halcion): is most well known for the treatment of insomnia. It is highly effective when used in oral sedation procedures. It can be combined with an antihistamine.

Zaleplon (Sonata): is similar to Triazolam in that it is also commonly used for the treatment of insomnia.

Lorazepam (Ativan): is commonly prescribed for the treatment of anxiety and possesses amnesic properties. It is an effective sedative with a medium half-life and is useful for appointments that are longer than two hours.

Hydroxyzine (Vistaril): is an antihistamine which also has anxiolytic effects. It also works in combination with many of the benzodiazepines. It has no amnesic properties.

Midazolam (Versed): has the shortest half-life of all of the benzodiazepines, lasting about an hour, and making it ideal for short appointments or simple procedures. It has many of the same anxiolytic and amnesic benefits of other benzodiazepines, but is less commonly used because of its duration.

Types of Sedation

The following types of sedation are used in dentistry^{15,16,17}

Inhaled minimal sedation: The patient breathes nitrous oxide otherwise known as "laughing gas" combined with oxygen through a mask that's placed over his nose. The gas helps the patient relax. The dentist can control the amount of sedation to be given, and the gas tends to wear off quickly. This is the only form of sedation where the patient may drive himself home after the procedure.

Oral sedation: Depending on the total dose given, oral sedation can range from minimal to moderate. For minimal sedation, a triazolam pill is taken. The pill will make the patient drowsy, although he'll still be awake. A larger dose may be given to produce moderate sedation. This is the type of anaesthesia most commonly associated with sedation dentistry. Some people become groggy enough from moderate oral sedation to actually fall asleep during the procedure. They usually can, though, be awakened with a gentle shake.

IV moderate sedation: The sedative drug is given to the patient through a vein, so it goes to work more quickly. This method allows the dentist to continually adjust the level of sedation.

Deep sedation and general anaesthesia: These medications will make the patient either almost unconscious or totally unconscious, deeply asleep during the procedure. While under general anaesthesia, the patient cannot easily be awakened until the effects of the anaesthesia wear off or are reversed with medication.

Regardless of which type of sedation given, a local anaesthetic is also typically needed numbing medication at the site where the dentist is working in the mouth, to relieve pain if the procedure causes any discomfort.

Sedation by pharmacologic methods may be obtained by two general routes^{18,19}. The enteral route involves absorption of medication across enteric membranes which line the alimentary canal from the oral cavity, through the digestive tract, ending in the rectum. This route includes medications that are either swallowed, absorbed through the mucosa of the oral cavity, or inserted rectally. The parenteral route involves the administration of sedative drugs other than absorption across enteric membranes (outside of the alimentary canal). These methods include intravenous, inhalation, intramuscular, and submucosal administration, among others.

Risks and Complications

Conscious sedation is usually safe. However, too much of the medicine causes problems with breathing. A doctor or nurse will be watching the whole procedure. Health care providers always have special equipment to help the patient with breathing, if needed. Only certain qualified health professionals can provide conscious sedation. Airway obstruction, apnea and hypotension are not uncommon during sedation and require the presence of health professionals who are suitably trained to detect and manage these problems²¹. Rarely, nausea and vomiting could happen after moderate sedation. This is usually treated using anti-nausea medications. There is a risk that blood pressure may drop when receiving moderate sedation. If this happens, the doctor and nurse may reposition the patient or increase the infusion rate of IV²². There is a small risk of infections, strokes, cardiac arrhythmia, heart attacks and possible death during moderate sedation. These risks are very small and more likely in older people and patients who have medical problems or a previous history of strokes or heart attacks²³. Because of significant advances in technology and medications, moderate sedation is extremely safe. There are, however, these small possibilities of risks and complications which can be prevented by a lot of ways.

Patient Screening

Prior to any sedation methods being used on a patient, screening must be done to identify possible health concerns. Before using sedation, doctors try to identify known drug allergies and sensitivities, hypertension, heart defects, kidney problems, other allergens such as latex allergy, history of stroke or transient ischemic attack (TIA) (certain oral sedation methods may trigger a TIA), neuromuscular disorders such as muscular dystrophy and a current list of medications and herbal supplements taken by the patient^{24,25}. A patient with any of these conditions must be evaluated for special procedures to minimize the risk of patient injury due to the sedation method. In addition to the aforementioned precautions, patients should be interviewed to determine if they have any other condition that may lead to complications while undergoing treatment. Any head, neck, or spinal cord injuries should be noted as well as any diagnosis of osteoporosis.

CONCLUSION

Everyone experiences fear at some point in their lives. There are some fears for which avoidance is a perfectly reasonable reaction. But there are certain fears for which

avoidance can lead to a decrease in quality of life, or even worse, can endanger your health. Individuals who have a specific phobia are presented with a choice: live with the uncomfortable symptoms of fear or take control and search for a solution. Far too many of these individuals have simply stopped seeking routine dental care. Even when faced with the warning signs of pain and decay, these individuals still steer clear of the dentist. Sedation dentistry provides a path free from fear. Many dentists have chosen to be specially trained to implement sedation; to relax their patients, creating a safe and comfortable dental experience. These doctors understand that for far too many people, dental fear and anxiety complicates access to essential treatment. Sedation dentists use commonly prescribed sedation medications, called benzodiazepines, to calm their patients. One of the major benefits of sedation dentistry is that people often feel like their dental procedures lasts only a few minutes, when in fact it might have taken hours to perform. Therefore, complex dental procedures such as smile makeovers or extensive rebuilding procedures that normally require multiple visits can often be performed in fewer appointments. If you are reluctant to change the appearance of your smile because you are afraid or anxious about undergoing long or complicated dental procedures, sedation dentistry can make you feel comfortable during the treatment process and help you achieve a smile you can be proud of. As a result of sedation dentistry, people are less likely to neglect their oral health.

REFERENCES

1. Brown, TB.; Lovato, LM.; Parker, D. (Jan 2005). "Procedural sedation in the acute care setting". *Am Fam Physician* 71 (1): 85–90. PMID 15663030
2. "Sedation Dentistry for Anxious Patients". Retrieved 2014-09-11.
3. "Continuum of Depth of Sedation: Definition of general anesthesia and levels of sedation/analgesia" (pdf). American Society of Anesthesiologists. Approved October 27, 2004, amended October 21, 2009. Retrieved 2010-11-29.
4. Ramsay MA, Savege TM, Simpson BR, Goodwin R. Controlled sedation with alphaxalone-alphadolone. *Br Med J* 1974; 2:656–659.
5. Weiss AJ, Elixhauser A. Origin of Adverse Drug Events in U.S. Hospitals, 2011. HCUP Statistical Brief #158. Agency for Healthcare Research and Quality, Rockville, MD. July 2013.
6. Reves JG, Glass PSA, Lubarsky DA, Intravenous anesthetics.
7. Miller RD, Eriksson LI, Fleisher LA, Miller's Anesthesia. 7th ed. Philadelphia, PA: Elsevier Churchill-Livingstone; 2009:chap 26.
8. Sherwood ER, Williams CG, Prough DS. Anesthesiology principles, pain management, and conscious sedation. In: Townsend CM, Beauchamp RD, Evers BM, Mattox KL, eds. *Sabiston Textbook of Surgery*. 19th ed. Philadelphia, PA: Elsevier Saunders; 2012:chap16.
9. Anesthesia & Analgesia: Patient-Controlled Versus

- Anesthesiologist-Controlled Conscious Sedation with Propofol for Dental Treatment in Anxious Patients May 1998 - Volume 86 - Issue 5 - pp 967-972
10. Veerkamp JS, Porcelijn T, Gruythuysen RJ, Department of Pediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands. *ASDC Journal of Dentistry for Children* [1997, 64(1):48-54]
 11. UK National Clinical Guidelines in Paediatric Dentistry. Managing anxious children: the use of conscious sedation in paediatric dentistry. Hosey MT; UK National Clinical Guidelines in Pediatric Dentistry. *Int J Paediatr Dent* [2002]
 12. Propofol intravenous conscious sedation for anxious children in a specialist paediatric dentistry unit. Hosey MT, Makin A, Jones RM, Gilchrist F, Carruthers M. *Int J Paediatr Dent* [2004]
 13. Conscious sedation for dentistry: risk management and patient selection. Jackson DL, Johnson BS, *Dental clinics of North America* [2002 Oct;46(4):767-80]
 14. Sedation for pediatric dental patients., Webb MD, Moore PA; *Dental clinics of North America* [2002 Oct;46(4):803-14, xi]
 15. Sedation for outpatient dental procedures. Kaufman E, Jastak JT; *Compendium of continuing education in dentistry (Jamesburg, N.J. : 1995)* [1995 May;16(5):462, 464, 466 passim; quiz 480]
 16. Overview of pharmacological aspects of sedation--Part I., Roelofse J *SADJ : journal of the South African Dental Association = tydskrif van die Suid-Afrikaanse Tandheelkundige Vereniging* [2000 Jul;55(7):387-9]
 17. Restoration of primary anterior teeth: review of the literature.; Lee JK *Pediatric dentistry* [2002 Sep-Oct;24(5):506-10]
 18. Pediatric Restorative Dentistry Consensus Conference. April 15-16, 2002--San Antonio, Texas.; Donly K; *Pediatric dentistry* [2002 Sep-Oct;24(5):374-6]
 19. Considerations for the use of enteral sedation in pediatric dentistry.; Yasny JS, Asgari A *The Journal of clinical pediatric dentistry* [2008 Winter;32(2):85-93]
 20. Management of the petrified dental patient.; Rafique S, Banerjee A, Fiske J *Dental update* [2008 Apr;35(3):196-8, 201-2, 204 passim]
 21. Recent advances in conscious sedation.; Leitch J, Lennox C, Robb N *Dental update* [2005 May;32(4):199-200, 202-3]
 22. Propofol intravenous conscious sedation for anxious children in a specialist paediatric dentistry unit.; Hosey MT, Makin A, Jones RM, Gilchrist F, Carruthers M *International journal of paediatric dentistry / the British Paedodontic Society [and] the International Association of Dentistry for Children* [2004 Jan;14(1):2-8]
 23. Sedation in uncooperative children undergoing dental procedures: a comparative evaluation of midazolam, propofol and ketamine.; Rai K, Hegde AM, Goel K *The Journal of clinical pediatric dentistry* [2007 Fall;32(1):1-4]
 24. Making patients safe and comfortable for a lifetime of dentistry: frontiers in office-based sedation.; Yagiela JA; *Journal of dental education* [2001 Dec;65(12):1348-56]
 25. An overview of outpatient sedation and general anesthesia for dental care in California.; Silegy T, Kingston RS; *Journal of the California Dental Association* [2003 May;31(5).