# Introduction to Pain Therapy Anxiety Management in Dentistry

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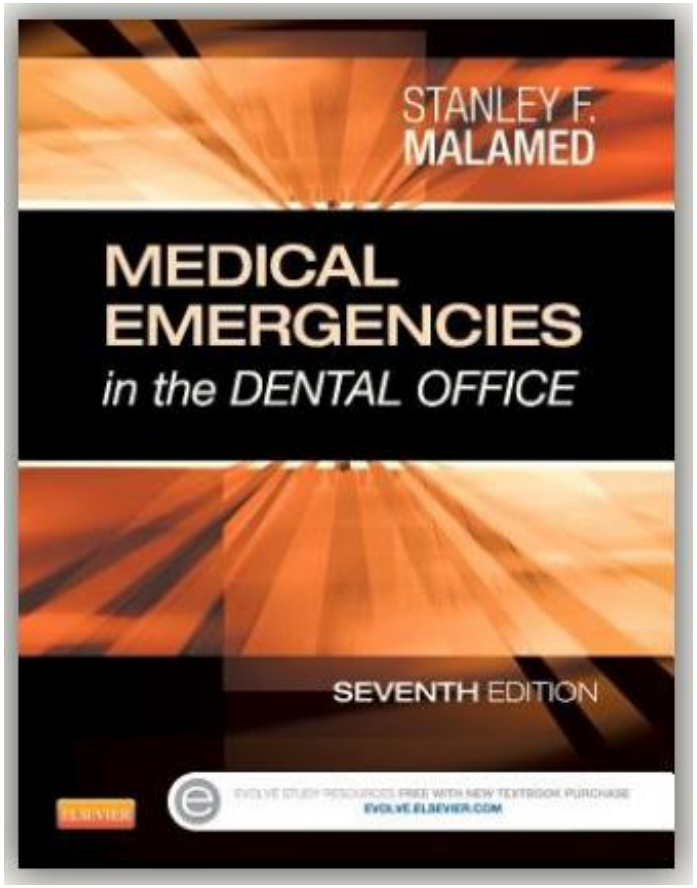
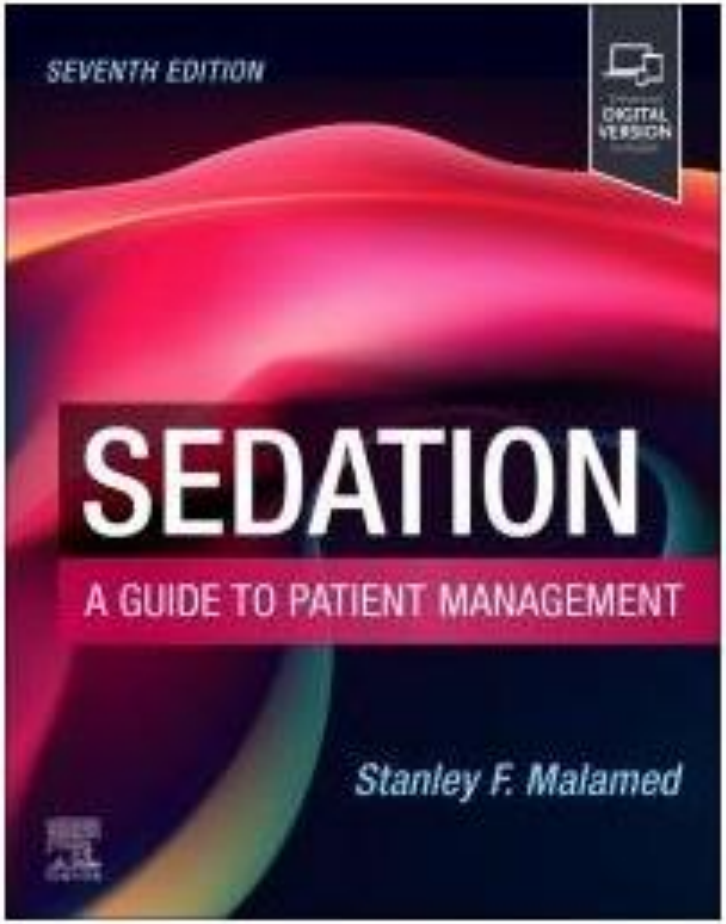
# Who am I?

# What about you?

Don’t forget about references ?!
And exam !!!



Dionne:
Management of
Pain Anxiety in
The Dental Office

# Today topic

- Introduction to fear and pain
- Sedation – what is it
- Hands-on CPR, ventilation

# History

Fear, anxiety, and pain have long been associated with dentistry

- laudanum, drink of opium and alcohol
- Horace Wells, a dentist-1840: N2O
- T. G. Morton- dentist and physician- ether
- 1930s - IV barbiturates for ambulatory oral surgery patients

Today: local anesthetics and/or the use of other techniques

# Have you got any lecture/education about fear, anxiety and pain?

Guidelines for Teaching the Comprehensive Control of Pain and Anxiety in Dentistry (USA)-1989

- three levels of training in various techniques of pain and anxiety control:
  - the predoctoral dental program
  - the postdoctoral (residency) program
  - continuing dental education

- dental student today receives
  - at a minimum a background in the subject of anxiety and fear of dentistry
  - the techniques available in their management

The Dentists Insurance Company (TDIC)- 1983 USA

- retrospective study of deaths related to drug administration in dental practice

1. Inadequate preoperative evaluation of the patient
2. Inadequate monitoring during the procedure
3. Lack of knowledge of the pharmacology of the drugs being administered

- sadly, still commonly seen when problems do arise

# Pain and Anxiety in Dentistry

| FEAR | PERCENTAGE |
|---|---|
| Public speaking | 27 |
| Going to dentist | 21 |
| Heights | 20 |
| Mice | 12 |
| Flying | 9 |
| Other/no fears | 11 |

From *Dental Health Advisor*, Spring 1987 (survey of 1000 adults).

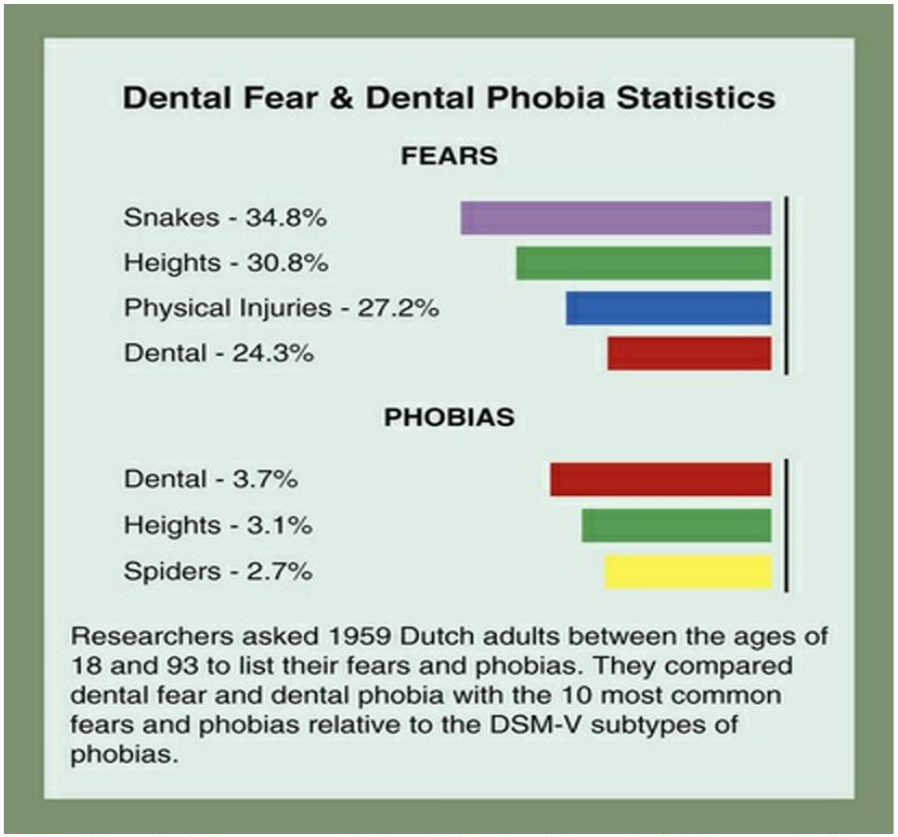
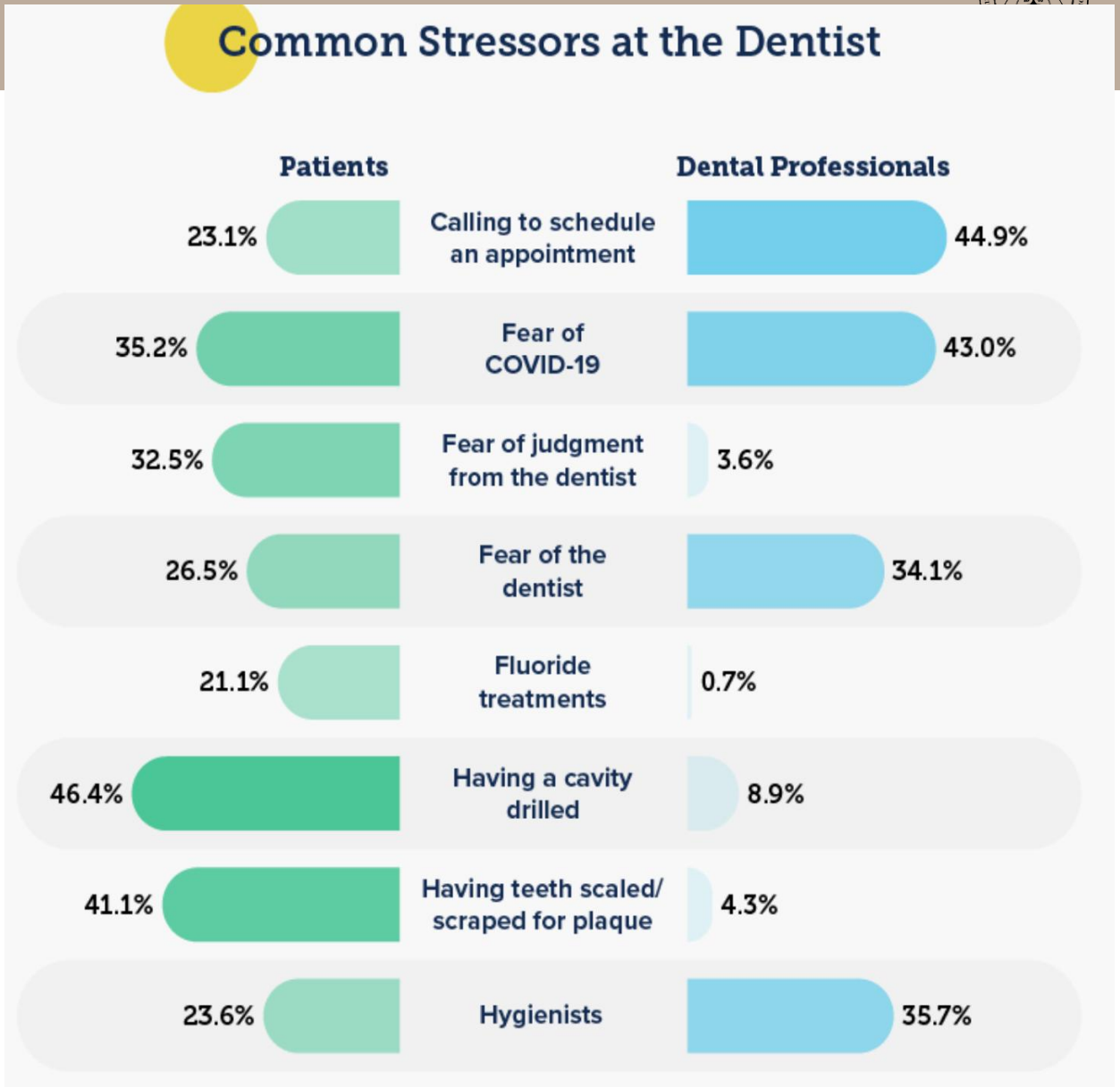
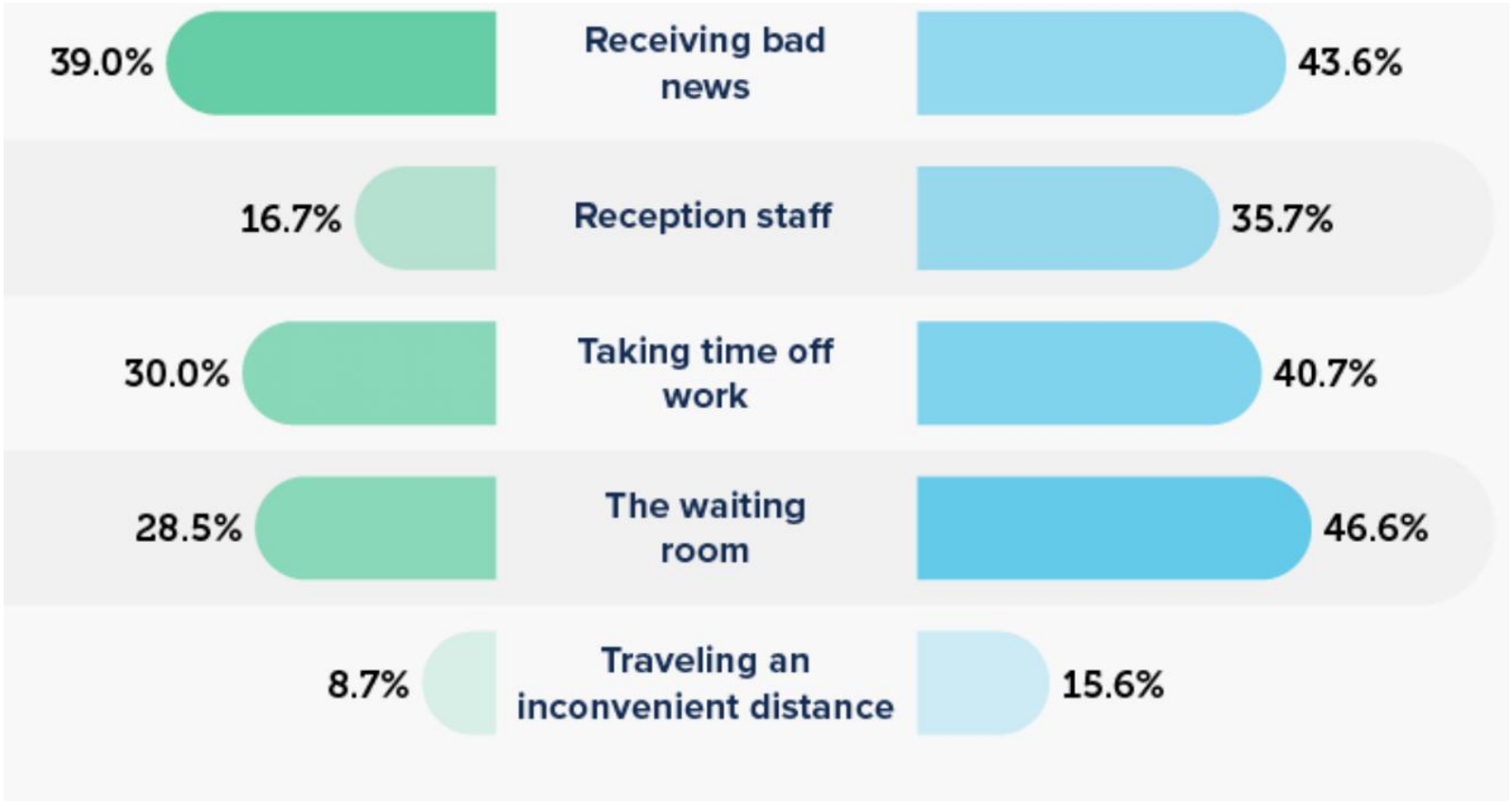



**FIGURE 1.2** Dental fear and dental phobia statistics relative to other common fears from the DSM-V. (Data from Oosterink FM, Floor MD, de Jongh A, Hoogstraten J: Prevalence of dental fear and phobia relative to other fear and phobia subtypes. *Eur J Oral Sci* 117(2):135–143, 2009.)

Dental Care Confessions: 2022 Berxi Survey Results

- 330 dental professionals and 965 patients





## Fear

- short-lived phenomenon
- disappearing when the external danger or threat passes
- a feeling that something terrible is going to happen
- physiologic changes: tachycardia, profuse perspiration,hyperventilation
- behavioral movements, such as becoming jittery or shaking
- “fight or flight” response

## Anxiety

- not likely to be dispelled as quickly
- emotional response is usually an internal one and is not readily recognized.
- a specific unpleasurable state of tension which indicates the presence of some danger to the organism
- learned response, acquired from personal experience or secondarily through the experiences of others
- anxiety arises from anticipation of an event, the outcome of which is unknown

- Anxious patients present a problem to the dentist
  - not only when they appear for treatment
  - but also when their children require treatment
  - fear and anxiety are contagious
  - even though apprehensive adults will usually make every attempt
  - to mask their true feelings about “the dentist”, their feelings usually manage to make themselves evident to their children

- Every dentist is familiar with the child who appears at his or her very first dental appointment already “knowing” that the drill is going to hurt


| Aspect | **Fear** | **Anxiety** |
|---|---|---|
| **Timing** | Present | Future |
| **Trigger** | Clear & immediate | Vague or uncertain |
| **Duration** | Brief | Can be long-lasting |
| **Function** | Protects from real danger | Helps prepare—can become excessive |
| **Physical Response** | Strong, sudden | Gradual, persistent |

# Basic Fears: 5 universal fears


1. Fear of pain
2. Fear of the unknown
3. Fear of helplessness and dependency
4. Fear of bodily change and mutilation
5. Fear of death

\+ stress of the dental situation

→ unable to successfully cope and they exhibit "dental phobia"

- an irrational fear of dentistry and all that it represents

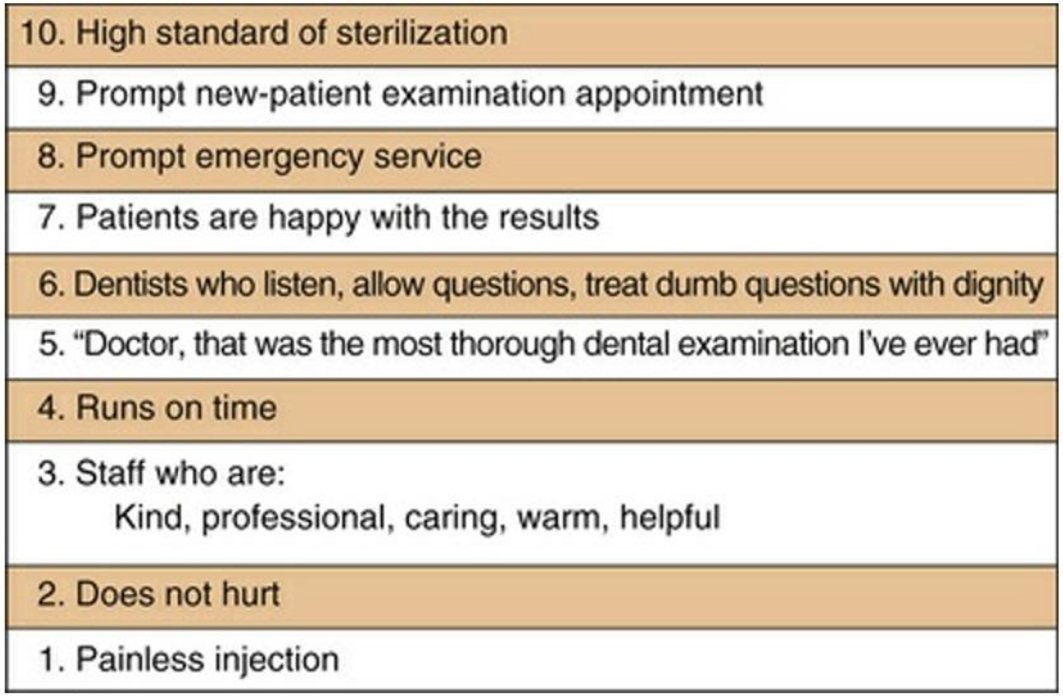



**FIGURE 1.3** Survey by patients reporting the most important factors of a dentist. (From de St Georges J: How dentists are judged by patients, *Dent Today* 23[8]:96–99, 2004.)

# What about pain?

# Pain definition

## International Association for the Study of Pain

- An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (1979)

- An unpleasant sensory and emotional experience associated with, **or resembling** that associated with, actual or potential tissue damage (2020)

Raja SN et al. The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. Pain. 2020 Sep 1;161(9):1976-1982. doi: 10.1097/j.pain.0000000000001939. PMID: 32694387; PMCID: PMC7680716.

- Why this update?

  - Pain is always a personal experience

  - Is influenced to varying degrees by biological, psychological, and social factors

  - Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons

    - Nociception = a physiological process in which receptors in the body detect a potentially harmful stimulus and send signals to the brain
    - Pain = a subjective experience created by the brain; it includes emotions, attention, fear, past experiences, and context

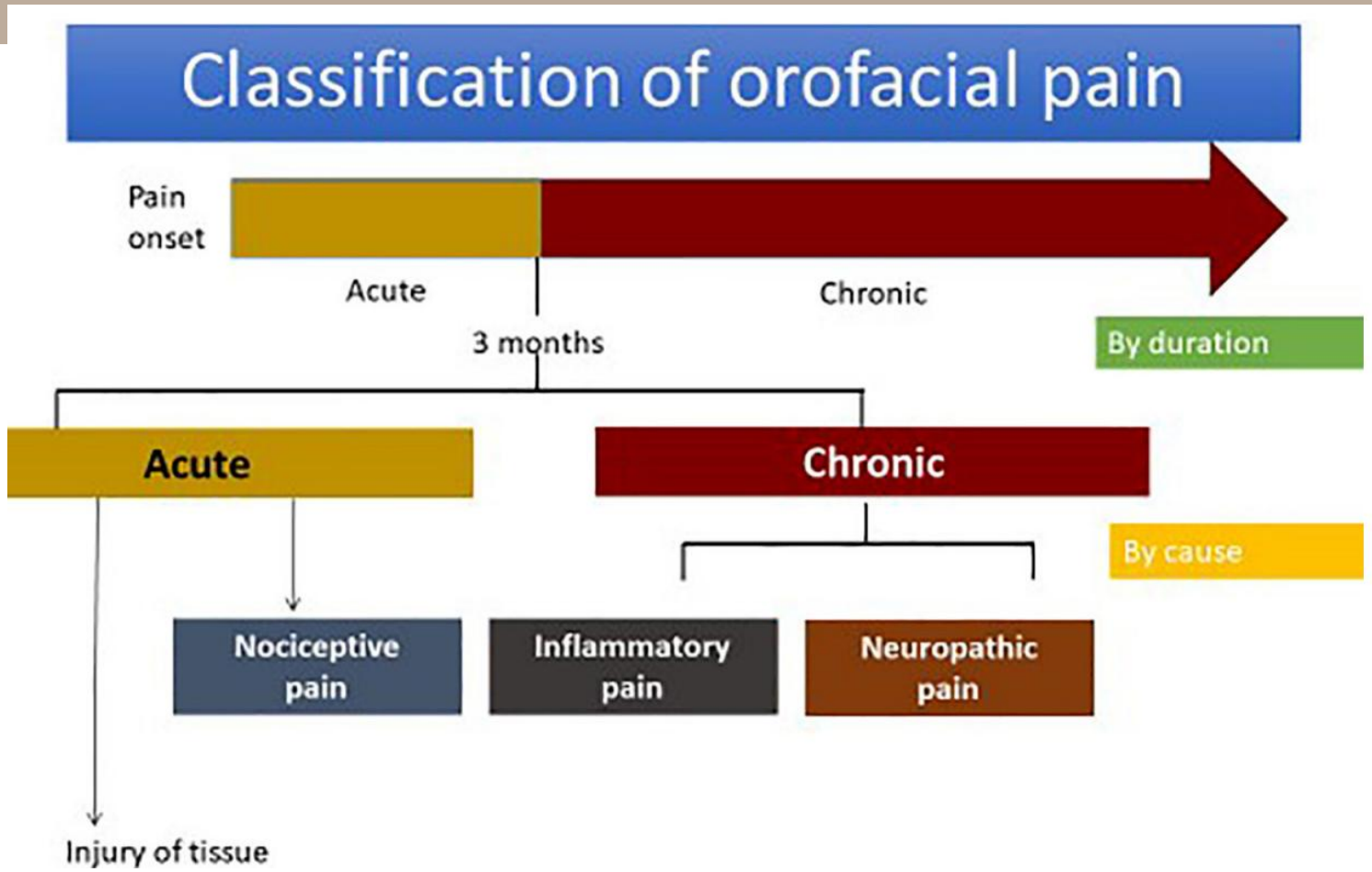
You can have activation of pain receptors (nociceptors) **without** actually feeling pain, and pain can occur even **without** nociceptive activation (e.g., neuropathic pain, phantom pain, intense anxiety).

- Through their life experiences, individuals learn the concept of pain
- A person's report of an experience as pain should be respected
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being
- Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a non-human animal experiences pain

Raja SN et al. The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. Pain. 2020 Sep 1;161(9):1976-1982. doi: 10.1097/j.pain.0000000000001939. PMID: 32694387; PMCID: PMC7680716.

# Classification of pain

- according to etiology
- according to pathophysiology
- according to anatomical location
- according to intensity
- according to duration



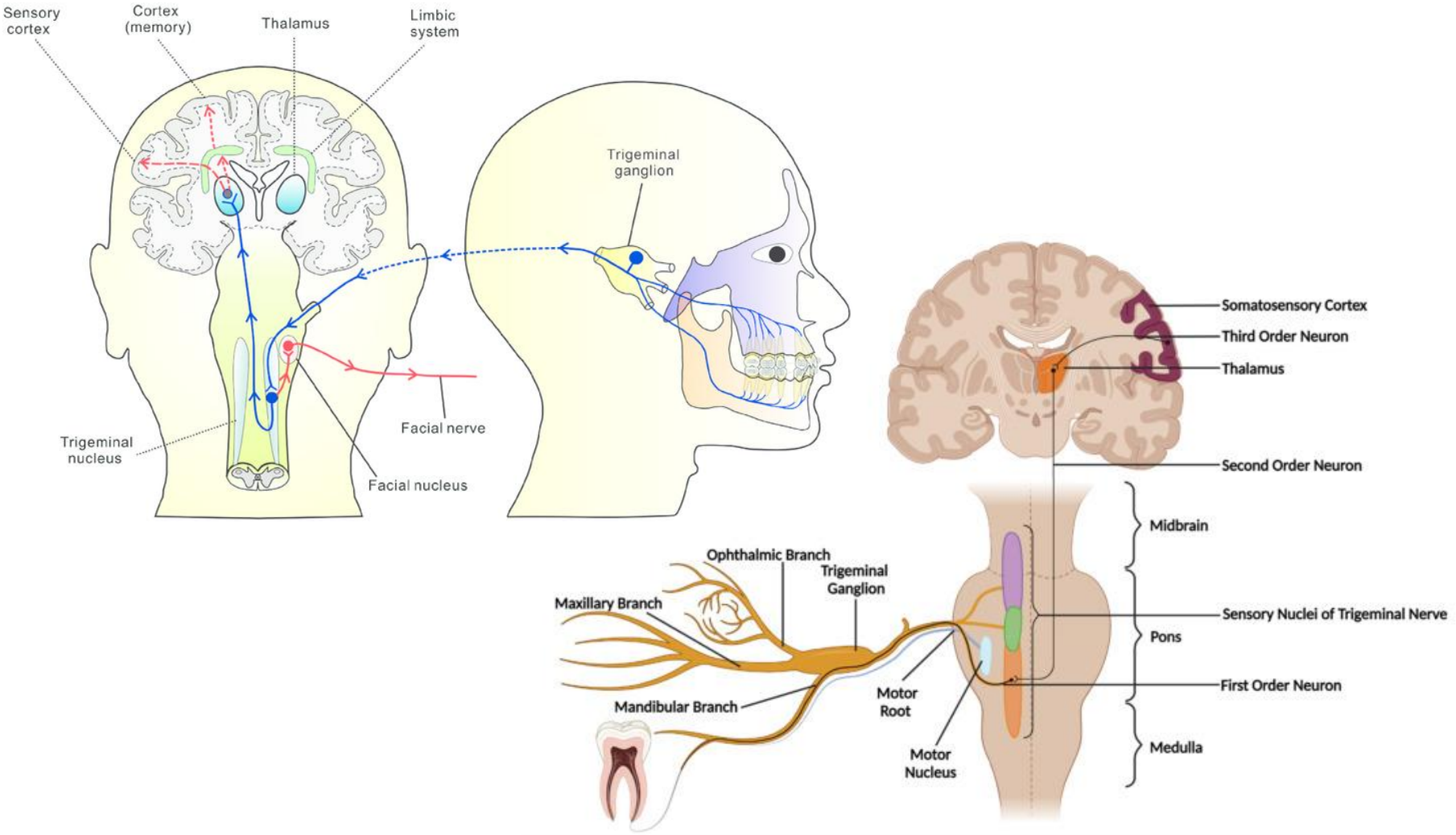

Rotpenpian N, Yakkaphan P. Review of Literatures: Physiology of Orofacial Pain in Dentistry. eNeuro. 2021 Apr 27;8(2):ENEURO.0535-20.2021. doi: 10.1523/ENEURO.0535-20.2021. PMID: 33820801; PMCID: PMC8086974

Difference between nociceptive, inflammatory, and neuropathic pain

| Characteristics | Nociceptive orofacial pain | Inflammatory orofacial pain | Neuropathic pain |
|---|---|---|---|
| Causes and mechanism of pain pathway | Noxious stimulation at the peripheral nerve and transmitted by normal components of the sensory trigeminal nerve | Strong noxious stimulus causes lesions in the tissue leading to local inflammation responses and increased inflammatory mediators | Caused by nerve damage or injury and increased peripheral sensitization, structure change by increased sodium activation, calcium activity of nerves leading to ectopic discharges, and glia cell activation |
| Nerve condition | Normal nerve structure | Normal nerve structure | Abnormal nerve structure |

| | | | |
|---|---|---|---|
| Stimulation | Response to noxious stimulus for protective and withdrawal response | Response to noxious stimulus and increase of activity of peripheral nociceptors | -Response to non-noxious and noxious stimulation<br>-Spontaneous pain without stimulation because ectopic discharges occurred in damaged nerves |
| Example | Hot soup contacting the oral mucosa immediately caused pain perception (heat/hot), and then they threw away this hot soup | -Pulp necrosis with apical abscess<br>-Temporomandibular joint capsulitis or synovitis is caused by joint inflammation. Joint pain and limitation of jaw movement develops afterward | Peripheral trigeminal nerve injury is caused by nerve damage such as facial trauma accident or trigeminal neuralgia contributing to abnormal nerve structure and expression of severe shooting pain, intermittent patterns, and feels like electric shocks |

# Dental pain neuro transmission

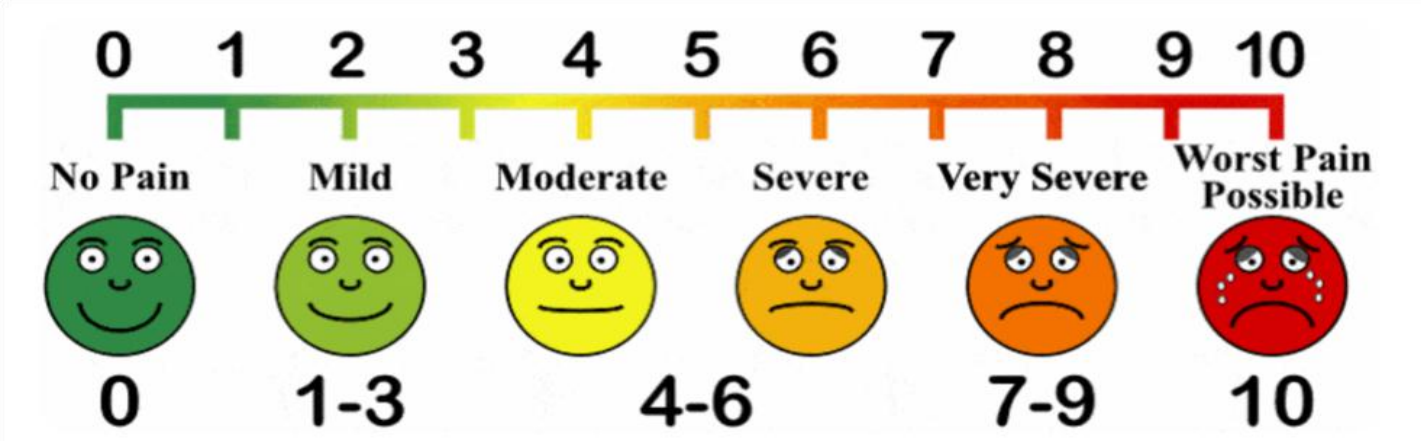


# Do you evaluate anxiety levels in your patients?

# How should clinicians assess acute dental pain/anxiety?

- **1. SINGLE-ITEM DENTAL ANXIETY SCALE**

VAS, NRS



## Gatchel’s 10-point fear scale (FS)

- 1 represented "no fear"
- 5 represented "moderate fear"
- 10 represented "extreme fear"
- low fear group (scores 1-4), a
- moderate fear group (scores 5-7)
- high fear group (scores 8-10)

## Dental Anxiety Question (DAQ)

- Are you afraid of going to the dentist?
- 1) No, 2) A little, 3) Yes, quite, and 4) Yes, very

## 2. **ADULT DENTAL ANXIETY SCALE (multiple item)**

Corah Dental Anxiety Scale (DAS)

- 4 indicates "no fear”
- 5 and 8 corresponds to "low fear”
- 9 and 14 indicates "moderate fear”
- 15 and 20 corresponds to "high fear"

Dental Anxiety Scale

1. If you had to go to the dentist tomorrow, how would you feel about it?
   a) I would look forward to it as a reasonably enjoyable experience.
   b) I wouldn't care one way or the other.
   c) I would be a little uneasy about it.
   d) I would be afraid that it would be unpleasant and painful.
   e) I would be very frightened of what the dentist might do.
2. When you are waiting in the dentist's office for your turn in the chair, how do you feel?
   a) Relaxed.
   b) A little uneasy.
   c) Tense.
   d) Anxious.
   e) So anxious that I sometimes break out in a sweat or almost feel physically sick.
3. When you are in the dentist's chair waiting while he gets his drill ready to begin working on your teeth, how do you feel? (Same alternatives as number 2.)
4. You are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist is getting out the instruments which he will use to scrape your teeth around the gums, how do you feel?[8] (Same alternatives as number 2.)

Points were assigned for the subject's choices, with one point for an (a) choice to 5 points for an (e) choice.

# Modified Dental Anxiety Scale (MDAS)

| | | | | |
|---|---|---|---|---|
| **1. If you went to your Dentist for TREATMENT TOMORROW, how would you feel** | | | | |
| Not Anxious ☐ | Slightly Anxious ☐ | Fairly Anxious ☐ | Very Anxious ☐ | Extremely Anxious ☐ |
| **2. If you were sitting in the WAITING ROOM (waiting for treatment), how would you feel?** | | | | |
| Not Anxious ☐ | Slightly Anxious ☐ | Fairly Anxious ☐ | Very Anxious ☐ | Extremely Anxious ☐ |
| **3. If you were about to have a TOOTH DRILLED, how would you feel?** | | | | |
| Not Anxious ☐ | Slightly Anxious ☐ | Fairly Anxious ☐ | Very Anxious ☐ | Extremely Anxious ☐ |
| **4. If you were about to have your TEETH SCALED and POLISHED, how would you feel?** | | | | |
| Not Anxious ☐ | Slightly Anxious ☐ | Fairly Anxious ☐ | Very Anxious ☐ | Extremely Anxious ☐ |
| **5. If you were about to have a LOCAL ANESTHETIC INJECTION in your gum, above an upper back tooth, how would you feel?** | | | | |
| Not Anxious ☐ | Slightly Anxious ☐ | Fairly Anxious ☐ | Very Anxious ☐ | Extremely Anxious ☐ |

- Gale’s Ranking Questionnaire (RQ)
  - 29 items divided into three parts
- Dental Fear Survey (DFS)
  - comprises 27 items, 4 parts
- Modified Dental Fear Survey (MDFS)
  - 20 items
- Dental State Anxiety Scale (DSAS)
  - 20 questions
- Getz's Dental Belief Survey (DBS)
  - 15 questions
- Revised version of Dental Belief Survey (DBS-R)
  - 28 questions
- Dental Anxiety Inventory (DAI)
  - 36 items

Chi SI. What is the gold standard of the dental anxiety scale? J Dent Anesth Pain Med. 2023 Aug;23(4):193-212. doi: 10.17245/jdapm.2023.23.4.193. Epub 2023 Jul 29. PMID: 37559670; PMCID: PMC10407447.

# You have patient monitor at your station?

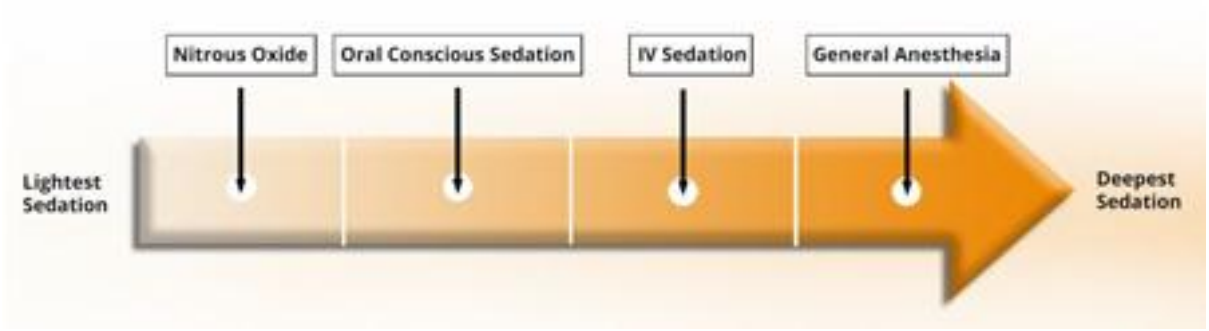
## 3. **Physiological measures, overt behavior measures**

- heart rate, amount of saliva, sweat on palms
- increased BP and heart rate
- trembling
- excessive sweating
- dilated pupils
- avoiding eye contact, fidgeting

# How we mitigate anxiety and pain?

- Non-pharmacological
- Sedation !!!
- Anxiolytics
- Local anesthesia

# How we mitigate anxiety and pain?




| | MINIMAL | MODERATE | DEEP | GENERAL ANESTHESIA |
|---|---|---|---|---|
| Responsiveness | Alert/Awake | Responds to Verbal Stimuli | Responds to Painful Stimuli | Unresponsive |
| Ventilation | Unaffected | Adequate | Maybe Inadequate | Frequently Inadequate |
| Airway | Unaffected | No Intervention | Intervention Maybe Needed | Intervention Often Required |
| Cardiovascular | Unaffected | Maintained | Usually Maintained | Maybe Impaired |

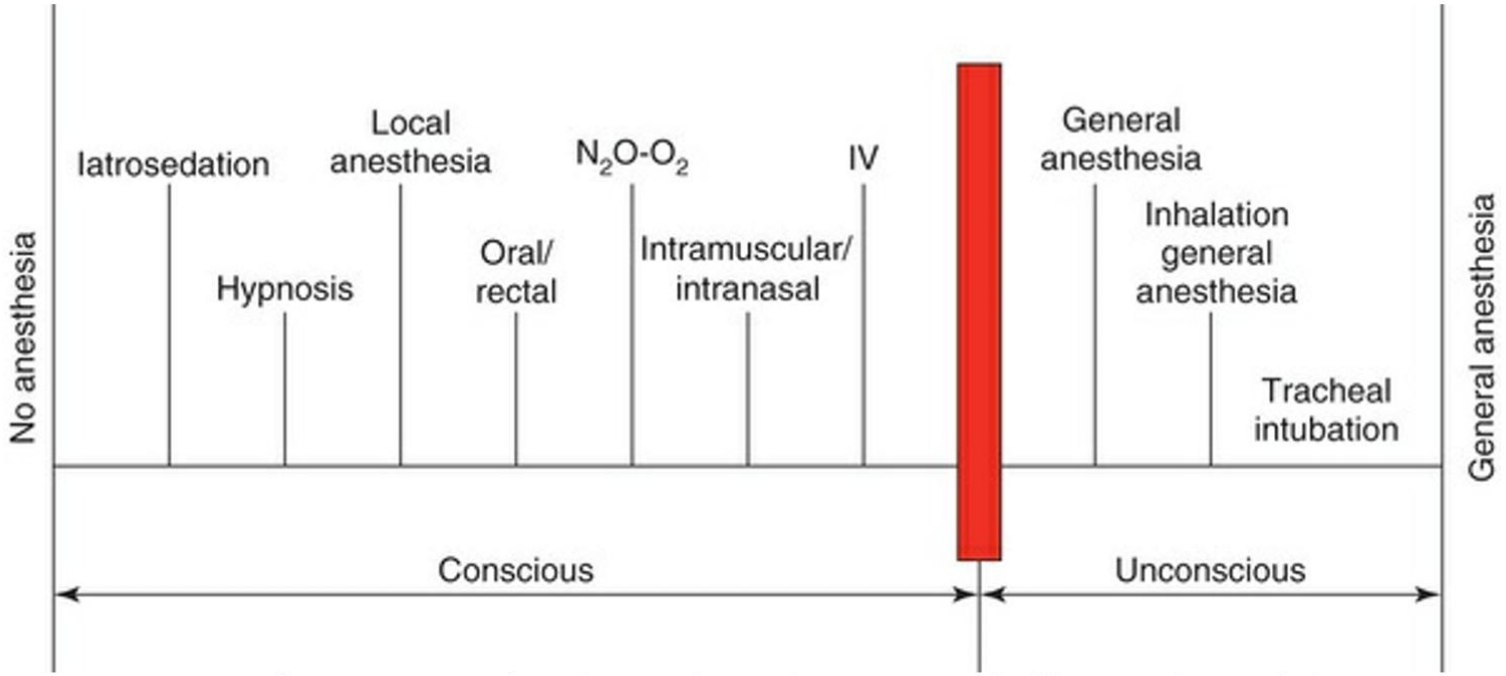



**FIGURE 3.1** Spectrum of pain and anxiety control. Illustration of the range of techniques available in medicine and dentistry for patient management. Vertical bar represents the loss of consciousness.

# What relaxation techniques do you provide for your patients?

# Iatrosedation

- the relief of anxiety through the dentist's behavior

- steps:
  - recognition by the dentist ofthe patient's anxieties toward dentistry
  - management of the information gathered by the dentist from the patient
  - commitment by the dentist to aid the patient during dental treatment

- technique of communication between the dentist and the patient that creates a bond of trust and confidence

# Other non-pharmacologic management

- Psychological and behavioral
  - Cognitive-Behavioral Therapy (CBT)
  - Patient education
  - Relaxation techniques

- Physical and interventional
  - Cryotherapy
  - Transcutaneous Electrical Nerve Stimulation (TENS)
  - Low-Level Laser Therapy (LLLT)
  - Vibratory devices
  - Massage therapy
  - Acupuncture and acupressure

- Sensory and other methods
  - Music therapy
  - Virtual reality
  - Chewing gum or bite wafers

- For acute pain: Cryotherapy (cold compresses) and relaxation techniques may offer immediate relief

- For long-term management or anxiety: CBT and patient education are effective at building coping skills for future visits.

# Pharmacosedation

**Table 3.1**

**Comparison of Routes of Drug Administration**

| Route | Cooperation* | First-Pass Effect | Used for Sedation† | Children/Adults | Titration | Maximal Sedation Level Recommended‡ |
|---|---|---|---|---|---|---|
| Topical | 2 | – | 0 | na | – | na |
| Sublingual | 2 | – | 1 | –/+ | – | 1 |
| Intranasal | 1 | – | 2 | +/– | – | 2 |
| Oral | 2 | + | 1 | +/+ | – | 2 |
| Rectal | 1 | + | 1 | +/+ | – | 2 |
| Transdermal | 1 | – | 1 | –/+ | – | 1 |
| Subcutaneous | 1 | – | 0 | na | – | 1 |
| IM/SM | 0 | – | 2/1 | +/+ | – | 2 |
| Inhalation | 2 | – | 2 | +/+ | + | 2 |
| Intravenous | 2 | – | 2 | +/+ | + | 3 |
| Intraarterial | 2 | – | 0 | na | – | na |
| Intrathecal (spinal) | 2 | – | 0 | na | + | na |
| Intramedullary | 1 | – | 0 | na | + | na |
| Intraperitoneal | 0 | – | 0 | na | – | na |

*Key: Cooperation required, 2; cooperation not critical, 1; cooperation not necessary, 0.

†Strongly recommended, 2; somewhat recommended, 1; not recommended, 0.

‡Deep sedation, 3; moderate sedation, 2; minimal sedation, 1.

*IM,* Intramuscular; *na,* not applicable; *SM,* submucosal.