Dental Fear and Anxiety: Why It Exists and What Providers Can Do To Help

CareQuest Institute Continuing Education Webinar

May 5, 2022

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Housekeeping

- We will keep all lines muted to avoid background noise.
- We will send a copy of the slides and a link to the recording via email after the live program.
- We'll also make the slides and recording available on carequest.org.

To receive CE Credits:

- Look for the evaluation form, which we'll send via email.
- Complete the **evaluation by Friday, May 13**.
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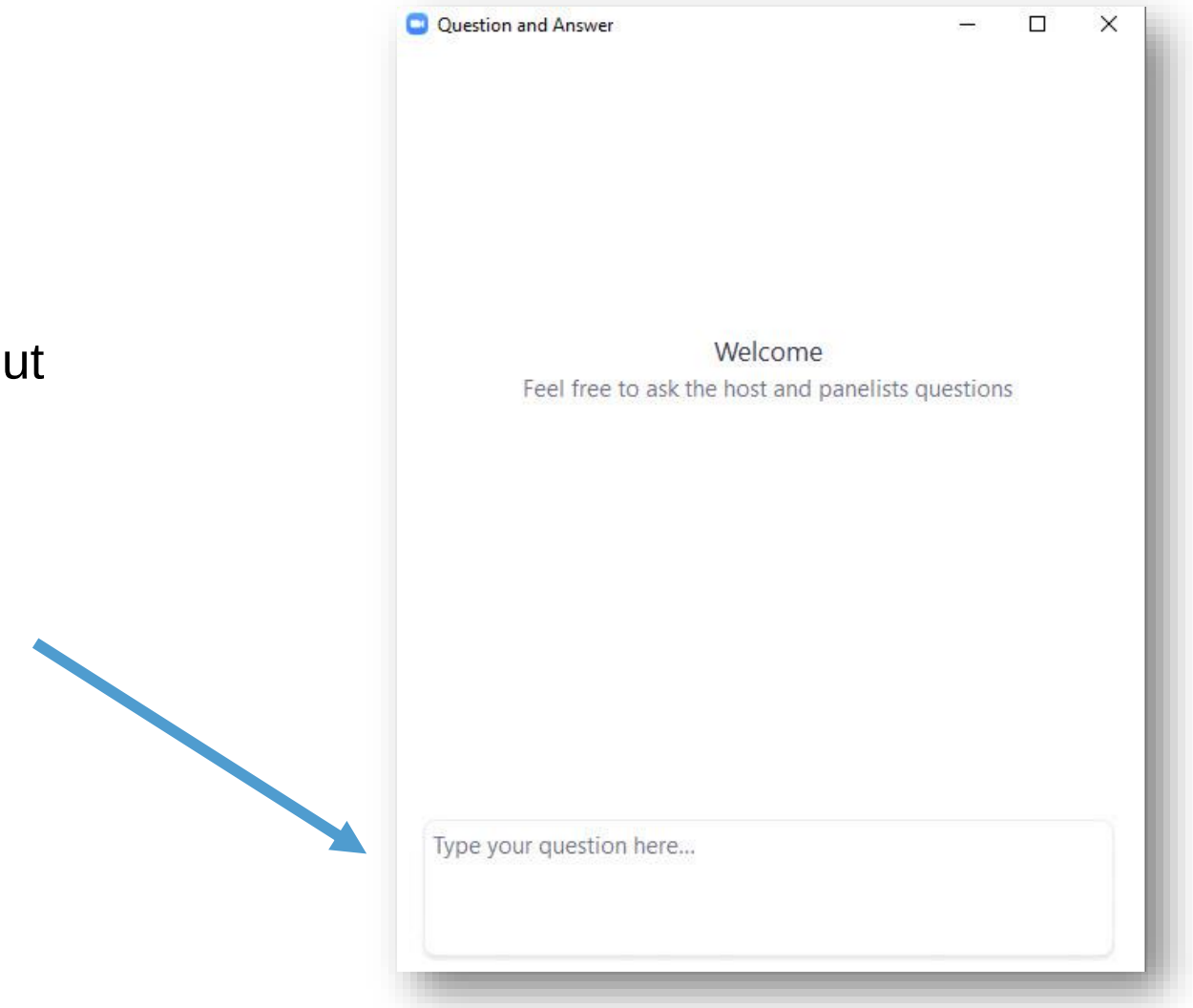
Question & Answer Logistics

- Feel free to enter your questions into the **Question & Answer box** throughout the presentations.
- We will turn to your questions and comments toward the end of the hour.



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Learning Objectives

At the end of this webinar, you'll be able to:

- Describe epidemiological and etiological considerations of dental fear and anxiety.
- Recognize the potential connection between dental fear and anxiety with overall health.
- Explain how dental fear and anxiety can become barriers for patients in accessing care.
- Discuss how fear and anxiety are assessed in an oral health setting.
- Identify techniques and treatments that can be helpful in allaying dental fear and anxiety.

Our Strategy

Vision

A future where every person can reach their full potential through optimal health

Mission

To improve the oral health of all

Purpose

To catalyze the future of health through oral health

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Today's Presenters

Dental Fear and Anxiety: Why It Exists and What Providers Can Do to Help

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WEBINAR | Thursday, May 5, 2022 | 1–2 p.m. ET | ADA CERP Credits: 1

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Dental Fear and Anxiety: *Perspectives from the State of Oral Health Equity in America Survey*

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Dr. Heaton and her co-authors are full-time employees of CareQuest Institute for Oral Health.

What's in a Name? Fear vs. Anxiety vs. Phobia

- **Fear** – threat is imminent
- **Anxiety** – threat is more distant, generalized
- **Phobia** – impact on social and/or occupational functioning
- **Dental Care-Related Fear and Anxiety** (*McNeil & Randall, 2014; Addicks et al., 2017*)

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McNeil DW, Randall CL. In Mostofsky DI, Fortune F. *Behavioral dentistry*. In Dental fear and anxiety associated with oral health care: Conceptual and clinical issues 2014 (pp. 165-92). Ames (USA), IA: Wiley/Blackwell.

Background

- Dental fear / anxiety estimates range widely from 30-80% *(e.g., Silveira et al., 2021)*
- Dental phobia leads 5-15% of adults to avoid necessary dental treatment

  (Armfield & Heaton, 2013)
- Often leads to “vicious cycle” of avoidance of care and invasive treatment

  (Armfield et al., 2007; Armfield, 2013)
- Associated with poor oral health outcomes, oral health-related quality of life

  (Armfield et al., 2009; Guentsch et al., 2017; Kastenbom et al., 2019)

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State of Oral Health Equity in America (SOHEA) Survey

- Online & telephone survey through NORC's AmeriSpeak® Panel
  - Probability-based, representative of U.S. household population
- Sampling strata based on age, race/Hispanic ethnicity, education, gender
  - Additional sample of American Indian/Native Alaskan panelists
- Adults aged 18+; one respondent per household
- Final 2022 sample size = 5,682
  - Weighted cumulative response rate = 4%
  - Margin of error = 1.75%

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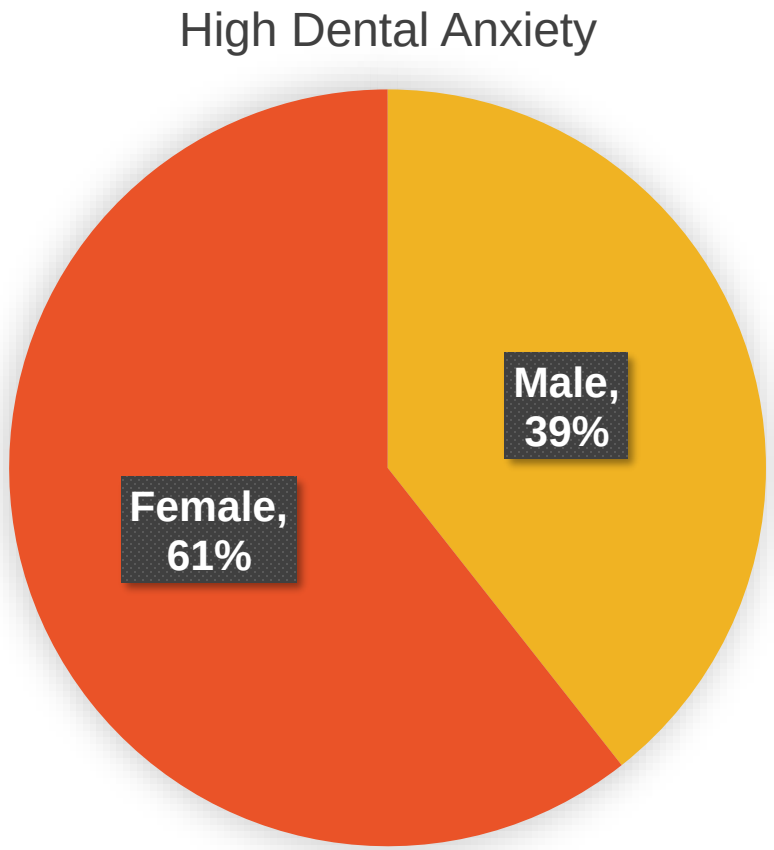
Modified Dental Anxiety Scale (MDAS)

- 5-item measure of dental anxiety (*Humphris et al., 1995*)
  - Day before, waiting room, scale & polish, drilling, injection
  - Scored 1=not at all anxious; 5=extremely anxious
- Scored 5-25, higher score = higher dental anxiety
- Good reliability, validity *(Humphris et al., 2000; Newton & Edwards, 2005)*
- Score of 19 or above = high dental anxiety (*Humphris et al., 1995*)

Dental Anxiety by the Numbers

- 12.3% (n=680) of sample had high dental anxiety (MDAS≥19)
- Mean MDAS = 11.49 (SE = 0.098)
  - Low anxiety group mean = 10.0 (SE=0.07)
  - High anxiety group mean = 21.9 (SE=0.11)



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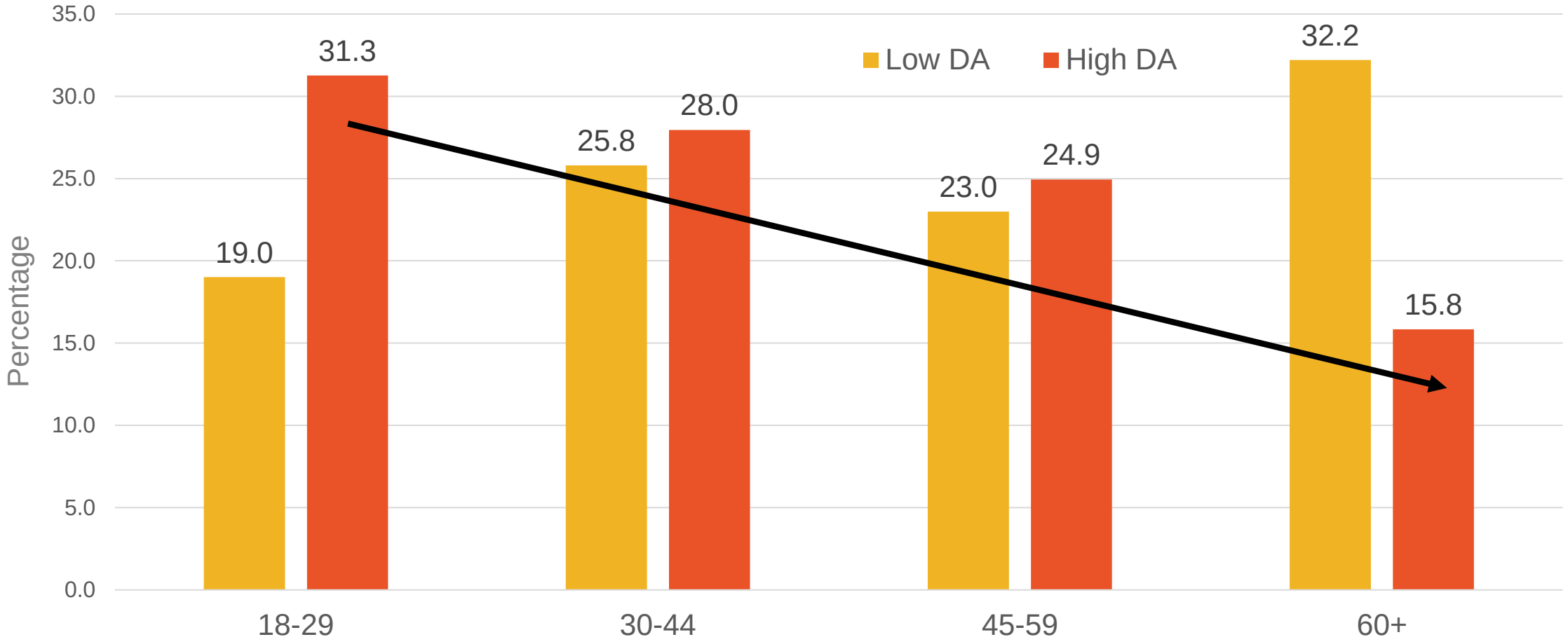
Dental Anxiety by Age Group



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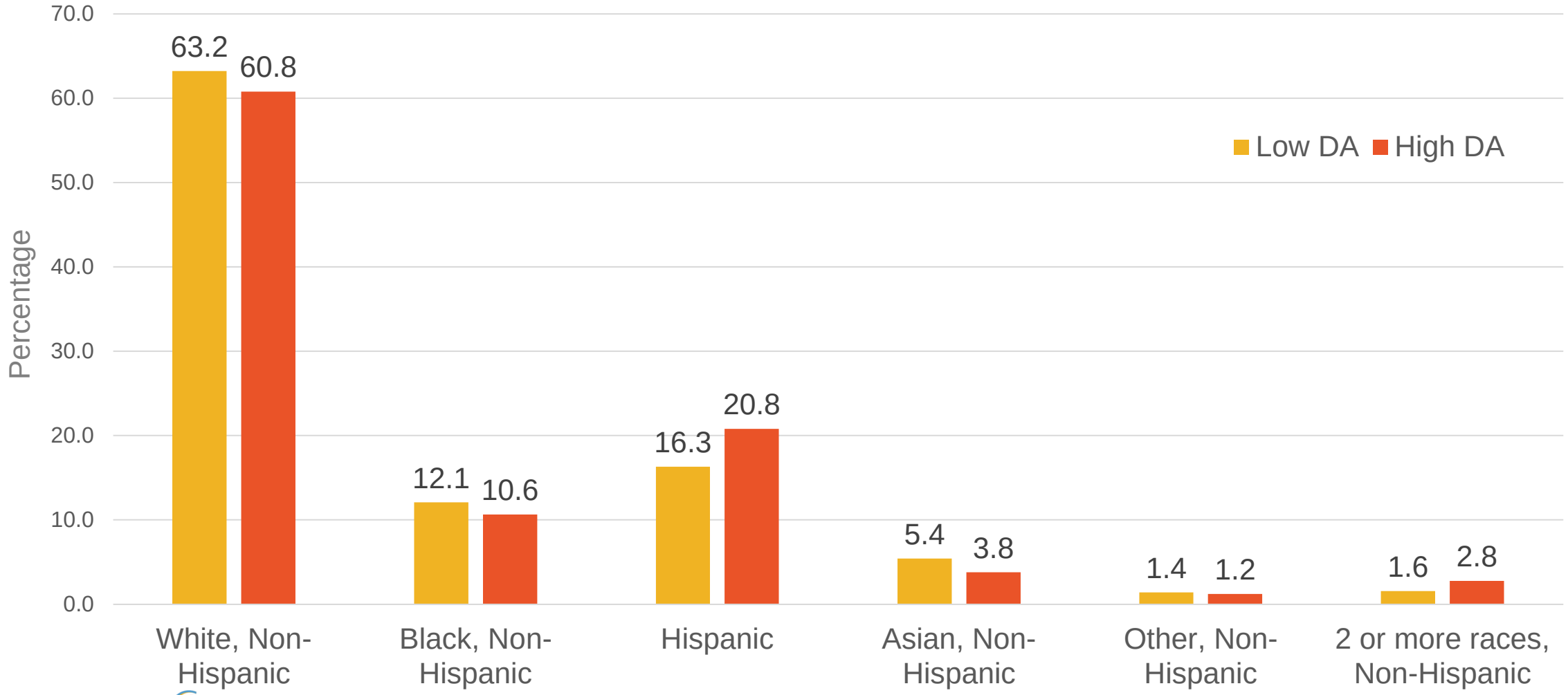
Dental Anxiety by Race & Ethnicity



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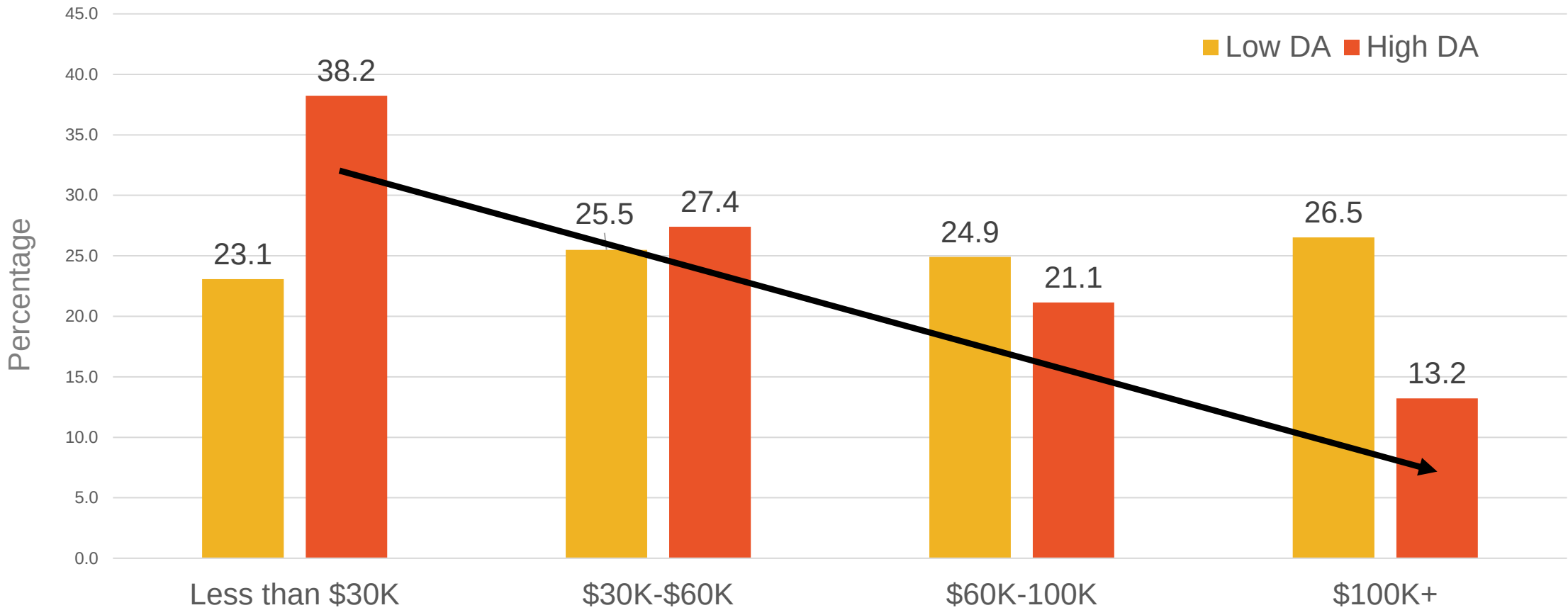
Dental Anxiety by Household Income



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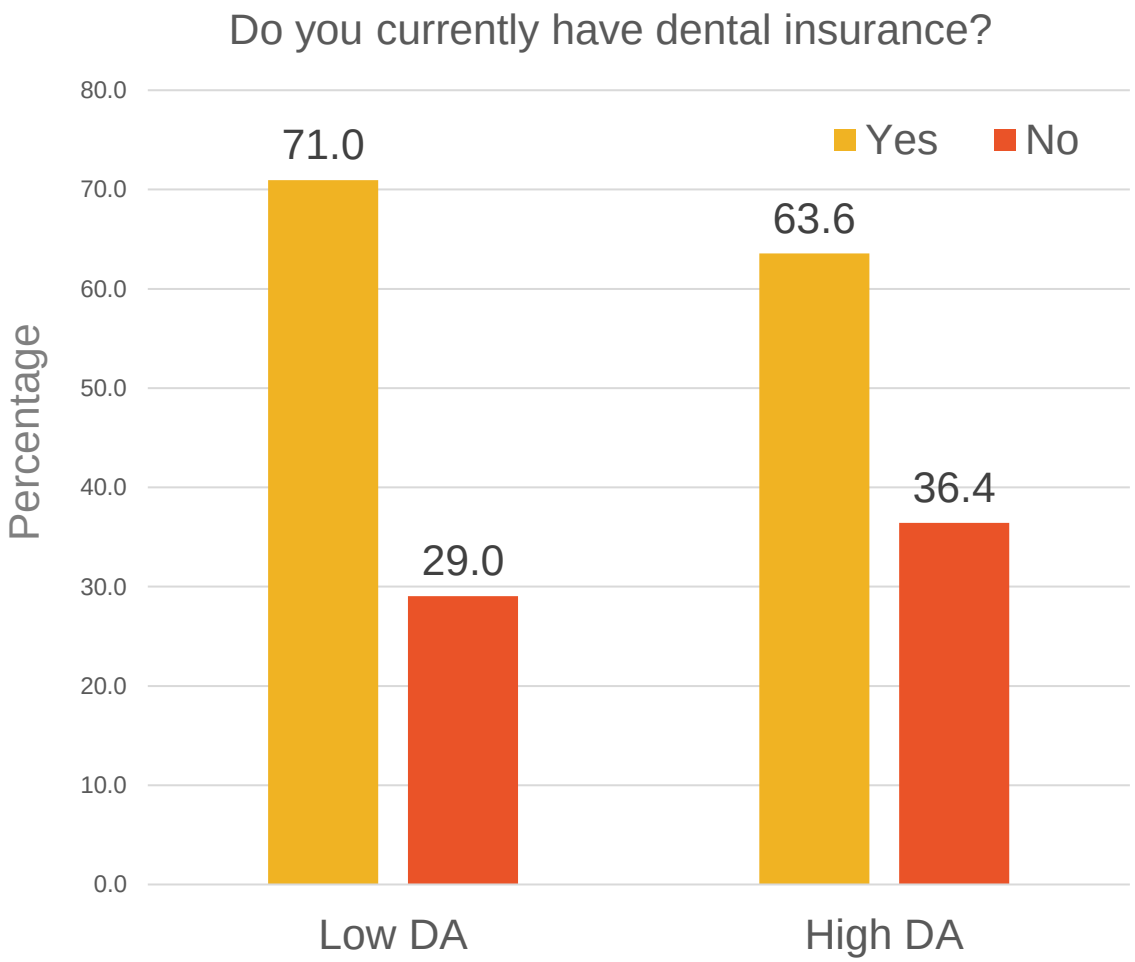
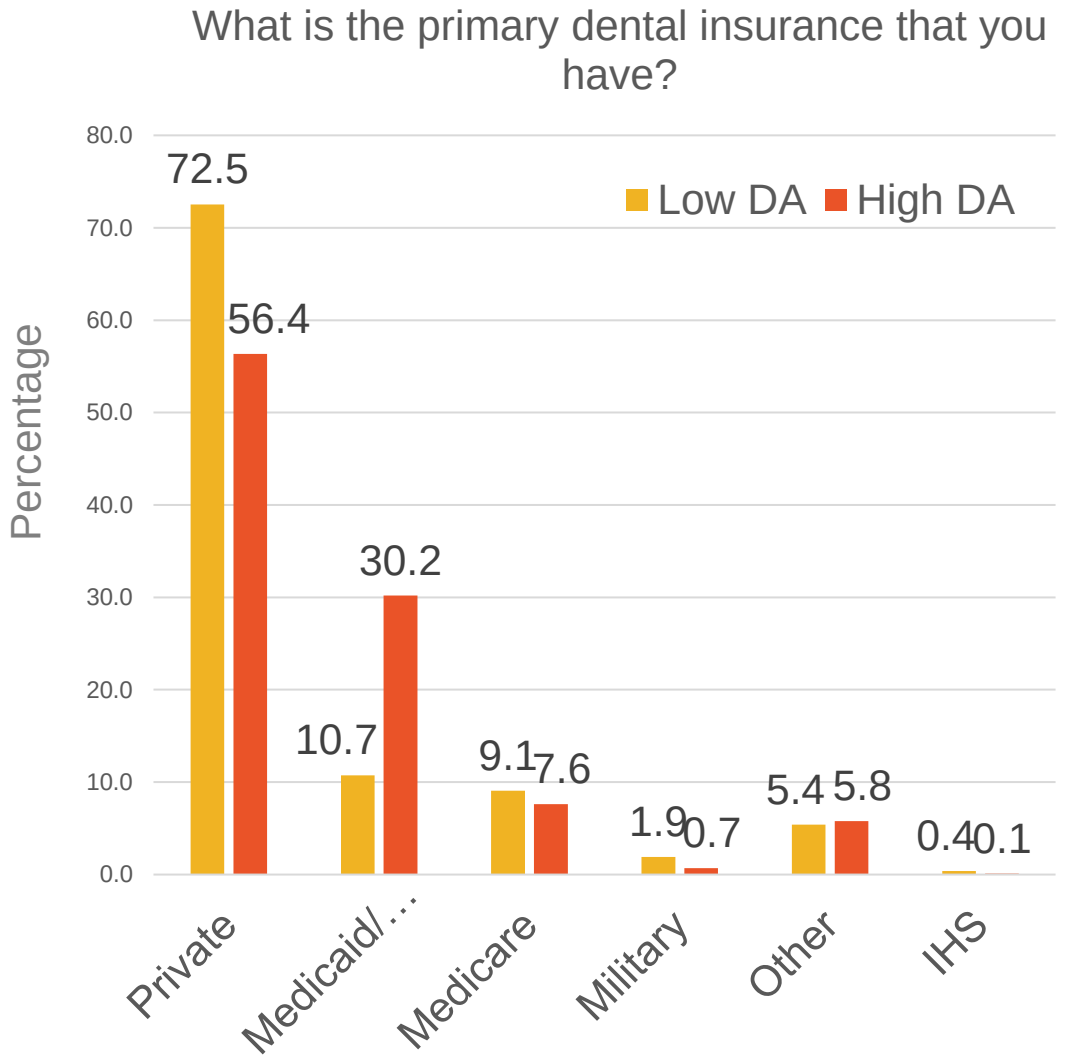
Dental Anxiety by Dental Insurance





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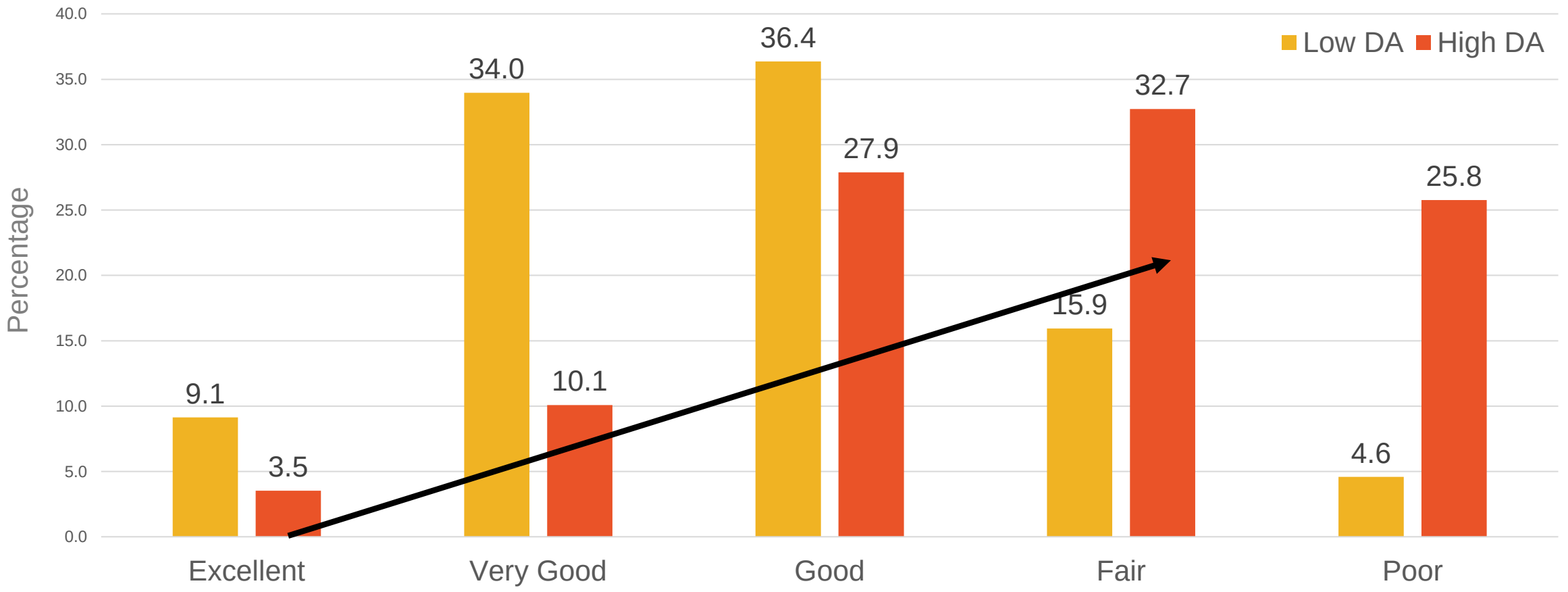
Dental Anxiety and Self-Reported Oral Health Status



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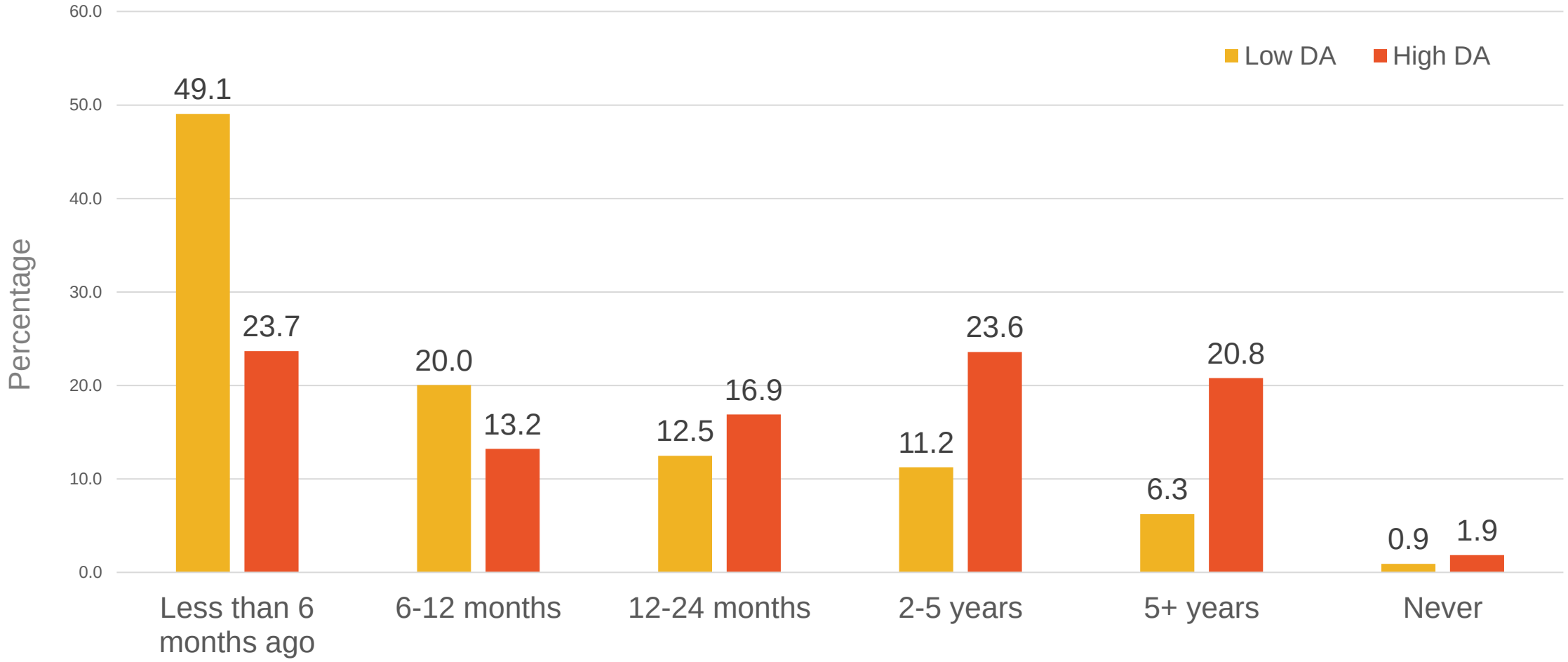
When was your last visit to a dentist?



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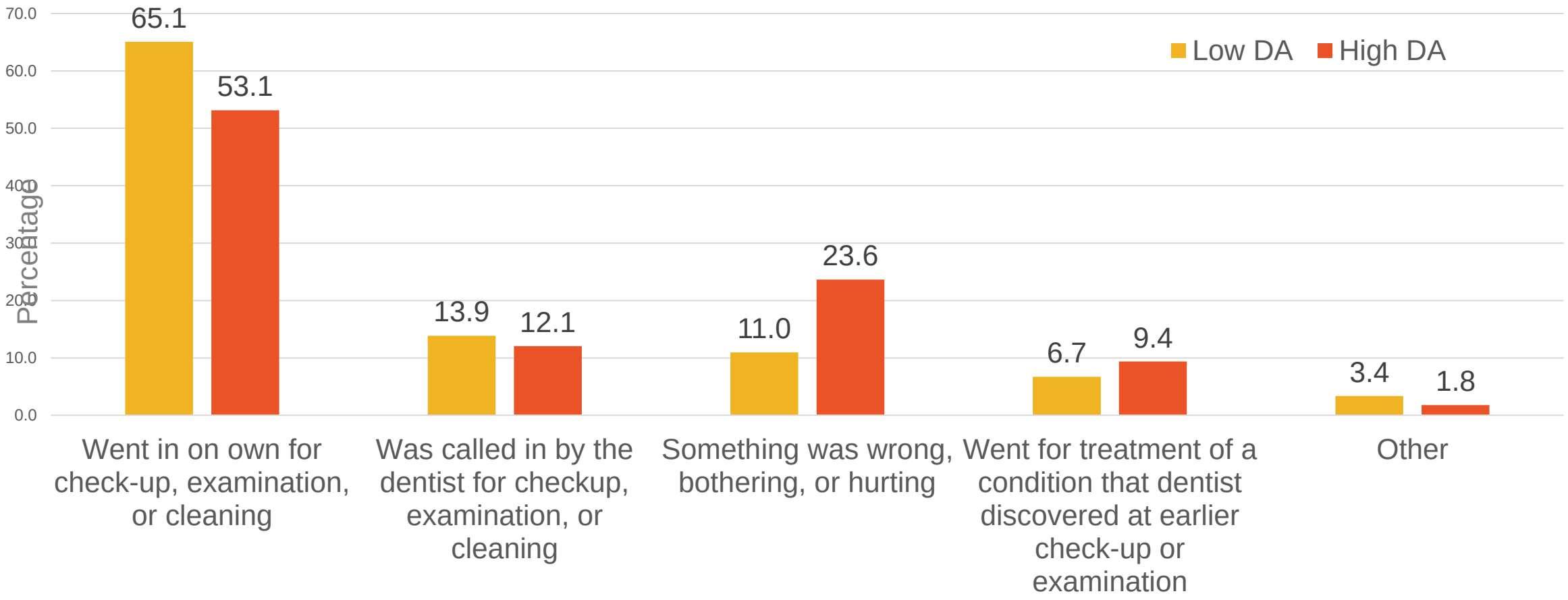
What was the main reason you last visited the dentist?



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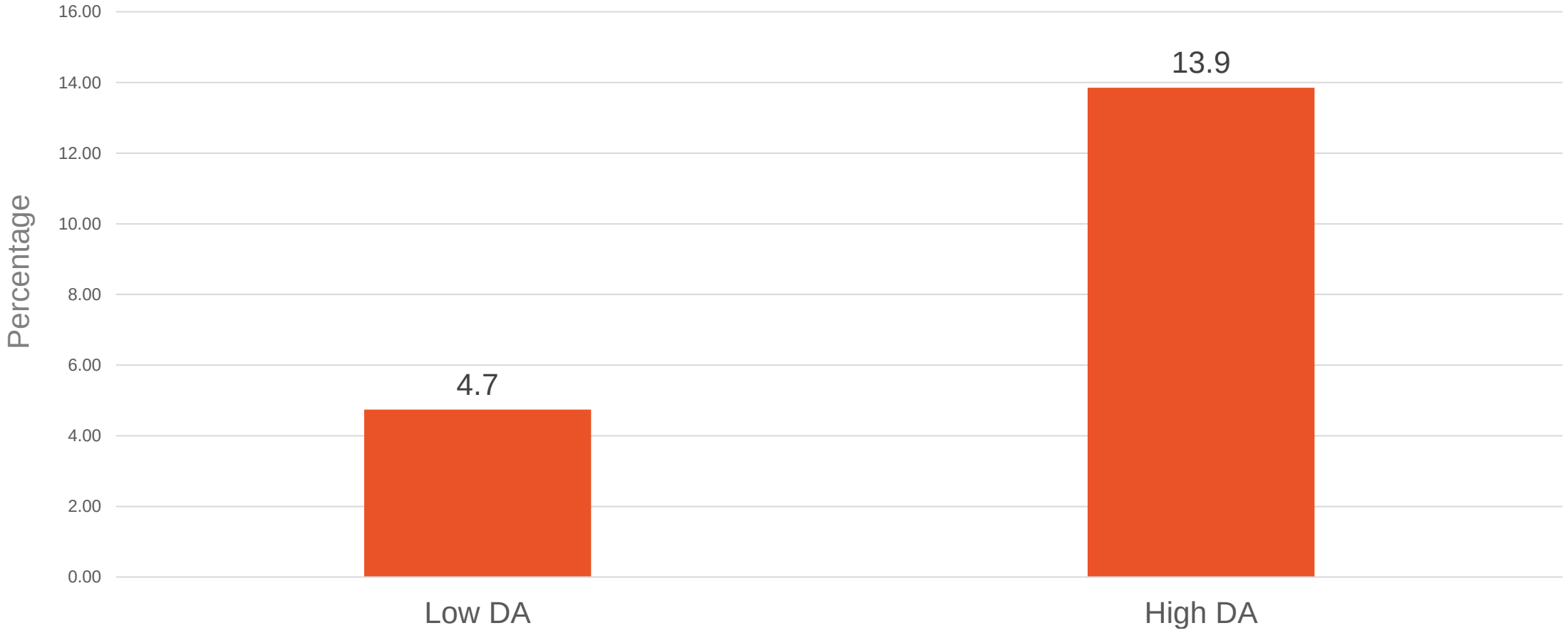
Do you plan on seeing an oral health provider in the next year for routine or preventive care? *("No")*



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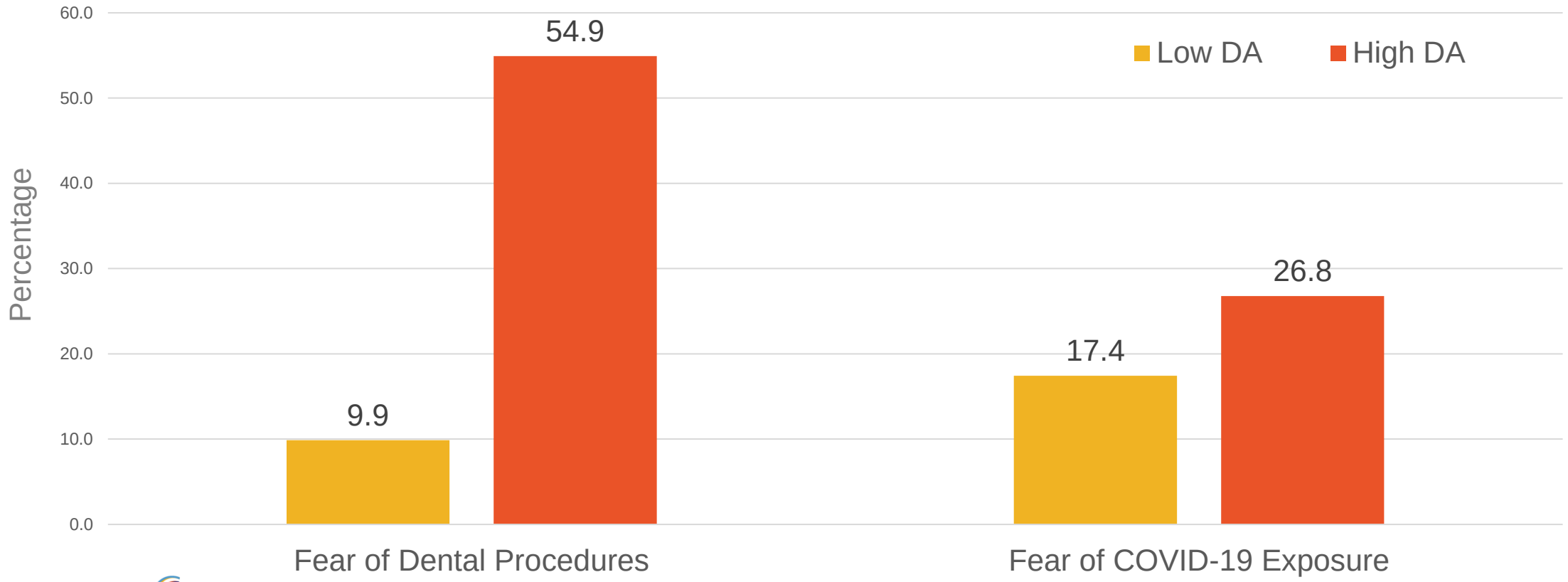
What are the following reasons why you do not plan on seeing an oral health provider for routine or preventive care?



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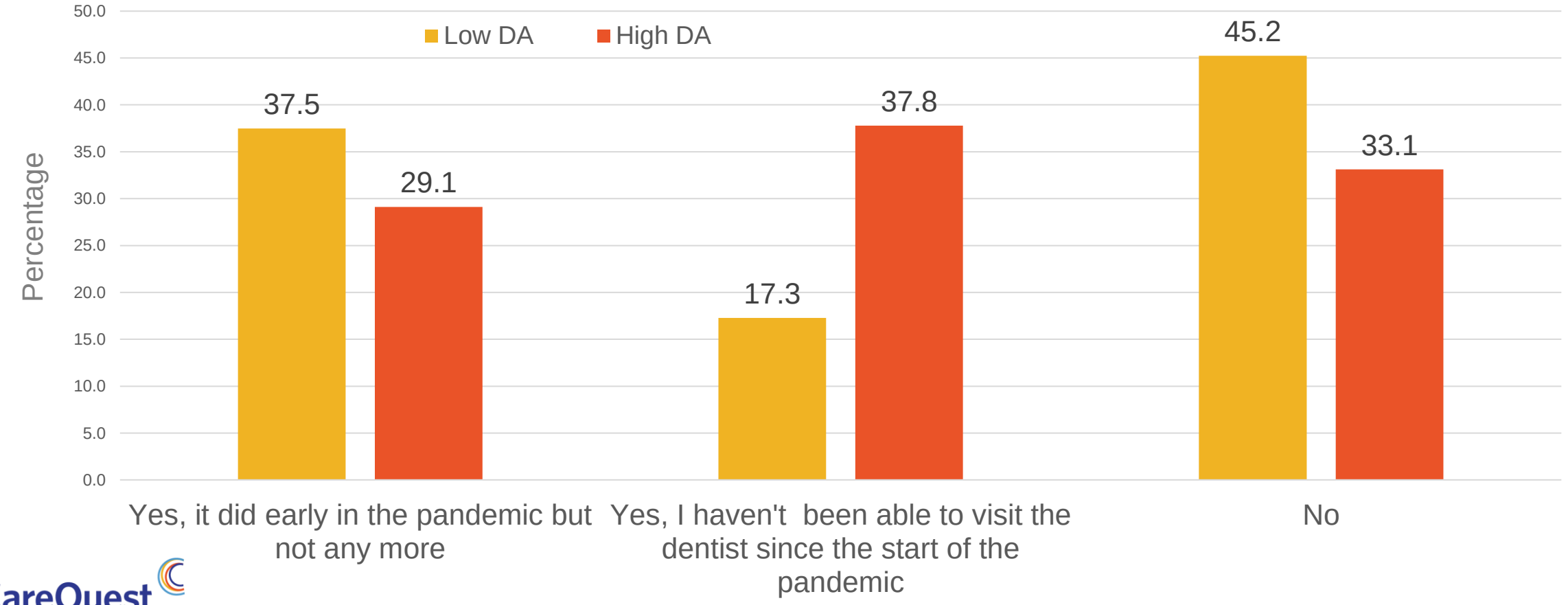
Has the COVID-19 pandemic made it harder for you to visit an oral health provider for routine or preventive services?



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Discussion

- Dental anxiety was associated with being female, younger age, being Hispanic, lower household income, and having Medicaid insurance coverage
- Compared to those with lower dental anxiety, individuals with dental anxiety were more likely to report poorer oral health, a year or more since the last dental visit, and not planning to visit a dentist in the coming year
- Those with dental anxiety were more likely to report not visiting a dentist or delaying dental care due to fear of COVID-19 exposure, and were likely to avoid future care due to dental anxiety and fear of COVID-19

Strengths & Limitations

Strengths

- Large, probability-based, representative of U.S. household population
- Participants include those with and without dental visits
- Reliable, valid measure of dental anxiety (MDAS)

Limitations

- Nearly all participated online
- Conducted in English
- Likely doesn’t capture all reasons for avoiding care

Conclusion

- Dentists may need to take extra steps to reassure patients who already have dental anxiety that dental treatment is safe
  - Low case numbers
  - Safety precautions
- Individuals who have avoided care due to dental anxiety and/or fear of COVID-19 may present to the office with more dental needs

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Dental Fear and Anxiety

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May 5, 2022

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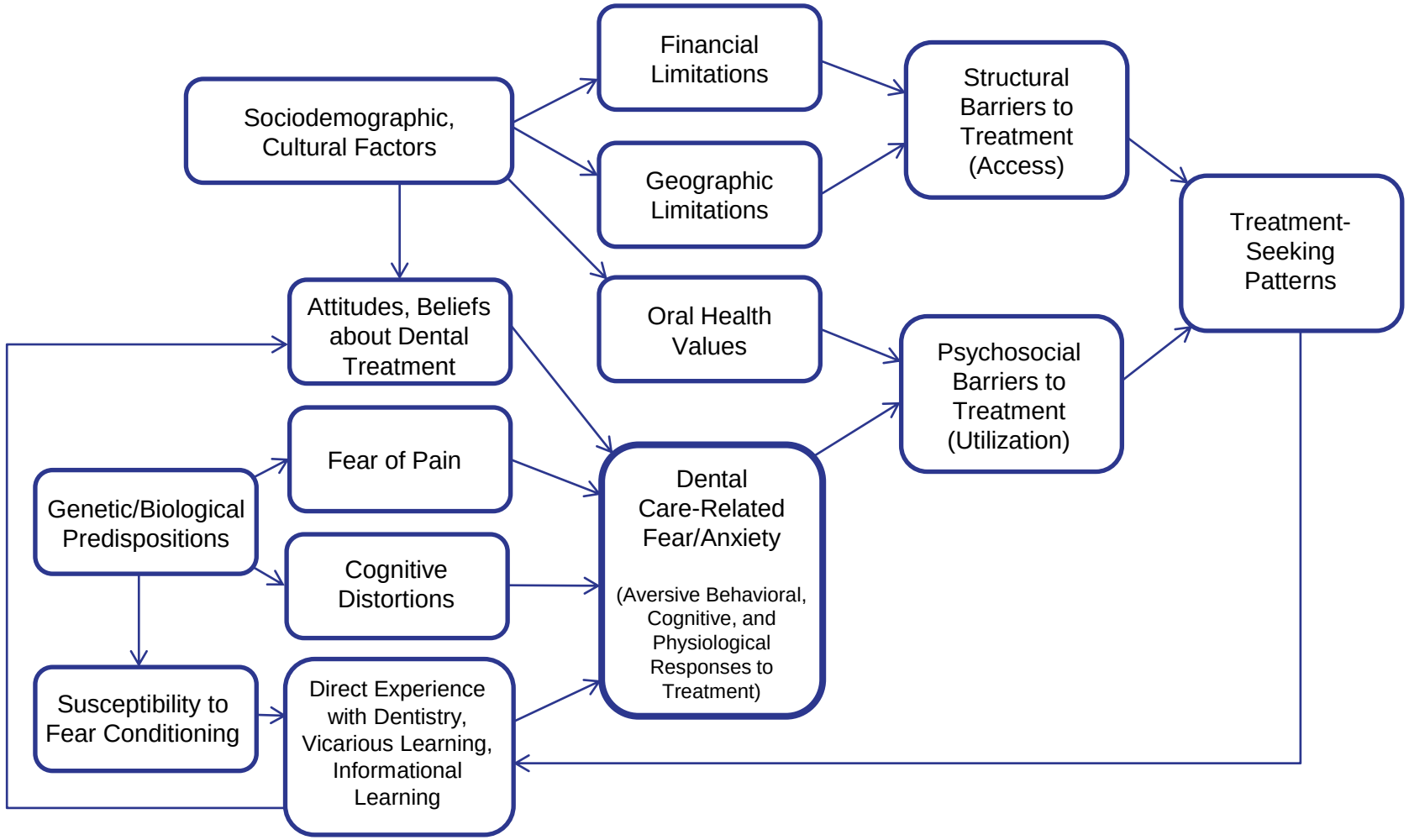
- conditioning
- cognitions (i.e., misperceptions, catastrophizing, dental beliefs)
- temperamental/personality characteristics
- pain hypersensitivity
- social learning



From McNeil & Randall (2014)

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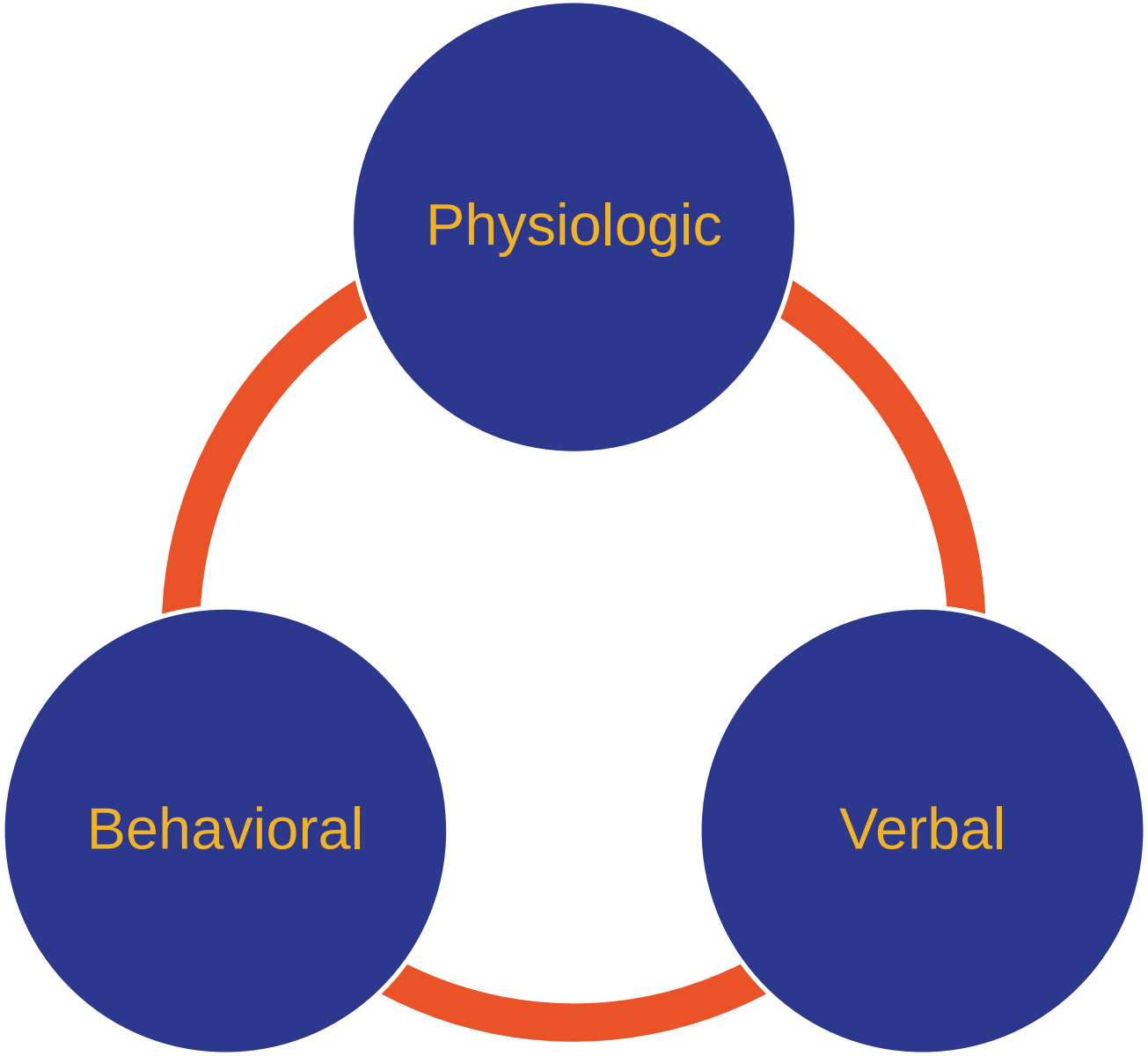
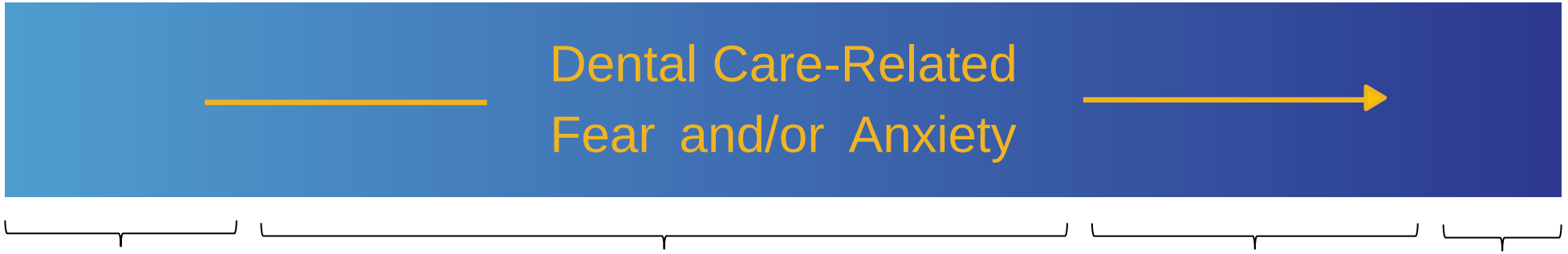


(Lang, 1968; Rachman & Hogdson, 1974)



From McNeil & Randall (2014)

Fear and Anxiety

Verbal Report

self-report questionnaires

Dental Fear Interview
(Vrana et al., 1986)

Overt Behavior

“nervous” behaviors
(Kleinknecht & Bernstein, 1978)

delayed reaction time in Stroop or eye-tracking tasks
(McNeil et al., 2013; Muris et al., 1995)

break-taking

avoidance

Physio Response

autonomic reactivity
(Brand, 1999; Lueken et al.; 2011; Milgrom et al., 2009)

vasovagal syncope response

(Lang, 1968; McNeil & Randall, 2014)

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Corah's Dental Anxiety Scale [DAS]
(Corah et al., 1978)

Modified Dental Anxiety Scale [MDAS]
(Humphris et al., 1995)

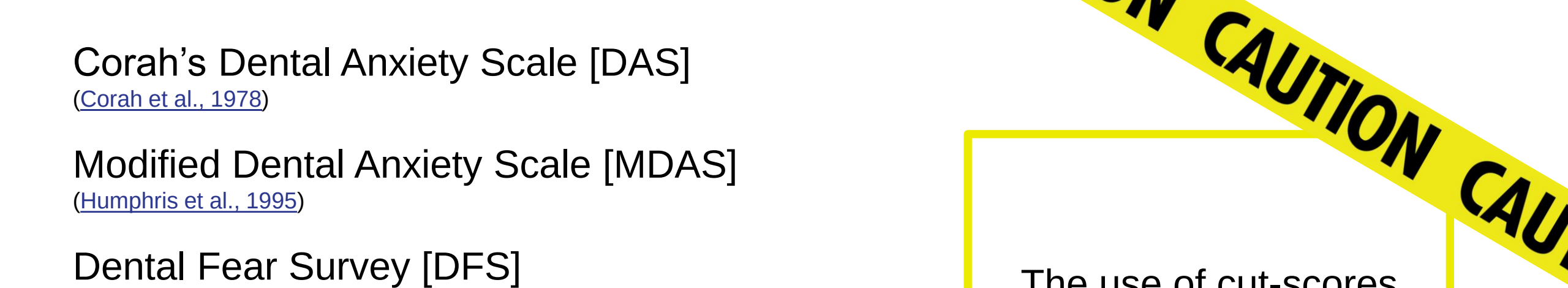
Dental Fear Survey [DFS]
(Kleinknecht et al., 1973)

Index of Dental Anxiety and Fear [IDAF-4C+]
(Armfield, 2010)

DFS Item 20
(Kleinknecht et al., 1973)

Dental Anxiety Question [DAQ]
(Neverlien et al., 1991)

Single Item Dental Fear Measure [SIDF]
(Armfield et al., 2011)



The use of cut-scores can create misclassification bias
(Thomson et al., 2009)

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cause(s) 

triggering stimuli/situations 

presentation 

severity 

impact 

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Dental Fear and Anxiety

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May 5, 2022

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What age group in dentistry experiences the most problematic fear and anxiety?

- Systematic review of 61 studies of pediatric dental sedations
- Studies included subjects from age 2 to 16
- Average age of the subjects in those studies was 4 years, 6 months

Matharu and Ashley (2008)

Children under age 7 tend to display 5 times more distress for the same medical procedure than children age 7 and above.

Jay SM, Ozolins M, et al. (1983)

Young children are not as attentive to psychological techniques as adults.

Areas of the brain devoted to attention are only 50% mature at:

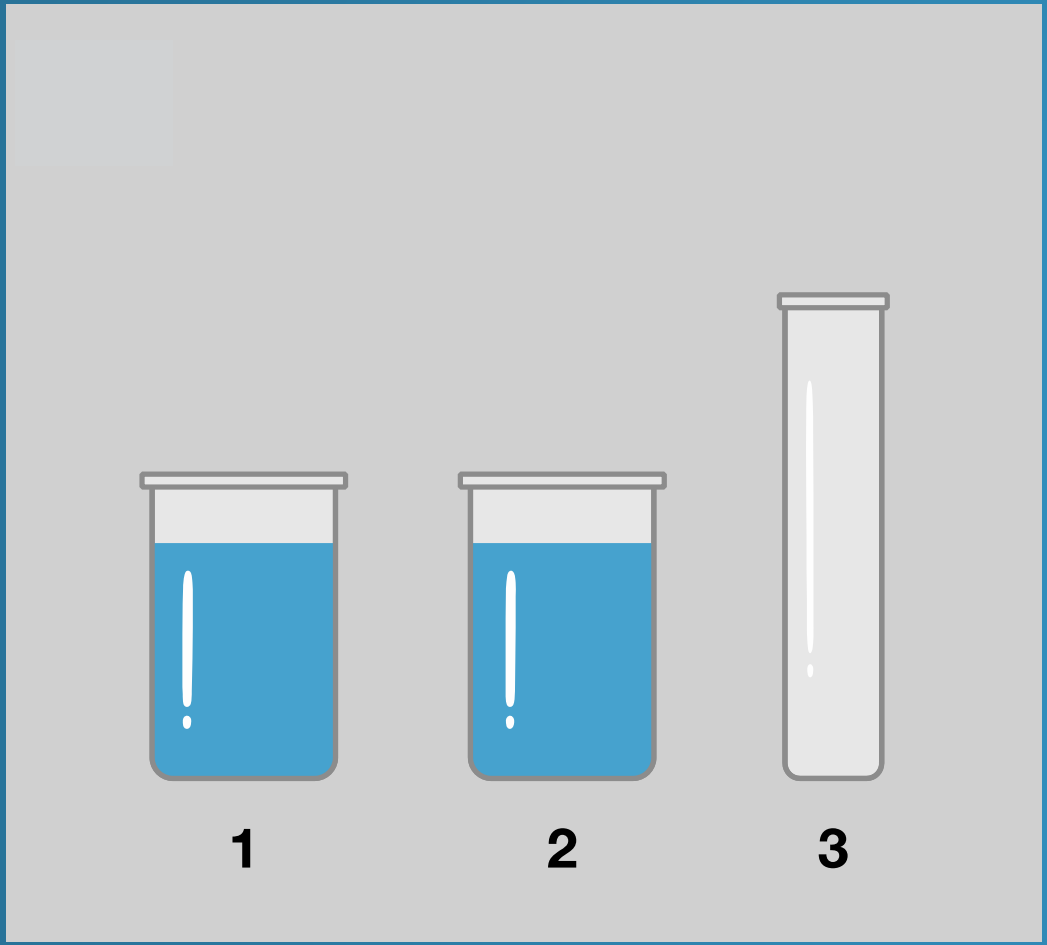
Age 7.5 = Neurotypical children

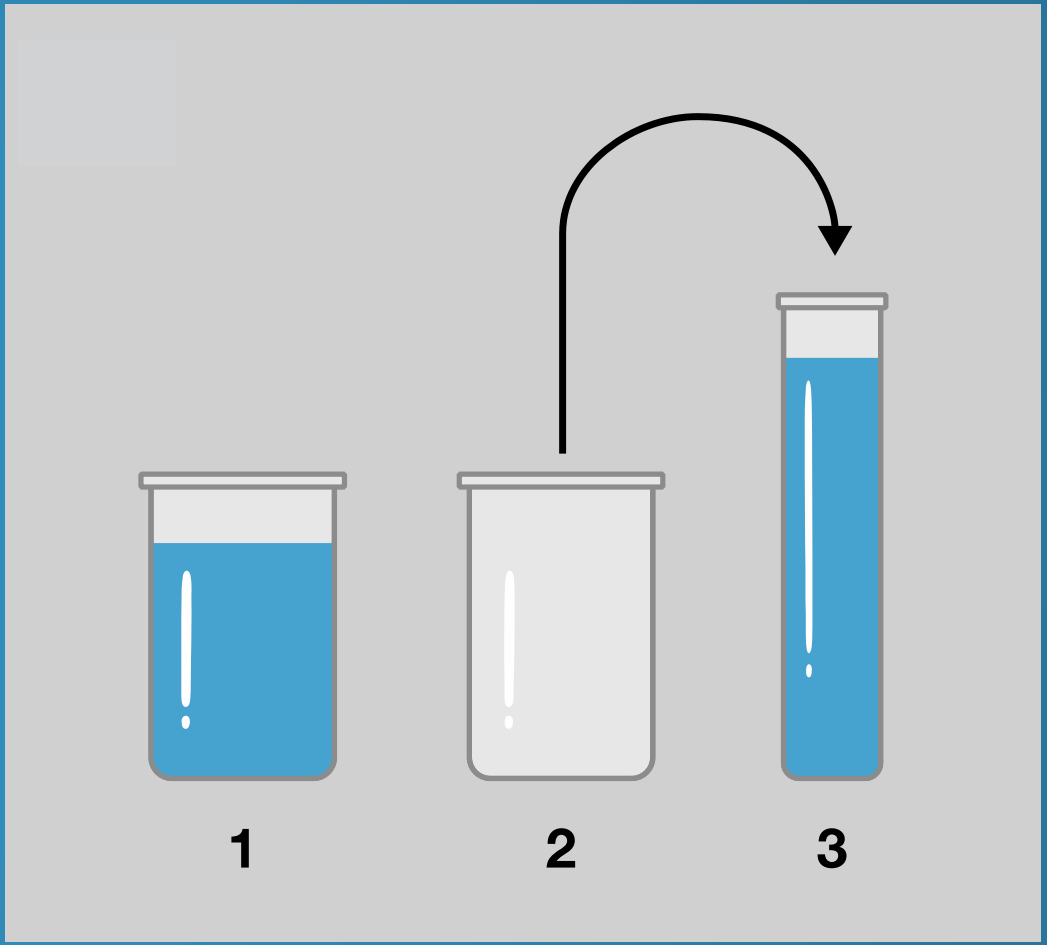
Age 10.5 = Children with ADHD

Shaw, et al. (2007)

Psychological techniques will not be as effective in children under age 7.

Piaget: Conservation Errors





Ginsburg HP, Opper S. Piaget's theory of Intellectual Development, Third Edition, Prentice Hall, New Jersey, 1988, pages 113-179.

Significance

- Children under age 7 do not process their environment the same way as adults.
- They do not process threat the same way as adults.
- The cognitive “reasoning” process that adults use to downregulate threat physiology and behavior will be impaired.

EXPLICIT
Long-term Memory

Facts
Names, Dates

Events
What you had for dinner last Thursday

IMPLICIT
Long-term Memory

Priming
Facilitation by repetition

Non Associative
Sensitization
Habituation

Associative
Classical Conditioning
Operant Conditioning

Procedural
Skills
Habits

- Schacter DL, Wagner AD (2013)
- Knight, Waters, Bandettini (2009)
- Kandel (2006)

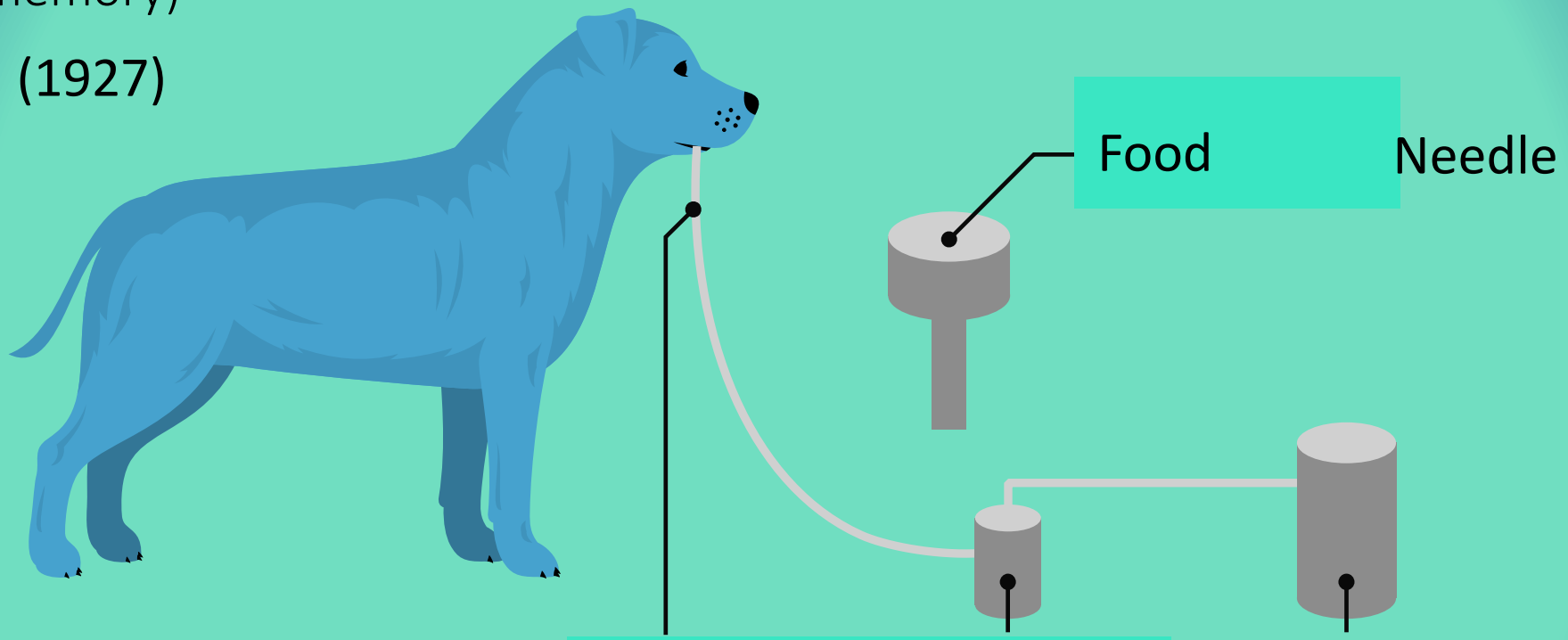
Pavlovian Conditioning

(Implicit memory)

Pavlov IP. (1927)

Tone

Room geometry



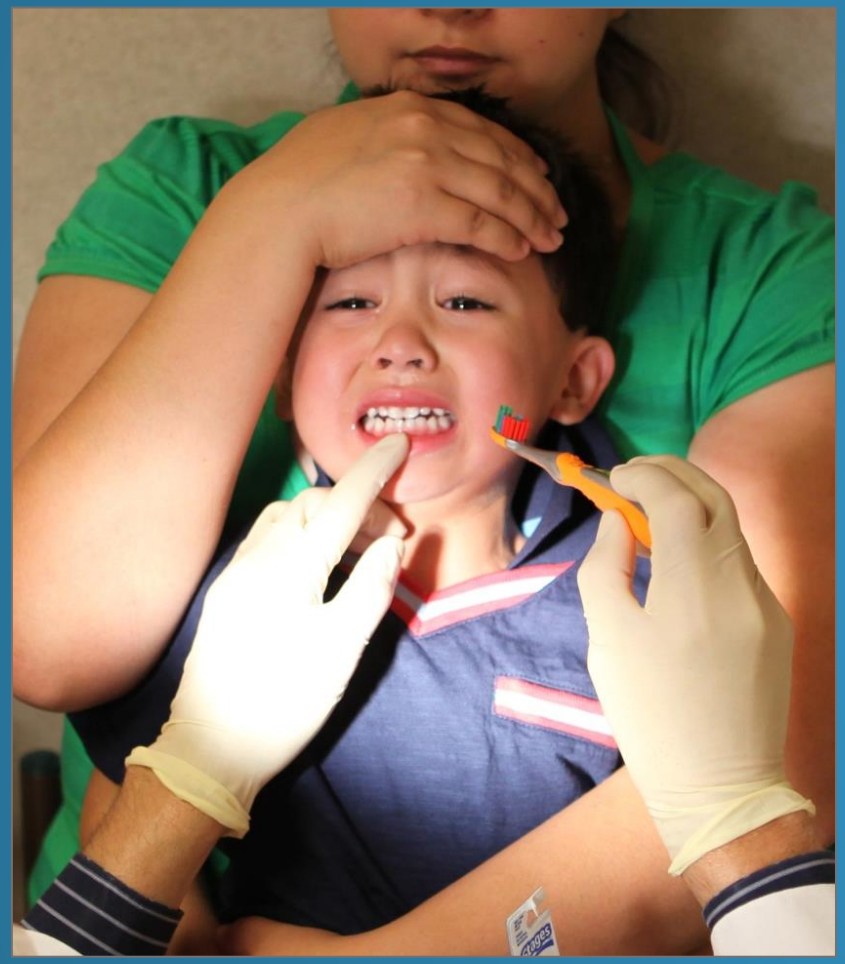
Pleasant sensory and emotional experience - Gustation

Unpleasant sensory and emotional experience - Pain

Anxiety, Fear or Panic

Salivation

Elevation in heart rate, respiration and attentional vigilance



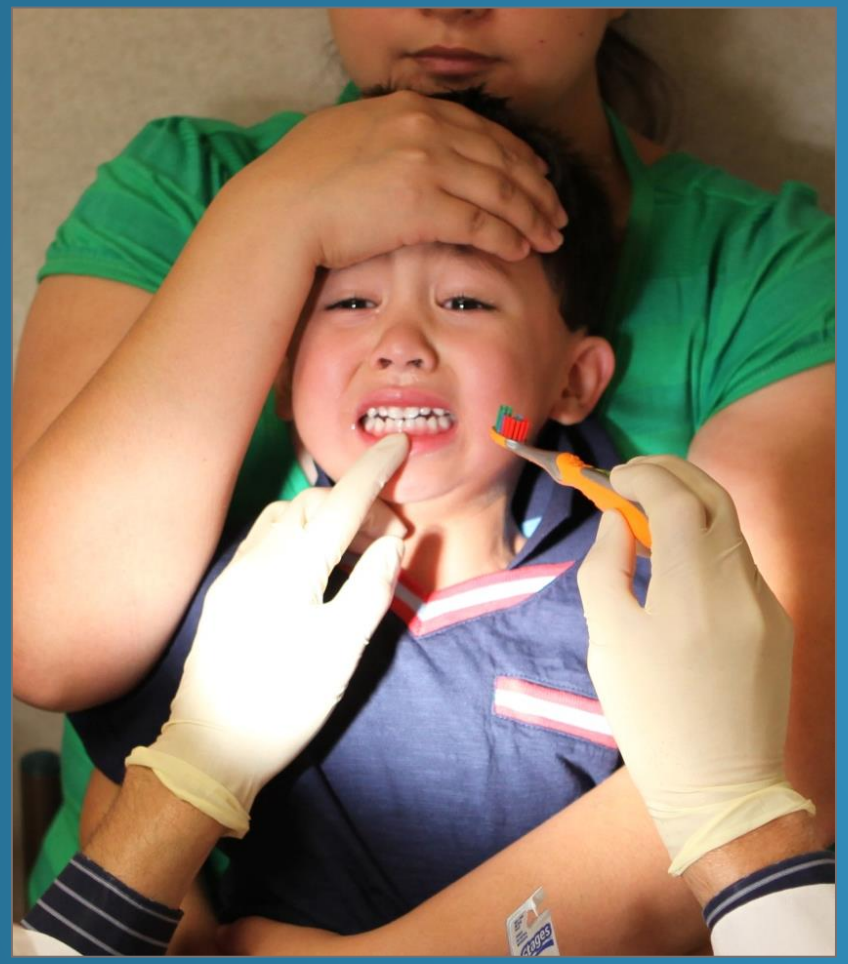
Pavlovian Threat Conditioning

CDC recommends as many as 18 vaccination needle procedures by age 3.

Vaccinations, blood draws, and painful hospital visits condition children to fear medical environments.

Cemeroglu AP (2014)
McMurtry MC (2015)
Taddio A (2012)

Dental Fear?



Fear

Pavlovian Threat Conditioning

Stimulus Generalization

The tendency to respond in the same way to different but similar stimuli

Watson JB, Rayner R (1920)
Pearce JM (1987)

1. Amplification of future pain experience
2. Debilitate a child's ability to tolerate future necessary medical treatments

When a child is exhibiting distress during a procedure . . .

How do you tell what is **pain** and what is **fear** ?

- No objective measure of pain or anxiety that is as good as the patient's self report.
  - Heart rate
  - fMRI

Younger, et al. (2009)
Sweet, McGrath, et al. (1998)
Herr K, et al. (2011)
Flor, Meyer (2011)
Eriksson, Storm, et al. (2008)

- Cannot know that a child is completely anesthetized.
  - Rate of local anesthesia failure is as high as 15%.

Wong, et al. (1992)
Nakai , Milgrom, et al. (2000)
Wilson, Primosch, et al. (1990)

- Dentists, physicians, and nurses all tend to underestimate their patients' pain.

Seers, Derry et al. (2018)
Baghari SC, et al. (2008)
Versloot J, et al. (2004)

- Theoretically, we have a psychological need to rationalize away pain that we cannot alleviate.

  Walco GA, Burns JP, Cassidy RC (2003)

- Can lead to a desire to downgrade pain symptoms that are coincident to tissue trauma into partial pain, partial anxiety.

- Pain is defined as an unpleasant sensory and *emotional* experience.

  Raja SN, et al. (2020)

Pragmatic Solution

Pain = distress that is coincident with procedural tissue trauma
until the child says otherwise

McGrath P, et al. (2003)

Fear/Anxiety = procedural distress that is not coincident with procedural trauma

The number one strategy to reduce procedural fear and anxiety in children . . .

- Deferral of treatment that can be delayed by either non-invasive or less invasive means.
- Intent: Allow children to age to procedural tolerance.
- Age 7 is a milestone in procedural tolerance.

- Fluoride varnish
- Silver diamine fluoride
- Alternate restorative technique

Avoids needle procedures

Modulate level of invasiveness to the unique distress tolerance of the patient.

Require increased vigilance (frequency of observation) and maintenance.

More risky pharmacological interventions are only justified when this route is not feasible.

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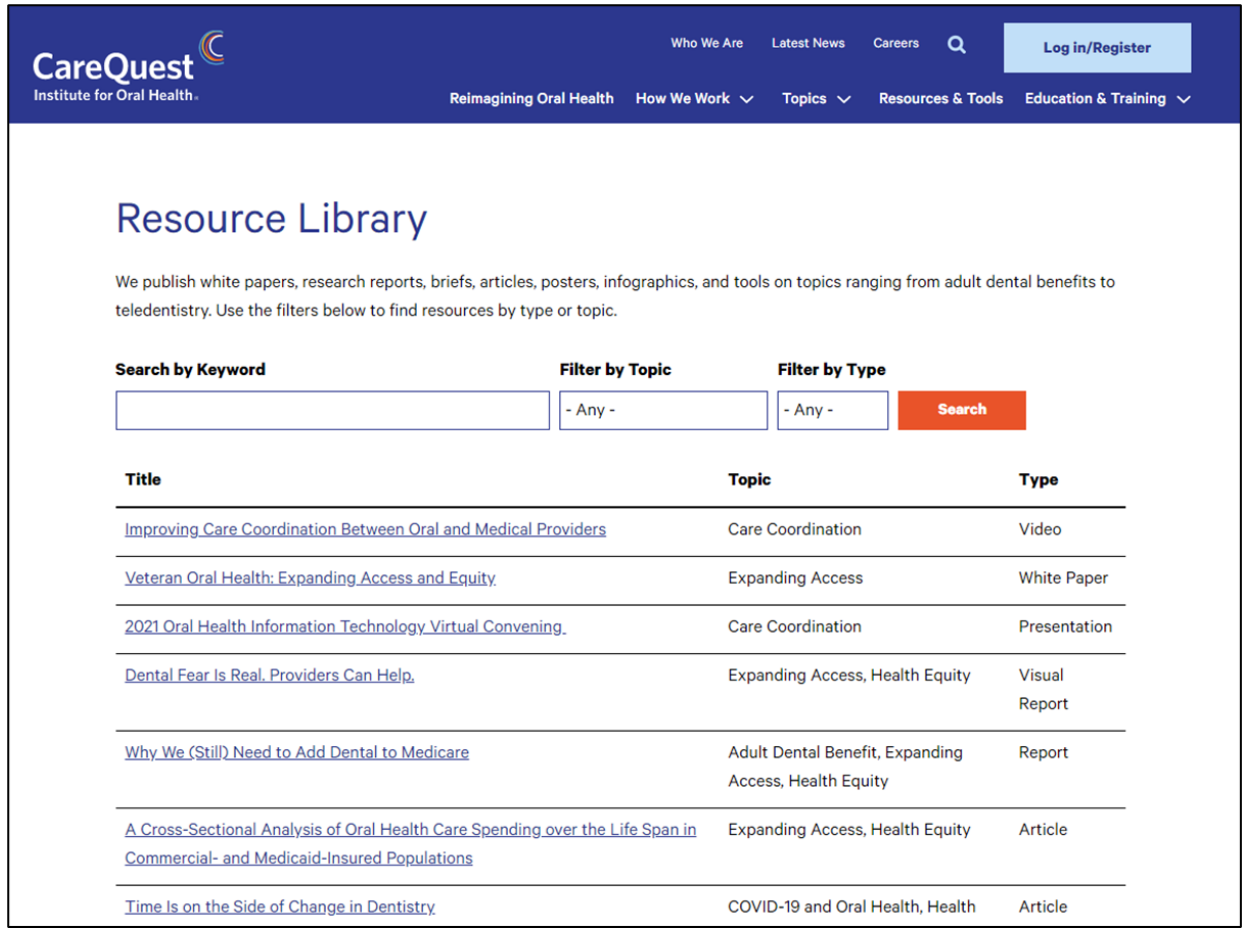

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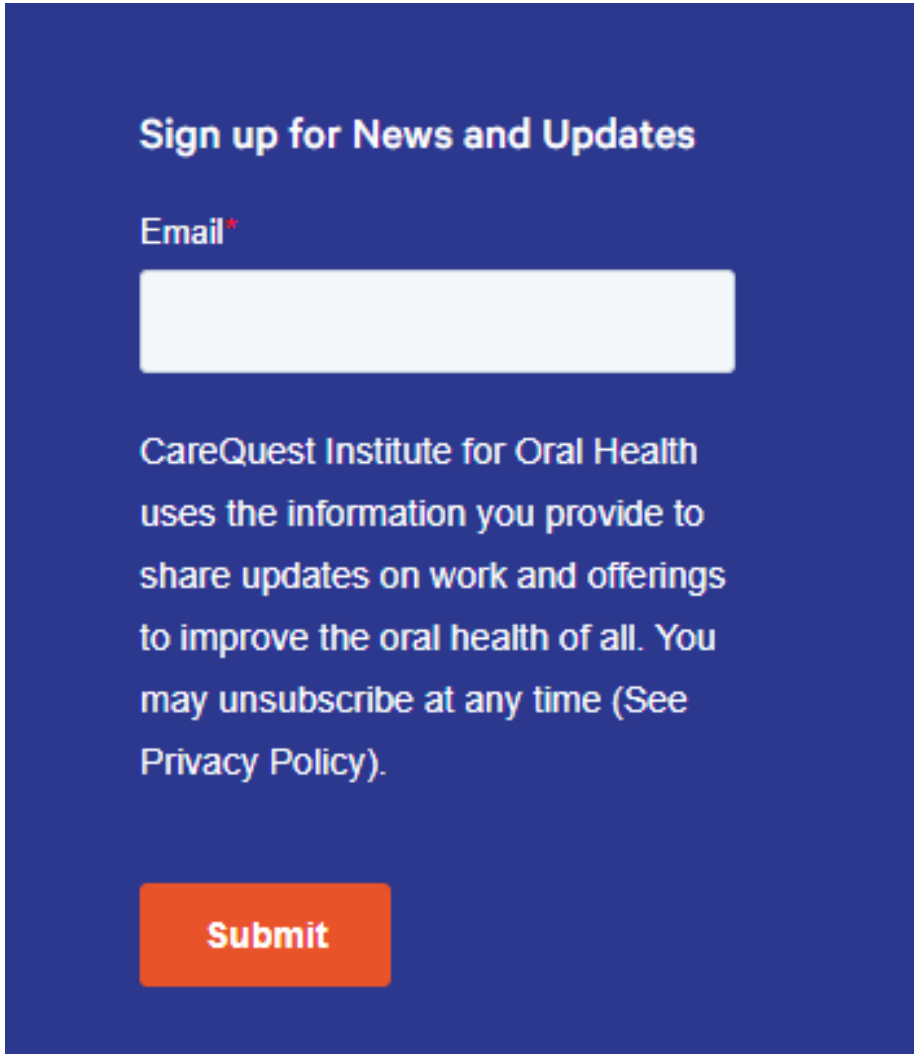

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