

# What Sensitivities Matter in Dental Anxiety? Investigating Sensitivity to Anxiety, Pain, and Disgust

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## INTRO

- Dental anxiety affects between 8 – 30% of the worldwide population and is associated with significant distress and adverse health outcomes.
- Female (♀) gender and history of traumatic dental experiences are risk factors for dental anxiety.
- Although implicated separately, the concurrent roles of anxiety, pain, and disgust sensitivities in dental anxiety have not been examined.
- These sensitivities may independently or synergistically heighten attention to dental stimuli, increasing the aversive properties and leading to subsequent avoidance.
- We hypothesized anxiety, pain, and disgust sensitivities would account for dental anxiety above known covariates (i.e., sex, traumatic dental experience).

## METHOD

- Undergraduate students ( $N = 717$ ; 79.9% White) participated in an online study for course credit.
- The primary hypothesis was tested using a hierarchical multiple linear regression.

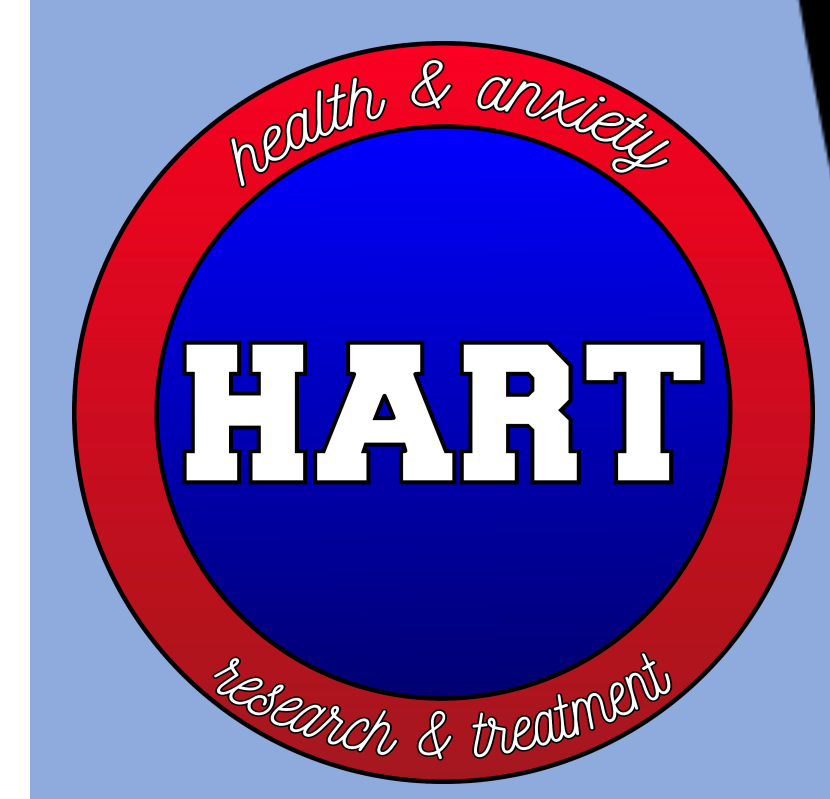
## RESULTS

- Dental anxiety fell in the following severity ranges: 12.0% high, 26.8% moderate, and 61.2% none—mild.
- The full model accounted for 17.6% of the variance in dental anxiety.

## DISCUSSION

- Anxiety & disgust sensitivities may be more inherent to dental anxiety (e.g., beliefs that the dentist is uncontrollable, unpredictable, and dangerous) than the experience of pain.
- Collaboration between mental health and dental care providers is needed, such as:
  - Screeners for anxiety and disgust sensitivities may identify at-risk individuals.
  - Brief/computerized interventions may reduce anxiety sensitivity and fear, while cognitive/behavioral strategies may reduce disgust sensitivity.

After accounting for ♀ and traumatic dental history, sensitivity to **anxious arousal** and **disgust** uniquely contribute to **dental anxiety**.



### Key Definitions

- Anxiety Sensitivity** = the fear of the consequences of anxiety
- Pain Sensitivity** = the ability to withstand pain
- Disgust Sensitivity** = the perceived harms associated with the experience of disgust

Table 1. Zero-order correlations

Measures	1	2	3	4	5	6
1. Dental anxiety	–					$p < .001$
2. Sex (♀)	.173	–				$p < .01$
3. Traumatic dental experience	-.272	-.082	–			$p < .05$
4. Anxiety sensitivity	.292	.031	-.104	–		
5. Pain sensitivity	.101	.099	-.036	.177	–	
6. Disgust sensitivity	.282	.113	-.092	.529	.134	–
<i>M</i> (or %)	8.19	71.3	12.6	18.03	3.52	11.09
<i>SD</i> (or <i>n</i> )	3.48	511	90	9.18	1.43	4.50

Table 2. Hierarchical linear regression

Predictor	$\Delta F$	$\Delta R^2$	<i>B</i>	<i>SE</i>	<i>p</i>
<b>Step 1</b>	<b>38.26</b>	<b>.097</b>			<b>&lt; .001</b>
Sex			1.162	.274	< .001
Traumatic dental experience			-2.729	.375	< .001
<b>Step 2</b>	<b>24.59</b>	<b>.082</b>			<b>&lt; .001</b>
Sex			0.990	.265	< .001
Traumatic dental experience			-2.398	.360	< .001
Anxiety sensitivity			0.069	.015	< .001
Pain sensitivity			0.005	.006	.408
Disgust sensitivity			0.113	.031	< .001



# What Sensitivities Matter in Dental Anxiety? Investigating Sensitivity to Anxiety, Pain, and Disgust

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**Background:** Dental anxiety affects between 8 – 30% of the worldwide population and is associated with significant distress, as well as poor oral and general health (Armfield et al, 2007). Avoidance of dental treatment leads to greater oral deterioration (e.g., cavities), resulting in greater complications and pain (vs. non-dentally anxious patients; Hakeberg & Lundgren, 2013). Traumatic dental experiences have been found to account for some, yet not all, accounts of dental anxiety (Armfield, 2010). As such, examination of vulnerabilities that influence the development and maintenance of dental anxiety is important for identifying at-risk individuals and treatment targets. The current study investigated the unique role of three well-supported, psychological sensitivities in dental anxiety: 1) anxiety sensitivity (AS; fear of the consequences of anxiety); 2) pain sensitivity (PS; ability to withstand pain); and 3) disgust sensitivity (DS; perceived harms associated with the experience of disgust). We hypothesized that AS, PS, and DS would account for significant variance in dental anxiety, above and beyond relevant covariates (sex; negative dental experiences; Enklings et al., 2006; Oosterick et al., 2009).

**Method:** Participants were 717 undergraduates ( $M_{age} = 18.67$ ; 71.3% female; 79.9% White) who were enrolled in psychology courses. Participants completed an online battery of self-report questionnaires including demographics, general dental history, and measures of dental anxiety, AS, PS, and DS.

**Results:** Overall, the majority (55.8%) of the sample reported good oral health; yet, 20.4% endorsed avoidance of dental checkups, which was frequently attributed to dental distress. The sample reported mild to moderate dental anxiety ( $M = 8.19$ ,  $SD = 3.48$ ), and 12.6% reported a previous traumatic dental experience. A hierarchical linear regression model was computed to test the hypothesis. In Step 1, sex and traumatic dental experience accounted for 9.7% of the variance in dental anxiety,  $F(2,714) = 38.26$ ,  $p < .001$ . In Step 2, AS ( $b = .069$ ,  $p < .001$ ) and DS ( $b = .113$ ,  $p = .001$ ), but not PS ( $b = .005$ ,  $p = .408$ ), accounted for unique variance above and beyond sex and negative dental experiences, ( $\Delta F(3,711) = 24.59$ ,  $p < .001$ ). The full model accounted for 17.6% of the variance in dental anxiety.

**Discussion:** AS, PS, and DS have been independently examined in relation to dental anxiety; however, this is the first study to concurrently examine these characteristics. Although CBT is well-supported for dental anxiety (Gordon et al., 2013), brief interventions targeting AS or DS, such as computerized AS reduction protocols (e.g., Norr et al., 2017) may be ideal for further reducing dental avoidance and improving oral health. Importantly, such interventions could be easily deployed by dental or psychological providers.

**Keywords:** Anxiety, Phobias, Health Psychology

**List of Measures:** Corah's Dental Anxiety Scale – Revised, Anxiety Sensitivity Index – 3, Pain Sensitivity Questionnaire, & Disgust Propensity and Sensitivity Scale – Revised

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