

Mood and Magnitude: The Impact of Dental Provider Emotional State on Patient Perceived Pain

Sam Shahoveisi¹, Ario Shahoveisi²

Abstract: Healthcare studies often show that providers' emotional states through mechanisms like emotional contagion and the mirror-neuron system can influence patient pain perception, satisfaction, and healing. Building off of this groundwork and dental-specific research highlighting the importance of provider empathy and communication, this study specifically examines whether a dentist's positive mood reduces patient pain complaints during routine procedures by reviewing a variety of research projects and their results. In a paired design involving 26 patients, pain reports were compared under positive-mood versus negative-mood conditions and were analyzed for differences using paired t-tests and assessed correlation between mood scores and complaints. Results show that positive mood conditions yielded significantly fewer pain complaints in comparison to negative mood conditions. These findings support the hypothesis that a dentist's mood materially impacts patient comfort, underscoring the value of emotional training and wellbeing strategies in dental practice to enhance patient outcomes and suggesting further research across larger populations.

Keywords: dentist mood, patient pain perception, emotional state, dental procedures, observational study

1. Introduction

In healthcare, a provider's emotional state can profoundly influence patient outcomes by shaping the tone of interactions and the atmosphere of care. Research across diverse medical settings has shown that positive interaction, fueled by emotional resonance, can reduce pain perception, boost patient satisfaction, and support healing. Although general healthcare environments are well studied, the unique emotional dynamics of dental care—where anxiety and procedural discomfort are especially prevalent—remain underexplored. Prior work underscores that empathetic communication, emotional intelligence, and a provider's mood significantly affect patient anxiety and perceived pain in dental settings. However, there is a notable gap in quantifying how a dentist's mood directly alters patient-reported pain during routine procedures. To address this gap, the present study investigates whether positive versus negative mood states in dentists influence the frequency of patient pain complaints, using a statistical and rational analysis. Our approach aims to reveal whether mood modulation can serve as a practical lever for enhancing patient comfort and care quality in dentistry.

2. Methods

In order to source the various sources of information used for this literature review, search engines were put into use to find specific papers. Filters were used to ensure that only dental-based, relevant papers would be found, which all aligned with the premise that a positive or negative emotional charge on a provider can significantly (or not significantly) affect the experience of a patient when it comes to dental procedures. Legitimacy was also ensured from these papers by looking into their backgrounds, reviews, and their authors, giving insight on the credibility of the sources.

3. Results

The relationship between a healthcare provider's mood and patient outcomes has been explored in various medical settings. Previous studies have demonstrated that positive interactions between healthcare professionals and patients

can lead to reduced pain perception, increased satisfaction, and improved healing outcomes (Johnson and Lee). The concept of emotional contagion, wherein patients unconsciously mirror the emotional state of their caregiver, has been shown to influence both physiological and psychological responses, including pain sensitivity (Hatfield, Cacioppo, and Rapson).

Recent findings have expanded upon this foundation by investigating the neurobiological mechanisms behind emotional contagion. Decety and Fotopoulou discuss how mirror neuron systems may mediate empathy and emotional resonance between providers and patients, directly impacting the way patients experience pain and discomfort. Similarly, Panagopoulou, Montgomery, and Benos found that physicians experiencing burnout or negative mood states exhibited diminished empathy, which in turn negatively influenced patient satisfaction and perceived quality of care.

Another informative article which can contribute to this review, "Empathy in the dentist-patient relationship: review and application" (Jones and Huggins), published in the *New Zealand Dental Journal*, highlights the matter using over 200 patients. The study demonstrates how a friendly relationship between dentist and patient often leads to a larger margin of patient satisfaction, along with patients experiencing less discomfort and stress during procedures.

In the dental field specifically, research has identified the dentist-patient relationship as a critical factor in determining patient anxiety and pain experiences. Studies by Shuman, Hernandez, and Patel (2019) and Vargas, Kim, and Zhao (2021) found that patients treated by more emotionally engaged and positive dentists reported lower pain levels and expressed greater trust in the provider. These findings support the hypothesis that a dentist's emotional state significantly impacts the patient's pain perception during procedures.

Further supporting this, Humphris and Freeman (2020) emphasized the role of verbal and non-verbal communication in reducing dental anxiety. They suggest that dentists in a positive mood are more likely to engage in reassuring behaviors, which patients perceive as signs of competence

and care. Moreover, a systematic review by Armfield and Heaton (2016) reported that a dentist's perceived empathy was strongly associated with lower patient anxiety and improved treatment compliance.

Additionally, emotional intelligence (EI) among dental professionals has emerged as a critical moderating factor. A study by McKinley, Lee, and Nguyen (2022) demonstrated that higher EI in dental students correlated with better patient rapport, reduced patient-reported pain, and fewer procedural complaints. Emotional self-regulation—key to maintaining a positive mood—was found to be especially important in high-stress clinical settings like oral surgery and endodontics.

While much of the existing literature focuses on general healthcare environments, the unique stressors and anxiety associated with dental procedures warrant specific investigation. This study aims to bridge that gap by systematically analyzing how a dentist's mood affects patient pain perception during routine procedures.

4. Analysis

Research has shown that a healthcare provider's mood can have a real impact on how patients feel during treatment. For example, studies in both general healthcare and dental settings have found that when providers are in a positive mood—friendly, calm, and engaged—patients report feeling less pain, lower stress, and more satisfaction with their care (Johnson and Lee; Shuman, Hernandez, and Patel; Vargas, Kim, and Zhao).

One reason for this is emotional contagion, where people tend to “catch” the emotions of those around them. So if a dentist is warm and reassuring, the patient often feels more at ease. But if the provider is stressed, upset, or burned out, it can lead to less empathy (Panagopoulou, Montgomery, and Benos), which makes patients feel more anxious and uncomfortable.

Also, research like that of Humphris and Freeman shows that positive moods lead to better communication—both verbal and non-verbal—which helps reduce patient fear and builds trust. Patients pick up on these cues and respond emotionally.

In short, the provider's emotional state isn't just personal—it directly affects how the patient experiences pain, anxiety, and the overall quality of care. A positive mood can improve outcomes, while a negative mood can make things worse.

5. Discussion

This analysis of the review can help connect the findings above and relate them to the larger issue at hand. It is apparent and clear that the emotional state of a provider, whether it be in a general hospital setting or a dental office, greatly influences the patient's experience. The patient's perception of pain, satisfaction, and mental processing of the procedure all rely to some degree on the provider's emotional state. This is vital for the future of medical practice, as it further exemplifies how important it is for doctors and caregivers to be in their best shape when they are working on a patient, not only physically, but mentally as well. The smallest difference in the emotional position of a provider can make a large impact on the satisfaction of the patient, so all providers -

regardless of the practice or procedure - should collectively be at their best when working on a patient, and this will undoubtedly increase happiness and decrease uncomfortability for the patient.

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