

# Understanding the Dental Profession's Stress Burden: Prevalence and Implications

Carla Cruvinel Pontes, PhD, MSc, DDS; Kyle Stanley, DDS; and Shervin Molayem, DDS

**Abstract:** Stress among dental practitioners is highly prevalent and is an issue that demands attention. Dental practice has been linked to mental, physical, chemical, and biological hazards that often foster high stress levels, anxiety, depression, burnout, and potential suicidal ideation. This can lead to unhealthy coping mechanisms and low quality of life, increasing the risk of chronic disease, mental issues, and lower patient care quality. This article summarizes data on stress in dentistry, highlighting its high prevalence and deleterious consequences. It discusses primary stress dimensions in general dental practice that contribute to stress and burnout, including productivity, patient-derived issues, regulations, fear of litigation, and work-related aspects. Reducing stress can decrease the risk of chronic conditions and mental health issues and potentially increase dental professionals' health span and career longevity.

## LEARNING OBJECTIVES

- Describe the prevalence of stress in the dental profession and the mental health concerns it produces among practitioners
- Identify the most common factors contributing to stress in dentistry
- Discuss the consequences of stress, including physiological, psychological, and behavioral, on health and patient care

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Dentistry is a demanding profession that carries a significant risk of mental health challenges due to high levels of work-related stress.<sup>1-3</sup> A 2021 American Dental Association survey based on a nationally representative sample revealed that more than 70% of participants experienced moderate or severe work-related stress, particularly female practitioners and those under age 40.<sup>4</sup> In the United Kingdom, a survey of more than 2,000 dentists showed that over half (54.9%) experienced high workplace stress, with 44% struggling to cope with it. Alarming, around 10% reported suicidal thoughts in the previous year.<sup>5</sup> The authors also reported lower life satisfaction, meaningfulness, and happiness and higher anxiety levels in dental care providers compared to the general population.<sup>5</sup> General dental practitioners experience higher stress levels and lower quality of life than dental specialists.<sup>3,5,6</sup>

There are multiple primary stress dimensions in dental practice that contribute to burnout, a condition that involves physical and mental tiredness, low energy, and overall weariness; these stress dimensions include patient-related and job-related issues, regulatory concerns, and personal challenges.<sup>3</sup> The COVID-19 pandemic increased pressure on oral health providers due to the risk of viral exposure, higher infection control standards, reduced patient flow, and financial strain.<sup>7,8</sup> A post-pandemic survey of Welsh dentists revealed that one-third of participants increased the frequency of alcohol consumption.<sup>9</sup> Research suggests that dental practitioners became more susceptible to work-life imbalance and neglect of their personal health after the pandemic.<sup>9,10</sup>

Chronic stress is a robust driver of chronic disease development and poor quality of life. The profound physiological and psychological effects of chronic stress disrupt homeostasis, increasing the risk

*Editor's note: This article is the first in a series on stress in dentistry. The second article, slated for publication later this year, will discuss solutions for stress resilience.*

of various conditions. Higher risks for cardiovascular disease, diabetes, obesity, autoimmune disorders, bruxism, tiredness, insomnia, and elevated mortality are associated with chronic stress.<sup>11,12</sup> Occupational stress in dentistry has also been linked to a higher risk of developing mental health problems, such as depression, anxiety, and burnout.<sup>13</sup> Its detrimental effects are directly mediated by dysregulation of the hypothalamus-pituitary-adrenal (HPA) axis and indirectly via unhealthy coping mechanisms.<sup>14,15</sup>

The mental, emotional, physical, and biological challenges associated with dental practice can result in the development of unhealthy coping responses to stress.<sup>16</sup> In a survey among Saudi Arabian dentists, the most frequently reported coping mechanisms for high-stress levels were watching television, using electronics, and binge eating.<sup>17</sup> A high prevalence of alcohol consumption was reported in a survey of UK dentists, with 22% surpassing the recommended national guidelines.<sup>5</sup> In addition to the physical and psychological challenges associated with chronic stress, it can significantly impact practitioners' personal and professional relationships and negatively affect clinical decisions and patient care.<sup>18</sup>

Despite the highly detrimental effects of chronic stress, this topic and its impact on dental care providers have been under-addressed

in the dental literature.<sup>9,19</sup> The reasons for this possibly include limited awareness, stigma, a focus on clinical skills, lack of research, normalization of the condition, an emphasis on maintaining a professional culture, and inadequate support despite growing recognition of the issue.<sup>20</sup> This narrative review examines the prevalence, implications, and triggers of stress within the dental profession, emphasizing the pressing need for understanding and addressing this issue. By shedding light on mental health in dental practice, this article advocates for increased support in dental education and practice, aiming to lessen the associated stigma of mental health needs and enhance the well-being of dental professionals.

## Prevalence of Stress and Mental Health Concerns

Overwhelming professional and personal demands and consequent high-stress levels are matters of growing concern in dentistry.<sup>5</sup> Numerous studies have consistently indicated that dental professionals face a notable burden of stress due to the unique challenges of the profession, contributing to mental health issues such as burnout, depression, and anxiety.<sup>21-25</sup> (Table 1 provides an overview of studies reporting prevalence percentages of stress and its mental health consequences. To view Table 1, visit [compendiumce.com/go/2409](http://compendiumce.com/go/2409).)

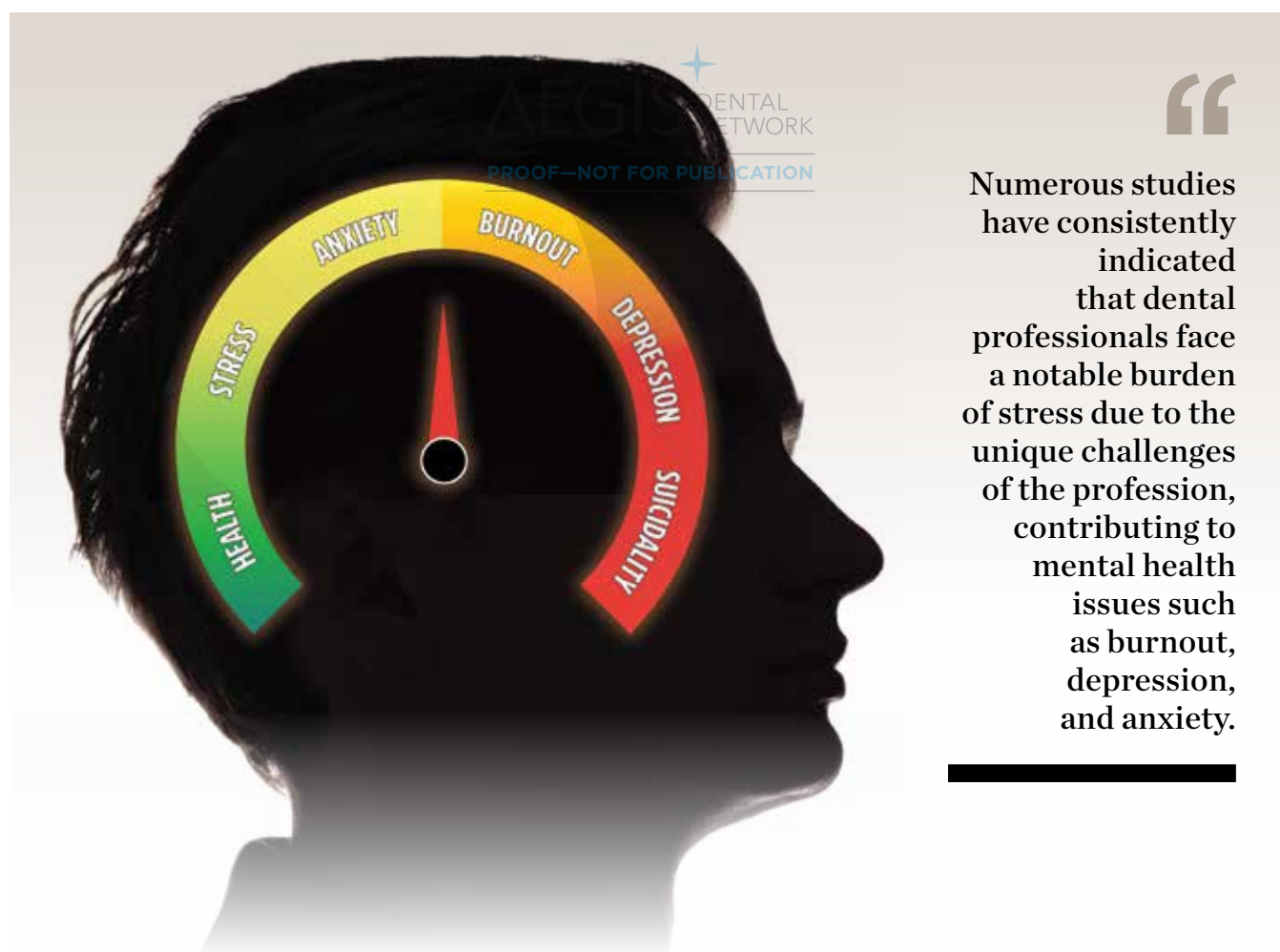


Fig 1. The spectrum of stress and its mental health consequences.

Chronic stress is an adaptive physiological and psychological response to challenges that exceed an individual's ability to cope effectively. The stress response is complex, involving the nervous system, endocrine system, and various organs and functions, and triggering a cascade of physiological changes.<sup>26</sup> The literature shows that 25% to 86% of dental practitioners from different countries have high work-related stress.<sup>4,5,21-25</sup> The stress spectrum of common mental conditions typically progresses from anxiety to burnout, depression, and suicidal ideation (Figure 1).

Anxiety is an adaptive emotional response that physiologically prepares the body to respond to real or imagined threats. It can manifest as frequent and repetitive worry, fear, and apprehension. Studies report that 4.3% to 78.8% of dental providers present anxiety symptoms.<sup>27-30</sup>

Workplace burnout is another consequence of chronic stress and is formally recognized by the World Health Organization as a medical condition that progresses gradually.<sup>31,32</sup> The initial phase of burnout is emotional exhaustion; this encompasses physical and mental tiredness, low energy, and overall weariness. The second stage, depersonalization, is marked by reduced empathy, irritability, skepticism, negativity, and a tendency to distance oneself emotionally from work. The final stage of burnout is characterized by low personal accomplishment, including diminished self-worth, low work performance, depression, a consistently negative outlook, avoidance of social interactions, self-perception aligned with failure, and a limited capacity to address challenges.<sup>33,34</sup> While various methodologies and cultural differences introduce variables in burnout research, most studies indicate elevated burnout levels within dentistry, impacting 1.05% to 83.6% of professionals (Table 1).<sup>21,23-25,27,30,35-46</sup> Regarding the distinct elements of burnout, emotional exhaustion has been observed in 8.3% to 61.3%, depersonalization in 9.5% to 65.8%, and low personal accomplishment in 4% to 41.4% of dental professionals (Table 1).<sup>46-53</sup> Two systematic reviews reported an overall burnout prevalence of 13% among dentists, with 25% presenting emotional exhaustion, 18% presenting depersonalization, and 32% having low personal accomplishment.<sup>54,55</sup>

Depression is another mental condition linked to the stress spectrum. It is described as pervasive hopelessness, sadness, and a general loss of interest in many aspects of life, affecting emotions, thoughts, behavior, and physical health.<sup>56</sup> Self-reported depression has been noted in 9% to 60% of surveyed dental practitioners from different countries.<sup>27-29,57,58</sup>

Unchecked, stress-induced mental health issues can intensify and worsen over time. In a recent Australian study, researchers stated that 17.6% of dental practitioners had experienced thoughts of suicide within the previous year, while 31.4% had such thoughts prior to the previous year. Additionally, 5.6% of participants disclosed a history of having attempted suicide.<sup>29</sup>

The dental literature highlights that specific professional subgroups, including female practitioners, young professionals, and general practitioners, exhibit increased vulnerability to elevated stress levels.<sup>5,38,49,58,59</sup> These statistics serve as an urgent call to action for dental institutions, organizations, employers, and professionals to address the pressing mental challenges within the dental profession.<sup>20</sup>

## Factors Contributing to Stress in Dentistry

Dentistry demands a unique, wide-ranging skill set that includes emotional resilience, extensive medical knowledge, dexterity, optimal communication skills, and diagnostic capabilities. Dental practitioners navigate multiple daily challenges related to patients, the job itself, financial complexities, legal matters, and the practitioner's own personality. These factors are summarized below.<sup>53,60</sup>

### Patient-Related Stressors

*Patient traits.* Dealing with patients with dental anxiety or phobias can be emotionally draining. Dentists may need to employ special techniques and require extra time to calm patients and provide the necessary care.<sup>53</sup> In a 2018 German survey, dental practitioners regarded about one-quarter of their patients as challenging. Participants reported multiple patient characteristics that can create difficulties, including anxiety, criticism, aggression, interrogation, lack of cooperation, rudeness, and obsessive-compulsive traits. There was an association between poor patient behavior and the dentist's susceptibility to burnout, with anxious and aggressive patients being the most challenging.<sup>61</sup> Other studies suggest that complaining patients and patients with high expectations also put pressure on dentists for fear of patient dissatisfaction.<sup>41,53,62</sup>

*Clinical mistakes.* The pervasive fear of making mistakes in clinical dentistry can lead to heightened stress levels, impacting practitioner well-being and patient outcomes. In a study from Hong Kong that included more than 1,000 dentists, the fear of making clinical mistakes ranked top on the dentistry stressors list.<sup>53</sup>

### Job-Related Stressors

*Patient perception.* While dentistry is generally viewed as a respectable profession, patients sometimes still associate dentists with the experience of pain and discomfort.<sup>63</sup> In a South African survey, 56.3% of dentists reported that being perceived as an inflictor of pain was highly stressful.<sup>41</sup>

*Workload.* The demanding nature of clinical dentistry significantly contributes to a substantial workload, both perceived and actual. Dentists, particularly practice owners, frequently extend their work hours. The work may encompass not just patient care but also administrative responsibilities, contributing to elevated fatigue levels and a higher vulnerability to burnout.<sup>40,53</sup>

*Time pressure.* The unpredictability of biological and patient factors, the complexity of numerous dental procedures, and tight daily schedules often place dentists in situations where complicated tasks must be performed quickly. Time constraints adversely affect diagnostic accuracy and sensitivity. According to a 2019 UK study, the ability to detect caries and periodontal disease decreased by 40% and 67%, respectively, under time constraints.<sup>64</sup> Running behind schedule can promote stress and anxiety, lower the quality of patient care, and increase the risk of burnout.<sup>53,60</sup>

*High concentration.* Dentists must maintain unwavering focus during clinical procedures. The pressure to make quick, informed decisions in unexpected situations further underscores the need for sharp concentration and diagnostic abilities. This continual demand for mental acuity can elevate stress levels.<sup>41,65</sup>

*Dealing with emergencies.* Dentists must be ready to adeptly manage unforeseen dental and medical emergencies and unanticipated complications that frequently involve highly stressful situations.<sup>62,65,66</sup>

*Continual learning.* Dentistry is a continuously evolving field. The perpetual quest to stay up-to-date with the dynamic landscape of emerging knowledge, evolving clinical techniques, and advancing technologies presents an enduring challenge for dentists.<sup>67</sup>

*Career advancement.* Similar to other healthcare professions, dentists often encounter stress related to career advancement. This can manifest in various ways, primarily stemming from the pursuit of higher qualifications and aspirations of practice ownership.<sup>3</sup>

*Isolation.* Dentists often work in solo or small practices, which offers autonomy but can foster professional isolation given limited peer interaction. A lack of a support network can induce loneliness and disconnectedness, ultimately elevating stress levels.<sup>41,68,69</sup>

*Work environment.* Dentists may encounter interpersonal conflicts involving staff, colleagues, or patients, creating workplace challenges related to communication and interpersonal dynamics.<sup>24,60</sup>

### **Financial and Regulatory Stressors**

*Financial pressure.* The financial complexities of managing a dental practice, including factors such as overhead costs and insurance claims, frequently act as stressors, which can be compounded by educational financial commitments and ongoing investment in equipment and technology.<sup>24,41,65</sup>

*Legal and regulatory compliance.* Dentists must adhere to a multitude of local, state, and national regulations and stringent standards. In addition, the fear of litigation and malpractice claims can create anxiety and stress.<sup>3,5,69</sup>

### **Personal Stressors**

*Work-life balance.* Balancing work and personal life is a common challenge for dentists, especially practice owners who must manage business operations while delivering quality dental care. These responsibilities can strain family life and personal relationships.<sup>69</sup>

*Health concerns.* Providing dental care can expose dentists to infectious diseases and other occupational health risks, such as ocular injuries, hearing impairment, and allergies, adding to their stress load.<sup>70</sup>

*Physical demands.* Dentistry involves repetitive motions and awkward body positions for extended periods, increasing the risk of developing musculoskeletal disorders, including shoulder, neck, and back pain.<sup>30,40</sup>

*Perfectionism.* While perfectionism can promote clinical excellence, it can also contribute to elevated stress levels and burnout due to unrealistic expectations and self-imposed pressure.<sup>71,72</sup>

The multifaceted nature of stressors in dentistry underscores the importance of dedicating time and effort to developing stress resilience for a sustainable and rewarding career as a dental practitioner.

## **Impacts of Elevated Stress Levels**

### **Physiological Consequences**

Chronic stress triggers the production of cortisol via the aforementioned HPA axis, initiating a complex physiological response that influences the immune system, metabolism, inflammation, and the gut microbiome. This chronic stress response is a risk factor

for various health conditions, including cardiovascular disease and gastrointestinal issues.<sup>11,62</sup>

Muscle tension and musculoskeletal disorders can also be aggravated by stress.<sup>73</sup> Research reports a high annual prevalence (68% to 100%) of work-related musculoskeletal disorders in dental practitioners, with the back, shoulder, and neck being the most affected areas.<sup>30,74,75</sup> Rising et al noted that by the third year of dental education, more than 70% of dental students reported musculoskeletal pain irrespective of gender.<sup>76</sup> Inadequate ergonomics, repetitive movements, and suboptimal posture during clinical procedures contribute to postural strain, adversely affecting the musculoskeletal system.<sup>73</sup>

### **Psychological Consequences**

A substantial body of evidence highlights the intricate relationship between mental health issues and chronic stress within the dental profession. Failing to address chronic stress adequately can ultimately increase the risk of unhappiness, loneliness, low quality of life, illness, and suicide.<sup>2,53,57,71</sup>

Although the evidence regarding suicide rates among dentists is inconsistent, alarming statistics have been reported (10% to 17.6% prevalence of suicidal ideation).<sup>5,29</sup> Among the general population in the United States, approximately 4% of adults experience suicidal thoughts annually.<sup>77</sup> In 2011, a Danish study reported there was an elevated risk of suicide within the healthcare profession, with dentists exhibiting the highest suicide rate of 7.18% (8.02% for male dentists and 5.28% for female dentists).<sup>78</sup> In comparison, the national average suicide rate was substantially lower, at 0.42%. This data underscores that dentists are 2.5 to 4.4 times more likely to take their own lives.

### **Behavioral Consequences**

Multiple neurobiological mechanisms have been linked to stress-induced behavioral changes involving mood, cognition, social interactions, and coping strategies. These include HPA axis activation, neurotransmitter imbalances, neuroinflammation, and changes to the hippocampus, amygdala, and prefrontal cortex.<sup>79</sup>

Elevated work-related stress among dental practitioners has been linked to reduced sleep and exercise and increased alcohol consumption.<sup>62</sup> A study conducted in Australia found that 15% to 20% of surveyed dentists exhibited hazardous alcohol consumption patterns, underscoring how stress-induced alterations in lifestyle can exacerbate the impact of chronic stress on overall health.<sup>5,80</sup> At work, chronic stress and its consequences can manifest as increased absenteeism, aggression, conflicts, a higher rate of errors, diminished quality control and productivity, and lowered morale, ultimately affecting professional performance, clinical decision-making, and the quality of patient care.<sup>67</sup>

## **Conclusion**

Persistent chronic stress exerts profound effects that influence a dentist's health and well-being and leave their mark on one's career, personal life, and family relationships. Dentists play a vital role in enabling patients to maintain their overall health; therefore, the ability of dentists to cope with stress is crucial for both their



own sake and the well-being of their patients. Prioritizing proactive stress management is of utmost importance to safeguard the welfare of not only dentists but also their staff and patients, thus helping to ensure a sustained and satisfying career.

#### ABOUT THE AUTHORS

##### Carla Cruvinel Pontes, PhD, MSc, DDS

Certified Health Coach, Researcher, Mouth-Body Research Institute, Greyton, South Africa

##### Kyle Stanley, DDS

Private Practice, Founder, Light Side Dentistry, Beverly Hills, California

##### Shervin Molayem, DDS

Private Practice in Periodontics, Director of the Mouth-Body Research Institute, Los Angeles, California; Fellow, International College of Dentists

Queries to the author regarding this course may be submitted to [authorqueries@broadcastmed.com](mailto:authorqueries@broadcastmed.com).

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## Understanding the Dental Profession's Stress Burden: Prevalence and Implications

Carla Cruvinel Pontes, PhD, MSc, DDS; Kyle Stanley, DDS; and Shervin Molayem, DDS

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- Compared to dental specialists, general dental practitioners experience:**
  - lower stress levels and higher quality of life.
  - higher stress levels and lower quality of life.
  - lower stress levels and lower quality of life.
  - higher stress levels but higher quality of life.
- Higher risks for cardiovascular disease, diabetes, obesity, autoimmune disorders, tiredness, and insomnia are associated with:**
  - high levels of focus and concentration.
  - maintaining a full appointment schedule.
  - chronic stress.
  - financial instability.
- Among the possible reasons why the impact of chronic stress on dental providers is under-addressed in the literature is:**
  - stigma.
  - the low prevalence of stress among dentists.
  - the minimal effect stress has on dentists.
  - dentistry's strong mental health support systems.
- What emotional response manifests as frequent and repetitive worry, fear, and apprehension?**
  - anxiety
  - burnout
  - depression
  - suicidal ideation
- What consequence of chronic stress progresses from emotional exhaustion to depersonalization to low personal accomplishment?**
  - tiredness
  - irritability
  - alcoholism
  - burnout
- Which specific subgroup exhibits increased vulnerability to elevated stress levels?**
  - female practitioners
  - young professionals
  - general practitioners
  - All of the above
- Studies suggest that complaining patients and patients with high expectations:**
  - have no effect on dentists.
  - put pressure on dentists.
  - cause dentists to be depressed.
  - are directly correlated with clinical mistakes.
- What have been shown to adversely affect diagnostic accuracy?**
  - time constraints
  - patient perceptions
  - career advancement aspirations
  - regulatory demands
- What can promote clinical excellence but contribute to elevated stress levels due to unrealistic expectations?**
  - an excessively high workload
  - interpersonal conflicts among staff
  - perfectionism
  - All of the above
- Initiating a complex physiological response, chronic stress triggers the production of cortisol via:**
  - constant, repetitive movements.
  - continual suboptimal posture.
  - changes to the prefrontal cortex.
  - the hypothalamus-pituitary-adrenal axis.

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