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**DENTAL HYGIENE BURNOUT IN CLINICAL PRACTICE FROM
COVID-19; A PILOT STUDY USING SELF-REPORTED
QUESTIONNAIRE**

By

Yvette Valladares

B.S., Dental Hygiene Foothill College, 2021

THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Science

Dental Hygiene

The University of New Mexico

Albuquerque, New Mexico

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Dedication

To my husband, Scott, whose unwavering support and encouragement gave me the inspiration to continue my education. Thank you for being my biggest fan. To my parents, who unknowingly provided me with the opportunity to become a first-generation college graduate. I would never have had this chance if they had not come to this country. ¡Sí se puede!

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M.S., Dental Hygiene, The University of New Mexico 2024

Abstract

The purpose of this study was to determine if the Covid-19 pandemic had increased feelings of burnout in registered dental hygienists who were employed in clinical practice before and during 2020. A survey of registered dental hygienists in California was employed. Participants completed a modified Maslach Burnout Inventory, to evaluate emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). One open-ended question explored specific aspects of Covid-19 contributing to burnout. 162 surveys were completed and 139 met the inclusion criteria. Data analysis revealed that 40.29% reported high Emotional Exhaustion, 43.17% experienced low Depersonalization, and 85.61% reported high Personal Achievement. Lastly, 55.4% of respondents indicated that COVID-19 contributed to feelings of burnout. Limitations to this study include survey formatting, small sample size, and survey delivery method which could impact results. Future studies should incorporate qualitative methods, such as interviews and focus groups, to offer detailed perspectives of dental hygienists regarding burnout.

Table of Contents

Table of Contents	vi
List of Figures.....	vii
List of Tables	viii
Chapter I: Introduction.....	1
Introduction.....	1
Statement of the Problem.....	1
Significance of the Problem.....	2
Operational Terms	3
Chapter II: Review of Literature	5
Introduction.....	5
Stress in Dental Hygiene Practice.....	5
Compassion fatigue and burnout	7
Covid-19 and dental hygiene practice.....	10
Burnout management for the dental hygiene profession	12
Chapter III: Methods and Materials.....	14
Introduction.....	14
Sample Description.....	14
Research Design.....	14
Data Collection	16
Data Analysis	17
Chapter IV: Results, Discussion and Conclusion.....	19
Summary of Results	19
Discussion.....	31
Limitations	35
Recommendations for future studies	36
Conclusion	37
Chapter V: Article for Submission.....	38
Title Page	38
Appendices	50
Appendix A. Informed Consent Letter	50
Appendix B. MBI Survey	52
References.....	55

List of Figures

Figure 1: Surveyed Dental Hygienists responses to Age.....	19
Figure 2: Surveyed Dental Hygienists responses to Gender.....	20
Figure 3: Surveyed Dental Hygienists responses to Clinical Experience.....	20
Figure 4: Surveyed Dental Hygienists responses to Number of Offices.	21
Figure 5: Surveyed Dental Hygienists responses to Number of Hours.	21
Figure 6: Surveyed Dental Hygienists responses to Degree.....	22
Figure 7: Surveyed Dental Hygienists responses to EE Statements.	23
Figure 8: Surveyed Dental Hygienists responses to DP Statements.....	24
Figure 9: Surveyed Dental Hygienists responses to PA Statements.....	25
Figure 10: Surveyed Dental Hygienists overall category counts.....	27

List of Tables

Table 1: Surveyed Dental Hygienists mean EE, DP, PA by Age.	28
Table 2: Surveyed Dental Hygienists mean EE, DP, PA years in clinical practice.....	29
Table 3: Surveyed Dental Hygienists mean EE, DP, PA by degree.	30

Chapter I: Introduction

Introduction

Healthcare providers have generally demonstrated high levels of burnout (BO) and compassion fatigue (CF).¹ Burnout is a condition of emotional and physical exhaustion caused by chronic job stress which can lead to feelings of job disinterest or feelings of career ineffectiveness. Compassion fatigue is described as physical and emotional exhaustion due to continually expended emotional and empathic energy toward patients and their suffering. Burnout and compassion fatigue are related conditions which often present simultaneously as a response to a stressful work environment. However, the onset of burnout is typically longer than compassion fatigue. Dental hygienists are at particularly high risk for burnout due to work hours, physically demanding patient care, and lack of autonomy within the workplace.^{1, 2}

Dental hygienists generally do not have authority over their work schedules and expectations of treatment rendered within a scheduled appointment. Scheduled appointment times may include a dental exam and/or radiographs in addition to the scheduled preventive treatment. There are situations where patient emergencies must be incorporated into what was originally a routine appointment. These work conditions are potentially conducive to burnout independently of pandemic treatment modifications. Therefore, an evaluation of increasing burnout within the dental hygiene population following the Covid-19 pandemic in 2020 may help analyze if there is a relationship.

Statement of the Problem

Has the Covid-19 pandemic increased the incidence of career burnout for dental hygienists?

Significance of the Problem

In 2019 the World Health Organization (WHO) classified burnout as a syndrome which results from chronic unmanaged workplace stress.² Burnout syndrome is categorized by emotional exhaustion (EE), depersonalization (DP) and reduced personal accomplishment (PA).²

A survey conducted by the California Dental Hygiene Association (CDHA) in 2019 found that dental hygienists are more vulnerable to burnout, especially emotional exhaustion.³ That study was conducted well before the pandemic effects were felt throughout the profession. With the additional occupational challenges faced after returning to work during the pandemic, the risk for compassion fatigue and burnout may be significantly higher.² It is urgent to identify if the pandemic has created additional strain which has increased burnout within the dental hygiene profession. Dental hygiene professionals who experience burnout are at risk for decrease in the quality, care, and implementation of clinical practice.²

Exploring the relationship between increased burnout and the Covid-19 pandemic is valuable to both the dental hygiene profession and the public. Learning more regarding the specific causes of burnout in dental hygiene can help develop modifications to improve work conditions. Improving existing coping mechanisms within the profession can decrease the labor shortage which dental hygiene is currently experiencing.

The future of healthcare is slated to be one of collaboration between medicine and dentistry. Public health outreach and educational preventative dental programs require the expertise of capable dental hygienists. If the dental hygiene profession continues to

be affected by burnout, then a growing number of experienced clinicians will leave the workforce. This will only contribute to an even greater shortage of experienced clinicians. The experience of seasoned clinicians with years of clinical practice who have obtained terminal degrees is instrumental to the success of the future healthcare collaborative model.

Therefore, identifying professional burnout exacerbated by the Covid-19 pandemic can help target individuals in need of additional workplace support, aiming to reduce current levels of professional attrition in the field of dentistry. During the pandemic those who did not return to work cited workplace safety for themselves and others as their main concern.⁴ Reasons reported by clinicians who intended to leave the field of dental hygiene before the pandemic were; the result of difficult or demanding patients, long hours, accelerated dental hygiene schedules, shorter appointment times, inadequate lunch breaks, or lack of support staff in the office.⁵ These statements imply that those who were already intending to leave clinical practice due to burnout simply could not tolerate the effects of the pandemic in the workplace.

Increasing awareness around causes for burnout can create solutions to help dentistry recruit and retain current employees. Solutions such as increasing communication and creating an environment where dental hygienists feel safe in the workplace. Additionally, incorporating stress management curriculum in dental hygiene school to prepare new graduates with effective tools to implement in clinical practice.

Operational Terms

Healthcare Provider (HCP)- An individual who is trained and licensed to give health care.

Dental Hygienist (DH)- An individual who works with a dentist to provide preventative oral care.

Compassion Fatigue (CF)- The physical, emotional, and psychological impact of helping others.

Compassion Satisfaction (CS)- The pleasure and satisfaction that comes from helping others.

Burnout (BO)- A state of emotional, physical, and mental exhaustion caused by excessive and continued stress.

Emotional Exhaustion (EE)- A state of feeling emotionally worn-out and drained because of accumulated stress from personal or work life.

Depersonalization (DP)- The act of becoming detached, disconnected, or treating patients impersonally.

Personal Accomplishment or Achievement (PA) – The feeling associated with competence, high self-efficacy, and a sense of achievement.

Chapter II: Review of Literature

Introduction

The objective of this literature review is to evaluate published data on the effect of Covid-19 on the mental health of dental hygienists. Both dental hygiene and healthcare literature has identified elements of burnout within these professions. Compassion fatigue has been associated with unmanaged stress in dental hygiene literature.

This literature review will identify causes and signs of stress in the dental hygiene profession. It will summarize statistics observing the rate at which stress is reported or observed. The characteristics and rates of compassion fatigue and its association with dental hygiene burnout. The Covid-19 pandemic added stress to the dental hygiene profession and the relationship to increased dental hygiene career burnout.

Dental and medical literature was reviewed using the University of New Mexico library and PubMed databases. Keywords used for research in both databases were “dental hygiene burnout”, “dental hygiene compassion fatigue”, “impact of Covid 19 on healthcare professionals” and other related terms.

Stress in Dental Hygiene Practice

According to the World Health Organization (WHO) stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress can be a beneficial challenge for personal and professional progress.^{6,7} However, when an individual is subjected to chronic prolonged stress it can accomplish the opposite effect and instead diminish professional and personal function.^{2,7} Overall health can also be affected because chronic stress steadily activates the body’s “fight or flight” response, which when stimulated constantly has been correlated to chronic inflammatory disease, mental

health issues, insomnia, digestion issues, musculoskeletal diseases and injuries, compromised immunity, obesity, diabetes, and periodontal disease.^{2,6,8}

Dental hygiene clinical practice consists of daily stressors which include a physically demanding profession, impacted daily schedule, patient interface, and lack of autonomy in practice.^{1,2,7,9} Dental hygienists as individuals often possess personal characteristics which place them at higher risk to be susceptible to chronic stress. These characteristics include a tendency for perfectionism and prioritizing the needs of others over their own.⁷

The study titled, Occupational stressors of dental hygienists in the U.S. indicates that dental hygienists encounter increased emotional demands due to their higher rate of one-to one interactions with patients.⁶ This implies that dental hygienists are susceptible to experiencing emotional distress, becoming emotionally engaged in their work, and feel an emotional burden from their patient interactions.⁶ Dental hygienists are continually pressured to treat patients with the least amount of discomfort while also trying to find the best, individualized, treatment available.⁶ The challenge for dental hygienists to avoid inflicting pain while completing treatment can be an additional source of stress. Dental hygienists are expected to complete clinical tasks while simultaneously developing personal connections with patients. Frequently, when oral health worsens, the dental hygienists is likely to internalize it as a personal failure.⁶ Treatment during the scheduled appointment time is typically dictated by the doctor and the pressure to complete all the scheduled tasks can be overwhelming. Dental hygienists are expected to provide effective preventative treatment in addition to tasks such as radiographs and doctor examinations within the allotted time scheduled. At the same time, dental

hygienists are required to treat each patient compassionately and engage with each one individually. Individuals working in the profession of dental hygiene can be more susceptible to adverse stress responses, leading to the development of depression and anxiety.^{6,7}

Signs and symptoms of depression and anxiety include excessive worry or taking on the patients' needs and emotions. Depression and anxiety can cause distress or impairment in social, occupational, or other important areas of functioning and have the potential to affect personal relationships. Dental hygienists may encounter sensations of unease, fatigue, or sleep disruptions, potentially causing difficulties in concentration. These challenges could manifest as notable shifts in mood, somatic pain, and contemplation of suicidal or self-harming thoughts.⁷

If chronic stress persists, it can lead to professional burnout which is often described as emotional exhaustion (EE), physical exhaustion, and depersonalization (DP) or detachment from patients and work.^{7,8,10} Burnout also places dental hygienists at risk for other issues such as alcohol abuse which could be problematic both professionally and personally.¹ The study Compassion fatigue, compassion satisfaction, burnout and alcohol use among dental hygienists found that occupational stressors, such as hours worked per week and the number of patients treated in a day resulted in higher alcohol consumption.¹

Compassion fatigue and burnout

Compassion is fundamental for patient care and is thought to be a required characteristic of a health care provider. Compassion necessitates that the health care provider develops a relationship with patients to deliver the best treatment possible.

Compassion satisfaction (CS) is the pleasure that a healthcare provider achieves from doing their job well.¹¹ Compassion fatigue occurs when those feelings begin to decrease, often because of negative emotions such as cumulative work-related stress, depression, anxiety, and anger.^{2,11} When compassion fatigue is left unresolved the healthcare provider may experience burnout and an inability to provide compassionate care to patients.¹¹

According to the study, Occupational stressors of dental hygienists in the U.S., an emotionally demanding job was the primary factor leading dental hygienists to consider leaving clinical dental hygiene due to burnout.⁶ In the study Job satisfaction, burnout, and intention to leave among dental hygienists in clinical practice, several trends influencing intention to leave employment among dental hygienists were identified.⁵ First, job satisfaction had a strong influence on the intention to leave. The second observation highlighted that burnout, characterized by exhaustion and disengagement, significantly contributed to the intention to leave. Thirdly, disengagement demonstrated a more distinct influence than exhaustion on burnout.⁵ This same study referenced research findings indicating that 29% of the dental hygienists in their study experienced burnout due to factors including difficult or demanding patients, work-life balance, and long hours.⁵ Burnout may also be a result of factors such as accelerated dental hygiene schedules, shorter patient appointment times, inadequate lunch breaks, or lack of staff support.⁵

It is beneficial to explore if the pandemic increased the concentration or severity of already difficult or demanding patients. In June 2020, it was reported that 25.5% of US adults experienced symptoms consistent with an anxiety disorder and 24.3% with a

depressive disorder. These rates increased throughout the pandemic, with 41.5% of adults reporting symptoms of anxiety or depression by February 2021.¹² Mental health effects have been reported generally throughout the population due to the pandemic, therefore it would be wise to explore if this increase created an additional emotional burden for dental hygienists already experiencing compassion fatigue.

The first study regarding mental health, conducted over 20 years ago, focused on the relationship between burnout and dental hygiene. That study found dental hygienist self-reports of emotional exhaustion, depersonalization, and general negative feelings toward daily tasks.¹⁰ Historically, the majority of research on mental health and well-being in dental hygiene has focused on ergonomics and musculoskeletal issues, leading to occupational stress.¹⁰ The study, Mental health and self-care practices among dental hygienists from 2019 in Oregon, found that over half of the respondents of the study reported moderate levels of daily stress, lack of time in patient schedule, physical pain, and patient neediness as highest triggers.¹⁰

The article Employment patterns of dental hygienists in the US during the Covid-19 pandemic updated August of 2021 reported dental hygiene labor shortages and difficulty in hiring new dental hygienists.⁸ Study data referenced from 2019, stated that 43% of participants were seeking a new job that year because of not feeling valued, respected, or compensated adequately.⁸ The Covid-19 pandemic may have exacerbated those feelings of dissatisfaction when offices reopened with more rigorous safety protocols, and increased hand scaling to reduce aerosol production.⁸ This shift in treatment modality may have contributed to feelings of lack of autonomy because hand scaling alone is no longer the standard of care for effective preventative treatment. The

pressure to see patients during a pandemic, which so little was known about, coupled with feelings of inadequate patient care potentially increased emotional stress.

Covid-19 and dental hygiene practice

In March of 2020 Covid-19 was declared a global pandemic. Since then, humanity has confronted feelings of doubt regarding appropriate infectious disease responses.^{2,9} Health care practitioners have been particularly vulnerable to emotional stress due to proximity to potential infections. This chronic state of stress can cause burnout and mental health problems. Dentistry's high risk for viral transmission due to aerosolization of dental procedures increased existing stress already placed on dental hygienists, and has been correlated positively to burnout.^{1,7,12,13}

A cross-sectional study titled Correlation between stress and anxiety in relation to viral epidemics and burnout among Korean dental hygienists during the COVID-19 pandemic was carried out to explore the connection between stress, anxiety related to viral epidemics, burnout among dental hygienists, and the mitigating impact of job satisfaction on burnout during the COVID-19 pandemic.⁷ Based on their results, stress and anxiety to viral epidemics and job stress were found to be significantly associated with burnout among dental hygienists.⁷ Prior to the pandemic, it was determined that the reasons for high burnout frequencies could be attributed to dental hygienists physical burnout from increased stress and fatigue caused by physical limitations associated with excessive workload, skeletomuscular symptoms, fatigue, and headache.^{1-3,5,7-11} The pre-existing physical stress was aggravated by working in environments with the risk of Covid-19 infection due to aerosol generation, invasive procedures, and droplet exposure.⁷ Shortages or lack of adequate personal protective equipment early in the pandemic

potentially contributed to mental disorders among dental care professionals.¹³ A study of psychological impact of COVID-19 pandemic on dental professionals, found that dentists and clinicians experienced greater psychological stress due to the uncertainty of the progression of the pandemic and risks associated with contraction and transmission in the dental office.¹⁴

The study titled Employment patterns of dental hygienists in the United States during the COVID-19 pandemic, indicate that the pandemic has resulted in a voluntary reduction of the US dental hygiene workforce by about 3.75%, or approximately 7,500 dental hygienists of the total dental hygiene workforce.⁴ In the final wave of the study, 1.6% of the participants indicated that they had either retired or no longer wanted to work clinically as a dental hygienist, which could represent a permanent reduction in the workforce of close to 3,300 dental hygienists.⁴ Additionally, the 2020-21 academic year had a 7 % reduction in first-year dental hygiene program enrollments.⁴

Clinical dental hygienists' experience returning to work after closure of dental offices due to COVID-19: a qualitative study has shown that COVID-19 is associated with mental health challenges among healthcare practitioners.¹⁵ The prevalence of depression among health professionals ranged from 22.8% to 38% in meta-analyses of the research literature.¹⁵ Prevalence of anxiety findings ranged from 23.2 to 33%, with stress measured to be high (45%) in health care practitioners.¹⁵ Since dental hygienists are on the front lines and at high risk for COVID-19 infection, the impact of having a large percentage of dental hygienists experiencing mental disorders, burnout, and a desire to leave the profession affects all of society.¹⁵

Burnout management for the dental hygiene profession

Effectively addressing stress and its symptoms is crucial to prevent work-related burnout, which significantly impacts the dental community by contributing to attrition within the profession and adversely affecting patient care due to labor shortages.⁸ Additional studies focusing on mental health status, stress-triggers and coping skills are needed to avoid burnout. Research has demonstrated that when a healthcare provider experiences a better quality of life, patients experience the best care available. Physicians experiencing burnout have been shown to have less empathy for their patients, deviate from treatment plans, and prescribe unnecessary medications. Burnout has been shown to be particularly prevalent among professions with a high number of individual interactions, making it reasonable to expect to see a higher level of burnout among dental hygienists.^{10,15}

A study of 54 dental hygiene programs in the United States performed in 1999, demonstrated that 23% of responding schools taught students about stress management.⁸ This data emphasizes the need for greater stress studies not only within dental hygiene schools but also for the professional population. This could be enhanced by integrating stress recognition and management into dental hygiene educational programs, promoting proactive self-awareness, and facilitating the identification of colleagues who may be undergoing stress and burnout.⁸

Covid-19 has impacted the educators of dental hygiene, not only those in clinical practice. Dental hygiene educators expressed burnout from Covid-19, listing several contributors. Those included work–life balance from being over- worked, pressure to

make their schedule available, lack of boundaries with students, and maintaining a sense of connection in the workplace.¹⁶

Summary

Covid-19 increased the existing stress which dental hygienists experience in daily practice. Understanding the causes of mental and physical fatigue are key factors for identifying ways to prevent and/or manage burnout in the dental hygiene profession. As the emotional demands of Covid-19 increased burnout, it is important to identify and address them to keep dental hygienists in the clinical field. Identifying the effects of Covid-19 and other common causes of emotional exhaustion, compassion fatigue, and burnout is essential to determine appropriate stress modifications for dental practices to support and retain those who are contemplating leaving the field of dental hygiene. Implementation of stress management courses into existing dental hygiene curriculums will prepare those embarking on their career. Simultaneously, integrating continuing education courses to provide support for stress management will assist those individuals currently engaged in clinical practice.

Chapter III: Methods and Materials

Introduction

A cross-sectional quantitative and qualitative study of dental hygienists with registered e-mails in the California Dental Hygiene Association database was conducted. The study was aimed to those who were registered dental hygienists working in clinical practice one year before and during 2020. Respondents were asked to participate in completing an online self-reported survey to identify presence of burnout from Covid-19.

Hypothesis

Covid-19 increased career burnout among practicing dental hygienists.

Sample Description

A self-administered survey was sent through e-mail to dental hygienists who had registered to receive e-mails from the California Dental Hygienist's Association (CDHA) database. The e-mail held a link to an HSC Microsoft online survey which included instructions and details about the purpose for the study. The email contained the informed consent letter, which notified the recipient that by clicking the survey participation link, they were giving consent. The target population for this study was registered dental hygienists whose e-mails addresses were available within the CDHA database who were employed in clinical practice one year before and during 2020.

Research Design

The study was a cross-sectional study which reported survey results from the dates it was administered. The research method used was a mixed method research design, consisting of a survey with two parts which measured both quantitative and qualitative data. The quantitative data was recorded using a post Covid-19 Burnout Self-Test using a modified version of the Maslach Burnout Inventory (MBI). The Maslach

Burnout Inventory method was used for its historical accuracy in identifying burnout in the healthcare field and is a widely recognized and validated self-assessment instrument for assessing an individual's risk for career burnout, resulting from chronic workplace stress that has not been successfully managed. The MBI subscale results indicate burnout intensity when elevated scores of emotional exhaustion and depersonalization are present while personal accomplishment are reportedly lower.

The survey included 6 questions related to participant demographics such as age, gender, years practicing, how many offices they work for, how many hours at each one, and degree of education. The MBI survey included 22 questions to evaluate three areas of burnout: emotional exhaustion, depersonalization, and personal achievement which were answered using a Likert answer scale. The qualitative data was collected using one additional open-ended question at the end of the survey, "Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?"

The MBI survey included statements such as, "I feel emotionally drained by my work."; these evaluated anxiety in the workplace and a higher risk of burnout. Statements such as, "I am at the end of my patience at the end of my workday." evaluated loss of empathy and depersonalization. Personal achievement statements were included to assess the individual's self-efficacy, "Through my work, I feel that I have a positive influence on people". Six answer options were provided with interval options ranging from "Never" to "Daily" which were analyzed quantitatively. The answers given for the open-ended question, "Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?" were analyzed

qualitatively. This study was submitted for The University of New Mexico's HRPO review approval before the start of the study or survey dispersal. Once the HRPO approved the study, the survey was sent by the CDHA to all dental hygienists who had registered e-mails in the CDHA database. Each email sent included a survey participation request letter, the study's purpose, the survey consent letter with contact information, and the survey link.

When the data collection period was completed, the survey data was summarized using Microsoft Forms. The answers for self-reported stress, compassion fatigue, and burnout were grouped according to current answers and demographic information. The study's purpose was to compare burnout data within a particular dental hygiene population after the Covid-19 pandemic. The results from this study were compared to previous job satisfaction survey results from 2019 for California dental hygienists published in the article, "Factors associated with burnout among dental hygienists in California" by Bercasio et al.³

Data Collection

An electronic survey link was emailed to the CDHA with details about the study and a request that it be forwarded to active members in their e-mail database. The electronic survey was created using Microsoft Forms. The e-mail sent out by CDHA to those registered within their database included information on the purpose of the study, time it would take to complete the survey, a letter of informed consent, and the link to the HSC Microsoft form online survey. The informed consent was obtained by participants through clicking on the provided link for participation. The data collection period was for 21 days, a follow up e-mail was sent two weeks after the initial email. When the data

collection period was complete the survey link closed on Microsoft Forms. The completed surveys were then assessed and analyzed.

Data Analysis

When the survey results were collected, the data was summarized using Microsoft Forms where frequencies of responses were calculated into percentages and further analyzed using Excel. The survey answers were categorized by frequency and grouped according to age, years in clinical practice, hours worked per week, and highest level of degree obtained. The scores for the categories of emotional exhaustion, depersonalization, personal achievement was calculated using modified MBI standards because of the reduced range of Likert answer scale options.

Each answer was assigned a numerical value; Never: 0, A few times a year: 1, Once a month: 2, A few times a month: 3, A few times a week: 4, Every day: 5. To adapt the standard Maslach Burnout Inventory (MBI) criteria for the modified 6-point scale, the maximum possible scores were recalculated based on the number of items for each subscale: Emotional Exhaustion (EE) 7 items, Depersonalization (DP) 7 items, and Personal Achievement (PA) 8 items. Then the high and low score thresholds were adjusted proportionally to the new maximum scores. The final adjusted criteria for interpretation were the following EE: 18 or higher, DP: 12 or higher, PA: 28 or less. The subscales for Low, Medium, and High ranges were determined using the new 6-point scale (0-5), the maximum scores were calculated as 35 for EE and DP, and 40 for PA. The standard MBI thresholds were then proportionally adjusted to these new maximum scores, resulting in definite cutoffs for high, medium, and low ranges. This adjustment defined an accurate subscale range for each category for consistent data interpretation of

the modified survey. Subscales for each category were as follows: Emotional Exhaustion; Low EE: 0 – 11, Medium EE: 12 – 17, High EE: 18 – 35. Depersonalization; Low DP: 0 – 5, Medium DP: 6 – 11, High DP: 12 – 35. Personal Achievement; Low PA: 0 – 20, Medium PA: 21-27, High PA: 28-40. Excel data analysis was used for the data collected using the answer scales to find the mean of burnout subscales such as emotional exhaustion, depersonalization, and reduction in personal achievement for age, years in practice, and degree categories. The correlation matrix was calculated using the Pearson correlation coefficient, to measure the linear relationship between emotional exhaustion, depersonalization, and personal achievement for the age, years in practice, and degree categories.

To evaluate the qualitative data collected with the final open-ended question, “Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?” The responses were read individually for specificity of Yes or No responses. The proportion of yes and no responses was calculated to provide an accurate percentage of those who reported significant factors contributing to burnout during the COVID-19 pandemic. Finally, thematic analysis was conducted by identifying recurring themes and keywords within the responses, such as emotional strain, PPE, safety measures, and financial concerns.

Chapter IV: Results, Discussion and Conclusion

Summary of Results

The California Dental Hygiene Association sent the informed consent letter and survey link via email to all registered dental hygienists in their email database on March 25, 2024. A follow-up e-mail was sent two weeks after the initial recruitment email. Surveys were accepted for a 21-day period concluding on April 16, 2024.

A total of 162 surveys were recorded. Of the 162; 23 participants did not meet the inclusion criteria, because they reported they had not worked clinically as a dental hygienist for at least one year both before and during the year 2020. The remaining 139 surveys were complete and included in the analysis.

The participants' ages can be grouped into 4 main categories. Forty-seven percent of respondents are 56 and above (47.5%), 20.1% are aged 36-45, 17.3% are aged 46-55, 15.1% are aged 26-35.

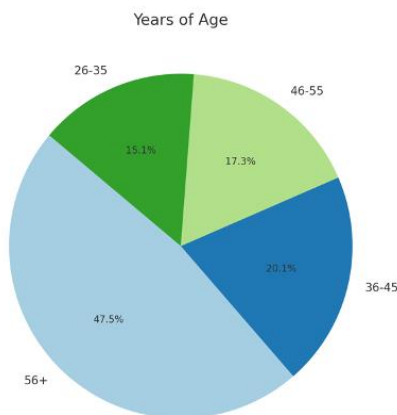


Figure 1: Surveyed Dental Hygienists responses to Age.

The respondents are predominantly female (96.4%), with a small percent being male (3.6%).

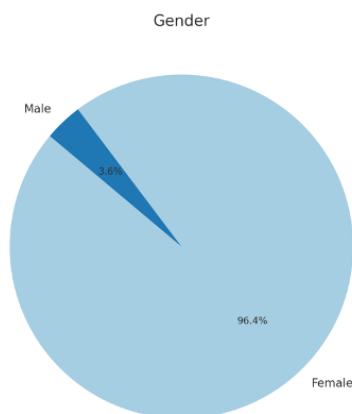


Figure 2: Surveyed Dental Hygienists responses to Gender.

The distribution of years in clinical practice among respondents is as follows: 58.3% have over 20 years of experience, 15.8% have 11-15 years, 15.1% have 6-10 years, 5.8% have 16-20 years, and 5.0% have 5 years of experience.

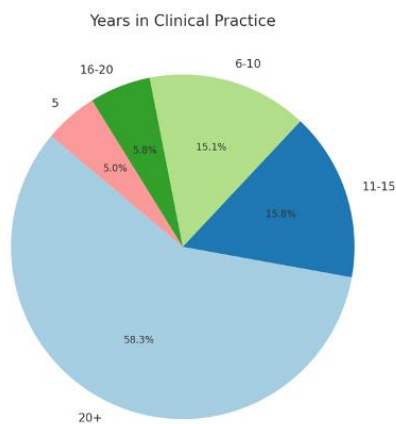


Figure 3: Surveyed Dental Hygienists responses to Clinical Experience

A significant majority of respondents (67.6%) work in a single office, with 21.6% working in two offices, and 10.8% working in three or more offices.

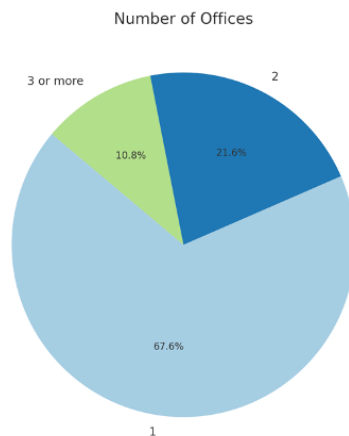


Figure 4: Surveyed Dental Hygienists responses to Number of Offices.

The largest group of respondents (33.8%) works 24-32 hours per week, followed closely by those working 32-40 hours (32.4%), 18.0% work 8-16 hours, and 15.8% work 16-24 hours.

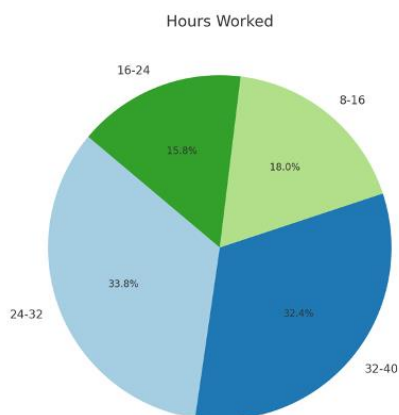


Figure 5: Surveyed Dental Hygienists responses to Number of Hours.

More than half of the respondents (54.0%) hold a bachelor's degree, with the remainder having either an Associate (33.1%) or Master's (12.9%) degree.

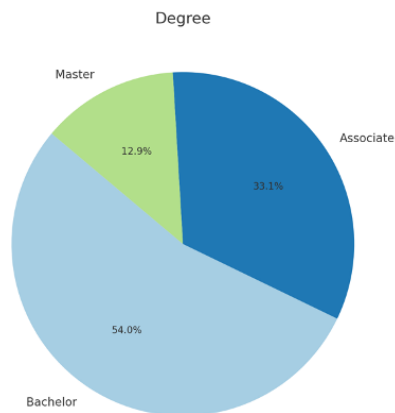


Figure 6: Surveyed Dental Hygienists responses to Degree.

The responses from dental hygienists regarding their emotional exhaustion related to their work are categorized by frequency: Never, A few times per year, Once a month, A few times per month, A few times per week, and Every day. The highest percentage of respondents who "Never" feel stressed are related to direct contact with people (42.40%) and feeling at the end of their rope (41.70%). A significant portion of dental hygienists feel emotionally drained by their work "A few times per month" (30.20%).

The statement "Working with people all day long requires a great deal of effort" has the highest percentage of "Every day" responses (29.50%), additionally 23.70% responded a few times per week to this question. The responses to, "my work is breaking me down" showed an opposed experience among the respondents with 20.10% never feel like their work is breaking them down, while 19.40% feel this every day. 27.30% of respondents feel frustrated by their work a few times per year, while 24.50% feel they work too hard every day. Most respondents did not indicate that direct contact with people is a primary source of stress, 67.60% (42.40% never + 25.20% a few times per year) Similarly, most do not frequently feel like they are at the end of their rope, 65.40% (41.70% never + 23.70% a few times per year).

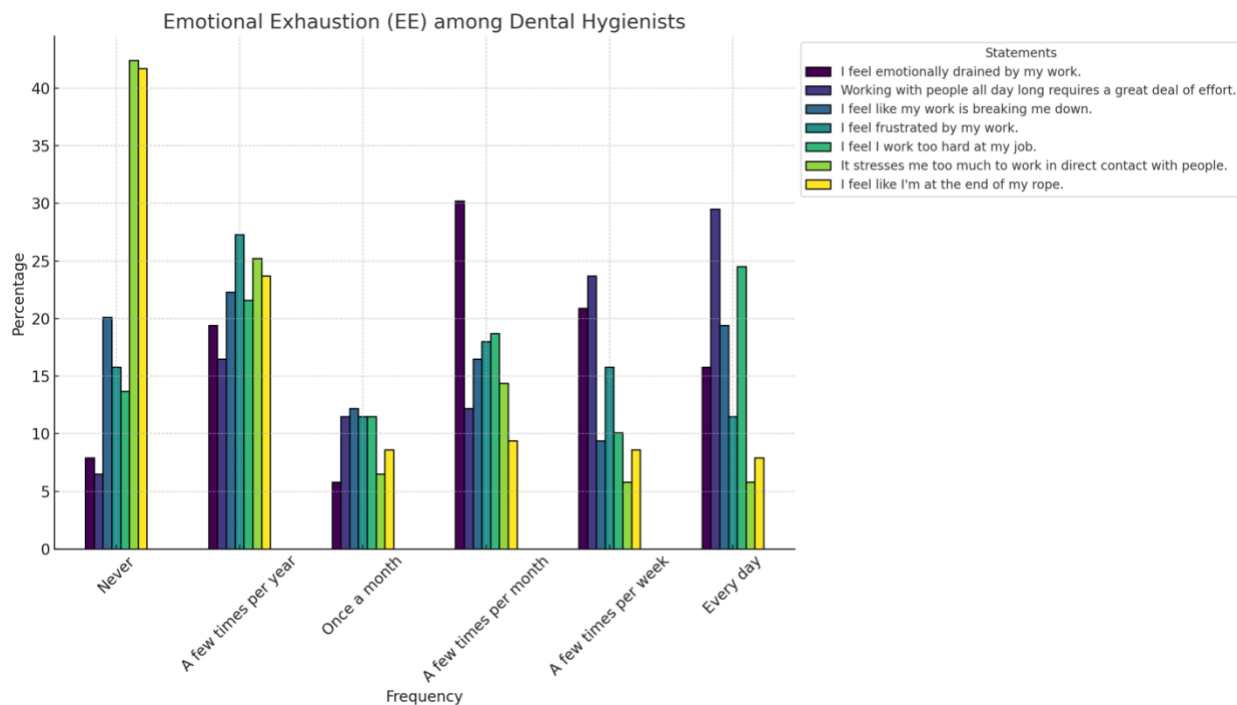


Figure 7: Surveyed Dental Hygienists responses to EE Statements.

Responses for the depersonalization category, which is characterized by an impersonal attitude toward patients, were also categorized by frequency: Never, A few times per year, Once a month, A few times per month, A few times per week, and Every day. The survey data reveals that 66.20% of dental hygienists never feel they look after patients impersonally, while 32.40% feel tired in the morning a few times per year and 13.70% feel this way every day. 46.80% never feel responsible for their patients' problems. 30.20% of respondents feel they are at the end of their patience a few times per year, with 5.80% feeling this daily. When asked if the respondent feels indifferent about patient outcome 62.60% responded never, while 1.40% feel this daily. 61.20% have not become more insensitive, while 2.90% feel more insensitive daily. Lastly, 79.90% are not afraid of becoming uncaring, whereas 2.20% fear this every day.

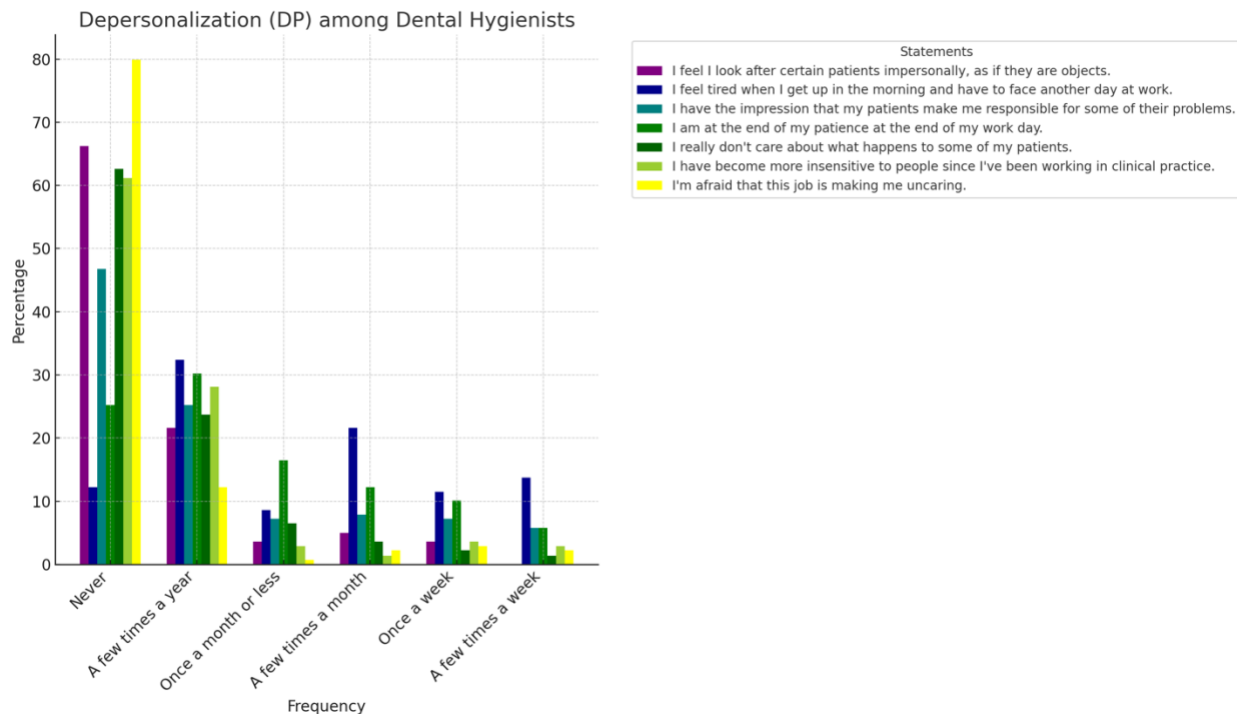


Figure 8: Surveyed Dental Hygienists responses to DP Statements.

The survey data on personal achievement among dental hygienists reports that 56.1% feel they accomplish many worthwhile things in their job every day. Energy levels are reportedly low with 25.2% feeling full of energy every day. Empathy levels are high, with 67.6% understanding what their patients feel every day. 71.9% report effectively looking after their patients' problems every day. Confidence in handling emotional problems is also high, with 61.9% responding every day. 71.2% of hygienists feel they have a positive influence on people every day, while 77.7% can create a relaxed atmosphere with their patients every day. 39.6% report feeling refreshed after patient interactions every day.

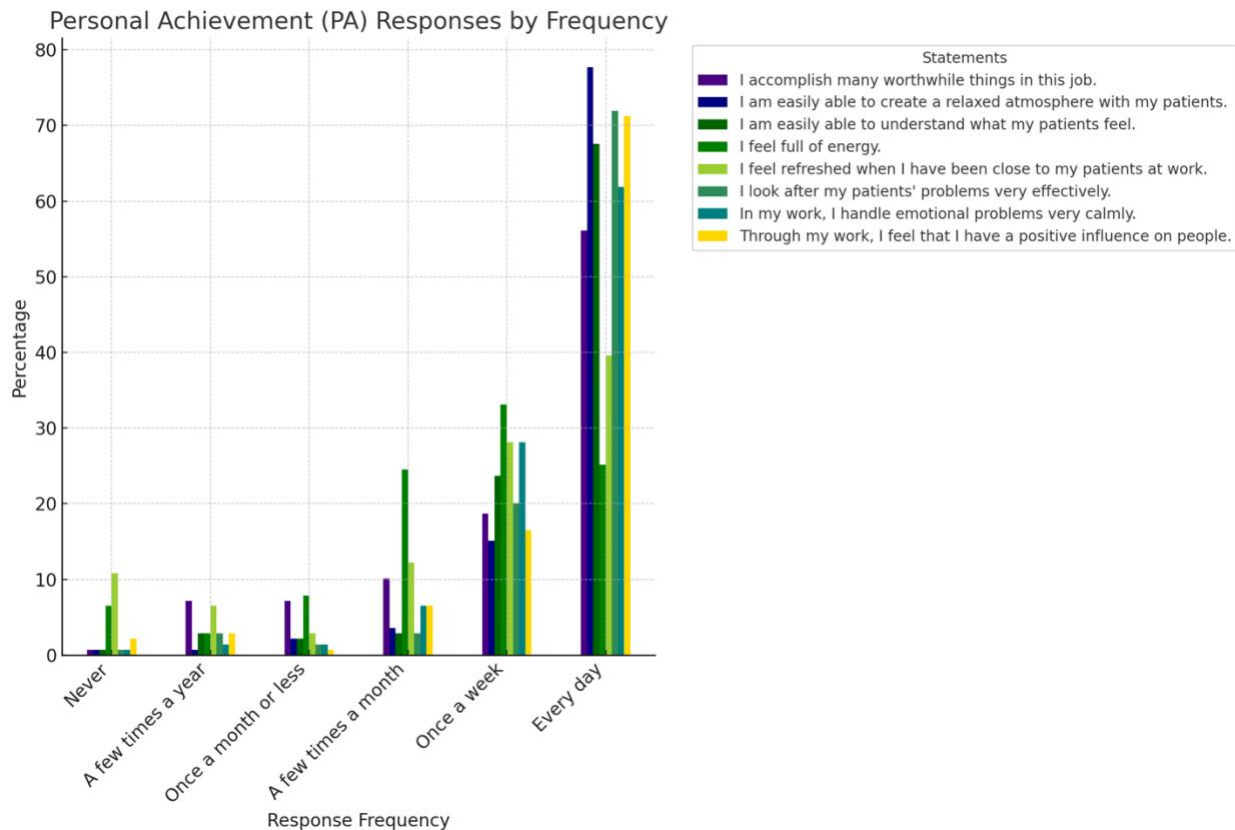


Figure 9: Surveyed Dental Hygienists responses to PA Statements.

Results from the final open-ended question of the survey, “Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?” Revealed that 77 out of the 139 (55.4%) participants responded yes and listed reasons for experiencing burnout. The words "emotional," "stress," "fear," "scared," and "anxiety" were repeated in the responses. Hygienists reported anxiety produced by the pandemic and feeling emotionally drained by the constant fear of disease transmission. Terms such as "PPE," "masks," "face shields," "safety measures," and "n95" were commonly mentioned. Respondents recalled discomfort from wearing PPE, difficulty breathing, and challenges in communicating with patients through masks and face shields. Financial issues were reported with words

such as "pay," "compensation," "money," "financial," and "wages" in the responses. Many dental hygienists felt that their increased workload and risk were not adequately compensated, leading to feelings of being undervalued. The pandemic prompted some dental hygienists to reconsider their careers. The terms, "retire," "career change," "reconsider career," and "quit" appeared in the responses.

Many felt an increased workload due to the need to catch up on patients who missed appointments. Many listed "increase in work," "more work," "workload," "extra work," and "catch up." In their responses. A lack of support from employers and coworkers was also noted. Phrases such as, "lack of support," "no support," "undervalued," "underappreciated," and "lack of help" were mentioned. Some hygienists faced challenges with rude or uncooperative patients. The terms "patient behavior," "rude patients," and "patient attitude" were used.

Not all Covid-19 responses were negative, some respondents mentioned positive aspects or adaptations during the pandemic. The words "positive," "appreciated," "supportive," and "safe" were used. A few respondents found positive aspects from Covid-19, mentioning appreciation for the break during the initial shutdowns. Others found that their workplaces' response to COVID-19 made them feel safer and supported. Changes in scheduling, such as seeing fewer patients per day or working fewer days, helped some hygienists manage their workload better and reduced feelings of burnout.

The raw data from the survey was analyzed using the subscale ranges of high, medium, and low. Subscales for each category were as follows: Emotional Exhaustion; Low EE: 0 – 11, Medium EE: 12 – 17, High EE: 18 – 35. Depersonalization; Low DP: 0

– 5, Medium DP: 6 – 11, High DP: 12 – 35. Personal Achievement; Low PA: 0 – 20, Medium PA: 21-27, High PA: 28-40.

Data analysis revealed the following distribution across different burnout dimensions. In the EE category, 38.13% (53 individuals) reported low levels, 21.58% (30 individuals) reported medium levels, and 40.29% of respondents (56 individuals) reported high levels of emotional exhaustion. For the DP category, 43.17% of respondents (60 individuals) experienced low levels, 39.57% (55 individuals) medium levels, and 17.27% (24 individuals) reported high levels. Regarding PA, only 5.76% (8 individuals) reported low levels, 8.63% (12 individuals) reported medium levels, and a significant majority, 85.61% (119 individuals), reported high levels.

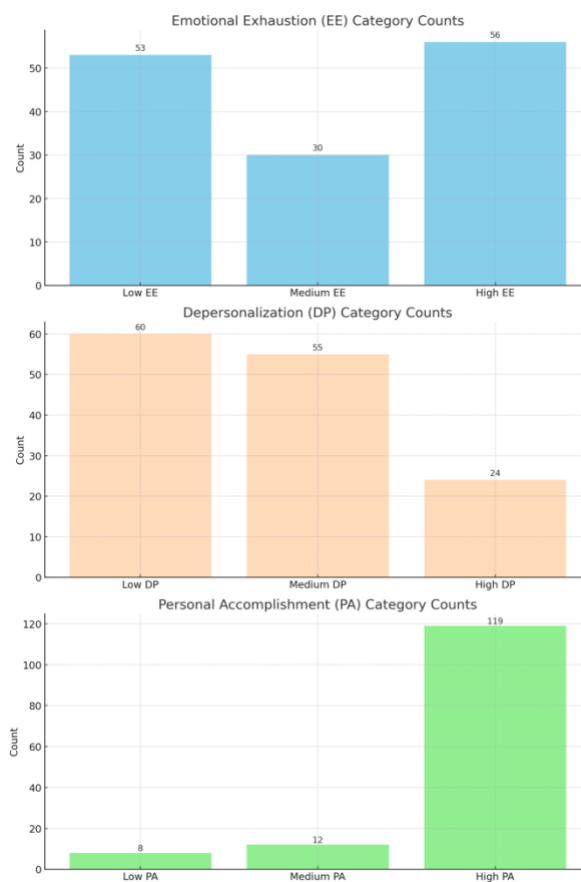


Figure 10: Surveyed Dental Hygienists overall category counts.

To better understand the burnout experienced by dental hygienists, the mean scores for EE, DP, and PA across three demographic variables, including age, years in clinical practice, and level of educational degree were analyzed. This analysis aims to provide insights into how factors such as age, professional experience, and education may influence levels of burnout.

Hygienists aged 56 and above report the lowest mean emotional exhaustion score at 13.65, indicating lower levels of burnout in this age group. In contrast, those aged 26-35 have the highest mean emotional exhaustion score at 19.71. Depersonalization scores are highest in the 26-35 age group (9.19) and slightly lower in the 36-45 (8.86) and 46-55 (8.29) age groups, with the lowest scores observed in the 56 and above age group (6.09). In terms of personal achievement, the highest mean score is seen in the 56 and above age group (35.09), while the lowest score is in the 36-45 age group (31.0).

Mean EE, DP, PA by Age Group

Years	Total_EE	Total_DP	Total_PA
26-35	19.71	9.19	33.43
36-45	15.61	8.86	31.0
46-55	19.58	8.29	33.62
56	13.65	6.09	35.09

Table 1: Surveyed Dental Hygienists mean EE, DP, PA by Age.

Hygienists with 16-20 years of practice report the lowest mean emotional exhaustion score at 12.5, indicating lower levels of burnout in this group. Conversely, those with 6-10 years of practice report the highest mean emotional exhaustion score at 20.62. Depersonalization scores are highest for those with 11-15 years of practice (10.73)

and 6-10 years of practice (10.10), while the lowest scores are observed in the 16-20 years group (6.38) and those with 20 years of practice (6.10). The highest mean score for personal achievement is seen in the 16-20 years group (37.0), suggesting a greater sense of achievement, while the lowest score is in the 11-15 years group (29.46).

Mean EE, DP, PA By Years in Practice

Years in clinical practice	Total_EE	Total_DP	Total_PA
11-15	18.73	10.73	29.46
16-20	12.5	6.38	37.0
20	14.42	6.10	35.07
5	15.57	7.0	32.14
6-10	20.62	10.10	32.52

Table 2: Surveyed Dental Hygienists mean EE, DP, PA years in clinical practice.

The mean emotional exhaustion score for participants with a master's degree is 13.06, lower when compared to those with an associate's degree (16.59) bachelor's degree (16.32). Depersonalization scores, however, show a slight increase for those with a master's degree, with a mean score of 8.28, compared to 7.67 for those with an associate's degree and 7.2 for those with a bachelor's degree. The mean personal achievement score is 34.22 for participants with a master's degree, higher than the 33.28 reported by those with an associate's degree and the 33.95 reported by those with a bachelor's degree

Mean EE, DP, PA by Degree

Degree	Emotional Exhaustion Score	Depersonalization Score	Personal Achievement Score
Associate	16.59	7.67	33.28
Bachelor	16.32	7.2	33.95
Master	13.06	8.28	34.22

Table 3: Surveyed Dental Hygienists mean EE, DP, PA by degree.

The correlation matrix was calculated using the Pearson correlation coefficient, which measures the linear relationship between two variables. A strong positive correlation (0.746) was found between emotional exhaustion and depersonalization, indicating that higher levels of EE are associated with higher levels of DP. This tendency was observed consistently across the analyzed datasets: degree, years in clinical practice, and age. For example, hygienists with associate degrees had higher EE and DP scores compared to those with bachelor's degrees, while the master's degree group deviated slightly by having the lowest EE but the highest DP.

A moderate negative correlation (-0.260) was found between EE and Personal Achievement, suggesting that higher EE is linked to lower PA. This trend was generally consistent across the datasets, with the master's degree group showing the lowest EE and the highest PA. Similarly, a moderate negative correlation (-0.313) between DP and PA indicates that higher DP is associated with lower PA, although the master's degree group again deviated by having higher DP but also the highest PA.

The correlation between EE and DP was also examined based on years in clinical practice and age. Hygienists with 11-15 years and 6-10 years of practice had higher EE and DP scores, aligning with the positive correlation. Conversely, those with 16-20 years

and over 20 years of practice had lower EE and DP scores. In terms of age, younger hygienists (26-35 and 46-55 years) had higher EE and DP scores, while those aged 56 years had the lowest EE and DP scores.

Discussion

Principle Findings

The data from this study on emotional exhaustion, an integral precursor to burnout, revealed that a significant portion of dental hygienists experienced emotional drain from their work. Thirty percent of respondents felt emotionally drained a few times per month, and 29.5% reported feeling that working with people all day required a great deal of effort every day. When compared to the findings of Bercasio et al in 2019, where thirty percent of respondents reported high EE scores,³ the data findings for EE were similar and do not appear to have a significant increase in this study. Many responses to the statements demonstrated opposing experiences for hygienists, a significant percentage either never or rarely felt emotionally exhausted, while a smaller group felt this frequently. This data suggests varied individual experiences and coping abilities throughout the profession. For instance, while 23.7% felt that working with people required a great deal of effort a few times per week, 29.5% felt this every day. This escalation from frequent to daily is noteworthy as it indicates increasing strain.

Depersonalization, which is characterized by an impersonal reaction towards patients, showed mixed results. A majority (66.2%) reported never feeling they looked after patients impersonally, which is a positive indicator of patient care. 46.8% never felt responsible for their patients' problems, this suggests that many dental hygienists maintain a professional detachment. However, a significant number are challenged in

managing patient-related stress, as 30.2% reported they felt at the end of their patience a few times per year. Many hygienists (61.2%) reported not becoming more insensitive, while 2.9% felt more insensitive every day. This data indicates that while desensitization is not widespread, it is still a factor for some hygienists. Nearly half (46.8%) of respondents indicated a health boundary between themselves and their patients' problems, reporting never feeling responsible for their patient's problems. Importantly, most respondents (79.9%) were not afraid of becoming uncaring, indicating that most are maintaining their empathy. Depersonalization rates in the 2019 study found that 11.3% of their respondents reported high DP scores.³

Personal achievement responses were generally positive in this survey. This survey found that most (56.1%) hygienists felt they accomplished many worthwhile things in their job every day, and 67.6% reported understanding what their patients feel every day. High levels of empathy and professional efficacy were well-defined, with 71.9% effectively looking after their patients' problems daily and 61.9% confident in handling emotional problems every day. Additionally, 71.2% felt they had a positive influence on people every day, and 77.7% reported being able to create a relaxed atmosphere with their patients every day. These findings indicate that despite the challenges in the EE and DP categories, most of the surveyed dental hygienists reported their work fulfilling and impactful. The 2019 study found 41% or respondents had low PA scores, representing more significant levels of burnout than this survey.³

Both studies noted that EE tends to decrease with age. The 2019 study reported the highest EE in the 35-44 age group, while older dental hygienists reported lower EE scores,³ supporting the finding that those aged 56 and above had the lowest mean EE

scores in this survey. The correlation matrix helps interpret the relationships between EE, DP, and PA across different age groups. Younger and middle-aged dental hygienists (26-35 years and 46-55 years) experience higher levels of emotional exhaustion and depersonalization. Older dental hygienists (56 years and above) exhibit lower levels of emotional exhaustion and depersonalization, with higher levels of personal achievement. The 36-45 years group has lower EE and DP but also lower PA, which suggests this age group could benefit from stress management interventions to enhance their sense of personal achievement.

The correlation matrix was also applied to interpret the relationships between EE, DP, and PA across different years of clinical practice. Dental hygienists with more years of clinical practice, particularly those with 16-20 years, exhibit lower levels of emotional exhaustion and depersonalization, and higher levels of personal achievement, indicating better overall resilience against burnout. Meanwhile, those with 11-15 years and 6-10 years in practice are at higher risk of burnout, experiencing higher emotional exhaustion and depersonalization, and lower personal achievement. The 2019 study noted personal achievement tends to increase with years of clinical practice.³ In this study, respondents with more years in clinical practice reported higher PA scores. However, it is important to note that most of the hygienists who have more years in clinical practice also fall into the category of older dental hygienist by age. Therefore, it is difficult to determine if the higher levels of PA can be attributed to solely experience and span of clinical practice.

When the analyzing the correlation with higher educational qualifications, those holding a master's degree, generally reported lower levels of emotional exhaustion and higher levels of personal achievement. However, this survey found differences in the

master's degree group with higher depersonalization scores despite lower emotional exhaustion scores. This was not specifically addressed in the 2019 study, which focused more broadly on occupational factors rather than detailed educational level analysis.³ Importantly, this proposes that other factors, possibly related to the benefits of higher education, may influence personal achievement positively despite higher depersonalization levels.

The open-ended question regarding the impact of COVID-19 on burnout provided significant qualitative data on specific occurrences while practicing dental hygiene clinically. Out of the 139 respondents, 77 (55.4%) indicated that COVID-19 significantly contributed to their feelings of burnout. This majority is contrary to the overall levels of burnout reported by respondents when completing the Likert scale survey. The constant fear of disease transmission, increased workload, and inadequate compensation were frequently mentioned in the responses. Hygienists expressed financial concerns, many reported the increased workload and potential risk were not compensated equally upon returning to clinical practice. The pandemic also encouraged some dental hygienists to reconsider their careers, some reported the decision of early retirement, change in career, or simply quitting due to the stress added by the pandemic. However, some respondents emphasized positive aspects, such as feeling appreciated and supported during the pandemic. Changes in scheduling and COVID-19 temporary office closures had beneficial effects for some who reported this time as a welcome physical break, helping them reduce feelings of burnout.

Both studies provide understandings into the precursors of burnout which may be experienced by dental hygienists. There were strong similarities in emotional exhaustion,

depersonalization, and personal achievement findings, indicating that general burnout and causes have remained consistent. This survey offered additional understandings into the significant effects of the COVID-19 pandemic on burnout with the open-ended question. Both studies reveal important insights into factors of depersonalization among dental hygienists, highlighting ages which are at greater risk in addition to years of clinical practice. The perceived lack of appreciation in the workplace was echoed in this survey, indicating the need for more specific training or intervention to support dental hygienists who are in mid-career stages. The consistent finding that dental hygienists who are older, more experienced, and with higher educational levels report higher PA scores provide areas for further exploration to understand the unique experiences of dental hygienists with different backgrounds and responsibilities.

Limitations

The limitations in this study have the potential to impact the results and interpretation. The survey was sent to all e-mails within the CDHA database and was limited to whether the email was received. The e-mail was for dental hygienists who practiced at least one year before and during the pandemic. If the e-mail was sent to spam or junk folders, some of the e-mail recipients may not have received the opportunity to participate.

To streamline the survey and create a format which was easy to use, the Likert scale was limited to never, a few times per year, once a month, a few times per month, a few times per week, every day. The option, weekly, was omitted. This omission could have altered results since the respondents did not have this option to choose from. The modified version of the Maslach Burnout Inventory, which contained less questions than

the original survey, may have influenced the results for each category. The use of additional open-ended questions would have been beneficial to determine more information on topics with polarized results. The limited responses available to the statements give a small glimpse into the complex multi-faceted attitudes of dental hygienists and burnout.

The small sample size of the respondents must also be considered when analyzing results and applying them to the dental hygiene profession. The small sample size of 139 respondents in comparison to the 2019 study with 443 respondents provides a narrow perspective on EE, DP, PA.³ This survey relied on self-reported data, which has the potential for subject response bias. Participants can potentially underreport or overreport their burnout levels. Recall bias is relevant, as respondents may struggle to accurately remember and report their feelings and experiences during the Covid-19 pandemic. The survey captures a cross-section which limits the ability to establish causal relationships between the factors examined and burnout.

Recommendations for future studies

In future studies, it would be beneficial to incorporate a longitudinal design to track changes in burnout levels over time and identify potential causes. Expanding the sample size and including more states would improve the findings. Additionally, evaluating personal factors, such as coping mechanisms and work-life balance, could provide a more inclusive understanding of the factors associated with burnout. The use of qualitative methods, such as interviews and focus groups, would offer detailed insights into the experiences and perspectives of dental hygienists.

Conclusion

The survey results on burnout among dental hygienists revealed significant levels of emotional exhaustion and varied experiences of depersonalization. However, many dental hygienists reported high levels of personal achievement and professional efficacy. High levels of personal achievement appear to make up for the significant levels of emotional exhaustion and depersonalization. The responses to the COVID-19 open-ended question demonstrate that the pandemic has intensified burnout. The results of this survey emphasize the need for better support systems, adequate compensation, and effective stress management strategies within the profession. Specific demographic groups, such as younger hygienists and those with fewer years in practice, are more susceptible to burnout. The findings support the need for stress management education in the dental hygiene curriculum. Early education, before clinical practice, could be critical in equipping future dental hygienists with the skills to handle job-related stress successfully. This education should include practical techniques for stress reduction, time management, and work-life balance, to foster resilience and reduce the risk of burnout. Dental hygiene programs can prepare students for the demands of their profession by addressing stress management skills in early education.

Chapter V: Article for Submission

Journal of Dental Hygiene

Title Page

Dental Hygiene Burnout in Clinical Practice from COVID-19; A Survey

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ABSTRACT

Purpose: The purpose of this study was to determine if the Covid-19 pandemic had increased feelings of burnout in registered dental hygienists who were employed in clinical practice one year before and during 2020.

Methods: A survey of Registered Dental Hygienists in California who practiced dental hygiene clinically during the Covid-19 pandemic was employed. Participants completed a modified Maslach Burnout Inventory, to evaluate three areas of burnout: emotional exhaustion, depersonalization, and personal achievement. The survey included one open-ended question at the end of the survey, “Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?”

Results: 162 surveys were completed, and of them, 23 participants did not meet the inclusion criteria. Data analysis revealed the following distribution across different burnout dimensions. In the Emotional Exhaustion (EE) category, 40.29% of respondents (56 individuals) reported high levels of emotional exhaustion. For the Depersonalization (DP) category, 43.17% of respondents (60 individuals) experienced low level. Regarding Personal Achievement (PA), a significant majority, 85.61% (119 individuals), reported high levels of personal achievement. The final open-ended question of the survey revealed that 77 respondents (55.4%) indicated that COVID-19 significantly contributed to their feelings of burnout.

Conclusion: Findings from this study suggest that dental hygienists experience significant levels of emotional exhaustion and varied experiences of depersonalization. However, many dental hygienists reported high levels of personal achievement and professional efficacy, mitigating exhaustion and depersonalization. The COVID-19

open-ended question responses demonstrate the pandemic intensified burnout in this population.

INTRODUCTION

Healthcare providers, including dental hygienists, are susceptible to high levels of burnout and compassion fatigue.¹ Burnout is emotional and physical exhaustion from chronic job stress, which can potentially lead to job disinterest or clinical ineffectiveness. Compassion fatigue results from continuously expending emotional energy toward patients. Both conditions often occur together in stressful work environments. Dental hygienists face a higher risk of burnout due to their physically demanding job, work hours, and lack of autonomy. They frequently have little control over their schedules, which can lead to stress and burnout.^{1,2}

The question explored in this study is whether the COVID-19 pandemic has increased career burnout among dental hygienists. Understanding this relationship is vital to the profession of dental hygiene, as burnout can directly impact the patient's quality of care and has the potential to exacerbate the already existing workforce shortage. The World Health Organization (WHO) classified burnout as a syndrome resulting from chronic, unmanaged workplace stress.² The same year, a survey by the California Dental Hygiene Association (CDHA) found dental hygienists particularly vulnerable to burnout, especially emotional exhaustion.³ With the added occupational challenges brought by the pandemic, the risk for compassion fatigue and burnout may have increased. Identification of burnout and common causes will increase awareness and can shed light on solutions, to help retain and support dental hygienists.

The review of literature available on the topics of burnout and the impact of COVID-19 on the mental health of dental hygienists, identify stressors in dental hygiene practice. During the pandemic those who did not return to work cited workplace safety for themselves and others as their main concern.⁴ Clinicians who intended to leave the field of dental hygiene before the pandemic cited difficult or demanding patients, long hours, accelerated dental hygiene schedules, shorter appointment times, inadequate lunch breaks, or lack of support staff in the office.⁵ The review also explores the relationship between burnout, compassion fatigue, and job satisfaction, citing various studies that link these factors to the intention to leave the profession.⁶

Stressors reported are the physically demanding nature of the job, constant patient interactions, and lack of autonomy, which contribute to chronic stress and burnout.^{1,2,7-9} These stressors in combination with common characteristics among dental hygienists, such as perfectionism and prioritizing others' needs,⁷ can increase burnout risk. If chronic stress persists, it can lead to professional burnout which is often described as emotional exhaustion (EE), physical exhaustion, and depersonalization (DP) or detachment from patients and work.^{7,8,10} Clinicians are at risk for compassion fatigue, which occurs when feelings of job satisfaction begin to decrease, often because of negative emotions such as cumulative work-related stress, depression, anxiety, and anger.^{2,11} When compassion fatigue is left unresolved the healthcare provider may experience burnout and an inability to provide compassionate care to patients.¹¹

The COVID-19 pandemic increased safety protocols and reduced patient interactions, adding to existing stress.^{1,7,12,13} Employment patterns during the pandemic showed a reduction in the dental hygiene workforce, by about 3.75%, or approximately

7,500 of the total Dental hygiene workforces.⁴ The literature emphasizes the importance of addressing these issues to retain skilled dental hygienists and maintain the quality of patient care.

HYPOTHESIS

Covid-19 increased career burnout among practicing dental hygienists.

METHODS AND MATERIALS

This cross-sectional quantitative and qualitative study targeted dental hygienists registered in the California Dental Hygiene Association (CDHA) database who worked clinically before and during 2020. A self-administered survey was sent via email with instructions and details about the purpose of the study. The email contained the informed consent letter, which notified the recipient that by clicking the survey participation link, they were giving consent. The quantitative data was recording using a post Covid-19 Burnout Self-Test using a modified version of the Maslach Burnout Inventory (MBI). The Maslach Burnout Inventory method was used for its historical accuracy in identifying burnout in the healthcare field. It is a widely recognized and validated self-assessment instrument for assessing an individual's risk for career burnout, resulting from chronic and unmanaged workplace stress. The survey included 6 questions related to participant demographics such as age, gender, years practicing, how many offices they work for, how many hours at each one, and degree of education. The MBI survey included 22 questions to evaluate three areas of burnout: emotional exhaustion, depersonalization, and personal achievement which were answered using a Likert answer scale. Six answer options were provided with interval options ranging from "Never" to "Daily" which were analyzed quantitatively. The answers given for the open-ended

question, “Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?” were analyzed qualitatively. This study was approved and determined to be exempt by the University of New Mexico’s Institutional review board. The survey was sent by CDHA to all dental hygienists who had registered e-mails in the CDHA database.

The data collection period lasted 21 days, with a follow-up email sent two weeks after the initial email. Responses were summarized using descriptive analysis, and the data were analyzed using Excel. Emotional exhaustion, depersonalization, and personal achievement were scored using modified MBI standards to account for the reduced range of Likert scale options. When the survey results were collected, the data was summarized using frequencies and further analyzed using Excel. The survey answers were categorized by frequency and grouped according to age, years in clinical practice, hours worked per week, and highest level of degree obtained. Excel data analysis was used for the data collected using the answer scales to find the mean of burnout subscales such as emotional exhaustion, depersonalization, and reduction in personal achievement for the age, years in practice, and degree categories. The correlation matrix was calculated using the Pearson correlation coefficient, to measure the linear relationship between EE, DP, and PA for the age, years in practice, and degree categories. To evaluate the qualitative data collected with the final open-ended question, “Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?” The responses were read individually for specificity of Yes or No responses. The proportion of yes and no responses was calculated to provide a percentage of those who reported significant factors contributing to burnout during the COVID-19 pandemic.

Finally, thematic analysis was conducted by identifying recurring themes and keywords within the responses, such as emotional strain, PPE and safety measures, and financial concerns. The study's purpose was to compare burnout data within a particular dental hygiene population after the Covid-19 pandemic. The results from this study were compared to previous job satisfaction survey results from 2019 for California dental hygienists published in the article, “Factors Associated with Burnout among Dental Hygienists in California” by Bercasio et al.³

RESULTS

Out of 162 surveys recorded, 139 met the inclusion criteria. Participants were required to have worked clinically as a dental hygienist for at least one year both before and during the year 2020. The respondents were predominantly female (96.4%) and aged 56 and above (47.5%). Most respondents (58.3%) had over 20 years of clinical experience and worked in a single office (67.6%). The largest group of respondents (33.8%) worked 24-32 hours per week, and more than half (54.0%) held a bachelor's degree. Except for gender, the demographic diversity provided a comprehensive view of the different burnout experiences among dental hygienists.

The survey revealed that a significant portion of dental hygienists experienced emotional exhaustion. Thirty percent felt emotionally drained a few times per month, and 29.5% reported that working with people all day required a great deal of effort daily. Some respondents indicated feeling frustrated by their work, with 24.5% feeling they worked too hard every day. On the other hand, 41.7% never felt at the end of their patience, highlighting the varied individual experiences and coping abilities throughout the profession.

The results for the depersonalization category were mixed. While 66.2% never felt they looked after patients impersonally, 30.2% felt at the end of their patience a few times per year. A large number (62.6%) never felt indifferent about patient outcomes, indicating a high level of professional commitment. 46.8% never felt responsible for their patients' problems, which suggests that many dental hygienists are maintaining a professional boundary. These mixed results suggest that while many dental hygienists maintain a professional detachment, a considerable number are challenged in managing patient-related stress.

Personal achievement responses were generally positive, with 56.1% feeling they accomplished many worthwhile things in their job every day. Additionally, 67.6% understood what their patients feel every day, and 71.9% effectively looked after their patients' problems daily. High levels of empathy and professional efficacy were well-defined, with 77.7% reporting being able to create a relaxed atmosphere with their patients every day. However, only 39.6% reported feeling refreshed after patient interactions every day, indicating room for improvement.

The final open-ended question revealed that 77 out of 139 respondents (55.4%) indicated that COVID-19 significantly contributed to their burnout. Common themes included anxiety about disease transmission, increased workload, inadequate compensation, and reconsidering their careers as key factors. Terms frequently mentioned included "emotional," "stress," "fear," "PPE," "masks," "face shields," "financial concerns," "retire," "career change," "workload," and "lack of support." These responses highlight the pandemic's impact on increasing stress and burnout among dental hygienists.

DISCUSSION

This study aimed to explore the impact of COVID-19 on burnout among dental hygienists, focusing on emotional exhaustion, depersonalization, and personal achievement. The results indicated significant levels of emotional exhaustion, with many respondents feeling emotionally drained and reporting that working with people all day required substantial effort. This finding aligns with previous research in 2019 by Bercasio et al., suggesting that the high-stress environment and physically demanding nature of dental hygiene contribute to burnout despite Covid-19 factors.³ The high levels of personal achievement reported by most respondents indicate a strong sense of professional efficacy and empathy, which may help mitigate some negative effects of burnout and compensate for the emotional exhaustion and depersonalization reported.

The qualitative data from the open-ended question revealed that COVID-19 significantly contributed to burnout, with 55.4% of respondents answering Yes and listing factors. Frequent mentions of anxiety about disease transmission, increased workload, and inadequate compensation were named as key factors. Respondents also mentioned financial concerns and reconsidering their careers due to increased stress and perceived lack of support during the pandemic. These findings point to the need for better support systems and adequate compensation to address the heightened stress levels brought by the pandemic.

Comparison of findings from this study to the 2019 survey by Berasio et al. provides additional insights.³ The 2019 survey found that dental hygienists were particularly vulnerable to burnout, especially emotional exhaustion, with 30% of respondents reporting high EE scores.³ The current study's findings are consistent,

showing that 30.2% of respondents felt emotionally drained a few times per month. However, the current study highlighted that the pandemic may have exacerbated these feelings, as the same percentage reported feeling working with people all day required significant effort every day. In the depersonalization category, the 2019 study reported that 11.3% of respondents had high DP scores,³ whereas the current study found a higher percentage of respondents feeling at the end of their patience, indicating an increase in stress levels after the pandemic. Personal achievement levels also differed; the 2019 study reported 41% of respondents with low PA scores,³ while the current study found that most respondents felt a strong sense of achievement despite the challenges.

The correlation matrix helps interpret the relationships between EE, DP, and PA across different age groups. Younger and middle-aged dental hygienists (26-35 years and 46-55 years) experience higher levels of emotional exhaustion and depersonalization. Older dental hygienists (56 years and above) exhibit lower levels of emotional exhaustion and depersonalization, with higher levels of personal achievement. The 36-45 years group has lower emotional exhaustion and depersonalization but also lower personal achievement, which suggests this age group could benefit from stress management interventions to improve their sense of personal achievement. The correlation matrix was also applied to interpret the relationships between EE, DP, and PA across different years of clinical practice. Dental hygienists with more years of clinical practice, particularly those with 16-20 years and 20 years, exhibit lower levels of emotional exhaustion and depersonalization, and higher levels of personal achievement, indicating better overall resilience against burnout. Meanwhile, those with 11-15 years and 6-10 years in practice are at higher risk of burnout, experiencing higher emotional exhaustion and

depersonalization, and lower personal achievement. The 2019 study noted that personal achievement tended to increase with years of clinical practice as well.³ Dental hygienists with more years of practice reported higher PA scores. However, it is important to note that most of the hygienists who have more years in clinical practice also fall into the category of older dental hygienist by age. Therefore, it is difficult to determine if the higher levels of personal achievement can be attributed to solely experience and span of clinical practice. When analyzing the correlation with higher educational qualifications, those holding a master's degree, generally reported lower levels of emotional exhaustion and higher levels of personal achievement.³ However, this survey found differences in the master's degree group with higher depersonalization scores despite lower emotional exhaustion scores.

These results highlight the complex nature of burnout among dental hygienists and emphasize the need for targeted interventions to support this workforce. Specific demographic groups, such as younger hygienists and those with fewer years in practice, are more susceptible to burnout. Addressing the stressors identified, such as workload and compensation, and providing effective stress management strategies, can help reduce burnout and retain skilled dental hygienists. Future research should consider longitudinal studies to track changes in burnout over time and explore additional personal factors like coping mechanisms and work-life balance. Integrating stress management education into dental hygiene curriculums is essential to better prepare future dental hygienists for the demands of the profession, ultimately improving their well-being and the quality of care they provide.

CONCLUSION

This study found significant levels of emotional exhaustion and varied experiences of depersonalization among participating dental hygienists. The responses to the open-ended question highlighted the pandemic's role in intensifying burnout. However, many participants reported high levels of personal accomplishment, which seemed to offset the negative aspects of burnout. This emphasizes the need for improved support systems and implementation of stress management strategies in continuing education as well as dental hygiene curriculums to better prepare future dental hygienists for the profession's demands. This education should include practical techniques for stress reduction, time management, and work-life balance to foster resilience and reduce the risk of burnout. By addressing these issues, the dental hygiene profession can better support its clinicians, ensuring their well-being and the quality of care they provide. Future studies could be of a longitudinal design to track changes in burnout over time and explore additional personal factors like coping mechanisms and work-life balance.

Appendices

Appendix A. Informed Consent Letter

The University of New Mexico Health Sciences Center
Consent and Authorization to Participate in a Research Study

Dear Prospective Participant,

Researchers at the University of New Mexico are inviting you to take part in a survey study: DENTAL HYGIENE BURNOUT AND THE PANDEMIC; A PILOT STUDY USING SELF-REPORTED QUESTIONNAIRE. This research study is focused on assessing stress levels and burnout in the aftermath of the COVID-19 pandemic. This study aims to gather valuable insights into how individuals across various sectors are coping with the changes brought about by the pandemic, with a particular focus on the psychological impacts such as stress and burnout. To achieve this, we are employing the Maslach Burnout Inventory (MBI), a widely recognized tool that measures burnout levels, to help us better understand the current state of mental health and well-being in our community.

WHAT ARE THE KEY REASONS YOU MIGHT CHOOSE TO VOLUNTEER FOR THIS STUDY?

Your participation in this survey is fundamental in shaping the future of mental health strategies and education concerning stress and burnout, specifically for dental hygienists. By sharing your experiences working in dental hygiene before and after the pandemic, you will contribute significantly to a deeper understanding of the mental health landscape in the post-pandemic era. Your feedback will contribute to the development of strategies and educational programs designed to support dental hygienists both within and outside of academic settings.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about awareness, prevention, and intervention methods that address stress and burnout in the dental hygiene profession. Your insights are key to fostering a more informed and resilient dental hygienists in the face of ongoing and future challenges.

WHAT ARE THE KEY REASONS YOU MIGHT NOT CHOOSE TO VOLUNTEER FOR THIS STUDY?

We want to inform you that participating in this survey, which utilizes the Maslach Burnout Inventory (MBI), may trigger certain feelings or emotions. The MBI is designed to explore various aspects of burnout and stress, and some of the questions or topics addressed may resonate with your personal experiences in a way that feels sensitive or emotionally charged. It's important to us that you feel supported and safe throughout this process. Please consider your comfort and well-being before deciding to participate and remember that your participation is entirely voluntary. If at any point you find the experience to be uncomfortable, you are free to withdraw from the survey without any obligation. Should you need support or wish to talk to someone about your feelings triggered by the survey, we encourage you to seek assistance from a mental health professional or a support service. Your health and well-being are our utmost priority, and we thank you for considering participation in this important research.

The survey/questionnaire will take about 10-15 minutes to complete.

There are no known risks to participating in this study. Although we have tried to minimize this, some questions may make you upset or feel uncomfortable and you may choose not to answer them.

Your response to the survey is anonymous which means no names will appear or be used on research documents or be used in presentations or publications. The research team will not know that any information you provided came from you, nor even whether you participated in the study. Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study and its results you will not be identified.

We hope to receive completed questionnaires from about 1,000 people, so your answers are important to us. Of course, you have a choice about whether to complete the survey/questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have questions regarding your legal rights as a research subject, you may call the UNM Human Research Protections Office at (505) 272-1129.

Thank you in advance for your assistance with this important project. Please submit your survey by **April 14, 2024**, to ensure your responses/opinions will be included. By clicking on the link below, you will be agreeing to participate in the above-described research study.

<https://forms.office.com/Pages/ResponsePage.aspx?id=MJiqJfngK0ijfho7PIVeXFW8t-yDnOpBnXFeifPB7hFUMEtPTDhIVFVQQkxKMTJSSERIVEI4R0FJMi4u>

Sincerely,

Robin Gatlin RDH
Health Sciences, Dental Hygiene Department. University of New Mexico Health Sciences
PHONE: 505.272.0838
E-MAIL: RobinG@salud.unm.edu

Appendix B. MBI Survey

Post Covid Burnout Self-Test Maslach Burnout Inventory

Have you worked clinically as a licensed dental hygienist for at least one year both before and during the year 2020?

If the response is "No," you are ineligible to participate in the survey, as the study focuses on individuals who have experienced clinical work before and during the year 2020.

Demographic Information:

1. What is your age:
 - 18-25
 - 26-35
 - 36-45
 - 46-55
 - 56 and above

2. What is your gender?
 - Male
 - Female
 - Non-binary
 - Prefer not to say.

3. How many years have you worked in clinical practice?
 - 5 years
 - 6-10 years
 - 11-15 years
 - 16-20 years
 - 20+ years

4. How many different offices do you currently work in?
 - 1
 - 2
 - 3 or more

5. How many total hours do you work per week?
 - 8-16
 - 17-24
 - 25-32
 - 33 -40

6. What is the highest level of education or degree you have completed?

Associate degree

Bachelor degree

Master degree

Section A: Burnout

Response

Options:

Never	A few times per year	Once a Month	A few times per month	Once a week	A few times per week	Everyday
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1. I feel emotionally drained by my work.
2. Working with people all day long requires a great deal of effort.
3. I feel like my work is breaking me down.
4. I feel frustrated by my work.
5. I feel I work too hard at my job.
6. It stresses me too much to work in direct contact with people.
7. I feel like I am at the end of my rope.

Section B: Depersonalization

Response

Options:

Never	A few times per year	Once a Month	A few times per month	Once a week	A few times per week	Everyday
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1. I feel I look after certain patients impersonally, as if they are objects.
2. I feel tired when I get up in the morning and have to face another day at work.
3. I have the impression that my patients make me responsible for some of their problems.
4. I am at the end of my patience at the end of my workday.
5. I really don't care about what happens to some of my patients.
6. I have become more insensitive to people since I've been working in clinical practice.
7. I am afraid this job is making me uncaring.

Section C: Personal Achievement

Response

Options:

Never	A few times per year	Once a Month	A few times per month	Once a week	A few times per week	Everyday
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1. I accomplish many worthwhile things in this job.
2. I feel full of energy.
3. I am easily able to understand what my patients feel.
4. I look after my patients' problems very effectively.
5. In my work, I handle emotional problems very calmly.
6. Through my work, I feel that I have a positive influence on people.
7. I am easily able to create a relaxed atmosphere with my patients.
8. I feel refreshed when I have been close to my patients at work.

Fill-in question

Are there specific aspects of Covid-19 and dental hygiene practice that have contributed significantly to your feelings of burnout?

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