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The Prevalence of Burnout in Saudi Arabia Dental Hygienists

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THE PREVALENCE OF BURNOUT IN SAUDI ARABIA

DENTAL HYGIENISTS

by

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ABSTRACT

THE PREVALENCE OF BURNOUT IN SAUDI ARABIA DENTAL HYGIENISTS

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Purpose: The purpose of this pilot study was to assess the prevalence of burnout in Saudi Arabian dental hygienists and identify risk factors associated with burnout. Methods: A descriptive survey design using the Copenhagen Burnout Inventory (CBI) assessed burnout among a convenience sample of n=123 Saudi dental hygienists. The survey was disseminated electronically to 1,000 Saudi Arabian dental hygienists. The CBI measures three subscales: personal, work-related, and client/patient-related burnout on a five-point Likert-type scale. The survey also included six demographic questions, two Likert-type, one "yes/no," and one open-ended question, related to burnout. Descriptive statistics, one-way between subject's ANOVA, independent samples t-test, and chi-square test were used to analyze the data. Results: One hundred and twenty-three Saudi Arabian dental hygienists completed the survey with a 12% response rate. Participants indicated overall moderate burnout (M=53.54), with personal (M=60.84) and work-related (M=54.70) burnout also in the moderate range. Participants working in government facilities had significantly higher personal ($p < .001$), work-related ($p < .001$), and client/patient-related ($p = .026$) burnout than those in the "Other" practice category. Female Saudi hygienists had significantly higher overall ($p = .007$), personal ($p < .001$), and work-related ($p = .008$) burnout scores compared to male Saudi dental hygienists. Conclusions: Results from this study suggest Saudi Arabian dental hygienists display moderate levels of workplace burnout, with the highest prevalence rate in personal burnout. Findings underscore the need for further research with an expanded sample size to identify stressors that lead to burnout

and identify mitigation strategies to promote a healthier working climate for practicing Saudi dental hygienists.

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CHAPTER I

INTRODUCTION

Burnout has been a topic of research since the mid-1970s in the United States. The term *'burnout'* was first introduced in 1974 in scientific literature by German-American psychologist Herbert J Freudenberger, who described burnout as a “state of mental and physical exhaustion caused by one's professional life.”[1] He labeled it with the term burnout, referring to its resemblance to the effect of chronic drug abuse.[1] Further, burnout was also described as a prolonged response to chronic emotional and interpersonal stressors on the job and is represented by three dimensions; exhaustion, depersonalization, and reduced personal accomplishment.[2] The feeling of exhaustion is the most common and obvious sign of burnout and is directly linked to burnout.[2] However, according to Maslach et al., measuring just exhaustion is insufficient to assess burnout as it lacks a vital component, how a person reacts emotionally and cognitively when feelings of burnout occur.[2] Depersonalization may also be a sign of burnout; it occurs when a person tries to distance oneself from their job and begins treating people like impersonal objects and may be a result of workplace exhaustion.[2] Related to exhaustion and depersonalization, the last dimension of burnout is the feeling of reduced personal accomplishment. Reduced personal accomplishment often has a sequential relationship with exhaustion and depersonalization; workplace exhaustion leads to feeling distant from one’s job and, in turn, reduces one’s sense of effectiveness and accomplishment. However, reduced personal accomplishment can simultaneously develop with other dimensions of burnout. It may be linked to a lack of relevant resources at work or adopting negative attitudes at work, where exhaustion and depersonalization are often associated with work overload and social conflict.[2,3]

Schaufeli and Greenglass continued the work of Dr. Freudenberger and defined *burnout* as "a state of physical, emotional, and mental exhaustion that results from long-

term involvement in work situations that are emotionally demanding."[4] The World Health Organization's International Disease Classification (ICD-11) revision has also officially classified burnout as an occupational health syndrome resulting from unsuccessful chronic workplace stress management. Burnout consumes the worker's energy levels and promotes exhaustion, causes a feeling of distance from one's job, and a sense of ineffectiveness and lack of accomplishment.[5]

According to the recent National Institutes of Health (NIH) report titled "Oral Health in America: Advances and Challenges," there is a lack of published literature and research on burnout in dentistry. Moreover, the report indicated burnout could negatively affect dental health professionals' health, patients' safety, and organizations' growth.[6] Burnout in dental health care professionals may manifest in increased substance abuse, mental health problems such as anxiety, depression, mental fatigue, lower self-esteem, and in some cases, suicidal intentions.[2,7,8] Additionally, higher rates of burnout have also been linked to medical and dental errors and poorer patient treatment outcomes compared to non-burnout physicians and dentists.[9,10] Moreover, on an institutional level, burnout is associated with absenteeism, intention to leave the job/ turnover, lower productivity, and decreased job satisfaction.[2,11]

The dental hygiene profession is associated with a high-pressure and stressful working environment.[12-15] The elevated patient-centered care and challenging clinical work may cause stressful and energy-draining challenges during the workday making dental hygienists prone to burnout.[8] Malcolm et al. found hygienists are under significant emotional demand making them more likely to experience burnout and negatively impact their job satisfaction.[15] There are also other stressors, such as time constraints with patients, lack of control over scheduling, and conflicting relationships with leadership which may also contribute to burnout.[16-19]

Additionally, due to the COVID-19 pandemic, the U.S. Occupational Safety and Health Administration (OSHA) reported dental hygienists are in the "very high exposure risk" category in the Occupational Risk Pyramid for COVID-19 due to the performance of aerosol-generating procedures on infected or potentially infectious patients.[20] This may be causing additional stress on health professionals' mental health and burnout levels. For example, a study revealed that due to COVID-19 restrictions, dental hygienists' emotional exhaustion scores were twice as high as those reported in pre-COVID-19 studies.[21]

While there are studies examining the prevalence and effects of burnout in dental hygienists in the United States and other geographic locations, there is a lack of research related to burnout in Saudi Arabian dental hygienists. However, the prevalence of burnout has been researched in Saudi dentists. For example, a study measuring the prevalence of burnout among 278 Saudi dentists found 36.80% experienced high emotional exhaustion on the Maslach Burnout Inventory scale; however, it was conducted pre-COVID-19.[22] A separate cross-sectional study conducted on 177 dental staff working at a tertiary medical complex found job position is associated with levels of burnout, where consultants (39.17%) and residents (38.33%) had the highest scores and were the most burnt-out dental staff.[23] Job satisfaction has also been investigated in 198 Saudi dentists and dental professionals and was found to be negatively correlated with burnout levels; low levels of job satisfaction led to higher burnout, poor healthcare provider performance, and unsatisfactory patient care outcomes.[24] Based on these studies of dentists, Saudi dental hygienists may be experiencing similar prevalence and risk factors of burnout; however, there is a lack of evidence-based research related to burnout prevalence and associated risk factors in Saudi Arabian dental hygienists.

Statement of the Problem

Burnout is a national and international concern among healthcare providers, particularly dental health professionals.[25] Due to the highly emotionally demanding nature of human service work, dental health professionals may be at an increased risk of experiencing burnout.[26] Burnout is a multidimensional syndrome with multiple contributing factors yielding many mental and physical health problems for healthcare professionals and may be driving poor clinical decision-making, leading to poor patient care.[2,25] Burnout is not just fatigue or exhaustion, but the effects or attributions of fatigue and exhaustion to personal, work, and patient-related life.[27] Furthermore, research suggests burnout is a serious occupational health hazard with many negative adverse health effects.[11,16,26,27] Additionally, dental health professionals faced challenges providing care during COVID-19, which may have contributed to further emotional strains and burnout.[15,28] There is a gap in the literature related to the prevalence and risk factors of burnout in Saudi Arabian dental hygienists. For these reasons, the purpose of the present pilot study is to assess the prevalence of burnout in Saudi Arabian dental hygienists; furthermore, this pilot study aims to identify risk factors associated with burnout. This study attempts to answer the following research questions:

1. What is the prevalence of burnout among Saudi Arabian dental hygienists as measured by the Copenhagen Burnout Inventory (CBI)?
2. Does the number of years in practice significantly impact the level of burnout in Saudi Arabian dental hygienists as measured by the CBI?
3. Does the type of practice setting significantly impact burnout in Saudi Arabian dental hygienists as measured by the CBI?

4. Does gender significantly impact burnout in Saudi Arabian dental hygienists as measured by CBI?

Significance of the Problem

The patient-centered nature of healthcare work may produce high emotional demands, leading to energy loss and exhaustion.[3,29] Burnout has been recognized as a workplace issue in the United States since the mid-1970s when signs such as extreme fatigue and loss of passion for one's job were common among workers, especially those working in human services.[2] Moreover, the latest World Health Organization's International Disease Classification (ICD-11) revision has officially classified burnout as an occupational health syndrome resulting from unsuccessful chronic workplace stress management.[5] It depletes the worker's energy levels, promotes exhaustion, and causes a feeling of distance from one's job and a sense of ineffectiveness and lack of accomplishment.[5] Research has identified multiple negative impacts of burnout, such as poor physical and mental health and well-being, increased medical errors, inadequate healthcare delivery to patients, and increased absenteeism and turnover intentions.[13] Notably, among dental hygienists, burnout was found to be associated not only with mental and physical health concerns but also with poor job satisfaction and intentions to leave the profession.[13,21]

While burnout prevalence and risk factors have been researched in dental hygienists in the United States, to the researcher's knowledge, there is no available research regarding the prevalence or risk factors of burnout among Saudi Arabian dental hygienists. Therefore, the current pilot study will address this literature gap by investigating the prevalence and risk factors of burnout among Saudi Arabian dental hygienists.

Definition of Terms

For the purpose of this study, the following terms were defined as:

- Burnout- is the ‘state of mental and physical exhaustion caused by one’s professional life.[1] Further defined as the prolonged response to chronic emotional and interpersonal stressors on the job. It is characterized by the three dimensions of exhaustion, depersonalization, and lack of personal accomplishment.[2]
- Dental hygienist- a licensed dental health professional by the Saudi Commission for Health Specialties who works under the supervision of a dentist to provide preventative services, treat periodontal disease, and provide oral health education to promote oral health.[30]
- Healthcare professional- is a licensed health professional who maintains human health by applying the principles and procedures of evidence-based medicine and caring.[31]
- Contributing factors- individual characteristics, behaviors, and environmental factors contributing to burnout.
- Emotional exhaustion- one of the three components in the Maslach Burnout Inventory (MBI) and most widely reported dimension, it represents burnout's fundamental individual stress dimension.[2]
- Cynicism- a distant attitude towards one’s job.[2]
- Occupational health- according to the World Health Organization (WHO), it is an area of work in public health to promote and maintain the highest degree of physical, mental, and social well-being of workers in all occupations.[20,32]
- Burnout interventions- are managerial practices and educational programs to prevent and reduce burnout symptoms.
- Turnover intention- intentions to stay or leave the organization.[33] Turnover is the result of a coping strategy used by employees to escape the current situation.[34]

- Likert Scale- a psychological linear rating scale used to measure attitudes, values, and opinions quantitatively.
- Copenhagen Burnout Inventory (CBI)- a 19-item survey used to measure burnout symptoms quantitively, consists of three scales: Personal burnout, Work-related burnout, and Client/patient-related burnout.[27]

Assumptions

This study was based on the following assumptions:

1. All participants understood the survey questions in a consistent way.
2. The survey questions were asking information participants had knowledge of and could retrieve.
3. The wording of the survey questions provided participants with enough information to be able to answer the question in the way intended by the researchers.
4. The participants answered the survey questions truthfully and honestly.

Hypotheses

The following null hypotheses were tested at the 0.05 level:

H_0: There is no statistically significant difference between the number of years in practice and level of burnout in Saudi Arabian dental hygienists as measured by the Copenhagen Burnout Inventory (CBI).

H_0: There is no statistically significant difference between the type of practice setting and level of burnout in Saudi Arabian dental hygienists as measured by the Copenhagen Burnout Inventory (CBI).

H_0: There is no statistically significant difference between gender and level of burnout in Saudi Arabian dental hygienists as measured by the Copenhagen Burnout Inventory (CBI).

CHAPTER II

REVIEW OF THE LITERATURE

In the 1980s, burnout studies pivoted to more systemic empirical research designs.[9,29] Maslach and Jackson continued the work of Professor Freudenberger and defined *burnout* as the prolonged response to chronic emotional and interpersonal stressors on the job caused by three significant dimensions; emotional exhaustion, feeling detachment from one's job, and a reduced sense of personal accomplishment.[2,35] Research has also indicated workplace burnout is prevalent in human service-related occupations, including dental hygiene professionals.[29] It may affect their ability to practice daily work-related tasks, cause adverse health outcomes, lower professional ambitions, cause dehumanization of patients, and increase intentions to leave their practice.[36,37]

In the literature, burnout is prevalent among dental and dental hygiene professionals. For example, the prevalence of burnout was measured among 127 dental hygiene program directors in the U.S. and found 62.2% of the participants indicated moderate to high burnout on the personal burnout subscale, as measured by the Copenhagen Burnout Inventory (CBI).[36] These results suggest approximately one out of two dental hygiene program directors experience moderate to high burnout.[36] Additionally, burnout prevalence was also assessed by Bercasio et al. using the Maslach burnout inventory**,** where 443 dental hygienists were surveyed and found 30.9% of dental hygienists reported high levels of burnout.[37] Similarly, Haslam et al. examined the prevalence of burnout in Canadian hygienists and found approximately 36.2% of participants experienced burnout, with 65% reporting high emotional exhaustion, as measured by the Maslach Burnout Inventory Human Services Survey for Medical Personnel (MBI-HSS [MP]).[21] Barnard et al. also surveyed 83 clinical dental hygienists and found approximately 81% of

participants experienced high to moderate work-related stressors that may contribute to burnout.[8] Internationally, Park et al. also assessed the prevalence of burnout among 61 dental hygienists in Korea using the Maslach Burnout Inventory (MBI) and found 45.9% reported high emotional exhaustion, 44.3% experienced depersonalization, and 52.5% reported feelings of low personal accomplishment.[38] Lastly, Knutt et al. assessed the prevalence of burnout among 544 dental hygienists in the United States and found nearly half (42.7%) of participants often or very often felt worn out because of their work as a helper as measured by the Professional Quality of Life Scale.[39] These studies indicate burnout is highly prevalent in the dental hygiene profession and may be due to the nature of clinical dental hygiene work.

Understanding the causes of mental and physical fatigue among dental professionals is critical to identify the best methods to prevent and manage burnout.[11] Burnout has been associated with multiple external and internal risk factors, including individual, work-related, and social-related risk factors.[29] Individual risk factors may include demographic characteristics such as age, sex, marital status, and educational level.[2,40] Studies on dental hygienists found younger adults are at higher risk of developing burnout symptoms in the earlier stages of their careers than those of older age.[2,39,41] For example, Bercasio et al. assessed risk factors associated with burnout among 443 dental hygienists in California and found the older age group experienced less burnout than those in younger age groups.[37] In addition, Knutt et al. also examined individual risk factors for burnout in 527 clinical dental hygienists in the U.S. and found as age increased, burnout levels decreased and linked this to maturity, confidence, and resilience often acquired with age.[39] Continuing with individual risk factors, recent studies have also indicated females tend to experience higher levels of burnout compared to males, as well as married individuals who demonstrate higher burnout than others.[14,40,41] The researchers surmise

these findings may be a result of added responsibilities outside of work which increase stress and exhaustion.[14,40,41] Lastly, Lee et al. investigated the connection between educational level and burnout among 204 Korean dental hygienists and found individuals with low educational levels reported experiencing high burnout as measured by a modified version of the Pines Burnout Measure to suit dental hygienists.[12]

Work-related factors were found to contribute to burnout more than demographic factors.[2,26,29] Some studies have emphasized the importance of relationships with leadership at work, suggesting lack of supportive and cultivating management is associated with burnout.[39,42,43] Burnout was found to be related to a few external work-related risk factors, such as high workload, long hours, interpersonal relationships, and the lack of career prospects in dental hygiene, which may make them feel like they are in a dead-end job.[2,39,42,43] For example, Barnard et al. surveyed 83 dental hygienists' burnout-related risk factors.[8] They found many practicing dental hygienists encounter work-related stressors that may contribute to burnout, such as lack of schedule time, demanding needs of patients, and difficulty maintaining excellent work-personal life balance.[8] Asali et al. also examined the relationship between burnout and work-setting factors among dentists in Saudi Arabia.[22] They found dentists who worked clinically for more than 40 hours per week had a greater risk of developing burnout.[22] While this study included a population of dentists, it is likely dental hygienists working longer hours may be at more of a risk for developing burnout. Patel et al. also examined factors influencing job satisfaction, burnout, and intention to leave practice among 554 dental hygienists in the U.S.[11] They found job satisfaction and burnout were linked to factors that influenced intention to leave practice, these include feelings of frustration at work, failing to achieve personal work-related goals, and not looking forward to another day at work.[11] The study indicated burnout scores were

more strongly influenced by workplace disengagement than exhaustion.[11] Additionally, a lack of administrative appreciation and support was a significant predictor of burnout, where dental hygienists who felt appreciated and valued had low burnout scores.[14,37] For example, Bercasio et al. assessed burnout risk factors among 443 dental hygienists in California and found participants who reported feelings of high appreciation and value in the workplace had low exhaustion and depersonalization scores.[37] Finally, a systematic review and meta-analysis assessing the prevalence and determinants of burnout among medical health professionals found the reviewed studies consistently associated increased workload with high burnout rates.[29] Similarly, Jovanović et al. examined work-related factors associated with burnout among 1980 postgraduate medical trainees from 22 countries using the Maslach Burnout Inventory (MBI).[44] They found long working hours remained associated with severe burnout.[44] While these studies did not include dental hygiene populations, as healthcare professionals, hygienists may also be experiencing similar burnout levels associated with longer work hours and increased workload.

The type of work practice setting may also influence burnout. Some research has indicated the type of employment setting, governmental or private, where dental professionals practice may also affect their job satisfaction and burnout levels.[11,22] For example, Asali et al. assessed the type of practice setting in relation to burnout among 278 Saudi dentists and found dentists who worked in the private sector experienced higher emotional exhaustion than those who worked in the government sector and linked it to high workload and long work hours in privet sectors.[22]

Another work-related burnout risk factor is the psychological impact of the administration, colleagues, and patients on dental hygienists. For example, Min assessed risk factors for burnout in 190 Korean clinical dental hygienists and found that having positive

feelings toward colleagues had the most significant influence on having a positive psychological state which negatively correlated with burnout.[45] Similarly, a separate study examining factors influencing burnout in 220 Korean clinical dental hygienists found participants who were experiencing significant emotional labor in the workplace reported higher burnout levels.[13]

Also related to work risk factors**,** Haslam et al. surveyed 260 Canadian dental hygienists for factors contributing to burnout and identified major themes to which participants linked their burnout.[21] These themes included time constraints while working and lack of breaks, patient expectations and negative attitudes, dentists' expectations leading to feelings of undervalue, physical and mental health strains, lack of autonomy, and a toxic work environment.[21] They suggested embracing an excellent work-life balance, social support networks, working in a positive environment, and physical activity may improve the challenges dental hygienist face in their daily work routine.[21] Importantly, although studies have discussed how a poor work environment could lead to physical and mental burnout, there is no current evidence of any action to resolve this issue among dental hygienists.[14] In summary, work-related risk factors such as high workload, long hours, type of employment setting, and relationships with administrators, colleagues, or patients may potentially impact the prevalence of burnout among dental hygienists.

Research suggests burnout may also have internal risk factors promoting its occurrence. For instance**,** Maslach and Jackson identified that personality characteristics, traits, and coping styles might also influence a person's susceptibility to burnout symptoms; it was theorized that the best and most idealistic workers experience burnout.[35] For example, people who exhibit type-A behavior, overachievers, perfectionist behavior, and high levels of competitiveness may be more vulnerable to burnout, as it has been associated with the exhaustion aspect of burnout.[1-3]

Similarly, it was found dental hygienists with lower levels of autonomy and self-control over their jobs were the most burnt-out.[3,8] Ultimately, it is essential to recognize burnout is not merely a feeling of fatigue or exhaustion; instead, it is the adverse effects and attributions of fatigue and exhaustion on the dental practitioner's mental health, work efficiency, and, eventually, patient care outcomes.[27]

Lastly, burnout symptoms may develop among healthcare professionals due to social life-related factors.[8,26,29] For example, Suedbeck et al. examined burnout prevalence and risk factors among 127 entry-level dental hygiene program directors in the United States.[36] They found 62.2% of the participants reported having moderate to high personal burnout, indicating balancing work and personal life might be the most significant challenge contributing to burnout.[36] A separate study of 278 Saudi dentists reported having work and family life balance as a leading factor that may be contributing to burnout.[22] Similarly, Barnard et al. found having difficulty maintaining a work-life balance was a common stressor among 35% of their clinical dental hygiene participants leading to burnout.[8]

While there are several individual, work, and social risk factors contributing to burnout, the COVID-19 pandemic may have increased burnout in dental and medical providers. For example, a systematic review and meta-analysis assessed the prevalence of burnout among 5,022 healthcare workers who worked during the COVID-19 outbreak. The study found 4,419 healthcare workers experienced moderate to severe burnout levels.[46] They also found healthcare professionals who were directly and/or indirectly in contact with COVID-19 patients reported significant burnout.[46] Additionally, Ghaleb et al. assessed the prevalence of depression, anxiety, and stress caused by COVID-19 and its associated factors among 1448 healthcare workers in the Middle East.[40] They found depression (57.5%), stress (42.0%), and anxiety (59.1%) were

significantly associated with COVID-19.[40] Zhu et al. also examined the demographic and work characteristics associated with burnout during the COVID-19 pandemic among 270 Chinese medical health workers.[26] They found more than 50% of the participants had a high prevalence of burnout, as measured by the Maslach Burnout Inventory.[26] Similarly, Liberati et al. interviewed 35 healthcare professionals to describe their experiences during the initial wave of the pandemic and found many participants reported feeling burnout due to increased restrictions while providing care, higher workload, and feeling like they are always at work.[28]

While these studies were on healthcare professionals, the pandemic has also affected dental hygienists leading to a high prevalence of burnout.[14,21] For example, Arnett et al**.** assessed the COVID-19 pandemic impact on 314 American dental hygiene educators' burnout and efficacy in the online/hybrid learning environment.[14] They found 58% of respondents reported feeling emotionally exhausted, and 66% reported often feeling tired. The study also indicated personal burnout may continue and potentially increase post-pandemic with the constant unknown and fear of COVID-19 cases peaking again.[14] Additionally, Haslam et al. also explored the prevalence of burnout during COVID-19 among 260 dental hygienists in Canada, and their results suggest COVID-19 has significantly contributed to dental hygienists' high burnout scores due to the financial impact of COVID-19 and the added stress of new protocols working clinically.[21] In addition, the study indicated emotional exhaustion scores found in their study were twice as high as compared to those reported in pre-COVID-19 studies.[21] Lee et al. also investigated the relationship between Stress and Anxiety to Viral Epidemics (SAVE) and burnout among 204 Korean dental hygienists during COVID-19.[12] They found a significant positive relationship between job stress due to the COVID-19 pandemic and burnout; burnout increased as job stress and anxiety to viral epidemics increased.[12] Interestingly, similar to Haslam et al.,

dental hygienists' stress scores drawn in a pre-pandemic study were lower than that reported in this current study.[12] These studies indicate COVID-19 may contribute to increased burnout among dental hygienists.

Saudi Arabian dental health professionals were also affected during the COVID-19 pandemic. For example, Javed et al. evaluated COVID-19-related concerns, impact, and preparedness among 320 dental healthcare providers in Saudi Arabia.[47] They found COVID-19 impacted 96.3% of Saudi Arabian dentists' personal lives and 70% of their participants felt stressed at work during the pandemic. Positively, 86.3% of participants also reported feeling that fighting COVID-19 infection was part of their job and that they felt confident and prepared to work following WHO's guidelines.[47] Additionally, Alkhalifah et al. conducted the first national assessment to examine the impact of COVID-19 on practice safety, finances, stress level, and status of care provision among 131 dental hygienists in Saudi Arabia.[48] The study found 73.7% of dental hygienists reported not providing any treatment during the period of COVID-19 lockdown, 65.3% of participants reported having moderate stress levels to return to clinical practice post quarantine, and nearly 14.4% suffered financial issues due to the pandemic.[48]

In addition to the risk factors of burnout, research has also identified adverse effects of burnout, which cause physical and mental harm to dental health professionals, may negatively impact patient care quality, and hinder organizational productivity.[2,38,41] Burnout may also be linked to poor physical and mental health problems, addiction, depression, and in some cases, suicide.[3,7] For example, Barnard et al. assessed the prevalence of mental health concerns, perceived stressors, and self-care strategies among 83 dental hygienists in Oregon.[8] They found 65% of participants reported not having enough time in the work schedule, 34% dealt with dysfunctional work teams, and 35% had difficulty maintaining work-life balance. These

significantly contributed to their burnout leading to musculoskeletal disorders, anxiety, chronic headaches, and mental fatigue.[8] Additionally, Malcolm et al. examined the effects of burnout on occupational stressors among 763 dental hygienists practicing in the United States.[49] They found most clinical dental hygienists reported experiencing joint pain, neck and shoulder stiffness, lower back pain, eyestrain, heart palpitations or shortness of breath, loss of appetite, and sleep disorders due to work overload. In addition, dental hygienists reported feeling under high physical and emotional demands making them more likely to consider leaving their clinical practice due to burnout.[49]

Another significant adverse effect of burnout is that it may affect the quality of patient care.[3,38] Burnout may cause decision-making and problem-solving difficulties, resulting in poor patient care and unethical conduct.[3] In addition, evidence suggests burnout may be associated with poor coping skills and emotional management, which may increase clinical errors.[25] Some studies also suggest unresolved emotional burnout may lead to an inability to provide empathetic patient care.[50,51] Haslam et al. emphasized the importance of recognizing burnout signs and symptoms as it may affect the quality of dental care and treatment outcomes.[21] Zhu et al. examined the relationship between burnout and the level of empathy delivered in patient care among 270 Chinese mental health workers.[26] The study found more than 50% of participants reported a high prevalence of burnout related to increased workload, work-family conflict, and low workplace satisfaction.[26] They also found 79.6% of the participants reported providing low empathetic care to their patients and indicated burnout to be significantly negatively correlated with empathy levels delivered during patient care.[26] While this study did not utilize a dental hygiene population, burnout may also affect dental hygienists in a similar manner. Importantly, although research suggests a relationship exists between high burnout levels and deteriorating

patient safety, there is no evidence of prospective trials to quantify burnout's impact on the quality of care and patient safety.[42,43]

Burnout may also have a significant role in negatively impacting organizational workflow and work proficiency.[11] It is linked to absenteeism, intention to leave the job/job turnover, lower productivity, lateness, procrastination, social withdrawal, increased time off work, and decreased job satisfaction.[2,3] For example, in 2020, the American Dental Education Association conducted a national survey on 321 U.S. allied dental program directors and found 23% of 196 dental hygiene program educators reported leaving their jobs due to COVID-19.[52] Another recent national study in the United States assessed the prevalence of burnout among 527 clinical dental hygienists using the Professional Quality of Life Scale (ProQOL) 5th version and found 70% of the respondents indicated thinking about leaving their profession due to burnout.[39] Parks et al. also investigated the association between dental hygienists' well-being and the likelihood of leaving the practice among 434 dental hygienists.[53] They found dental hygienists who experienced more musculoskeletal disorders and had unsupportive working conditions were more likely to leave their job within the next two years. These factors were found to have a significant statistical association with burnout.[53] This finding was consistent with Malcolm et al**.,** where they surveyed 763 dental hygienists in the United States to examine occupational stressors and their relationship to burnout.[49] They indicated that physical strains and the emotionally demanding nature of dental hygiene work influenced 12.2% of participating dental hygienists to leave clinical practice within the following year of employment due to burnout.[49] Lastly, Arnett et al. surveyed 327 United States entry-level dental hygiene program educators and found burnout caused dental hygienists to leave the profession, negatively impacting future recruitment.[14]

In summary, research on burnout among dental and dental hygiene professionals found burnout to be highly prevalent with multiple risk factors which may contribute to various negative effects on dental professionals' health, quality of patient care, and organizational efficiency. While there is extensive research on the prevalence, risk factors, and effects of burnout in dental hygienists in the United States and other countries, there is a lack of research on burnout prevalence and risk factors in Saudi Arabian dental hygienists. Additionally, the stresses of COVID-19 may also be contributing risk factors. Therefore, the current pilot study aims to assess the prevalence of burnout and risk factors of burnout among Saudi Arabian dental hygienists.

CHAPTER III

METHODOLOGY

A cross-sectional, descriptive study design was used to assess burnout experienced by Saudi Arabian dental hygienists. This pilot study was determined exempt (2085594-2) by a university Institutional Review Board (IRB). A convenience sample of n=1,000 Saudi Arabian dental hygienists were invited to participate in the survey via the Saudi Dental Hygiene Society (SDHS), King Saud University (KSU) alumni database, The Saudi Commission for Health Specialties (SCFHS) email databases, and a chat group on Telegram for Saudi dental hygienists. The KSU's dental health department assistant dean was asked for approval to disseminate the survey link to their alumni database, the Saudi Dental Hygiene Society was asked for approval to email the survey link to its members, the moderator of the chat group was asked for permission to post the survey link, and the SCFHS was asked for approval to disseminate the survey link to their Saudi dental hygienist database. An open survey link via Qualtrics (Provo, UT) with the 19-item Copenhagen Burnout Inventory (CBI), a valid and reliable burnout measuring tool, was sent to the administrators along with directions for dissemination to the target population. In an introductory statement, participants were informed of the identity of the investigators, that the survey would take approximately 15 minutes to complete, that participation was confidential and anonymous, and that voluntary informed consent was understood upon return of the survey. Data collection was performed over a four-week period.

The CBI measures overall burnout and burnout on three subscales; personal, work-related, and client/patient-related burnout.[27] Each subscale measures physical and psychological burnout and both work and client/patient-related exhaustion, as the individual perceives it.[27] It includes six items measuring personal burnout, seven measuring work-related burnout, and six

relating to client/patient-related burnout.[27] Questions are measured using three different methods to include a five-point Likert-type scale (strongly agree to strongly disagree), intensity rating (very low to very high), and frequency (never to always). Burnout scores range from 0 to 100, with scores of 1-49 indicating low burnout, 50- 74 indicating moderate burnout, 75-99 indicating high burnout, and a score of 100 indicating severe burnout.

The survey also included six demographic questions related to gender, age, location, educational level, years of practice, and employment setting. Additionally, three additional survey questions were also included: two related to COVID-19 contribution to burnout and one related to leaving their position due to stress. Finally, participants were also asked one open-ended question about additional personal and professional burnout contributing factors. A panel of dental hygiene faculty reviewed the additional questions to establish content validity and to test clarity of instructions. Modifications were made based on the panel's review.

Descriptive statistics were calculated to determine overall CBI scores and each subscale to determine burnout prevalence. Separate one-way between-subjects analysis of variance (ANOVA) was used to determine statistically significant differences ($p < 0.05$) among dental hygiene participants based on years of practice and type of employment setting in overall and each burnout subscale. If Levene's statistic was significant and violated the assumption of homogeneity of variance, the F-statistic was adjusted and reported using Welch's F and Games-Howell post hoc test was utilized to identify significant differences between the groups. Independent samples t-tests were utilized to determine statistically significant differences ($p < 0.05$) in overall and each burnout subscale based on gender (male or female). Finally, the chi-square statistical test was used to examine differences in frequencies between ratings of the survey questions.

CHAPTER IV

RESULTS

Of the 1000 Saudi dental hygienists invited to participate in an online survey, n=123 completed the survey, resulting in a response rate of 12.3%. Surveys partially completed were not used for analyses. Most respondents were female (n=72, 59.54%), and between the ages of 18-29 (n=69, 56.10%). The majority (n=112, 91.06%) held a bachelor's degree, and more than half were located in the middle region of Saudi Arabia (n=79, 64.23%). Additionally, the majority of the participants had work experience ranging from one to five years (n=75, 60.98%) and worked in governmental facilities (n =67, 54.47%). Demographic characteristics are displayed in Table I.

Table I. Participant demographics

Demographics	Number (n=123)	Percentage
Gender		
Male	51	41.46%
Female	72	59.54%
Age		
18-29	69	56.10%
30-44	49	39.84%
45-49	5	4.07%
60+	0	0%
Highest education		
Bachelor's	112	91.06%
Master's degree	11	8.94%
Doctoral degree	0	0%
Years of practice		
1-5	75	60.98%
6-10	18	14.63%
11-15	16	13.01%
15-20	8	6.50%
21-25	3	2.44%
26-29	3	2.44%

Table I. Continued

30+	0	0%
Type of work setting		
Government facility	67	54.47%
Private institutions	47	38.21 %
Other	9	7.32%
Location		
North region	3	2.44%
South region	8	6.5%
East region	20	16.26%
West region	13	10.57%
Middle region	79	64.23%

Results revealed an overall average CBI score of 53.54, indicating overall moderate burnout in Saudi dental hygiene participants. Overall mean and subscale CBI scores can be seen in Table II. When comparing overall CBI means among group demographics of years of practice no statistically significant differences were found ($p > 0.05$). When comparing employment setting, significant differences were found, (F (2, 120) = 7.429, $p < .001$). Tukey post hoc test revealed participants working in government facilities had significantly higher overall burnout scores (M=56.28) compared to those in the "Other" practice category (M=31.14) ($p < .001$). Additionally, those who worked in the private sector had significantly higher overall CBI scores (M=53.92) compared to the "Other" practice category (M=31.14) ($p = .003$). Gender was also found to have a significant difference. Female participants had significantly higher overall CBI scores (M=57.44) compared to males (M=48.04) (t (121) = 2.724, $p = .007$). t-test results are displayed in Table III.

Table II. Overall and subscale CBI scores

Overall CBI score (M)	Personal Burnout (M)	Work-Related Burnout (M)	Client/Patient Related Burnout (M)
53.54	60.84	54.70	44.88

Table III. *t*-test results comparing overall CBI and subscale scores based on gender (female or male)

Overall CBI	Mean	*t*	df	Sig (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Female	57.44	2.724	121	. 007*	9.399	2.57	16.23
Male	48.04						
Personal burnout							
Female	66.67	4.117	121	<.001*	14.052	7.30	20.81
Male	52.61						
Work-related burnout							
Female	58.83	2.696	121	.008*	9.950	2.64	17.26
Male	48.88						

*$p < 0.05$

Additionally, CBI subscale scores were compared among group demographics of years of practice and employment setting. Frequencies of responses and scores on subscales are displayed

in Table IV. Overall participant average on the personal burnout subscale was 60.84, indicating moderate burnout in this category. When comparing years of practice, no statistically significant differences were found ($p > 0.05$). When comparing employment settings, statistically significant differences were found between groups (F (2, 120) = 8.222, $p < .001$). Tukey post hoc test found participants working in government facilities had significantly higher personal burnout scores (M=62.13) compared to those in the "Other" practice category (M=36.57) ($p < .001$). Additionally, participants working in the private sector had significantly higher personal burnout scores (M=63.65) compared to those in the "Other" practice category (M=36.57) ($p < .001$). When comparing gender, a significant difference was also found. Female participants had significantly higher personal burnout scores (M=66.67) compared to males (M=52.61) (t (121) = 4.117, $p < .001$).

Table. IV. Frequencies of responses and scores on subscales of Copenhagen burnout inventory

Subscale Scores and Questions	**Always or to a very high degree n (%)**	**Often or to a very high degree n (%)**	**Sometimes or somewhat n (%)**	**Seldom or to a low degree n (%)**	**Never/almost never or to a very low degree n (%)**
Personal Burnout **Low:** 35 (28.46%), **Moderate:** 54 (43.9%)**, High:** 27 (21.95%), **Severe:** 7(5.69%)					
How often do you feel tired?	21 (17.7%)	48 (39%)	27 (21.95%)	5 (4.1%)	2 (1.6%)
How often are you physically exhausted?	17 (13.8%)	48 (39%)	48 (39%)	8 (6.5%)	2 (1.6%)
How often are you emotionally exhausted?	31 (25.2%)	38 (30.9%)	34 (27.6%)	16 (13 %)	4 (3.3%)
How often do you think: "I can't take this" anymore?	19 (15.5%)	36 (26.3%)	31 (25.2%)	25 (20.3%)	12 (9.8%)
How often do you feel worn out?	18 (14.6%)	44 (35.8%)	48 (39%)	13 (10.6%)	0 (%)
How often do you feel weak and susceptible to illness?	19 (15.5%)	19 (15.5%)	36 (29.3%)	42 (34.2%)	7 (5.7%)
Work-related Burnout **Low:** 47 (38.21%), **Moderate:** 51 (41.46%), **High:** 23 (18.7%), **Severe:** 2 (1.63%)					
Do you feel worn out at the end of the working day?	31 (25.2%)	47 (38.2%)	31 (25.2%)	12 (9.8%)	2 (1.6%)

Table IV. Continued

Are you exhausted in the morning at the thought of another day at work?	23 (18.7%)	25 (20.3%)	36 (29.3%)	21 (17.7%)	18 (14.6%)
Do you feel that every working hour is tiring for you?	14 (11.4%)	24 (19.5%)	39 (31.7%)	22 (17.9%)	24 (19.5%)
Do you have enough energy for family and friends during leisure time?	13 (10.6%)	19 (15.5%)	42 (34.2%)	36 (26.3%)	13 (10.6%)
Is your work emotionally exhausting?	22 (17.9%)	21 (17.7%)	44 (35.8%)	23 (18.7%)	13 (10.6%)
Does your work frustrate you?	25 (20.3%)	28 (22.8%)	31(25.2%)	19 (15.5%)	20 (16.3%)
Do you feel burnt out because of your work?	25 (20.3%)	33 (26.8%)	45 (36.6%)	12 (9.8%)	8 (6.5%)
Client/Patient-related Burnout **Low:** 67 (54.5%), **Moderate:** 37 (30**%), High:** 15 (12.2%), **Severe:** 4 (3.25%)					
Do you find it hard to work with clients?	7 (5.7%)	17 (13.8%)	35 (28.5%)	36 (26.3%)	28 (22.8%)
Does it drain your energy to work with clients?	12 (9.8%)	24 (19.5%)	47 (83.2%)	27 (21.95%)	13 (10.6%)
Do you find it frustrating to work with clients?	7 (5.7%)	15 (12.2%)	34 (27.6%)	27 (21.95%)	40 (32.5%)
Do you feel that you give more than you get back when you work with clients?	33 (26.8%)	31 (25.2%)	24 (19.5%)	22 (17.9%)	13 (10.6%)
Are you tired of working with clients?	11 (8.9%)	13 (10.6%)	39 (31.7%)	26 (21.1%)	34 (27.6%)
Do you sometimes wonder how long you will be able to continue working with clients?	22 (17.9%)	25 (20.3%)	34 (27.6%)	18 (14.6%)	24 (19.5%)

The overall average score on the work-related burnout subscale was 54.70, indicating moderate burnout. When comparing years in practice, no statistically significant differences were found ($p > 0.05$). When comparing employment settings, statistically significant differences were found (F (2, 37.77) = 32.268, $p < .001$). Games-Howell post hoc test revealed participants working in the government sector had significantly higher work-related burnout scores (M=57.57) compared to those in the "Other" practice category (M=30.56) ($p < .001$). Additionally, participants working in the private sector had significantly higher work-related subscale scores (M=55.24) than those in the "Other" practice category (M=30.56) ($p = .002$).

When comparing gender, a significant difference was found. Female participants had significantly higher work-related burnout scores (M=58.83) compared to males (M=48.88) (t (121) = 2.696, p = .008).

The overall average score client/patient-related burnout subscale was 44.88, indicating low burnout on this subscale. When comparing years in practice, no statistically significant different differences were found ($p > 0.05$). When comparing employment setting, statistically significant differences were found (F (2, 120) = 3.771, p = .026). Tukey post hoc test revealed participants working in the government sector had significantly higher client/patient-related burnout scores (M=48.94) compared to those in the "Other" practice category (M=26.39) (p = .026). Finally, when comparing gender on the client/patient-related burnout subscale, no statistically significant differences were found ($p > 0.05$). Mean overall and subscale CBI scores based on years of practice, type of work setting, and gender can be seen in Table V.

Table V. Mean scores on overall Copenhagen burnout inventory and subscales based on years of practice, type of work setting, and gender

Years of practice	n (%)	Overall CBI (M)	Personal Burnout (M)	Work-Related Burnout (M)	Client/Patient-Related Burnout (M)
1-5	75 (60.98%)	51.49	59.61	52.71	41.94
6-10	18 (14.63%)	58.99	64.58	58.73	53.70
11-15	16 (13.01%)	59.45	64.84	61.61	51.56
15-20	8 (6.50%)	54.93	63.02	54.91	46.87
21-25	3 (2.44%)	46.92	54.17	47.62	38.89
26-29	3 (2.44%)	43.42	48.61	50	30.56

Table V. Continued

Type of work setting	n (%)	Mean score CBI total	Mean score personal burnout subscale	Mean score work-related burnout subscale	Mean score client/patient-related burnout subscale
Government facility	67 (54.47%)	56.28	62.13	57.57	48.94
Private institutions	47 (38.21 %)	53.92	63.65	55.24	42.64
Other	9 (7.32%)	31.14	36.57	30.56	26.88
Gender	**n (%)**	**Mean score CBI total**	**Mean score personal burnout subscale**	**Mean score work-related burnout subscale**	**Mean score client/patient-related burnout subscale**
Female	72 (59.54%)	57.44	66.67	58.83	46.56
Male	51 (41.46%)	48.04	52.61	48.88	42.48

Two questions related to COVID-19 contribution to burnout were also assessed using a five-point Likert-type scale (from a very high degree to a very low degree) (Table VI). When asked if the COVID-19 pandemic contributed to workplace burnout in the past, 12.2% (n=15) of participants answered to a very high degree, 15.4% (n=19) to a high degree, 30.9% (n=38) somewhat, 14.6% (n=18) to a low degree, and 26.8% (n=33) to a very low degree. Overall, there was a significant difference in the frequency of rating, $\chi 2(4) = 16.959$, $p = .002$, with more participants indicating the COVID-19 pandemic somewhat contributed to their workplace burnout in the past (Figure 1). When asked if the COVID-19 pandemic currently contributed to their workplace burnout, 7.3% (n=9) of participants answered to a very high degree, 8.9% (n=11) to a high degree, 29.3% (n=36) somewhat, 15.4% (n=19) to a low degree, and 39% (n=48) to a very low degree. Overall, there was a significant difference in frequency of rating, $\chi 2(4) =$

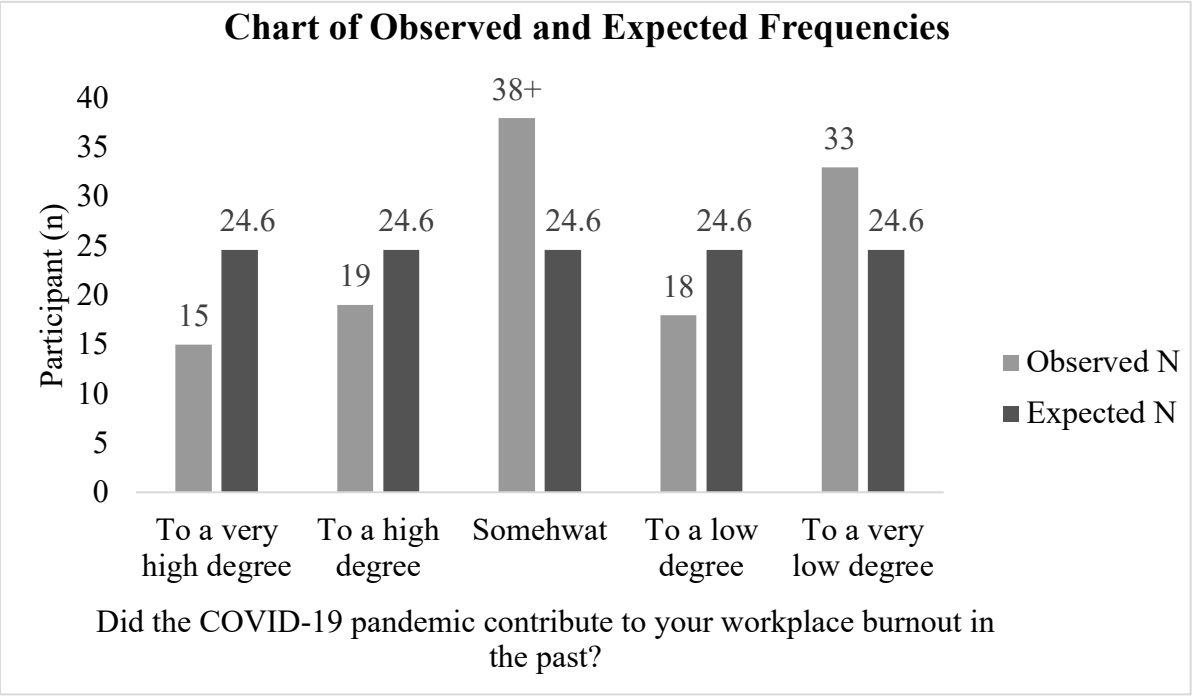
46.228, p <.001, with more participants indicating COVID-19 currently contributes to their workplace burnout to a very low degree (Figure 2).

Table VI. Frequencies of responses and scores on overall COVID-19-related questions

COVID-19 Questions	To a very high degree n (%)	To a high degree n (%)	Somewhat n (%)	To a low degree n (%)	To a very low degree n (%)
Did the COVID-19 pandemic contribute to your workplace burnout in the past?	15* (12.2%)	19* *(15.4%)	38* (30.9%)	18* (14.6%)	33* (26.8%)
Does the COVID-19 pandemic currently contribute to your workplace burnout?	9* (7.3%)	11* (8.9%)	36* (29.3%)	19* (15.4%)	48* (39%)

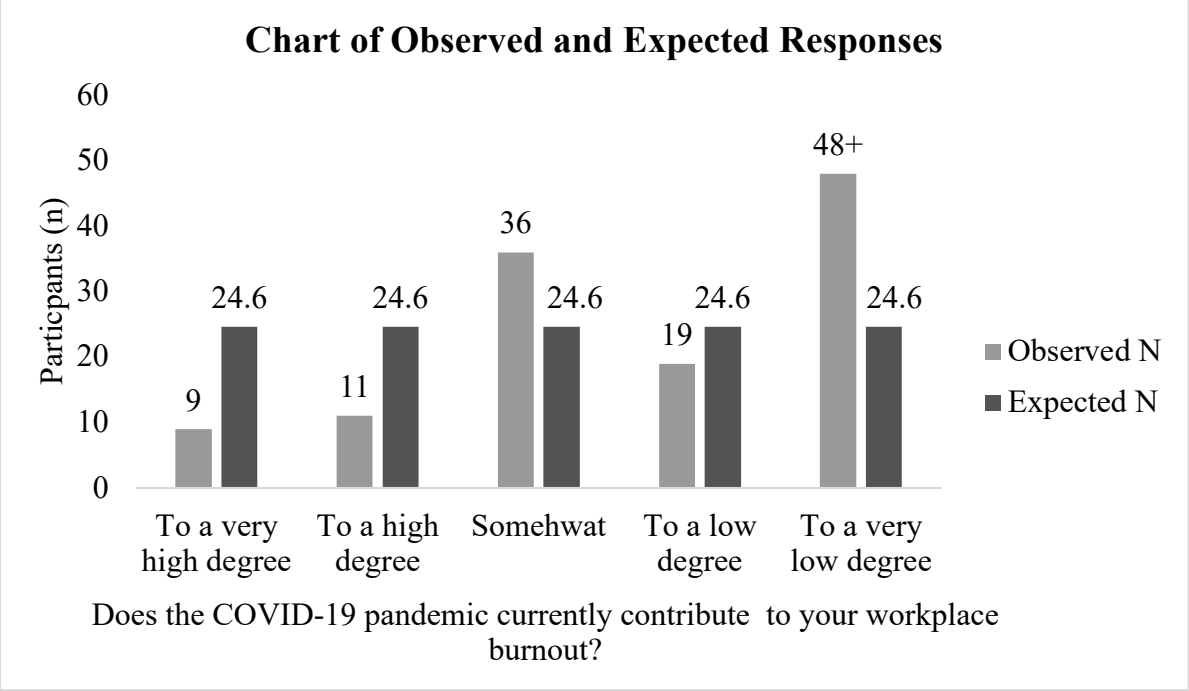
*$p < 0.05$

Figure 1. Observed and expected responses to COVID-19 question one



+ most responses

Figure 2. Observed and expected responses to COVID-19 question two



+ most responses

Finally, participants responded to the open-ended questions related to personal and professional factors that contribute to stress and overall feelings of burnout (Table VII). Several recurring themes were detected, with one-fourth of respondents (28.5%, n=35) identifying high workloads as contributing to burnout including extra working days, longer hours, additional responsibilities, high volume of walk-in patients, and dealing with late patients as a significant contributing factor to their feelings of burnout. Participants also cited a lack of management support and appreciation as a contributing factor to their stress and burnout (17.9%, n=22). Another notable stressor identified by participants was the lack of recognition of the dental hygiene profession by management and colleagues (17.1%, n=21). Lastly, 9.8% (n=12) reported unsatisfactory salaries, and 11.4% (n=14) reported the lack of career prospects and monotonous

routine clinical work contributed to their burnout. Additionally, when asked, “Have you ever considered leaving your position as a clinical dental hygienist due to stress,” more than half responded “Yes” (Table VIII).

Table VII. Response Frequencies Regarding Personal And Professional Factors Contributing To Stress Or Burnout

Common themes	**Frequency (n= 94) n (%)**
High workload - Longer hours - Extra working days - Additional responsibilities - A high volume of walk-in - Dealing with late arriving patients	35 (28.5%)
Lack of management support and appreciation	22 (17.9%)
Lack of dental hygiene profession recognition	21 (17.1%)
Lack of career prospects/Routine job	14 (11.4%)
Unsatisfactory salary	12 (9.8%)
Toxic work environment	7 (5.7%)
Difficult maintaining work-life balance	2 (1.6%)
Lower pack pains	2 (1.6%)
Lack of job opportunities	2 (1.6%)

Table VIII. Response Frequencies Regarding Intention to Leave Practice Due To Stress

Intention to leave practice	**Yes n (%)**	**No n (%)**
Have you ever considered leaving your position as a clinical dental hygienist due to stress?	71 (57.7 %)	52 (42.3%)

CHAPTER V

DISCUSSION

Workplace burnout is highly prevalent among dental and dental hygiene professionals due to the highly physical and emotionally demanding nature of patient care. It has multiple risk factors that can negatively affect dental professionals' health, patient care quality, and organizational proficiency. Ultimately, burnout may hinder dental hygienists' ability to carry out daily work-related tasks, result in adverse health outcomes, decrease professional aspirations, lead to the dehumanization of patients, and increase the likelihood of leaving their practice. This pilot study aimed to assess the prevalence of burnout and risk factors of burnout among Saudi Arabian dental hygienists.

Results from CBI questionnaire indicate overall moderate levels of burnout among Saudi dental hygiene participants as measured by the CBI. In the present study overall mean subscales scores were also moderate for the personal and work-related subscale scores, with average personal burnout subscale scores being the highest. Personal burnout scores measure physical and psychological fatigue that accumulates in a person during the day, irrespective of occupation.[27] These results suggest high numbers of Saudi dental hygienists may be experiencing general physical and mental fatigue, which may contribute to other aspects of burnout. Research also indicates high levels of emotional exhaustion constitute the core of burnout at work.[54] It is possible the higher moderate scores in this subscale are contributing to work-related burnout. Work-related burnout scores indicate the level of exhaustion and fatigue that derive specifically from work. Overall scores in the moderate range for this subscale were also consistent with responses to open-ended questions where most hygienists reported extra working days, longer hours, additional responsibilities, high volume of walk-in patients, and dealing with late patients

as significant contributing factors to their feelings of burnout. These findings are also consistent with past research on burnout in healthcare professionals, where challenges of clinical work, high workloads, scheduling issues, time constraints, and other exhausting work factors significantly contributed to burnout.[16,29,36,55-57]

Interestingly, more than half of the participants demonstrated low burnout scores in the client/patient-related subscale. This indicates most participating Saudi dental hygienists do not find it frustrating or hard to work with clients and their burnout may be more linked to more work-related factors. This finding is consistent with findings by Suedbeck et al., where dental hygiene program directors scored low on client/student-related burnout.[36] It is possible participants find their interactions with clients rewarding and unrelated to work and personal fatigue and burnout. This is important because as burnout increases, detachment from various aspects of the job may increase and lead to dehumanization/depersonalization of the patient.[63] Dehumanization may ultimately lead to the clinician not providing their best care as they are satisfied with the bare minimum.[58]

This study has also investigated contributing risk factors to burnout. Results from this study revealed years of practice had no statistically significant impact on overall and subscale burnout scores. This contrasts with previous research, which indicates longer years of practice to be associated with lower levels of burnout.[39,41,59] While there were no statistically significant findings, mean overall CBI scores were in the low range for participants who have been practicing the longest, between 21-29 years. Results could be due to the small sample size and most participants being younger and having practiced for less time.

The type of work setting significantly affected burnout scores, with participants working in governmental facilities and private institutions having significantly higher overall burnout

scores and subcategory scores than those in the "Other" employment setting. However, further analysis revealed responding hygienists working in "Other" employment settings were currently unemployed. Overall, this could have influenced the results as those currently unemployed are not experiencing many risk factors that increase burnout. However, this finding does highlight the contribution of work-related stress, exhaustion, and fatigue during clinical dental hygiene practice. While this finding is inconsistent with previous findings of Asali et al., who reported dentists working in the private sector experienced higher emotional exhaustion than those working in the government sector,[22] an analysis of mean overall and subscale CBI scores indicates Saudi hygienists working in both government and private facilities experience moderate burnout. This may also be linked to responses to open-ended questions where participants highlighted a lack of management support and appreciation, lack of recognition of the dental hygiene profession by management and colleagues, and unsatisfactory salaries as contributing to their stress and burnout.

While employment setting and years of practice did not significantly influence overall or subscale CBI scores, gender had a significant influence on overall and subscale CBI scores with female Saudi dental hygienists having higher burnout scores than males. Mean overall CBI scores and work-related subscale scores were also in the low range for male participants. This may be a result of added responsibilities outside of work for females compared to males which increase stress and exhaustion.[14,40,41] Additionally, these results may also be due to disparities in government facility positions between males and females, where males tend to have more upper management positions. Therefore, it is possible the male Saudi dental hygienist participants in this study have a more comfortable relationship with upper management within the workplace making it easier to communicate their stresses and needs, thereby reducing their potential for

burnout. In contrast, female Saudi dental hygienists may face more challenges with having their concerns addressed by upper management, making the workplace more stressful, thereby increasing their risk for burnout. There may also be a disparity in delegation of work tasks between male and female Saudi hygienists. Late-arriving patients may not always be delegated to male hygienists, and male hygienists may not always have the same daily patient load as female hygienists. Perhaps the participants in this study may be experiencing this unequal distribution of tasks which may have influenced the findings of higher burnout in Saudi female hygienists. This is in line with research that has found dental hygienists with lower levels of autonomy and self-control over their jobs were the most burnt-out.[3,8] Additionally, while subjective, when facing workplace challenges, male Saudi hygienists may not be as negatively affected or emotionally invested, which may not impact workplace stressors. Conversely, female Saudi hygienists may display more perfectionist qualities when solving a workplace problem which may increase their burnout compared to males. Research suggests type A behavior, overachievers, perfectionist behavior, and high levels of competitiveness may make a person more vulnerable to burnout, as it has been associated with the exhaustion aspect of burnout.[1-3]

Research has also indicated COVID-19 has significantly impacted dental hygiene professionals' mental and physical well-being in many ways during the pandemic.[12,14,41,48] Results from this study found participants reported the COVID-19 pandemic somewhat contributed to workplace burnout in the past however currently, COVID-19 contributes to their workplace burnout to a very low degree. This contrasts with findings by Alkhalifah et al. where 65.3% of Saudi dental hygiene participants were moderately stressed to return to practice post-pandemic.[48] Similarly, Lee et al. found work-related stress among Korean dental hygienists increased post-pandemic compared to pre-pandemic studies.[12] However, while statistically most

responses indicate COVID-19 is not contributing to workplace burnout currently, about one-third of participants did respond COVID-19 somewhat still contributes to their feelings of workplace burnout. This finding may support the conclusion made by Arnett et al. that due to the constant fear of COVID-19 cases peaking again, burnout scores may potentially continue to increase post-pandemic.[14] Clinically practicing hygienists should be cognitive of this finding as COVID-19 may slightly be contributing to workplace burnout in Saudi dental hygienists.

Moreover, previous research has also suggested burnout experienced by dental hygienists may result in intention to leave the profession. Results from this study indicated more than half of Saudi dental hygiene participants are considering leaving their positions due to stress which may be caused by burnout. This finding is consistent with research by Suedbeck et al., where nearly 70% of dental hygiene program director participants considered leaving their position due to stress.[36] Patel et al. also reported burnout was a significant indicator of dental hygienists considering leaving their jobs.[11] Furthermore, Knutt et al. also revealed the leading reason dental hygienists considered leaving their jobs was feeling burnt out and underappreciated by management.[39]

Research suggests work-related factors, such as high workload, lack of managerial recognition/appreciation, unsatisfactory wages, and toxic work environment, are the main contributors to burnout.[2,37,39,45] Results from this study revealed nearly one-third of participants linked their feelings of burnout to having longer work hours, additional workdays, lack of teamwork, a negative work environment, and additional responsibilities such as working as a dental assistant. Participants also reported that the lack of management appreciation and support has significantly impacted their workplace stress; they felt most managers are unaware of dental hygiene duties and their efforts were unrecognized by the higher management. This finding was

consistent with previous research which found lack of appreciation and support from leadership and managers was a significant contributing factor to dental hygienists' workplace burnout.[11,14,21,39,45]

It is important to note when responding to open-ended questions many participants also responded the dental hygiene profession is unsupported and unrecognized in Saudi Arabia. They reported the problem of having lower rates of conferences and workshops related to dental hygiene compared to those in other dentistry specialties. Additionally, some also reported lack of career prospects, professional growth, and higher degree educational programs in Saudi Arabia was contributing to their stress and feelings of being in a dead-end job. This is consistent with the findings of Patel et al., who revealed being frustrated and unable to achieve personal or work-oriented goals has impacted dental hygienists' burnout and, ultimately, their decision to leave their jobs.[11]

Overall, the results of this study indicated participating Saudi dental hygienists are reporting overall moderate levels of burnout as well as personal and work-related burnout. Research has indicated burnout levels may fluctuate over time; they increase or decrease at specific points in response to different stressors in a person's life.[27] However, burnout is not an inevitable and damaging process going from bad to worse.[27] Therefore, dental hygienists may benefit from implementing prevention strategies that could improve or prevent workplace burnout. For example, Chapman et al. implemented a program designed to improve coping skills, build resilience, and reduce the impact of anxiety in participating dentists.[25] Results revealed dentists who participated in the program had a reduction in depression, anxiety, and stress levels.[25] In addition, the program significantly reduced burnout, increased personal achievement, improved dentists' well-being, and enhanced decision-making, ultimately increasing patient

safety.[25] Dental hygienists may benefit from a similar program that includes tools to enhance coping skills in an effort to decrease stress, anxiety, and burnout.

Research has also suggested stress and time management, interpersonal and social skills training, teambuilding training, management of professional demands, and meditation may also reduce burnout symptoms.[2] Dental hygienists may benefit from evidence-based stress management workshops which educate on methods to deal with work stressors. Since burnout may start as early as the student level, there is also a need to introduce burnout management and preventive measures early in dental hygiene education.[16] Implementing educational training courses into dental hygiene education programs may teach stress reduction and coping skills early and decrease burnout in the future when providing clinical dental hygiene care.[2] Research also suggests self-care strategies may effectively manage stressors that may lead to burnout.[2,8] This includes exercise, quiet time, spending time with loved ones, and stress management courses.[2,8]

Overall, this pilot study provides a foundation for future research as it is the first assessment of burnout prevalence among Saudi Arabian dental hygienists. Practicing dental hygienists, dental hygiene educators, and students may use this information to increase understanding of the prevalence of burnout and risk factors in Saudi Arabian dental hygienists.

Limitations

There were several limitations that may have influenced the findings of this study. This study utilized a convenience sample of dental hygienists, which limits the generalizability of the findings. The survey research design also included self-report, self-selection, and recall bias. The low response rate also limits the generalizability of results; it cannot be assumed these findings are representative of all Saudi Arabian dental hygienists. Many participants also reported risk

factors that influence burnout which are not measured by the CBI. Furthermore, the sample consists primarily of female, young, inexperienced hygienists, which may have skewed the results. Future studies should expand the sample size and examine the relationship of various risk factors on burnout. Future studies should also examine burnout mitigation strategies to explore best practices to reduce burnout and increase career longevity.

CHAPTER VI

CONCLUSION

Findings from this pilot study suggest an overall moderate burnout among Saudi Arabian dental hygienists. Among the three dimensions assessed, both personal and work-related burnout scores were also moderate, indicating dental hygienists in Saudi Arabia struggle with feelings of physical and emotional exhaustion, along with work-related challenges such as longer work hours, negative work environment, lack of appreciation from administration, and lack of career growth and opportunities. Importantly, gender contributed to burnout with female Saudi dental hygienists perceiving more overall, personal, and work-related burnout. Lastly, more than half of participating Saudi dental hygienists reported considering leaving their clinical positions due to workplace stress. Results from this study highlight a need for more research in larger sample sizes to identify various risk factors contributing to burnout and preventative strategies which decrease burnout and promote a healthier work environment in Saudi dental hygienists.

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APPENDICES

APPENDIX A

SURVEY/QUESTIONNAIRE

Survey instructions:
Dear Practicing Dental Hygienist,
Below is a survey that deals with work-related stress and burnout you may experience in your position as a dental hygienist. Your participation is greatly valued! Using the Likert scale associated with the survey, please answer as honestly as you can; there are no right or wrong answers. Your participation is extremely important as we look for ways to generate awareness of workplace issues that promote stress in your role as a dental hygienist. Please answer each question. The survey should take no longer than 15 minutes to complete and answers are submitted electronically. There is no consequence if you choose not to participate or stop the survey at any time. Note that your participation is completely voluntary, and all responses will remain confidential. By return of the survey, voluntary informed consent is understood.
If you have any questions or concerns about your rights as a research participant, please contact Dr. Tancy Vandecar-Burdin, tvandeca@odu.edu, the current Institutional Review Board (IRB) chair, at 757-683-3802 at Old Dominion University or the Principal Investigator, Emily Ludwig, eludwig@odu.edu, at 757-683-5232.

Best regards,
Emily Ludwig, RDH, MS, Assistant Professor, Gene W. Hirschfeld School of Dental Hygiene Old Dominion University, Norfolk, VA, U.S.A.
Nouf Aldayel, RDH, MSDH Candidate, Gene W Hirschfeld School of Dental Hygiene, Old Dominion University, Norfolk, VA, U.S.A

تعليمات الاستبيان:
اعزاءنا اخصائيين صحة الفم والأسنان المشاركين،
فيما يلي استبانة بحثية تتناول التوتر، الإرهاق، والاحتراق الوظيفي المرتبط بالعمل الذي قد تواجهه في منصبك كأخصائي صحة الأسنان. مشاركتك محل تقدير كبير لنا! باستخدام مقياس لايكرت (Likert scale) المرتبط بالاستبيان، يرجى الإجابة بكل صراحة قدر الإمكان، تذكر انه لا توجد إجابات صحيحة او خاطئة. ان مشاركتك في هذ البحث مهمة للغاية حيث اننا نبحث عن طرق لزيادة الوعي بقضايا مكان العمل التي تزيد من التوتر في دورك كأخصائي صحة الأسنان. الرجاء الإجابة عن كل سؤال. لا يستغرق اكمال الاستبانة أكثر من ١٥ دقيقة ويتم ارسال الإجابات الكترونياً. لا توجد أي عواقب في حال اختيار عدم المشاركة أو إيقاف الإجابة في أي وقت. تذكر ان المشاركة طوعية تماماً، وستظل الردود سرية. سوف يتم الحصول على الموافقة الطوعية للمشاركة بعد الانتهاء من الاجابة وارسال الاستبانة.
إذا كانت لديك أي أسئلة أو مخاوف بشأن حقوقك كمشارك في البحث، فيرجى الاتصال بالدكتورة تانسي فنديكار بوردين، tvandeca@odu.edu ، الرئيس الحالي لمجلس المراجعة المؤسسية (IRB)، على الرقم 757-683-3802 في جامعة اولد دومينيون، أو الاتصال بالباحث الرئيسي، ايميلي لدويج، eludwig@odu.edu ، على الرقم 757-683-5232.

أطيب التحيات،
ايميلي لدويج RDH, MS, أستاذ مساعد، كلية جين دبليو هيرشفيلد لصحة الأسنان، جامعة أولد دومينيون، نورفولك، فيرجينيا، الولايات المتحدة الأمريكية.
نوف الدايل RDH, MSDH مرشح، كلية جين دبليو هيرشفيلد لصحة الأسنان، جامعة أولد دومينيون، نورفولك، فيرجينيا، الولايات المتحدة

Directions: please indicate the extent of your agreement or disagreement with each of the following statements by marking the appropriate circle to the right of each statement.
توجيهات: يرجى الإشارة إلى مدى موافقتك أو عدم موافقتك على كل عبارة من العبارات التالية عن طريق وضع علامة على الدائرة المناسبة على يمين كل عبارة.

	Always or to a very high degree دائما أو بدرجة عالية جدا	Often or To a high Degree في كثير من الأحيان أو إلى درجة عالية	Sometimes or Somewhat في بعض الأحيان أو إلى حد ما	Seldom or To a Low Degree نادرا أو بدرجة منخفضة	Never/Almost Never or To a very low degree أبدًا/ تقريبًا أبدًا أو إلى درجة منخفضة جدًا
How often do you feel tired? ما مدى شعورك بالتعب؟	○	○	○	○	○
How often are you physically exhausted? ما مدى شعورك بالارهاق جسدياً؟	○	○	○	○	○
How often are you emotionally exhausted? ما مدى شعورك بالارهاق عاطفيا؟	○	○	○	○	○
How often do you think: "I can't take this anymore"? كم مرة فكرت: "لا أستطيع تحمل الامر بعد الآن"؟	○	○	○	○	○
How often do you feel worn out? كم مرة تشعر بانك منهك؟	○	○	○	○	○
How often do you feel weak and susceptible to illness? مدى شعورك بالضعف والعرضة للمرض؟	○	○	○	○	○
Do you feel worn out at the end of the working day? هل تشعر بالإرهاق في نهاية يوم العمل؟	○	○	○	○	○
Are you exhausted in the morning at the thought of another day at work? هل أنت مرهق في الصباح بسبب فكرة يوم آخر في العمل؟	○	○	○	○	○

	Always or to a very high degree دائما أو بدرجة عالية جدا	Often or To a high Degree في كثير من الأحيان أو إلى درجة عالية	Sometimes or Somewhat في بعض الأحيان أو إلى حد ما	Seldom or To a Low Degree نادرا أو بدرجة منخفضة	Never/Almost Never or To a very low degree /أبدًا تقريبًا أبدًا أو إلى درجة منخفضة جدًا
Do you feel that every working hour is tiring for you? هل تشعر أن كل ساعة عمل متعبة بالنسبة لك؟	○	○	○	○	○
Do you have enough energy for family and friends during leisure time? هل لديك ما يكفي من الطاقة للعائلة والأصدقاء أثناء وقت الفراغ؟	○	○	○	○	○
Is your work emotionally exhausting? هل تجد عملك مرهق عاطفيا؟	○	○	○	○	○
Does your work frustrate you? هل تجد عملك محبط؟	○	○	○	○	○
Do you feel burnt out because of your work? هل تشعر بالإرهاق بسبب عملك؟	○	○	○	○	○
Do you find it hard to work with clients? هل تجد صعوبة في العمل مع المرضى/ المراجعين؟	○	○	○	○	○
Does it drain your energy to work with clients? هل تجد العمل مع المرضى/المراجعين يستنزف طاقتك؟	○	○	○	○	○
Do you find it frustrating to work with clients? هل تجد أنه من المحبط العمل مع المرضى/ المراجعين؟	○	○	○	○	○
Do you feel that you give more than you get back when you work with clients? هل تشعر أنك تعطي أكثر مما تحصل عليه عندما تعمل مع المرضى/ المراجعين؟	○	○	○	○	○
Are you tired of working with clients? هل سئمت من العمل مع العملاء؟	○	○	○	○	○

	Always or to a very high degree دائما أو بدرجة عالية جدا	Often or To a high Degree في كثير من الأحيان أو إلى درجة عالية	Sometimes or Somewhat في بعض الأحيان أو إلى حد ما	Seldom or To a Low Degree نادرا أو بدرجة منخفضة	Never/Almost Never or To a very low degree أبدًا/ تقريبًا أبدًا أو إلى درجة منخفضة جدًا
Do you sometimes wonder how long you will be able to continue working with clients? هل تتساءل أحيانًا عن المدة التي ستتمكن فيها من مواصلة العمل مع المرضى/المراجعين؟	○	○	○	○	○

Block 2

Please respond to the following demographic questions.
يرجى الرد على الأسئلة التالية.

What gender do you most identify with?
قم باختيار جنسك.

- ○ Female انثى
- ○ Male ذكر
- ○ Choose not to respond افضل عدم الإختيار

What is your age range?
حدد الفئة العمرية الخاصة بك.

- ○ < 18
- ○ 18-29
- ○ 30-44
- ○ 45-49
- ○ 60+

Indicate the highest level of education obtained.

قم باختيار أعلى مستوى تعليمي تم الحصول عليه.

- ○ Bachelor's درجة البكالوريوس
- ○ Master's degree درجة الماجستير
- ○ Doctoral degree درجة الدكتوراه

How long have you been practicing dental hygiene?
منذ متى وأنت تمارس مهنة اخصائي صحة الفم والأسنان؟

- ○ 1-5 years
- ○ 6-10 years
- ○ 11-15 years
- ○ 16-20 years
- ○ 21-25 years
- ○ 25-29 years
- ○ 30+ years

In what type of institution are you currently employed?
اختر نوع المؤسسة التي تعمل بها حالياً.

- ○ Government facility القطاع الحكومي
- ○ Privet institution القطاع الخاص
- ○ Other اخرى

In what region of Saudi Arabia do you currently reside?
قم بالإشارة إلى مكان عملك الحالي في المملكة العربية السعودية.

- ○ North المنطقة الشمالية
- ○ South المنطقة الجنوبية
- ○ East المنطقة الشرقية
- ○ West المنطقة الغربية
- ○ Middle المنطقة الوسطى

If you experience stress or burnout, what are personal and professional contributing factors?
إذا كنت تعاني من التوتر، الإرهاق، او الاحتراق الوظيفي ،ما هي بعض العوامل الشخصية و/أو المهنية التي ساهمت بذلك؟

Have you ever considered leaving your position as a clinical dental hygienist due to stress?
هل فكرت يوماً في ترك منصبك كأخصائي صحة أسنان بسبب شعورك بالاحتراق الوظيفي؟

- ○ Yesنعم
- ○ No لا

Please answer the following questions below using the scale.
يرجى الإجابة على الأسئلة التالية أدناه باستخدام المقياس.

	To a very high degree بدرجة عالية جداً	To a high degree بدرجة عالية	Somewhat قليلا	To a low degree بدرجة منخفضة	To a very low degree بدرجة متدنية جداً
Did the COVID-19 pandemic contribute to your workplace burnout in the past? هل ساهمت جائحة كوفيد-19 بشعورك بالاحتراق الوظيفي في مكان عملك في الماضي؟	○	○	○	○	○
Does the COVID-19 pandemic currently contribute to your workplace burnout? هل تساهم جائحة كوفيد-19 حاليًا بشعورك بالارهاق الوظيفي في مكان عملك؟	○	○	○	○	○

APPENDIX B

IRB EXEMPTION

OLD DOMINION UNIVERSITY

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

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Norfolk, Virginia 23529
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aalac INTERNATIONAL
PROUDLY, AN AAALAC ACCREDITED PROGRAM

DATE: October 6, 2023

TO: Emily Ludwig
FROM: Old Dominion University Health Sciences Human Subjects Review Committee

PROJECT TITLE: [2085594-2] The Prevalence of Burnout in Saudi Arabian Dental Hygienists
REFERENCE #:
SUBMISSION TYPE: Amendment/Modification

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE:

REVIEW CATEGORY: Exemption category # 2

Thank you for your submission of Amendment/Modification materials for this project. The Old Dominion University Health Sciences Human Subjects Review Committee has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact Harry Zhang at 757-683-6870 or qzhang@odu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Old Dominion University Health Sciences Human Subjects Review Committee's records.

VITA

NAME Nouf Aldayel BSDH, RDH, MSc
ADRESS 2011 Health Sciences Bldg.
Norfolk, VA, 23529

EDUCATION

2021 – 2023 Graduate Teaching Assistant
Old Dominion University, School of Dental Hygiene

2013 -2017 Teaching Assistant
King Saud University, Dental Hygiene Department

EXPERIENCE

Academic Experience

08/2023- 12/2023 Graduate Teaching Assistant
01/2022- 05/2022 Old Dominion University, School of Dental Hygiene

10/2019 – present Teaching Assistant
King Saud University, Dental Hygiene Department

Practical Experience

05/2019 – 06/2019 Dental Hygienist
Dr. Abdul-Aziz Alajaji dental polyclinics CO.
Riyadh, Saudi Arabia

11/2018 – 01/2019 Clinical Attachment
King Fahad Medical City
Riyadh, Saudi Arabia

01/2018 – 06/2018 Internship (Dental Hygienist)
King Fahad Medical City
Riyadh, Saudi Arabia

TEACHING

Courses taught at King Saud University

First semester 2020 DEH LEVEL 8 Clinical Dental Hygiene, Clinical instructor.
DEH 214 Dental Anatomy, Lab instructor (practical).

Second semester 2019 DEH 347 Level 6 Clinical Dental Hygiene, Clinical instructor.
DEH 454 Dental Assisting, Lab instructor (practical).
DEH 242 Preclinical Dental Hygiene, Lab instructor (practical).

MEMBERSHIP IN PROFESSIONAL SOCIETIES

2019 – present Member of the Saudi Dental Hygiene Society.
2018 – present Member of the Saudi Dental Association