Universidade de Lisboa

Faculdade de Medicina Dentária

Experiences of Violence and Sexual Harassment of European Dental Hygienists at Work

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Advisors:

Professora Doutora Sandra Ribeiro Graça

Professor Doutor Victor Abreu Assunção

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Master in Dental Hygiene

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RESUMO

Introdução: A violência no trabalho é um problema que tem crescido drasticamente nos últimos anos, afetando a dignidade de milhões de trabalhadores a nível mundial. Pode ser considerado violência no trabalho qualquer comportamento inaceitável, único ou repetido, que resulte ou tenha como objetivo resultar em dano físico, psicológico ou sexual. O conceito de violência é influenciado pelo contexto e cultura em que acontece. A violência no trabalho tem uma prevalência elevada no setor da saúde e além de afetar a vítima, causando alterações a curto e longo prazo, afeta também a sua qualidade de trabalho, podendo ter efeitos negativos nos cuidados prestados à comunidade. A violência no trabalho pode ser considerada violência física, violência verbal ou assédio sexual. Existem poucos estudos sobre violência no trabalho contra higienistas orais.

Objetivos: Este estudo tem como objetivo desenvolver um questionário para avaliar a prevalência de violência no trabalho de higienistas orais europeus, bem como explorar o efeito de variáveis sociodemográficas e socioprofissionais na prevalência de violência no trabalho e verificar o seu efeito nas experiências de violência por país. Pretende-se também avaliar a prevalência dos diferentes tipos de agressores de violência no trabalho, bem como explorar as reações às experiências de violência, sejam experienciadas ou testemunhadas, e explorar as razões para essas reações. Pretende-se também explorar o nível de conhecimento dos higienistas orais relativamente à violência no trabalho.

Métodos: Foi desenhado e validado um questionário composto por 3 partes para avaliar as experiências de violência no trabalho de higienistas orais. O questionário foi construído com base na literatura existente e de forma a ser de compreensão fácil por pessoas cuja língua nativa não é o inglês. A primeira secção reúne dados sociodemográficos e socioprofissionais dos participantes, a segunda parte recolhe informação sobre a prevalência de experiências de violência no trabalho e a terceira parte recolhe informação sobre os comportamentos e atitudes após um evento de violência no trabalho, experienciado ou testemunhado. A validação facial foi realizada por delegados das associações pertencentes à Federação Europeia de Higienistas Orais e a validação de conteúdo foi realizada por um painel de 7 especialistas. Foram contactadas 24 associações de higienistas orais membros da Federação Europeia de Higienistas Orais de forma a disseminar o questionário pelos seus membros. O questionário esteve disponível para responder de novembro de 2023 até fevereiro de 2024. A participação no estudo era voluntária e o teste Kaiser-Meyer-Olkin (KMO) foi usado para avaliar a adequação do tamanho da amostra.

Resultados: Obteve-se uma amostra não probabilística por conveniência de 215 higienistas orais de 13 países europeus – Áustria, Bélgica, Eslováquia, Espanha, Finlândia, Holanda, Israel, Itália, Letónia, Lituânia, Portugal, Reino Unido e Suécia. O teste KMO obteve um resultado de 0.775, que indica um bom tamanho de amostra. A maioria dos participantes eram mulheres (90.7%) com idades compreendidas entre os 22 e 66 anos, com média de 39.52 (± 11.83) anos. A Licenciatura (47.0%) foi o grau académico mais prevalente e a média de anos de prática foi 14.23 (± 11.79). A maioria dos participantes trabalhavam em clínicas privadas (69.8%), em áreas urbanas (66.5%) e a tempo inteiro (60.9%). Os trabalhadores independentes (47.0%) era a principal condição e cerca de um quarto dos participantes trabalhavam ocasionalmente com outro profissional no mesmo espaço físico (25.6%). Os 215 participantes representam cerca de 0.57% do total de 38000 higienistas orais representados pela Federação Europeia de Higienistas Orais. A validação facial obteve feedback positivo por parte do painel e a validação de conteúdo obteve um valor de CVI (*content validadion index*) de 0.98, indicando boa validade. 80% dos participantes já sofreram pelo menos uma vez de algum tipo de violência no trabalho na sua carreira, sendo que 23.7% já sofreram violência física, 72.1% já sofreram violência verbal e 45.6% já sofreram assédio sexual. As mulheres, participantes mais velhos, com menor nível escolar, mais anos de prática, que trabalhem em meio rural, que trabalhem simultaneamente no serviço publico e privado, que ocasionalmente trabalhem acompanhados por outros profissionais no mesmo espaço físico, trabalhadores a tempo inteiro e trabalhadores dependentes foram os grupos que apresentaram maiores prevalências de experiências de violência no trabalho. Foi encontrada significância estatística na relação entre o nível escolar do participante e a prevalência de violência verbal (p=0.036) com indivíduos com doutoramentos ou equivalentes a sofrerem menos violência verbal, país de prática e violência verbal (p=0.017), com indivíduos da Lituânia e a Letónia a apresentarem maior prevalência de violência verbal, anos de prática e qualquer tipo de violência no trabalho (p=0.030), com indivíduos com 16 a 25 anos de prática a sofrerem mais violência no trabalho, tipo de prática e violência verbal (p=0.023) com indivíduos a trabalharem exclusivamente no sistema de saúde privado com menor prevalência de violência verbal, e condições de contrato e assédio sexual (p=0.030), com trabalhadores dependentes a apresentarem mais prevalência de assédio sexual. A ausência de significâncias estatísticas quando avaliado o impacto das variáveis sociodemográficas e socioprofissionais nas experiências de violência no trabalho nos diferentes países indica a semelhança por toda a europa.

Pacientes e os seus acompanhantes surgiram como principais perpetuadores de violência no trabalho contra higienistas orais, seguidos por dentistas. Higienistas orais são os que menos cometem violência no trabalho contra higienistas orais. Após sofrer de violência no trabalho, a reação mais comum foi de ignorar o evento (54.7%), seguida de fazer queixa ao diretor clínico (33.1%). Quando questionados sobre o motivo pelo qual não apresentaram queixa após um incidente de violência no trabalho, o motivo mais comum foi a crença de que seria uma perda de tempo (51.2%), seguida de falta de conhecimento sobre o que fazer (45.1%). Menos de um terço dos indivíduos que sofreram de violência no trabalho e não apresentaram queixa não apresentaram motivos pelo qual não o fizeram. No total, menos de um terço dos higienistas orais já testemunhou um colega a sofrer de violência no trabalho (32.1%), sendo que 6.0% já testemunhou um colega sofrer de violência física, 28.8% já testemunhou um colega sofrer de violência verbal e 32.1% já testemunhou um colega sofrer de assédio sexual. As reações mais comuns após ver um higienista oral sofrer violência no trabalho foram ignorar o evento (46.4%) seguido de persuadir a vítima a fazer queixa ao diretor clínico (31.9%). Quando inquiridos sobre a existência de uma autoridade nacional para reportar violência no trabalho, a maioria dos participantes indica desconhecer se existe (59.1%), sendo no Reino Unido onde há mais participantes a desconhecerem se existe a autoridade (p=0.008). Quando questionados sobre a existência de iniciativas de educação sobre violência no trabalho, a maioria indica que não existe (47.0%), sendo esta resposta mais prevalente em Itália (58.1%) e Portugal (65.1%) (p=0.001). A maioria dos indivíduos considera-se consciente do tópico de violência no trabalho (55.8%) e dos sinais para reconhecer violência no trabalho (56.7%), no entanto, menos de metade dos indivíduos assumem que conhecem os mecanismos para reportar experiências de violência no trabalho (40.0%).

Conclusões: Os higienistas orais europeus apresentam uma elevada prevalência de experiências de violência no trabalho, principalmente experiências de violência verbal. Pacientes e acompanhantes são os agressores mais comuns contra higienistas orais. Existe uma grande prevalência de experiências de violência no trabalho que não são reportadas e os principais motivos são a crença de que uma queixa seria uma perda de tempo e falta de conhecimento sobre o que fazer. A maioria dos participantes desconhece a existência de autoridades para reportar as experiências de violência no trabalho e desconhece os procedimentos para reportar os eventos.

Palavras-chave: violência no trabalho, violência física, violência verbal, assédio sexual, higienistas orais

ABSTRACT

Objective: This study aimed to create and validate a questionnaire to assess workplace violence (WPV) among European dental hygienists. It explored how sociodemographic and professional factors influence WPV prevalence and analysed common reactions to WPV incidents.

Methods: A three-section questionnaire was designed to evaluate WPV prevalence and underwent validation processes. A non-probabilistic sample of members from dental hygiene associations affiliated with the European Dental Hygiene Federation was gathered by administering an online questionnaire.

Results: A total of 215 individuals from 13 European countries participated in the study. Alarmingly, 80% of respondents reported experiencing WPV at least once in their careers. Statistically significant associations were observed between educational level and verbal violence ($p=0.036$), years of practice and overall workplace violence ($p=0.030$), type of practice and verbal violence ($p=0.023$) and working conditions and sexual harassment ($p=0.030$). However, sociodemographic and professional variables did not demonstrate significant differences in WPV prevalence across different countries. Patients and their companions were the primary perpetrators of WPV, followed by dentists. The most prevalent reaction to WPV was to ignore the incident (54.7%). The main reasons for not reporting incidents included the belief it was a waste of time (51.2%) and lack of knowledge regarding reporting procedures (45.1%). Less than one third of dental hygienists (32.1%) have witnessed a peer suffer from WPV, and the most common reaction was to ignore it (46.4%). More than half of dental hygienists (59.9%) lack knowledge about the existence of an authority to report WPV, and 60.0% are unaware of the mechanisms to report WPV.

Conclusions: WPV is a major issue for European dental hygienists. There is a notable problem of WPV underreporting among these professionals.

Key words: workplace violence, physical violence, verbal violence, sexual harassment, dental hygienists

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LIST OF ABBREVIATIONS AND ACRONYMS

CVI – Content Validation Index

CVR – Content Validation Ratio

EDFH – European Dental Hygienists Federation

GDPR - General Data Protection Regulation

ILO – International Labour Organization

KMO – Kaiser-Meyer-Olkin

USA – United States of America

WHO – World Health Organization

WPV – Workplace Violence

1. INTRODUCTION

According to The World Health Organization (WHO), violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, group or community, that either results in or has likelihood of result in injury, death, psychological harm, maldevelopment or deprivation. The use of the word "power" in the definition extends the understanding of violence to include acts such as threats and intimidation. The definition embraces all types of physical, psychological and sexual abuse.[1]

This definition includes all acts of violence, whether they are public or private, reactive or proactive, and criminal or non-criminal. The categorization of violence from WHO, covers a broad range of outcomes, that do not necessarily result in injury or death, but nonetheless pose a substantial burden on individuals, families' communities, and health care systems worldwide. The consequences of violent acts can be immediate or latent and can last for years after the initial abuse.[1]

In 1996, the Forty-Ninth World Health Assembly adopted Resolution WHA49.25, declaring violence as a significant and escalating global public health issue. This Resolution calls for the initiation of public health activities aiming to, amongst other aspects, characterize different types of violence, define their magnitude, and assess the causes and public health consequences. It also promotes research on violence as a priority for public health research.[2]

1.1 Workplace violence

One of the initial and significant studies about workplace violence emerged in the United States of America (USA) in 1976, conducted by the anthropologist and psychiatrist Carroll Brodsky. This pioneering study was published in the book The Harassed Worker.[3] In Europe, the first examinations of workplace violence began to emerge towards the end of the century, primarily led by Scandinavian authors such as Heinz Leymann[4] and Ståle Valvatne Einarsen and Bjørn I. Raknes.[5] Since then, more studies have been developed, with the concern with workplace violence growing drastically in recent years[6], as various forms of violence have become more prevalent in professional settings.[7–9]

Although there isn't a unanimous definition of what's considered workplace violence, and specific understanding and terminology can overlap and differ depending on the country,

culture, or situation.[8–10] One of the most current accepted definitions was presented in 2019 in the General Conference of the International Labour Organization (ILO) and published in the Violence and Harassment Convention (Convention No 190). The Convention classifies the term "violence and harassment at work" as a range of unacceptable behaviours, actions or threats, occurring once or repeatedly, that aim, result in or are likely to result in physical, psychological, sexual or economic harm.[6]

This definition covers all workers regardless of their contractual status, including individuals in training, workers whose employment has been terminated, volunteers, jobseekers and job applicants and individuals exercising duties or responsibilities of an employer, either in private or public sector, formal or informal economy and urban or rural areas. The Convention definition applies to all situations occurring in the course of, linked with or arising out of work, such as: in the workplace; in places where the workers is paid, takes a rest break or uses sanitary, washing and changing facilities; during work-related trips or events; through work-related communications; in employer-provided accommodation and when commuting to and from work.[6]

The Violence and Harassment Convention is a ground-breaking document for recognising the right of everyone to a world of work free from violence and harassment.[6,11] The Convention sheds light to the reality of workplace violence, condemning and addressing it from legal and political perspectives. It raises awareness of the involved parties to the relevance of preventing and fighting the problem.[6]

Workplace violence has become a global problem, which has grown drastically in recent years, affecting the dignity of millions of workers around the world, and becoming a human rights issue.[6,8] No worker is immune from workplace violence.[12] It is a pervasive and harmful phenomenon, with profound and costly effects, ranging from severe physical and mental health consequences to lost earnings and destroyed career paths to economic losses from workplace society.[6,11] Workplace violence isn't just a conflict at work or a barrier to success of companies, it also poses a significant threat to equal opportunities by exacerbating inequality, discrimination, and stigmatisation. [6,8] Workplace violence not only violates the principles of decent working conditions [6] but also underscores a systemic issue rooted in broader socioeconomic, cultural, and organizational factors.[8]

1.2 Different types of workplace violence

There are a variety of behaviours that can be considered violent[13], and their perception is different depending on the context and culture.[8–10] The several existing classifications of different acts of violence are related to each other and often overlap, with reported difficulties to concisely categorize the different forms of violence.[8–10,14]

While the existence of physical violence at the workplace has always been recognized, psychological violence only recently begun receiving attention, after being significantly underestimated for a long time.[9] It has been recognized that psychological violence is often carried out through repeated behaviour, which by itself might seem relatively minor, but which cumulatively can become a very serious form of violence.[8] Psychological violence often consists of repeated and unwelcome action that can have a devastating effect on the victim.[9]

Physical, psychological and sexual violence often overlap in practice, making an attempt to differentiate different forms of violence very difficult, as can been noted by reflecting on the most common terms related to violence: [8,9,15]

- Assault/attack: presumes the use of physical force, with or without sexual intention.
- Threat: presumes the use of menace of hurt, through language, verbal or not, to cause fear and other negative consequences.
- Abuse: presumes the use of physical and psychological strength, with or without sexual intentions.
- Harassment: presumed unwanted conduct, physical or psychological, based on age, disability, sex or other association with minority that negatively affects the victim. Not to be confused with professional discussions.
- Sexual harassment: presumed unwanted conduct, physical or psychological, of sexual nature. Not to be confused with consented seduction.
- Bullying: presumed psychological harassment consisting of malicious attempts to humiliate or undermine the victim.

By organizing and structuring the preceding subjects, it's possible to identify three main forms of workplace violence and harassment, simplifying the research on the topic:[7–9,11,14,16,17]

- Physical violence: single or repeated unwanted behaviour that can cause harm by using physical force; can include beating, kicking, slapping, punching, stabbing, pushing, biting, among others.
- Verbal violence: single or repeated unwelcome behaviour that can cause harm by using verbal language; can include threats, shouts, bullying, mocking, racial discrimination, among others.
- Sexual harassment: single or repeated unwelcome behaviour that can cause harm by using physical force or verbal language with sexual nature; can include touching, groping, pinching, inappropriate comments of sexual nature, invites of sexual nature, among others.

1.3 Workplace violence overview

In 2021, the ILO joined forces with Lloyd's Register Foundation and Gallup, to carry out the first global exploratory exercise to measure people's own experiences of workplace violence, in its main different forms: physical, psychological or sexual. This study provided a first glance at the magnitude and frequency of violence and harassment at work. The results show that more than one in five individuals, from around the world, have experienced at least one form in their working life, either physical, psychological, or sexual. Among individuals that have experienced workplace violence, one third experienced more than one form of violence and 6.3% faced all three forms in their work life. More than one in five individuals said it has happened to them multiple times.(11)

Results from the questionnaire show that psychological violence and harassment was the most common form of workplace violence reported, followed by physical violence and harassment and sexual violence harassment. Men were more likely to report experiencing physical violence and harassment, however, women were particularly exposed to sexual violence and harassment at work. The data regarding the experiences of sexual violence and harassment at work show the biggest gender difference among the three forms of workplace violence.(11)

The survey findings show that the Americas region presented the highest prevalence of experiences of violence and sexual harassment at work, followed by Africa and, after that, Europe and Central Asia. The regions of Asia and the Pacific and the Arab States showed the lowest rates.(11)

The collaboration between ILO and Lloyd's Register Foundation and Gallup was crucial to assess the frequency and prevalence of workplace violence across the globe, paving the way for further studies to be developed on workplace violence in various working sectors.[11]

1.4 Impacts of workplace violence

The several types of abuse suffered from professionals cause immediate and often long-term disturbances to interpersonal relationships, which can significantly affect their work performance.[1,8,18]

Most instances of workplace violence lead to non-fatal, yet serious injuries.[19] Almost invariably, any form of violence, even minor incidents, causes distress in victims, leading to enduring and harmful impacts, whether directly, indirectly or in a more intangible way. [1,8,9,20,21] These consequences can affect the individual, the workplace organization, and the community as well. [1,8,9,12,20]

Consequences of workplace violence for the individual can be a variety of physical and emotional symptoms that can lead to serious illness, accidents, disability, substance abuse and death.[1,8,9,20] Suffering and humiliation resulting from violence usually lead to decrease of motivation, loss of confidence and reduced self-esteem.[1,8,9,20] If the causes of violence are not eliminated or its impact contained by adequate intervention, these symptoms are likely to develop into more significant issues over time.[1,8,9]

Workplace violence can cause disruption in the organization of work, resulting in absenteeism and higher turnover of staff. [1,8,9] This in turn can cause reduced work performance, deterioration of the quality of services, damage to the image of the organization and a reduction in the number of clients.[1,8,9]

Consequences for the community can be noticed by the costs of health care and long-term rehabilitation of the victims, increase in unemployment, and psychological and physical problems that influence an individual's social position.[8,9]

1.5 Risk factors for suffering workplace violence

The risk factors for suffering workplace violence can differ based on the type and location of a working setting, as well as the type of organization, however there are some common risk factors of exposure to violence: [9,13,19]

- Working directly with the public;
- Working alone;
- Working with people in distress (arising out of illness and pain);
- Lack of organizational policies and staff training to deal with violent situations;
- Working understaffed;
- Long waits for clients;
- Perception that violence is tolerated and victims will not be able to report the incident.

The unique exposure of health professionals to nearly all situations posing a risk of workplace violence sets this category of workers apart in terms of vulnerability to such incidents.[9]

1.6 Workplace violence in the health sector

Workplace violence concerns all professions and workers[6,8], however the health sector is considered one of the most prone to exposure to violent acts, as it usually involves significant contact with the public.[6,9,13,19,22,23] It is documented that within the health sector there is a moderate to high prevalence of workplace violence against professionals[7,18,19,24,25], with a higher frequency in newly employed staff [18], female workers and mainly perpetrated by patients.[7,19] However, studies indicate that incidents of workplace violence are often not reported, implying that the true rates could be considerably higher.[19]

In 2017, Eurofund conducted a survey to assess the European working conditions, focusing on several sectors and occupational groups. [26] The results from the study show that the health sector was the one that reported a higher percentage of workers suffering from some type of violent behaviour at work.[26] These results, even if undesirable, might not represent the real workplace violence scenario in health sectors due to documented underreporting, suggesting that the actual numbers may be even higher.[19] The underreporting

of violent acts in the workplace can be due to the sensitivity and complexity of the subject, cultural differences or due to shame and guilt associated with reporting such issues.[26]

Workplace violence occurring in the health sector can profoundly affect the staff[18], consequently impacting the public access to high-quality services.[8,9] Workplace violence in the health sector is a significant community problem.[8,9]

Literature on workplace violence in the health sector shows there is space and need to explore more of the subject, emphasizing the urgency for prioritization.[18,24]

1.7 Workplace violence against dental hygienists

There are few studies describing dental hygienists' experiences of workplace violence[27,28] when compared to dentists and dental college students, however, the rising global numbers of these professionals suggest an elevated risk of exposure to such incidents.[28]

The details of dental hygienists' workplace environment in Europe are understudied, however this knowledge is essential to understand and develop strategies to improve the professional setting.[14]

The research conducted on the experiences of violence and harassment faced by dental hygienists in the workplace indicates that a significant number of these professionals are affected by this issue, particularly women.[7,14,28]

Workplace violence has serious implications for the psychological and physical well-being of dental hygienists, impacting their productivity[14] and, subsequently, the quality of care provided.[8,9] It's crucial to view this issue not merely as an individual-level concern but as a broader social problem.[8,9,28]

There's a need to study the prevalence of dental hygienists' experiences of workplace violence as it serves as the first step to initiate appropriate interventions against workplace violence, as well as establish a healthy and respectful work environment and optimise patient care.[7,14,28]

1.8 Relevance of this study

Preventing violence and minimizing its impact is achievable, in the same way that public health initiatives have successfully addressed other threats. Modifying the factors contributing to violence is attainable, thereby preventing its occurrence. These assumptions are not speculative beliefs but rather statements based in evidence.[1]

The approach to violence should follow four key steps: uncovering comprehensive foundational knowledge about all aspects of violence; investigating why violence occurs; examining ways to prevent violence and applying interventions to prevent violence.[1]

This study focusses on the first key aspect – uncovering foundational information about workplace violence for dental hygienists. There is a need to study and monitor the experiences of violence and sexual harassment to better know the issue and develop interventions that can prevent this negative phenomenon.[6–8,14,29,30]

The present study seeks to address a research gap in the field of workplace violence and harassment concerning dental hygienists. The objectives are to create and validate a tool to assess the experiences of violence and sexual harassment of European dental hygienists at work and to determine the prevalence of said experiences, as well as the response actions taken by victims and the participants awareness about workplace violence.

2. OBJECTIVES

The primary objective of this study was to develop and validate an assessment tool to evaluate the experiences of workplace violence among European dental hygienists. Additionally, the study aimed to determine the prevalence of workplace violence within this professional group. To achieve these goals, the following specific objectives were established:

- Create and validate a questionnaire to analyse the prevalence of workplace violence of European dental hygienists at work.
- Analyse the prevalence of any type of violence experienced by European dental hygienists at work.
- Compare the prevalence of physical, verbal and sexual harassment experienced by European dental hygienists at work.
- Explore the impact of sociodemographic factors on the types of workplace violence encountered by European dental hygienists.
- Explore the influence of professional variables on the types of workplace violence experienced by European dental hygienists.
- Explore the influence of sociodemographic and professional characteristics on workplace violence experienced by European dental hygienists by country.
- Evaluate the different type of aggressors involved in incidents of workplace violence against European dental hygienists.
- Determine the response actions taken by European dental hygienists following incidents of workplace violence.
- Explore the underlying reasons motivating the response actions taken by European dental hygienists after experiencing workplace violence.
- Analyse the prevalence of any type of violence suffered by European dental hygienists and witnessed by European dental hygienists.
- Determine the response actions taken by European dental hygienists after witnessing a peer suffer workplace violence.
- Analyse the level of knowledge among European dental hygienists regarding workplace violence initiatives.
- Analyse the level of awareness among European dental hygienists regarding workplace violence.

- Compare and explore differences in the response actions, the variations in the underlying reasons motivating these responses, and the level of awareness about workplace violence among dental hygienists across different European countries.

This dissertation is organized in the format of two scientific articles. The first six objectives are addressed in Article I, while the subsequent objectives are covered in Article II. Each article includes an introduction, methodology, results, discussion, and conclusion related to its respective objectives. Following these articles, the dissertation culminates with a comprehensive discussion and conclusion that integrates and synthesizes all the significant findings from both articles.

3. ARTICLE I – BREAKING THE SILENCE: UNVEILING WORKPLACE VIOLENCE AND SEXUAL HARASSMENT OF EUROPEAN DENTAL HYGIENISTS

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3.1 Abstract

Objective: This study aimed to develop and validate a questionnaire for assessing the prevalence of workplace violence, specifically physical violence, verbal violence and sexual harassment, among European dental hygienists. Additionally, it aimed to explore the influence of sociodemographic and professional variables on the prevalence of workplace violence.

Methods: A three-section questionnaire was designed to evaluate workplace violence prevalence and underwent both facial and content validation processes. A non-probabilistic sample was gathered by administering an online questionnaire to members of dental hygiene associations affiliated with the European Dental Hygiene Federation.

Results: A total of 215 individuals from 13 European countries participated in the study. Alarmingly, 80% of respondents reported experiencing workplace violence at least once in their careers, with 23.7% reporting physical violence, 72.1% facing verbal violence and 45.6% experiencing sexual harassment. Statistically significant associations were observed between educational level and verbal violence (p=0.036), country of practice and verbal violence (p=0.017), years of practice and overall workplace violence (p=0.030), type of practice and verbal violence (p=0.023) and working conditions and sexual harassment (p=0.030). However, sociodemographic and professional variables did not demonstrate significant differences in workplace violence prevalence across different countries.

Conclusions: Workplace violence poses a significant concern for European dental hygienists, as evidenced by the high prevalence rates observed. Urgent measures are warranted to develop and implement preventive strategies aimed at fighting workplace violence among European dental hygienists.

Key words: workplace violence, physical violence, verbal violence, sexual harassment, dental hygienists

3.2 Introduction

According to the World Health Organization (WHO), violence is the intentional use of physical force or power, threatened or actual, against a subject, that either results in or has likelihood of result in harm.[1]

Violence in the workplace is becoming more prevalent across various forms.[2–4] Although there isn't a unanimous definition of what's considered workplace violence, and specific terminology can overlap[3–5], one of the most current accepted definitions was presented in 2019 and published in the Violence and Harassment Convention (Convention No 190) by the International Labour Organization (ILO). The Convention classifies the term "violence and harassment at work" as a range of unacceptable behaviours, practices, or threats, either in a single occurrence or repeated, that aim, result in or are likely to result in physical, psychological, sexual or economic harm.[6]

There are several behaviours that can be considered violent, and their perception is different depending on the context and culture, additionally, the several existing classifications of violence are related to each other and often overlap, having been reported difficulties to concisely categorize the different forms of violence.[3–5,7]

Workplace violence is a widespread phenomenon with significant repercussions ranging from severe physical and mental health consequences to lost earnings and to economic losses for the society.[8] Workplace violence is an unacceptable behaviour incompatible with decent working conditions.[6]

Experiencing any form of workplace violence can have immediate and often long-term disturbances to interpersonal relationships, which can significantly affect work performance.[1,3,9] These consequences of violence in the workplace can affect the individual, the workplace organization, and the community as well.[1,3,4,10]

The individual experiencing workplace violence can suffer a variety of physical and emotional symptoms that can lead to serious illness, accidents, disability, substance abuse and death. [1,3,4] If the causes of violence are not eliminated, these signs are likely to develop into more significant issues over time, possibly affecting the company by resulting in reduced work performance, deterioration of the quality of services, damage to the image of the organization and a reduction in the number of clients. [1,3,4] All of these consequences can also result in repercussions to the community with higher costs of health care and long-term rehabilitation of the victims, increase in unemployment, and, if workplace violence happens

within the healthcare sector, it also compromises the public's access to high-quality health services.[1,3,4]

In the first global study to assess people's experiences of violence and harassment at work, conducted by ILO and Lloyd's Register Foundation and Gallup in 2021, the data showed that more than one in five participants have experienced at least one form of violence in their working life, either physical, psychological our sexual.[8] Regarding those who have experienced it, one third has admitted having experienced more than one form of workplace violence, and more than one in five individuals said they have experienced it multiple times in their working lives.[8]

The health sector has been documented to have a moderate to high prevalence of workplace violence against professionals.[2,9,11,12] According to data obtained from a 2017 survey on the European working conditions, conducted by Eurofund, the health industry was the sector that reported the higher prevalence of workers suffering from some type of workplace violence.[13]

Regarding workplace violence against dental hygienists, there's a lack of studies concerning the matter[14,15], however, the increasing global count of these professionals indicates an elevated risk of susceptibility to such incidents.[15] The literature suggests that there's a need to develop studies on the experiences of workplace violence against dental, to develop and apply interventions against this problem.[2,7,15]

This study aims to fill a research gap in the field of workplace violence against dental hygienists by creating and developing a tool to measure the experiences of violence and sexual harassment among these professionals, as well as assess the prevalence of such incidents.

3.3 Methodology

The process of developing, validating and applying a questionnaire to evaluate the experiences of violence and sexual harassment of dental hygienists at work took place from May 2023 to May 2024, following the methodology of an observational cross-sectional study. Approval for the study was obtained from the ethics council of Faculdade de Medicina Dentária da Universidade de Lisboa (process CE-FMDUL202339). (Anex 1)

Step 1 – Literature review

The first step consisted of reviewing a large number of literature about workplace violence. This review aimed to identify existing studies on the subject and gather comprehensive and clear definitions and categorizations that could be easily understood from everyone across borders. Based on the literature reviewed[2–4,7,8,16,17], the following categorisations of violence were established:

- Physical violence: single or repeated unwanted behaviour that can cause harm by using physical force; can include beating, kicking, slapping, punching, stabbing, pushing, biting, among others.
- Verbal violence: single or repeated unwelcome behaviour that can cause harm by using verbal language; can include threats, shouts, bullying, mocking, racial discrimination, among others.
- Sexual harassment: single or repeated unwelcome behaviour that can cause harm by using physical force or verbal language with sexual nature; can include touching, groping, pinching, inappropriate comments of sexual nature, invites of sexual nature, among others.

Step 2 – Designing the questionnaire

It was determined that the questionnaire would be available online through an independent platform (*Google Forms*) and would be self-administered. This decision was made with the aim of facilitating the distribution of the questionnaire across multiple countries, therefore potentially increasing response rates. Additionally, it was intended to afford participants the privacy to respond to the questions.

Questions were carefully formatted for gender neutrality[18], clarity and easy interpretation by native and non-native English speakers.

The researchers designed a three-section questionnaire: the first section aimed to collect sociodemographic and professional data, the second section sought to collect information on the prevalence of experienced events of violence and sexual harassment at work, employing a 4-point scale for responses and the third and last section focused on gathering information regarding how participants coped with their own or others' encounters with workplace violence and sexual harassment. The 4-point scale used for the responses, which was adopted from a previous study [8] developed by ILO, aimed to measure the experiences of workplace violence and sexual harassment.

Step 3 – Questionnaire validation

The first step in the validation process was the facial validation. The facial validation for this questionnaire was conducted during the annual meeting of delegates from the associations affiliated to the European Dental Hygienists Federation (EDHF). For this reason and to take advantage of the occasion, the facial validation was conducted before the content validation.[19,20] All 42 dental hygienists present at the meeting received a paper copy of the questionnaire, so they could read it, review it based on clarity and appropriateness of the questions and leave any comments regarding possible modifications. The delegates gave the feedback in pairs with the other dental hygienists from the same country, resulting in the collection of 24 responses. After reviewing the feedback, minor modifications were made to the arrangement of the questions in the questionnaire.

The second step was to conduct the content validation using the Lawshe's Content Validity Ratio (CVR) and Content Validity Index (CVI).[19–21] In this phase, a panel compromising 7 dental hygienists was gathered to evaluate the questionnaire. Among the specialists, four hold doctoral degrees in Oral Health Sciences, two are pursuing doctoral degrees in Oral Health Sciences and Technology, and one has a bachelor's degree in Dental Hygiene and is a member of a task force dedicated to evaluating workplace violence against health workers. They were asked to categorize each questionnaire item based on its significance, utilizing a scale where 1 represents "not relevant", 2 "of little relevance", 3 "relevant or very relevant but requiring reformulation" and 4 "very relevant".

The CVR was calculated the following way:

$$CVR = \frac{n_e - (\frac{N}{2})}{\frac{N}{2}}$$

In this formula "n_e" represents the number of panel members who rated an item as either "1 – very relevant" or "2 – relevant or very relevant but requiring reformulation", and "N" the total number of panel members. The CVI is the mean of CVR values for all the items.

Step 4 – Gathering the sample

The study population consisted of dental hygienists registered in dental hygienists' associations affiliated with the EDHF and currently working in WHO region of Europe.[22] The population is estimated to be around 38,000 dental hygienists.

A non-probabilistic sample was obtained by distributing the questionnaire (Appendix 1), which was made available online through *Google Forms*. It was shared via email or within the respective Facebook groups of each one of the 24 dental hygiene associations affiliated with the EDHF. The questionnaire was available from November 2023 to February 2024. Each association was contacted several times to ensure widespread distribution of the questionnaire.

Participation in this study was voluntary and individuals could terminate their participation at any time without consequences. Participants were not required to provide written informed consent, as their response to the questionnaire was considered implicit consent.

Step 5 – statistical analysis

All the statistical analyses, both descriptive and inferential, were conducted using IBM SPSS Statistic version 29.0.0.0.

The adequacy of the sample size was assessed using the Kaiser-Meyer-Olkin (KMO) test. The Kolmogrov-Smirnov test was used to evaluate the distribution of the data collected. The Mann-Whitney test was employed to compare the distributions of the independent variables, while the Kruskal-Wallis test was utilized to assess statistical significance across three or more independent groups.

Data reduction was employed as needed to streamline analysis and enhance sample size comparability across groups.

3.4 Results

The final sample consisted of 215 individuals from 13 countries. From the 24 dental hygienists' association contacted, no participations were obtained from the following countries: Czeck Republic, Denmark, Estonia, Germany, Ireland, Malta, Norway, Poland, Russia, Slovenija and Switzerland. Most of the sample consisted of individuals working in Portugal (29.3%), followed by the United Kingdom (27.9%), Italy (20.0%), and Latvia and Lithuania (6.5%). The remaining individual (16.3%) worked in Austria, Belgium, Finland, Israel, Netherlands, Slovak Republic, Spain and Sweden. The 215 participants constitute approximately 0.57% of the 38,000 dental hygienists represented by the EDHF. (Table 1) The KMO provided a result of 0.775, which indicates a good sample size.

Most participants were women (90.7%) with a mean age of 39.52 years old (± 11.83) [22-66 years]. (Table 1)

Bachelor's degree or equivalent was the higher school level obtained from most of the sample (47.0%), with a mean of 14.23 (± 11.79) years of practice. (Table 1)

The majority of participants worked exclusively in private clinical practices (69.8%), in urban areas (66.5%), in a full-time schedule (60.9%). Self-employed was the principal condition (47.0%) and about one fourth always worked accompanied by another professional in the same physical space (25.6%). (Table 1)

Table 1 – Sample Characteristics

Sample Characteristic			n(%)
Gender	Woman		195 (90.7)
	Man		20 (9.3)
Age	Less than 25		31 (14.4)
	26-30		32 (14.9)
	31-35		32 (14.9)
	36-40		26 (12.1)
	41-45		18 (8.4)
	46-50		23 (10.7)
	51-55		31 (14.4)
	56-66		21 (9.8)
Higher school level attained	Professional degree		67 (31.2)
	Bacherlor's or equivalent		101 (47.0)
	Master's or equivalent		40 (18.6)
	Doctoral or equivalent		7 (3.3)
Years of practice as a dental hygienist	Less than 5		62 (28.8)
	6 ate 15		69 (32.1)
	16-25		46 (21.4)
	More than 26		37 (17.2)
Country of practice	Italy		43 (20.0)
	Portugal		63 (29.3)
	United Kingdom		60 (27.9)
	Latvia and Lithuania	Latvia	10 (4.7)
		Lithuania	4 (1.9)
	Other countries	Austria	2 (0.9)
		Belgium	1 (0.5)
		Finland	4 (1.9)
		Israel	1 (0.5)
		Netherlands	4 (1.9)
		Slovak Republic	11 (5.1)
		Spain	11 (5.1)
		Sweden	1 (0.5)
Practice location	Mainly urban		143 (66.5)
	Mainly suburban		53 (24.7)
	Mainly rural		19 (8.8)
Type of practice	Public health service		27 (12.6)
	Private clinical practice		150 (69.8)
	Mixed practices		37 (17.2)
Accompanied while working	Always		55 (25.6)
	Sometimes		86 (40.0)
	Never		74 (34.4)
Working schedule	Full time		131 (60.9)
	Part time		84 (39.1)
Working condition	Employee		91 (42.3)
	Self-employed		101 (47.0)
	Both		19 (8.8)
	Not currently employed		4 (1.9)

The panel for facial validation acknowledged the importance of the subject, as well as deemed favourable the clarity, appropriateness and comprehensibility of the questions. The experts suggested minor changes primarily related to orthography.

The CVR scores ranged from 0.71 to 1, with only two questions receiving a score of 0.71, while the remainder scored 1. The overall CVI obtained was 0.98, indicating high content validity. No items were eliminated; however, the two items concerning the type of practice where workplace violence occurred were altered to encompass a more response options.

The data regarding the experiences of violence at work, show that 80.0% (n=172) of individuals have suffered any experience of workplace violence at least once in their career as dental hygienists'. The most frequently experienced type of workplace violence was verbal violence (72.1%), followed by sexual harassment (45.6%) and physical violence (23.7%). (Table 2)

Table 2 – Prevalence of workplace violence of European dental hygienists

Types of violence		n (%)
Experienced any type of violence	Never	43 (20.0)
	At least one time	172 (80.0)
Experienced physical violence	Never	164 (76.3)
	At least one time	51 (23.7)
Experienced verbal violence	Never	60 (27.9)
	At least one time	155 (72.1)
Experienced sexual harassment	Never	117 (54.4)
	At least one time	98 (45.6)

The data illustrating the impact of sociodemographic factors on workplace violence can be found in Table 3 and the impact of professional factors on workplace violence can be found in table 4.

In terms of physical violence, the highest prevalence of experiencing this type of violence can be found in men (35.0%), dental hygienists aged between 51-55 years (38.7%), individuals with master's degrees or equivalents (30.0%), dental hygienists practicing in Latvia and Lithuania (35.7%), individuals working for more than 26 years (32.4%), individuals working mainly in rural locations (36.8%), individuals exclusively employed in

the public health service (37.0%), individuals who sometimes work accompanied (24.4%), individuals working full-time (26.7%), and dental hygienists who are simultaneously employees and self-employed (26.3%).

Regarding verbal violence, the highest prevalence of experiencing this type of violence were women (73.8%), dental hygienists aged between 36-40 years (88.5%), individuals with professional degrees (77.6%) or master's or equivalents (77.5%), dental hygienists practicing in Latvia and Lithuania (92.9%), individuals who have been working for 16-25 years (82.6%), individuals working mainly in rural locations (78.9%), individuals working both in public and private settings (89.2%), individuals who sometimes work accompanied (74.4%), individuals working full-time (74.0%), and dental hygienists who are simultaneously employees and self-employed (78.9%). All dental hygienists who were not employed at the time of the survey reported experiencing verbal violence at least once in their careers (100.0%).

In terms of sexual harassment, the highest prevalence of experiencing this type of violence were women (46.7%), dental hygienists aged between 41-45 years (66.7%), individuals with professional degrees (47.8%), dental hygienists practicing in the United Kingdom (56.7%), individuals who have been working for 16-25 years (54.3%), individuals working mainly in rural locations (57.9%), individuals working both in public and private settings (54.1%), individuals who sometimes work accompanied (48.8%), individuals working part-time (52.4%), and dental hygienists who are employees (50.5%).

Regarding any type of workplace violence, the groups with the highest prevalence of experiencing this type of violence are as follows: women (81.0%), dental hygienists aged between 36-40 years (92.3%), dental hygienists with master's degrees or equivalents (87.5%), dental hygienists practicing in Latvia and Lithuania (92.9%), individuals who have been working for 16-25 years (87.0%), individuals working mainly in rural locations (89.5%), individuals working both in public and private settings (89.2%), individuals who sometimes work accompanied (81.4%), individuals working full-time (80.9%), and dental hygienists who are employees (84.6%). All dental hygienists who were not employed at the time of the survey reported experiencing any type of workplace violence at least once in their careers (100.0%).

The results shows that statistical significance can be found when looking at experience of verbal violence by individuals with different school levels, with doctoral degrees or

equivalent experiencing less verbal violence (p=0.036), verbal violence experienced by individuals from different countries, with Latvia and Lithuania with the highest prevalence of verbal violence (p=0.017) and verbal violence experienced by individuals from different types of practice, with dental hygienists working exclusively in private clinical practices experience less verbal violence (p=0.023). Statistical significance was also found when looking at sexual harassment experienced by individuals with different working conditions, with employees experiencing more sexual harassment (p=0.030) and any type of workplace violence experienced by individuals with different years of practice, with the group of dental hygienists working for 16 to 25 years suffering more (p=0.030).

Table 3 – Impact of sociodemographic factors on the prevalence of workplace violence

		Physical violence		Verbal violence		Sexual harassment		Any type of violence	
		Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)
Gender	Woman	151 (77.4)	44 (22.6)	51 (26.2)	144 (73.8)	104 (53.3)	91 (46.7)	37 (19.0)	158 (81.0)
	Man	13 (65.0)	7 (35.0)	9 (45.0)	11 (55.0)	13 (65.0)	7 (35.0)	6 (30.0)	14 (70.0)
	p †	0.214		0.074		0.320		0.242	
Age groups	Less than 25	27 (87.1)	4 (12.9)	8 (25.8)	23 (74.2)	17 (54.8)	14 (45.2)	7 (22.6)	24 (77.4)
	26 - 30	27 (84.4)	5 (15.6)	13 (40.6)	19 (59.4)	13 (40.6)	19 (59.4)	10 (31.3)	22 (68.8)
	31 - 35	24 (75.0)	8 (25.0)	11 (34.4)	21 (65.6)	22 (68.8)	10 (31.3)	6 (18.8)	26 (81.3)
	36 - 40	19 (73.1)	7 (26.9)	3 (11.5)	23 (88.5)	12 (46.2)	14 (53.8)	2 (7.7)	24 (92.3)
	41 - 45	13 (72.2)	5 (27.8)	3 (16.7)	15 (83.3)	6 (33.3)	12 (66.7)	2 (11.1)	16 (88.9)
	46 - 50	16 (69.6)	7 (30.4)	8 (34.8)	15 (65.2)	17 (73.9)	6 (26.1)	7 (30.4)	16 (69.6)
	51 - 55	19 (61.3)	12 (38.7)	8 (25.8)	23 (74.2)	19 (61.3)	12 (38.7)	6 (19.4)	25 (80.6)
	More than 56	18 (85.7)	3 (14.3)	5 (23.8)	16 (76.2)	10 (47.6)	11 (52.4)	2 (9.5)	19 (90.5)
	p ‡	0.261		0.275		0.061		0.244	
Higher school level attained	Professional degree	49 (73.1)	18 (26.9)	15 (22.4)	52 (77.6)	35 (52.2)	32 (47.8)	10 (14.9)	57 (85.1)
	Bachelor's or equivalent	81 (80.2)	20 (19.8)	31 (30.7)	70 (69.3)	55 (54.5)	46 (45.5)	25 (24.8)	76 (75.2)
	Master's or equivalent	28 (70.0)	12 (30.0)	9 (22.5)	31 (77.5)	22 (55.0)	18 (45.0)	5 (12.5)	35 (87.5)
	Doctoral or equivalent	6 (85.7)	1 (14.3)	5 (71.4)	2 (28.6)	5 (71.4)	2 (28.6)	3 (42.9)	4 (57.1)
	p ‡	0.488		0.036*		0.814		0.104	

† - Mann-Whitney Test ‡ - Kruskal-Wallis Test

* < 0.05 ** < 0.01 *** < 0.001

Table 4 - Impact of professional factors on the prevalence of workplace violence

		Physical violence		Verbal violence		Sexual harassment		Any type of violence	
		Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)	Never n (%)	At least one time n (%)
Country of practice	Italy	34 (79.1)	9 (20.9)	17 (39.5)	26 (60.5)	30 (69.8)	13 (30.2)	12 (27.9)	31 (72.1)
	Portugal	53 (84.1)	10 (15.9)	23 (36.5)	40 (63.5)	32 (50.8)	31 (49.2)	15 (23.8)	48 (76.2)
	United Kingdom	43 (71.7)	17 (28.3)	14 (23.3)	46 (76.7)	26 (43.3)	34 (56.7)	11 (18.3)	49 (81.7)
	Latvia and Lithuania	9 (64.3)	5 (35.7)	1 (7.1)	13 (92.9)	8 (57.1)	6 (42.9)	1 (7.1)	13 (92.9)
	Other Countries	25 (71.4)	10 (28.6)	5 (14.3)	30 (85.7)	21 (60.0)	14 (40.0)	4 (11.4)	31 (88.6)
	p ‡	0.333		0.017*		0.098		0.250	
Years of practice	Less than 5	52 (83.9)	10 (16.1)	24 (38.7)	38 (61.3)	36 (58.1)	26 (41.9)	20 (32.3)	42 (67.7)
	6 - 15	54 (78.3)	15 (21.7)	19 (27.5)	50 (72.5)	38 (55.1)	31 (44.9)	11 (15.9)	58 (84.1)
	16 - 25	32 (69.6)	14 (30.4)	8 (17.4)	38 (82.6)	21 (45.7)	25 (54.3)	6 (13.0)	40 (87.0)
	More than 26	25 (67.6)	12 (32.4)	8 (21.6)	29 (78.4)	21 (56.8)	16 (43.2)	5 (13.5)	32 (86.5)
	p ‡	0.188		0.076		0.607		0.030*	
Practice location	Mainly urban	108 (75.5)	35 (24.5)	41 (28.7)	102 (71.3)	84 (58.7)	59 (41.3)	30 (21.0)	113 (79.0)
	Mainly suburban	44 (83.0)	9 (17.0)	15 (28.3)	38 (71.7)	25 (47.2)	28 (52.8)	11 (20.8)	42 (79.2)
	Mainly rural	12 (63.2)	7 (36.8)	4 (21.1)	15 (78.9)	8 (42.1)	11 (57.9)	2 (10.5)	17 (89.5)
	p ‡	0.205		0.784		0.188		0.559	
Type of practice	Public health service	17 (63.0)	10 (37.0)	6 (22.2)	21 (77.8)	18 (66.7)	9 (33.3)	5 (18.5)	22 (81.5)
	Private clinical practice	121 (80.7)	29 (19.3)	49 (32.7)	101 (67.3)	81 (54.0)	69 (46.0)	33 (22.0)	117 (78.0)
	Mixed practices	25 (67.6)	12 (32.4)	4 (10.8)	33 (89.2)	17 (45.9)	20 (54.1)	4 (10.8)	33 (89.2)
	p ‡	0.057		0.023*		0.260		0.306	
Accompanied while working	Always	42 (76.4)	13 (23.6)	16 (29.1)	39 (70.9)	32 (58.2)	23 (41.8)	12 (21.8)	43 (78.2)
	Sometimes	65 (75.6)	21 (24.4)	22 (25.6)	64 (74.4)	44 (51.2)	42 (48.8)	16 (18.6)	70 (81.4)
	Never	57 (77.0)	17 (23.0)	22 (29.7)	52 (70.3)	41 (55.4)	33 (44.6)	15 (20.3)	59 (79.7)
	p ‡	0.977		0.823		0.702		0.896	
Working schedule	Full time	96 (73.3)	35 (26.7)	34 (26.0)	97 (74.0)	77 (58.8)	54 (41.2)	25 (19.1)	106 (80.9)
	Part time	68 (81.0)	16 (19.0)	26 (310)	58 (69.0)	40 (47.6)	44 (52.4)	18 (21.4)	66 (78.6)
	p †	0.198		0.426		0.110		0.676	
Working condition	Employee	70 (76.9)	21 (23.1)	22 (24.2)	69 (75.8)	45 (49.5)	46 (50.5)	14 (15.4)	77 (84.6)
	Self-employed	77 (76.2)	24 (23.8)	34 (33.7)	67 (66.3)	53 (52.5)	48 (47.5)	25 (24.8)	76 (75.2)
	Both	14 (73.7)	5 (26.3)	4 (21.1)	15 (78.9)	15 (78.9)	4 (21.1)	4 (21.1)	15 (78.9)
	Not currently employed	3 (75.0)	1 (25.0)	0 (0.0)	4 (100.0)	4 (100.0)	0 (0.0)	0 (0.0)	4 (100.0)
	p ‡	0.992		0.234		0.030*		0.304	

† - Mann-Whitney Test ‡ - Kruskal-Wallis Test

* < 0.05 ** < 0.01 *** < 0.001

Table 5 illustrates the impact of sociodemographic factors on the prevalence of workplace violence by country and table 6 illustrated the impact of professional factors on the prevalence of workplace violence by country.

Regarding Italy, data shows that the groups with higher prevalences of any type of workplace violence are women (75.7%), individuals aged between 36-40 years (100%) and 41-45 years (100%), dental hygienists with master's or equivalents (87.5%), individuals who have been working for 16-25 years (85.7%), dental hygienists working mainly in suburban locations (80.0%), individuals working in public health service (100.0%) and working both in public and private settings (100%), individuals who always work accompanied (83.3%), individuals working part-time (76.9%), and dental hygienists who are employees (71.4%). All Italian dental hygienists who were not employed at the time of the survey reported experiencing any type of workplace violence at least once in their careers (100.0%).

Regarding Portugal, data shows that the groups with higher prevalences of any type of workplace violence are men (81.8%), individuals aged between 51-55 years (100%), dental hygienists with master's or equivalents (93.8%), individuals who have been working for 16-25 years (87.5%), dental hygienists working mainly in suburban locations (77.8%), individuals working exclusively in private clinical practices (75.5%), individuals who never work accompanied (79.2%), individuals working full-time (77.3%), and dental hygienists who are employees (87.1%).

Regarding the United Kingdom, data shows that the groups with higher prevalences of any type of workplace violence are women (82.5%), individuals younger than 25 years (100%) and aged between 41-45 years (100.0%), dental hygienists with professional degree (88.9%), individuals who have been working for more than 26 years (88.9%), dental hygienists working mainly in rural locations (85.7%), working both in public and private settings (91.3%), individuals who never work accompanied (100.0%), individuals working full-time (90.9%), and dental hygienists who are self-employed (84.6%).

Regarding Latvia and Lithuania, data shows that most women (92.9%) have suffered any type of workplace violence, as well as all dental hygienists younger than 45 years (100.0%) all aged between 51-55 (100.0%), all individuals with professional degrees or bachelor's or equivalents (100.0%), all individuals working for less than 15 years (100.0%) and those working for more than 26 years (100.0%), all individuals working in mainly suburban areas (100.0%), all dental hygienists working exclusively in public health service (100.0%) or

working in both public and private settings (100.0%), all individuals working always accompanied (100.0%) or sometimes accompanied (100.0%), all individuals working full time (100.0%), and all individuals both employees and self-employed (100.0%) have suffered any type of workplace violence at least once in their careers.

Regarding the group of other countries, data shows that the groups with higher prevalences of any type of workplace violence are women (88.6%), individuals younger than 25 years (100%), aged between 36-40 years (100.0%) and older than 46 years (100%), dental hygienists with professional degree (91.7%), individuals who have been working for more than 16 years (100.0%), dental hygienists working mainly in rural locations (100.0%), working both in public and private settings (100.0%), individuals who never work accompanied (92.9%), individuals working part-time (100.0%), and dental hygienists who both employees are self-employed (100.0%) and unemployed at the time of the survey (100.0%).

Gender was the only variable that yielded statistical significance ($p=0.004$) across various countries.

Table 5 – Impact of sociodemographic factors on the prevalence of workplace violence by country

		Italy n (%)	Portugal n (%)	United Kingdom n (%)	Latvia and Lithuania n (%)	Other Countries n (%)
Gender	Woman	28 (75.7)	39 (75.0)	47 (82.5)	13 (92.9)	31 (88.6)
	Man	3 (50.0)	9 (81.8)	2 (66.7)	0 (0.0) [a., b.]	0 (0.0) [a., b.]
	p †			0.004*		
Age groups	Less than 25	2 (66.7)	14 (70.0)	1 (100.0)	3 (100.0)	4 (100.0)
	26 - 30	3 (50.0)	7 (63.6)	5 (83.3)	2 (100.0)	5 (71.4)
	31 - 35	9 (75.0)	9 (90.0)	2 (66.7)	4 (100.0)	2 (66.7)
	36 - 40	4 (100.0)	6 (85.7)	6 (85.7)	1 (100.0)	7 (100.0)
	41 - 45	4 (100.0)	3 (75.0)	6 (100.0)	0 (0.0)	3 (75.0)
	46 - 50	2 (50.0)	3 (75.0)	7 (70.0)	1 (50.0)	3 (100.0)
	51 - 55	4 (57.1)	5 (100.0)	10 (76.9)	2 (100.0)	4 (100.0)
	More than 56	3 (100.0)	1 (50.0)	12 (92.3)	0 (0.0)	3 (100.0)
	p ‡			0.804		
Higher school level attained	Professional degree	5 (55.6)	4 (80.0)	32 (88.9)	5 (100.0)	11 (91.7)
	Bachelor's or equivalent	17 (70.8)	27 (71.1)	12 (70.6)	7 (100.0)	13 (86.7)
	Master's or equivalent	7 (87.5)	15 (93.8)	5 (83.3)	1 (50.0)	7 (87.5)
	Doctoral or equivalent	1 (100.0)	2 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
	p ‡			0.364		

† - Mann-Whitney Test ‡ - Kruskal-Wallis Test

* < 0.05 ** < 0.01 *** < 0.001

a. This category is not used in post hoc comparisons because the sum of case weights is less than two.

b. This category is not used in post hoc comparisons because its column proportion is equal to zero or one.

Table 6 – Impact of professional factors on the prevalence of workplace violence by country

		Italy n (%)	Portugal n (%)	United Kingdom n (%)	Latvia and Lithuania n (%)	Other Countries n (%)
Years of practice	Less than 5	5 (50.0)	19 (67.9)	5 (62.5)	5 (100.0)	8 (72.7)
	6 - 15	16 (76.2)	16 (84.2)	13 (86.7)	5 (100.0)	8 (88.9)
	16 - 25	6 (85.7)	7 (87.5)	15 (83.3)	2 (66.7)	10 (100.0)
	More than 26	4 (80.0)	6 (75.0)	16 (88.9)	1 (100.0)	5 (100.0)
	p ‡			0.532		
Practice location	Mainly urban	21 (70.0)	38 (74.5)	21 (80.8)	11 (91.7)	22 (91.7)
	Mainly suburban	8 (80.0)	7 (77.8)	22 (81.5)	2 (100.0)	3 (60.0)
	Mainly rural	2 (66.7)	3 (100.0)	6 (85.7)	0 (0.0)	6 (100.0)
	p ‡			0.461		
Mixed Practices	Public	1 (100.0)	5 (100.0)	5 (71.4)	3 (100.0)	8 (72.7)
	Private	28 (70.0)	40 (75.5)	23 (79.3)	8 (88.9)	18 (94.7)
	Mixed practices	2 (100.0)	3 (60.0)	21 (91.3)	2 (100.0)	5 (100.0)
	p ‡			0.215		
Accompanied while working	Always	5 (83.3)	5 (100.0)	24 (70.6)	2 (100.0)	7 (87.5)
	Sometimes	10 (76.9)	24 (70.6)	18 (94.7)	7 (100.0)	11 (84.6)
	Never	16 (66.7)	19 (79.2)	7 (100.0)	4 (80.0)	13 (92.9)
	p ‡			0.515		
Working schedule	Full time	21 (70.0)	34 (77.3)	20 (90.9)	9 (100.0)	22 (84.6)
	Part time	10 (76.9)	14 (73.7)	29 (76.3)	4 (80.0)	9 (100.0)
	p †			0.590		
Working condition	Employee	5 (71.4)	27 (87.1)	13 (76.5)	11 (91.7)	21 (87.5)
	Self-employed	22 (71.0)	14 (60.9)	33 (84.6)	0 (0.0)	7 (87.5)
	Both	2 (66.7)	6 (75.0)	3 (75.0)	2 (100.0)	2 (100.0)
	Not currently	2 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)
	p ‡			0.652		

† - Mann-Whitney Test ‡ - Kruskal-Wallis Test

* < 0.05 ** < 0.01 *** < 0.001

3.5 Discussion

Over recent years, there has been a significant rise in workplace violence, impacting numerous workers globally.[3,6] The prevalence of workplace violence within the healthcare sector is particularly alarming as it not only harms individuals [6,8,13,23] but also compromises the quality of care delivered, thereby affecting healthcare outcomes for the wider community.[3,4,13] This study aims to better understand the specifics of workplace violence against dental hygienists.

A sample comprising 215 dental hygienists represents approximately 0.57% of the total membership of 38000 dental hygienists in the EDHF. While this might appear small[24], it is consistent with similar studies conducted within the dental hygiene population[25–27]. To facilitate statistical analyses, researchers opted to group countries into categories of comparable size. Italy, Portugal, and the United Kingdom were kept as separate groups. Meanwhile, Latvia and Lithuania were merged due to their cultural affinities and the remaining countries were grouped into Other Countries.

The questionnaire obtained good feedback from the panel of experts during the validation process. The results of the CVR and CVI were both positive, indicating strong validity of the questionnaire, underscoring the questionnaire's effectiveness and reliability.[21,28]

Results show that the prevalence rates of workplace violence suffered from European dental hygienists surpass those from recent studies reported in Canada, where 73.4% of dental hygienists have encountered some form of workplace violence[7,15], and in South Korea, where 47.3% have experienced verbal violence and 17.9% have endured sexual harassment.[15]

The predominant form of workplace violence among European dental hygienists was verbal aggression, followed by incidents of sexual harassment and physical violence. The existing literature doesn’t show any consistent findings regarding which type of workplace violence is the most prevalent, with results varying across different studies. [2,7,8]

Similarly to other studies, female workers, in this case dental hygienists, tend to suffer more workplace violence overall[3,8], while men are more commonly affected by physical violence.[8]

Contrary to existing literature [2,8,9,13,29,30], the present study found that younger individuals, those with fewer years of practice and with lower school levels attained reported

lower rates of workplace violence. Although individuals with doctoral degrees show statistically significant lower rates of verbal violence, it is observed that individuals with master's degrees show as much as, or even more, prevalence of workplace violence than individuals with professional degrees. This discrepancy may be attributed to heightened awareness or stricter standards regarding acceptable behaviour among individuals with advanced degrees, leading to increased reporting. [7]

Location and practice type also influence workplace violence prevalence, with dental hygienists working in rural areas and those in working simultaneously in public and private practices experiencing higher incidences, particularly in terms of verbal aggression. The patient volume of a clinic, waiting times, staff rotation and working shifts are different in private and public settings and can impact the prevalence of workplace violence[3,11], however this didn't impact the results from the questionnaire.

While working alone is commonly associated with increased risk of workplace violence [3,11], our findings suggest that dental hygienists working alongside other professionals may also experience elevated prevalence rates, highlighting the need for further investigation into this event.

Regarding working status, full-time dental hygienists and employees reported higher rates of workplace violence. Literature explains that employees can suffer more workplace violence than self-employed due to the self-employed individuals typically having a unique position, often perceived as possessing a more fair relationship with their, in this case, the organisation that hires their services.[8,13]

Analysis of country-specific data revealed that Latvia and Lithuania have the highest prevalence of any type of workplace violence, as well as physical violence and verbal violence, while the United Kingdom has the highest prevalence of sexual harassment. Italy has the least prevalence of any type of workplace violence, as well as verbal violence and sexual harassment, while Portugal has the lowest prevalence of physical violence. Although there are statistically significant higher incidences of verbal aggression among dental hygienists in Latvia and Lithuania, overall prevalence rates did not significantly differ across countries. Sociodemographic and professional factors did not demonstrate consistent statistical significance in influencing workplace violence prevalence across different countries, except for gender. Post hoc analysis revealed that this significance arose from the lack of male participants from Latvia and Lithuania, as well as Other Countries. The absence

of statistical significances indicates uniform experiences among European dental hygienists regardless of country of practice.

To our knowledge, this is the first study examining workplace violence prevalence among European dental hygienists. However, some limitations were encountered, such as the lack of participation from some associations and language barriers that may have made it difficult for some individuals to respond to a questionnaire not in their native language. Future research should prioritize cross-national studies using country-specific questionnaires, translated and adapted to each country, to ensure inclusivity and facilitate data comparison. These findings contribute to a better understanding of workplace violence among European dental hygienists and underscore the importance of developing preventative strategies through further research and intervention efforts.

3.6 Conclusion

The developed questionnaire obtained positive feedback and a good CVI indicating a strong validity. Workplace violence poses a significant challenge for European dental hygienists, particularly in the form of verbal violence, with little variation observed among different countries. There is an urgent need for further research to elucidate the immediate and direct consequences of workplace violence. It is imperative to acknowledge the alarming prevalence of this phenomenon and to undertake additional studies to enhance the understanding of the problem, as well as to design and implement preventive measures effectively.

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4. ARTICLE II – BREAKING THE SILENCE: UNMASKING ATTITUDES AND REACTIONS OF EUROPEAN DENTAL HYGIENISTS TO WORKPLACE VIOLENCE AND SEXUAL HARASSMENT

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4.1 Abstract

Objective: This study aimed to assess the prevalence of different types of perpetuators of workplace violence against European dental hygienists. Additionally, it aimed to understand the most common reactions after workplace violence and the motivating reasons. It also aimed to understand the knowledge and awareness of workplace violence of European dental hygienists.

Methods: A non-probabilistic sample was gathered by administering an online questionnaire to members of dental hygiene associations affiliated with the European Dental Hygiene Federation. 24 European dental hygienists' association were contacted to help disseminate the questionnaire amongst their members.

Results: A total of 215 participants from 13 European countries contributed to the study. Patients and their companions were the primary perpetrators of workplace violence, followed by dentists. The most prevalent reaction to workplace violence was to ignore the incident (54.7%). The main reasons for not reporting incidents included the belief it was a waste of time (51.2%) and lack of knowledge regarding reporting procedures (45.1%). Less than one third of dental hygienists have witnessed a peer suffer from workplace violence (32.1%) and the most common reaction was to ignore it (46.4%). More than half (59.9%) of dental hygienists lack the knowledge of the existence of an authority to report workplace violence and more than half (40.0%) are unaware of the mechanisms to report workplace violence.

Conclusions: There's underreporting of workplace violence of European dental hygienists and measures should be taken to educate on workplace violence and better reporting mechanisms.

Key words: workplace violence, physical violence, verbal violence, sexual harassment, dental hygienists

4.2 Introduction

The initial European investigations into workplace violence surfaced in the late 19th century, primarily led by Scandinavian authors.[1,2] Since that time, an increasing number of studies have been conducted, reflecting a heightened concern for workplace violence in recent years [3], as various forms of violence have become more prevalent in professional settings.[4–6]

Workplace violence is hard to define in a unanimous way due to overlapping of specific interpretations and terminology, or variations based on the country, culture, or situation. [5–7] However, one of the most accepted and recent definitions was introduced in 2019 during the General Conference of the International Labour Organization (ILO) and published in the Violence and Harassment Convention (Convention No 190). ILO categorizes "violence and harassment at work" as a range of unacceptable behaviours, actions or threats, occurring once or repeatedly, that aim, result in or are likely to result in physical, psychological, sexual or economic harm.[3]

According to the Convention No 190, violence and harassment at work covers all workers irrespective of their contractual status, the working sector, economy and geographic areas.[3] The convention also encompasses all situations occurring in the course of, linked with or arising out of work.[3]

There are various types of abuse encompassed within the topic of workplace violence, often overlapping and resulting in difficulties in studying the phenomenon.[5–8] The literature proposes that the various terms can be categorized into the three most common terms related to violence:[4–6,8–11]

- Physical violence: single or repeated unwanted behaviour that can cause harm by using physical force; can include beating, kicking, slapping, punching, stabbing, pushing, biting, among others.
- Verbal violence: single or repeated unwelcome behaviour that can cause harm by using verbal language; can include threats, shouts, bullying, mocking, racial discrimination, among others.
- Sexual harassment: single or repeated unwelcome behaviour that can cause harm by using physical force or verbal language with sexual nature; can include touching, groping, pinching, inappropriate comments of sexual nature, invites of sexual nature, among others.

In recent years, the phenomenon of workplace violence has escalated significantly, becoming a global issue and a human rights concern, affecting millions of workers worldwide. [3,9] Workplace violence prompts severe consequences for the wellbeing of the victim, as well as for the work company and society.[3,9,12]

The repercussions of workplace violence on the victim can manifest in both physical and emotional suffering, possibly leading to sickness, accidents, abuse of substances and even death. Additionally, it may lead to diminished motivation and confidence. [5,6,13] Companies are not immune to its impact, as workplace violence can undermine work performance, diminish service quality, and damage the organization's reputation. [5,6,13] The broader community also bears the burden through the costs associated with rehabilitating victims and the potential increase in unemployment. [5,6,13] As workplace violence persists, the symptoms tend to worsen.[5,6,13]

The health sector is often identified as highly susceptible to exposure to violent acts, primarily due to its frequent interactions with the public.[3,6,14] Within this sector, there is evidence of a moderate to high prevalence of workplace violence against professionals [4,14–16], however, studies also suggest that many incidents go unreported, implying that the actual rates might be significantly higher. [14]

Regarding the experiences of workplace violence of dental hygienists, there are still few studies on the matter [8,17,18], nonetheless, the rising number of these professionals indicate an increase in risk of exposure to such incidents.[18]

Workplace violence carries significant consequences for the mental and physical well-being of dental hygienists, influencing both their productivity and [8], consequently, the standard of care they deliver.[5,6] It is imperative to perceive this matter not solely as an individual-level challenge but as a broader social issue.[5,6,18]

It’s crucial to study the experiences of workplace violence of dental hygienists, as it is the initial stage to develop and implement interventions against workplace violence, to establish a good working environment and optimise patient care.[4,8,18]

The primary aims of this research are to identify the primary perpetrators of workplace violence targeting dental hygienists and to explore the attitudes and reactions of dental hygienists after such incidents.

4.3 Methodology

This study was conducted following the methodology of a cross-sectional study amongst dental hygienists registered in dental hygiene associations that are members of the European Dental Hygiene Federation (EDFH) and currently working in WHO region of Europe.[19] The approximate population is estimated to be around 38.000 dental hygienists. The sample was obtained using a non-probabilistic method, by distributing the online questionnaire to all members of the dental hygiene associations.

The survey was initiated on November 2023 by contacting 24 dental hygiene associations, with an estimated universe of 38.000 dental hygienists, to disseminate the questionnaires amongst their members. Each association was contacted several times, to ensure widespread distribution of the questionnaire before the closing of the survey on February 2024. The questionnaire was accessible online through *Google Forms* and was shared within each dental hygiene association via email or their respective social media groups.

All dental hygienists registered in the dental hygienists' associations were invited to take part in the study, regardless of age, years of practice or practice type. Only dental hygiene students were excluded from this study.

The questionnaire used for this study was created and validated by the researchers in another study. The questionnaire was created in English and ensured appropriateness of language and ease to complete. The questionnaire was divided in 3 parts. The first part had 10 questions collecting sociodemographic data (gender, age, higher school level attained, years of practice, country of practice, practice location, type of practice, if accompanied while working, working schedule and employment status). The second had 21 questions to evaluate the prevalence of experiences of violence and sexual harassment of dental hygienist at work by either patients or accompanying person, dentists, dental hygienists, dental assistants, management staff, other professional or if ever witnessed another dental hygienist suffer from violence or sexual harassment. The third and last part collected data about how the participants dealt with their own experiences of violence and harassment or the those witnessed, and their awareness of the subject of workplace violence.

Participation in this study was voluntary and individuals could terminate their participation at any time without consequences. Participants were not required to provide

written informed consent, as their response to the questionnaire was considered implicit consent.

Approval for the study was obtained from the ethics council of Faculdade de Medicina Dentária da Universidade de Lisboa (process CE-FMDUL202339). (Anex 1)

All the statistical analyses, descriptive and inferential, were run on IBM SPSS Statistic version 29.0.0.0.

The adequacy of the sample size was assessed using the Kaiser-Meyer-Olkin (KMO) test. The Kolmogrov-Smirnov test was used to evaluate the distribution of the data collected. The Mann-Whitney test was employed to compare the distributions of the independent variables, while the Kruskal-Wallis test was utilized to assess statistical significance across three or more independent groups.

4.5 Results

The final sample comprised 215 individuals from 13 countries. After contacting 24 dental hygienists' associations, no participation was obtained from the Czech Republic, Denmark, Estonia, Germany, Ireland, Malta, Norway, Poland, Russia, Slovenia, and Switzerland. Most participants were from Portugal (29.3%), followed by the United Kingdom (27.9%), Italy (20.0%), and Latvia and Lithuania (6.5%). The remaining individuals (16.3%) were distributed across Austria, Belgium, Finland, Israel, the Netherlands, the Slovak Republic, Spain, and Sweden. The 215 participants constitute approximately 0.57% of the 38000 dental hygienists represented by the EDHF. (Table 1) The KMO provided a result of 0.775, which indicates a good sample size.

Most participants were female (90.7%), with a mean age of 39.52 (± 11.83) years, ranging from 22 to 66 years old. (Table 1)

The majority held a bachelor's degree or equivalent (47.0%) as their highest educational attainment, with an average of 14.23 (± 11.79) years of practice. (Table 1)

Regarding workplace characteristics, the majority exclusively worked in private clinical practices (69.8%), primarily in urban areas (66.5%), on a full-time basis (60.9%). Self-employment was the prevailing employment status (47.0%), and approximately one-fourth always worked accompanied by another professional in the same physical space (25.6%). (Table 1)

Table 1 – Sample Characteristics

Sample Characteristic			n(%)
Gender	Woman		195 (90.7)
	Man		20 (9.3)
Age	Less than 25		31 (14.4)
	26-30		32 (14.9)
	31-35		32 (14.9)
	36-40		26 (12.1)
	41-45		18 (8.4)
	46-50		23 (10.7)
	51-55		31 (14.4)
	56-66		21 (9.8)
Higher school level attained	Professional degree		67 (31.2)
	Bacherlor's or equivalent		101 (47.0)
	Master's or equivalent		40 (18.6)
	Doctoral or equivalent		7 (3.3)
Years of practice as a dental hygienist	Less than 5		62 (28.8)
	6 ate 15		69 (32.1)
	16-25		46 (21.4)
	More than 26		37 (17.2)
Country of practice	Italy		43 (20.0)
	Portugal		63 (29.3)
	United Kingdom		60 (27.9)
	Latvia and Lithuania	Latvia	10 (4.7)
		Lithuania	4 (1.9)
	Other countries	Austria	2 (0.9)
		Belgium	1 (0.5)
		Finland	4 (1.9)
		Israel	1 (0.5)
		Netherlands	4 (1.9)
		Slovak Republic	11 (5.1)
		Spain	11 (5.1)
		Sweden	1 (0.5)
Practice location	Mainly urban		143 (66.5)
	Mainly suburban		53 (24.7)
	Mainly rural		19 (8.8)
Type of practice	Public health service		27 (12.6)
	Private clinical practice		150 (69.8)
	Mixed practices		37 (17.2)
Accompanied while working	Always		55 (25.6)
	Sometimes		86 (40.0)
	Never		74 (34.4)
Working schedule	Full time		131 (60.9)
	Part time		84 (39.1)
Working condition	Employee		91 (42.3)
	Self-employed		101 (47.0)
	Both		19 (8.8)
	Not currently employed		4 (1.9)

The data regarding the experiences of violence at work, show that 80.0% (n=172) individuals have experienced workplace violence at least once in their career as dental hygienists'. The most frequently experienced type of workplace violence was verbal violence (72.1%), followed by sexual harassment (45.6%) and physical violence (23.7%).

When examining the prevalence of various forms of aggressors, data indicates that dental hygienists are more likely to encounter aggressions from patients or their accompanying person, followed by dentists. Specifically, 15.3% of participants reported experiencing physical violence, 60.5% reported encountering verbal violence, and 36.7% reported facing sexual harassment, all from patients or accompanying person, and 9.3% of participants reported experiencing physical violence, 43.3% reported encountering verbal violence, and 20.5% reported facing sexual harassment from dentists. Data also shows that dental hygienists are less likely to be victims of workplace violence perpetuated by fellow dental hygienists, with 3.7% experiencing physical violence, 14.0% suffering verbal violence and 1.4% suffering sexual harassment from their peers. (Table 2)

Table 2 – Prevalences of different types of aggressors by type of violence

			n (%)
Physical violence	Experienced from a patient or accompanying person	Never	182 (84.7)
		At least one time	32 (15.3)
	Experienced from a dentist	Never	195 (90.7)
		At least one time	20 (9.3)
	Experienced from a dental hygienist	Never	207 (96.3)
		At least one time	8 (3.7)
	Experienced from a dental assistant	Never	204 (94.9)
		At least one time	11 (5.1)
	Experienced from management staff	Never	208 (96.7)
		At least one time	7 (3.3)
	Experienced from another professional	Never	202 (94.0)
		At least one time	13 (6)
	Witnessed another dental hygienist suffer	Never	202 (94.0)
		At least one time	13 (6.0)
Verbal violence	Experienced from a patient or accompanying person	Never	85 (39.5)
		At least one time	130 (60.5)
	Experienced from a dentist	Never	122 (56.7)
		At least one time	93 (43.3)
	Experienced from a dental hygienist	Never	185 (86.0)
		At least one time	30 (14.0)
	Experienced from a dental assistant	Never	169 (78.6)
		At least one time	46 (21.4)
	Experienced from management staff	Never	155 (72.1)
		At least one time	60 (27.9)
	Experienced from another professional	Never	174 (80.9)
		At least one time	41 (19.1)
	Witnessed another dental hygienist suffer	Never	153 (71.2)
		At least one time	44 (28.8)
Sexual harassment	Experienced from a patient or accompanying person	Never	136 (63.3)
		At least one time	62 (36.7)
	Experienced from a dentist	Never	171 (79.5)
		At least one time	44 (20.5)
	Experienced from a dental hygienist	Never	212 (98.6)
		At least one time	3 (1.4)
	Experienced from a dental assistant	Never	204 (94.9)
		At least one time	11 (5.1)
	Experienced from management staff	Never	204 (94.9)
		At least one time	11 (5.1)
	Experienced from another professional	Never	197 (91.6)
		At least one time	18 (8.4)
	Witnessed another dental hygienist suffer	Never	193 (89.8)
		At least one time	22 (10.2)

Results show that, when faced with an experience of workplace violence, most of the participants (54.7%) ignored the event. Only 33.1% made a complaint to the clinical director and 8.7% made an official complaint. Only 5.2% of the participants asked for professional psychosocial help, representing the least employed strategy for addressing the situation. (Table 3)

When analysing the reactions to experiences of workplace violence across different countries, data shows a consistent pattern, with the majority of individuals opting to ignore the event. This trend is evident in Italy (58.1%), Portugal (56.3%), the United Kingdom (53.1%), Latvia and Lithuania (61.5%), and other countries (48.4%). On the contrary, the least common response to workplace violence differed among countries. In Italy, both filing an official complaint and seeking professional help were the least common, each at 3.2%. In Portugal, the least common response was filing an official complaint (6.3%). In the United Kingdom, it was seeking professional help (2.0%). In Latvia and Lithuania, the least common response was filing an official complaint (1.7%). In other countries, the least common response was seeking professional help (6.5%). No statistical significances were found when observing the reactions after suffering from workplace violence in different countries (p>0.05). (Table 3)

Table 3 – Reactions after suffering workplace violence by country

		Italy	Portugal	United Kingdom	Latvia and Lithuania	Other Countries	Total
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Ignored	Yes	18 (58.1)	27 (56.3)	26 (53.1)	8 (61.5)	15 (48.4)	94 (54.7)
	No	13 (41.9)	21 (43.8)	23 (46.9)	5 (38.5)	16 (51.6)	78 (45.3)
p §				0.688			
Made a complaint to the clinical director	Yes	9 (29.0)	17 (35.4)	14 (28.6)	5 (38.5)	12 (38.7)	57 (33.1)
	No	22 (71.0)	31 (64.6)	35 (71.4)	8 (61.5)	19 (61.3)	115 (66.9)
p §				0.634			
Made na official complaint	Yes	1 (3.2)	3 (6.3)	5 (10.2)	1 (7.7)	5 (16.1)	15 (8.7)
	No	30 (96.8)	45 (93.8)	44 (89.8)	12 (92.3)	26 (83.9)	157 (91.3)
p §				0.249			
Talked to a family member or friend	Yes	8 (25.8)	12 (25.0)	15 (30.6)	6 (46.2)	12 (38.7)	53 (30.8)
	No	23 (74.2)	36 (75.0)	34 (69.4)	7 (53.8)	19 (61.3)	119 (69.2)
p §				0.147			
Asked a colleague for help	Yes	11 (35.5)	10 (20.8)	12 (24.5)	3 (23.1)	10 (32.3)	46 (26.7)
	No	20 (64.5)	38 (79.2)	37 (75.5)	10 (76.9)	21 (67.7)	126 (73.3)
p §				0.241			
Asked for professional psychological help	Yes	1 (3.2)	4 (8.3)	1 (2.0)	1 (7.7)	2 (6.5)	9 (5.2)
	No	30 (96.8)	44 (91.7)	48 (98.0)	12 (92.3)	29 (93.5)	163 (94.8)
p §				0.936			
Resigned from work	Yes	4 (12.9)	4 (8.3)	8 (16.3)	1 (7.7)	3 (9.7)	20 (11.6)
	No	27 (87.1)	44 (91.7)	41 (83.7)	12 (92.3)	28 (90.3)	152 (88.4)
p §				0.886			

§ - X^2 test - linear by linear association with Bonferroni correction

Of all individuals that made a complaint, either to the clinical director or official, after experiencing workplace violence, 21.2% are sure there were consequences for the aggressor, 33.3% were sure there weren't consequences for the aggressor and 45.5% remained uncertain.

For the individuals who opted to not file a complaint after being a victim of workplace violence, the reasons varied. The majority (51.2%) avoided it because it was perceived as a waste of time and 45.1% because they didn't know what to do and 28.0% because the procedures were unclear. Fear of exposure was a minor deterrent, with only 8.5% abstaining from filing due to this concern. 35 individuals (29.9%) did not provide reasons for their decision. (Table 4)

Analysis of reasons for not filing complaints across different countries revealed distinct trends. In Italy, the primary reason was a lack of knowledge regarding appropriate actions (55.6%), while in Portugal and the United Kingdom, the primary reason was thinking it was a waste of time (44.4% and 65.5%, respectively). In Latvia and Lithuania participants cited both unclear procedures and thoughts of being a waste of time (60.0% each), while those from other countries cited a lack of knowledge and unclear procedures (50.0% each). No statistical significances were found when analysing the reasons why individuals didn't make a complain after suffering from workplace violence across different countries ($p>0.050$).

Overall, 35 individuals from all countries didn't provide a reason as to why they didn't complain after suffering workplace violence. Statistical significance was observed regarding the number of individuals who did not file a complaint after experiencing workplace violence and did not provide reasons for their inaction ($p=0.023$), with Italy being the country with the highest percentage of individuals that didn't provide a reason (59.1%). (Table 4)

Table 4 – Reasons to avoid making a complaint after suffering workplace violence

		Italy (A)	Portugal (B)	United Kingdom (C)	Latvia and Lithuania (D)	Other Countries (E)	Total
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Didn't know what to do	Yes	5 (55.6)	11 (40.7)	13 (44.8)	2 (40.0)	6 (50.0)	37 (45,1)
	No	4 (44.4)	16 (59.3)	16 (55.2)	3 (60.0)	6 (50.0)	45 (54.9)
p §				0.589			
Afraid people wouldn't believe you	Yes	2 (22.2)	4 (14.8)	5 (17.2)	1 (20.0)	4 (33.3)	16 (19.5)
	No	7 (77.8)	23 (85.2)	24 (82.8)	4 (80.0)	8 (66.7)	66 (80.5)
p §				0.187			
Procedures were unclear	Yes	1 (11.1)	7 (25.9)	6 (20.7)	3 (60.0)	6 (50.0)	23 (28.0)
	No	8 (88.9)	20 (74.1)	23 (79.3)	2 (40.0)	6 (50.0)	59 (72.0)
p §				0.071			
Thought it was a waste of time	Yes	3 (33.3)	12 (44.4)	19 (65.5)	3 (60.0)	5 (41.7)	42 (51.2)
	No	6 (66.7)	15 (55.6)	10 (34.5)	2 (40.0)	7 (58.3)	40 (48.8)
p §				0.708			
Worried people would find out	Yes	1 (11.1)	1 (3.7)	3 (10.3)	0 (0.0)	2 (16.7)	7 (8.5)
	No	8 (88.9)	26 (96.3)	26 (89.7)	5 (100.0)	10 (83.3)	75 (91.5)
p §				0.302			
Fear of punishment	Yes	1 (11.1)	5 (18.5)	2 (6.9)	1 (20.0)	3 (25.0)	12 (14.6)
	No	8 (88.9)	22 (81.5)	27 (93.1)	4 (80.0)	9 (75.0)	70 (85.4)
p §				0.511			
Fear for your reputation	Yes	2 (22.2)	3 (11.1)	5 (17.2)	0 (0.0)	2 (16.7)	12 (14.6)
	No	7 (77.8)	24 (88.9)	24 (82.8)	5 (100.0)	10 (83.3)	70 (85.4)
p §				0.838			
Lack of trust in the competent authorities	Yes	0 (0.0)	7 (25.9)	8 (27.6)	1 (20.0)	1 (8.3)	17 (20.7)
	No	9 (100)	20 (74.1)	21 (72.4)	4 (80.0)	11 (91.7)	65 (79.3)
p §				0.124			
Individuals that were victims but didn't provide reasons as to why they didnt complain	Yes	13 (59.1) [B, C]	5 (15.6)	7 (19.4)	4 (44.4)	6 (33.3)	35 (29.9)
	No	9 (40.9)	27 (84.4) [A]	29 (80.6) [A]	5 (55.6)	12 (66.7)	82 (70.1)
p §				0.023*			

§ - X^2 test - linear by linear association with Bonferroni correction

* < 0.05; ** < 0.01; *** < 0.001

Capital superscript letters indicate which groups are significantly different from each other.

Approximately one third (32.1%) of respondents reported witnessing a peer experience workplace violence at least once, with sexual harassment (32.1%) being the most frequently observed, followed by verbal abuse (28.8%) and physical violence (6.0%). (Table 5)

Table 5 – Prevalence of witnessed workplace violence

Witnessed another dental hygienist suffer from		n (%)
Any type of violence	Never	146 (67.9)
	At least one time	69 (32.1)
Physical violence	Never	202 (94.0)
	At least one time	13 (6.0)
Verbal violence	Never	153 (71.2)
	At least one time	62 (28.8)
Sexual harassment	Never	193 (89.8)
	At least one time	22 (10.2)

When witnessing another dental hygienist suffer workplace violence, the most common reaction was to ignore the event (46.4%) followed by persuading the victim to make a complain to the clinical director (31.9%). Making an official complaint on behalf of the victim was the least reported reaction (2.9%), followed by encouraging the victim to resign (2.9%). (Table 6)

Analysis of reactions to witnessing workplace violence across different countries revealed varying responses. In Portugal the most common reaction was to ignore the event (52.0%). This was also the case in the United Kingdom, where 57.1% of dental hygienists ignored the event. In Italy, ignoring the event and persuading the victim to file an official complaint were equally prevalent (36.4% each), while in Latvia and Lithuania, persuading the victim to file an official complaint was the most common (50.0%). The majority of participants from other countries also reported ignoring the event (50.0%). However, no statistical significances were found when observing the reactions after witnessing another dental hygienist suffer from workplace violence in different countries (p>0.05). (Table 6)

Table 6 – Reactions after witnessing workplace violence

		Italy n (%)	Portugal n (%)	United Kingdom n (%)	Latvia and Lithuania n (%)	Other Countries n (%)	Total n (%)
Ignored	Yes	4 (36.4)	13 (52.0)	4 (57.1)	1 (16.7)	10 (50.0)	32 (46.4)
	No	7 (63.6)	12 (48.0)	3 (42.9)	5 (83.3)	10 (50.0)	37 (53.6)
p §				0.575			
Persuade the victim to make complain to the clinical director	Yes	2 (18.2)	11 (44.0)	1 (14.3)	2 (33.3)	6 (30.0)	22 (31.9)
	No	9 (81.8)	14 (56.0)	6 (85.7)	4 (66.7)	14 (70.0)	47 (68.1)
p §				0.398			
Made a complaint to the clinical director for the victim	Yes	1 (9.1)	1 (4.0)	0 (0.0)	0 (0.0)	1 (5.0)	3 (4.3)
	No	10 (90.9)	24 (96.0)	7 (100.0)	6 (100.0)	19 (95.0)	66 (95.7)
p §				0.866			
Persuade the victim to make na official complaint	Yes	4 (36.4)	4 (16.0)	3 (42.9)	3 (50.0)	2 (10.0)	16 (23.2)
	No	7 (63.6)	21 (84.0)	4 (57.1)	5 (50.0)	18 (90.0)	53 (76.8)
p §				0.805			
Made official complaint for the victim	Yes	0 (0.0)	1 (4.0)	0 (0.0)	0 (0.0)	1 (5.0)	2 (2.9)
	No	11 (100.0)	24 (96.0)	7 (100.0)	6 (100.0)	19 (95.0)	67 (97.1)
p §				0.891			
Persuade the victim to ask for professional psychological help	Yes	1 (9.1)	3 (12.0)	1 (14.3)	1 (16.7)	1 (5.0)	7 (10.1)
	No	10 (90.9)	22 (88.0)	6 (85.7)	5 (83.3)	19 (95.0)	62 (89.9)
p §				0.493			
Persuade the victim to to resign	Yes	2 (18.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.9)
	No	9 (81.8)	25 (100.0)	7 (100.0)	6 (100.0)	20 (100.0)	67 (97.1)
p §				0.891			

§ - X^2 test - linear by linear association with Bonferroni correction

When participants were asked if a national competent authority exists to report workplace violence, 127 of them (59.1%) responded that they didn't know. When asked if there is any initiative to educate on workplace violence at the workplace 101 participants (47.0%) responded negatively. Across all countries, a substantial proportion of respondents were uncertain about the existence of national competent authorities to report workplace violence. Statistically significance was found regarding the existence of such an authority (p=0.008), with the United Kingdom being the country where participants reported to not know. Statistical significance was also found regarding the existence of initiatives to educate on workplace violence at the participants workplace (p=0.001), with Portugal reporting the higher rate of non-existence. (Table 7)

Table 7 – Knowledge of initiatives regarding workplace violence

		Italy (A)	Portugal (B)	United Kingdom (C)	Latvia and Lithuania (D)	Other Countries (E)	Total
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Is there any national competent authority to report workplace violence?	Yes	14 (32.6)	24 (38.1)	11 (18.3)	7 (50.0)	12 (34.3)	68 (31.6)
	No	6 (14.0)	7 (11.1)	1 (1.7)	0 (0.0)	6 (17.1) [(B)]	20 (9.3)
	Don't Know	23 (53.5)	32 (50.8)	48 (80.0) [(A, B, E)]	7 (50.0)	17 (48.6)	127 (59.1)
p ¶				0.008*			
Is there any initiative to educate on workplace violence at your workplace?	Yes	9 (20.9)	7 (11.1)	18 (30.0)	2 (14.3)	12 (34.3)	48 (22.3)
	No	25 (58.1) [(C)]	41 (65.1) [(C, E)]	16 (26.7)	7 (50.0)	12 (34.3)	101 (47.0)
	Don't know	9 (20.9)	15 (23.8)	26 (43.3)	5 (35.7)	11 (31.4)	66 (30.7)
p ¶				0.001**			

¶ - Bonferroni Cramer's V test

* < 0.05; ** < 0.01; *** < 0.001

Capital superscript letters indicate which groups are significantly different from each other.

When asked about their awareness, 55.8% of participants said they are aware about the topic of workplace violence, 40.0% said they are aware of the mechanisms to report workplace violence and 56.7% are aware of the signs to identify workplace violence. (Table 8)

Over half of the participants from Portugal and the United Kingdom were aware of workplace violence, its associated mechanisms, and signs. However, a reverse trend was observed in Italy and Latvia and Lithuania, where fewer than 50% of participants were aware. Participants from other countries displayed intermediate levels of awareness, with 60% of the participants acknowledged workplace violence, but 65% remained unaware of reporting

mechanisms, and 55% recognized signs of workplace violence. No statistical significances were found when observing awareness of the topic of workplace violence, mechanisms to report workplace violence and signs to identify workplace violence (p>0.05). (Table 8)

Table 8 – Awareness of workplace violence

		Italy	Portugal	United Kingdom	Latvia and Lithuania	Other Countries	Total
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
How aware are you about the topic of workplace violence?	unaware	6 (54.5)	6 (24.0)	2 (28.6)	5 (83.3)	8 (40.0)	95 (44.2)
	aware	5 (45.5)	19 (76.0)	5 (71.4)	1 (16.7)	12 (60.0)	120 (55.8)
p ¶				0.062			
How aware are you of the mechanisms to report workplace violence?	unaware	8 (72.7)	12 (48.0)	3 (42.0)	5 (83.3)	13 (65.0)	129 (60.0)
	aware	3 (27.3)	13 (52.0)	4 (57.1)	1 (16.7)	7 (35.0)	86 (40.0)
p ¶				0.877			
How aware are you of the signs to identify workplace violence?	unaware	7 (63.6)	6 (24.0)	3 (42.9)	4 (66.7)	9 (45.0)	93 (43.3)
	aware	4 (36.4)	19 (76.0)	4 (57.1)	2 (33.3)	11 (55.0)	122 (56.7)
p ¶				0.079			

¶ - Bonferroni Cramer's V test

4.6 Discussion

Workplace violence represents a global concern that has escalated in recent years, impacting workers worldwide [3,5,9,20,21] and compromises the quality of care delivered, consequently affecting healthcare outcomes for communities. [5,6,20] This study aims understand the phenomenon of workplace violence experienced by dental hygienists.

The 215 participants represent around 0.57% of the EDHF members, which compromise a total of 38000 memberships. Although having only 0.57% of the population represented in a survey may appear small [22], it is consistent with similar studies conducted within dental hygiene population.[23–25] To facilitate statistical analysis, countries were grouped into comparable size categories, with Italy, Portugal and the United Kingdom being distinct groups, while Latvia and Lithuania were grouped due to cultural affinities and the remaining countries were grouped as Other Countries.

Literature on workplace violence in the health sector consistently identifies patients and their accompanying person as the primary perpetrators. [8,16,18,26] Similarly, the findings from this survey corroborate this trend, indicating patients and their companions as the most common aggressors against dental hygienists. Dentists rank second among common perpetrators, reflecting the hierarchical power dynamics within dental settings, where dental hygienist tend to work under the supervision of dentists. [27]

Following instances of workplace violence, the most prevalent reaction among participants was to ignore the event, with over half choosing this response. Only one-third reported the incident to their clinical director, highlighting the prevailing issue of underreporting in such cases.[4,9,15,18,20,26] The third most common reaction was to talk to a family member or friend, which can provide consolation and aid in recover for the victim.[9,28,29]

The survey revealed that the primary reasons for dental hygienists refraining from making a complaint were believing it to be a waste of time and a lack of knowledge on what to do. These findings underscore the necessity of educating workers on workplace violence and enhancing reporting mechanisms.[4,5,16,26]

Less than one-third of participants reported witnessing workplace violence against another dental hygienist, indicating a comparatively low incidence rate when compared to the rates of experienced workplace violence. This may suggest that instances of violence occur in

isolated situations where the victim is vulnerable and alone, thus avoiding observation by peers.

After witnessing a peer suffer from workplace violence, the most common reaction for dental hygienists was to ignore the event, followed by trying to convince the victim to file a complaint with the clinical director. This mirrors the reaction patterns after one's own experience of workplace violence. The lack of studies regarding witnessing experiences of workplace violence on a colleague doesn't allow for much comparison, however the results show once again that a significant percentage of individuals ignored the event, following the trends of underreporting seen in directly experienced workplace violence. [4,9,15,18,20,26]

When inquired about existent competent authorities to report workplace violence or educational initiatives regarding workplace violence in their workplaces, nearly half of the participants indicate lack of knowledge about it. This underscores both the lack of knowledge of the workers and lack of initiatives from companies and organisations to educate workplace on workplace violence. [4,5,16,26] Participants from the United Kingdom exhibit a statistically significant lack in knowledge regarding the existence of national authorities for reporting workplace violence, yet it remains uncertain whether such authorities actually exist or not.

While participants expressed confidence in their awareness of workplace violence and ability to identify its signs, most admitted to being unaware of reporting mechanisms. Once again, the data aligns with existing literature that shows the urgent need to develop better reporting mechanisms and educate workers on the reporting process of workplace violence. [4,5,16,26] The data reveals a statistically significant absence of initiatives aimed at educating on workplace violence in Italy and Portugal. Therefore, these countries should prioritize the development of such initiatives as a matter of urgency.

The lack of statistical significance for most data when comparing variables from different countries suggests the uniformity in reactions and awareness among dental hygienists across different European countries. This finding underscores the need to develop mechanisms and implement them across all Europe. [4,5,16,26]

As far as researchers are aware, this is the first study to analyse attitudes and behaviours of European dental hygienists after suffering workplace violence. Further studies should develop the research of the topic so it can be possible to design interventions to prevent this issue. Using country-specific questionnaires would be beneficial to overcome language barriers.

4.7 Conclusion

Most workplace violence experienced by European dental hygienists remains underreported, primarily due to victims thinking it's a waste of time to make a complaint or their uncertainty about the appropriate steps to take. Urgent action is needed to implement educational initiatives aimed at instructing dental hygienists on the reporting procedures for workplace violence and enhancing said reporting procedures.

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5. DISCUSSION

Workplace violence comprehends a range of unacceptable behaviours, actions or threats, that occur once or repeatedly, with the intention, outcome or potential to result in physical, psychological sexual, or economic harm.[6] This pervasive issue has seen a substantial growth in recent years, negatively affecting millions of workers worldwide.[6,8] Its impact can be immediate or prolonged, affecting not only the individual victim but also the workplace organization and the broader community.[6,11,12,20,26]

Among various sectors, workers in healthcare are particularly vulnerable to workplace violence.[6,9,13,19,22] Instances of workplace violence within the healthcare sector can significantly compromise the quality of care provided by workers, thereby negatively impacting healthcare outcomes for the community.[8,9]

While research on workplace violence experienced by dental hygienists is limited.[27,28] However, the studies that do exist suggest a significant prevalence of such incidents among this professional group.[7,14,28] This study seeks to gather information on workplace violence among European dental hygienists, as it represents the initial step towards implementing targeted interventions to address this issue.[7,14,28,31] By fostering safer working environments for dental hygienists, we can enhance the quality of healthcare services provided to the community.[8,9]

5.1 Sample size

The EDHF comprises 38000 members, making the 215 individuals who participated in this study account for approximately 0.57% of the total membership. While this percentage may seem low[32], it is consistent with response rates observed in other online questionnaires conducted among dental hygienists[33–35], which typically range between 0.25% and 0.60%. The inability to calculate response rates by country comes from a lack of response from national associations regarding the number of registered dental hygienists.

Out of the 24 dental hygiene associations contacted, only 12 consented to distribute the questionnaire among their members. Four dental hygiene associations declined to assist in distributing the questionnaire for various reasons: one association cited concerns regarding compliance with the General Data Protection Regulation (GDPR); other expressed limitations

due to the high volume of questionnaires they receive, leading to a decision not to accommodate any more requests; one mentioned ongoing commitments to larger questionnaires within their association and one mention they restrict their involvement to questionnaires exclusive to their association members. Despite multiple attempts at contact, eight dental hygiene associations did not respond. The lack of responses from some associations might be related to the sensitive and complex nature of the topic.[26]

Dental hygiene services and competencies across European countries display differences, prompting recent efforts to standardize the professional profile of dental hygienists in Europe. These efforts have been led by the EDFH and its 24 member countries, collaborating towards a shared objective.[36] Although the current study may not directly align with the goal of harmonizing the professional profile of dental hygienists, it represents a significant initiative aimed at viewing and analysing European dental hygienists as a cohesive entity, representing a significant step towards professional unification. The impossibility of some associations to participate in disseminating the questionnaire underscores the ongoing necessity for facilitating communication and cooperation among diverse associations from various countries. This collaborative effort is crucial for achieving unity in defining the profile of European dental hygienists.

The number of individuals involved varied across the participating countries, with participant counts ranging from 1 to 65 for each country. This resulted in imbalanced group sizes for statistical analysis. To address this issue, the investigators opted to organize countries into groups to achieve more uniform group sizes. Italy, Portugal, and the United Kingdom were kept as individual groups, while Latvia and Lithuania were combined due to their cultural similarities, for both being part of the Baltic countries, and to ensure comparable group sizes. The remaining countries were grouped together under the category Other Countries.

5.2 Questionnaire validation

The facial validation obtained positive feedback from the dental hygienists participating. The panel for the facial validation deemed the questionnaire appropriate and relevant.

Two items in the questionnaire, which scored 0.71 on the Content Validity Ratio (CVR), should have been removed according to standard guidelines.[37,38] However, after the

investigators reunited with the panel of experts, it was decided that these items would be reformulated and retained. This decision was made because every expert agreed the item would be very relevant if reformulated. Either way, the CVI before and after the item was reformulated was 0.98 and 1 respectively, indicating very strong validity of the questionnaire.[37,38]

5.3 Prevalence of workplace violence

Recent literature suggests that between 15% to 25% of European workers across all sectors have faced workplace violence at least once in careers.[11,26] Specifically, the prevalence among European workers for physical violence stands at 6.5%, for verbal violence at 19.8%, and for sexual harassment at 5.4%.[11] Surveys focused on the health sector indicate a prevalence of 20% of workplace violence amongst its workers.[26]

In studies concerning dental hygienists, findings from a Canadian study suggest that 73.4% of dental hygienists have encountered some form of workplace violence.[14] Additionally, research conducted in South Korea indicates that 47.3% have experienced verbal violence, while 17.9% have faced sexual harassment.[28]

Findings from the present questionnaire reveal that 80.0% of dental hygienists have encountered some form of workplace violence during their careers. Of these, 23.7% reported experiencing physical violence, 72.1% faced verbal violence, and 45.6% endured sexual harassment at least once in their professional lives. When comparing these results to existing literature, it's evident that European dental hygienists endure significantly higher prevalence rates of workplace violence. However, it is essential to acknowledge that the results of this questionnaire may be subject to response bias, as individuals who have encountered workplace violence are more inclined to participate in questionnaires addressing this topic.[18]

In the existing literature examining the prevalence of physical violence, verbal violence, and sexual harassment, no consistent trend emerges regarding which type is more prevalent, as findings vary across different studies. [7,11,14,39]

5.4 Impact of sociodemographic and professional factors on the prevalence of workplace violence

When examining the influence of sociodemographic factors on workplace violence experiences reveals a discrepancy between present findings and the existing literature. While findings on gender in this study align with previous research, differences arise concerning age groups and the higher school level obtained.

Gender has been described as one of the most impactful factors regarding experiencing workplace violence. Studies suggest that women tend to suffer more sexual harassment at work[8,11], while men tend to suffer more physical violence.[11] This trend is also evident in the present study.

Regarding age groups, existing literature suggests that younger individuals are more susceptible to experiencing workplace violence, with prevalences of workplace violence decreasing as age increases.[7,11,26] This trend, however, is not evident in our study as well as in a study regarding Canadian dental hygienists.[14] This inconsistency could be attributed to the present questionnaire focus on workplace violence experiences throughout one's career, rather than solely within the past year or five years, like other studies.[11,26,29,40] Consequently, older individuals may have accumulated more exposure over their lifetime. Additionally, older individuals might possess more awareness of workplace violence and higher parameters of accepted behaviour, whereas younger individuals may have accepted as normal behaviour such occurrences.[14]

Research on the relationship between education levels and workplace violence is limited and contradictory. While one study indicates that individuals with higher levels of education experience less workplace violence[39], another suggests that those with higher education levels encounter more instances of workplace violence.[14] Although there was found statistically significant lower prevalence of verbal violence for individuals with doctorate degrees, the present survey aligns with the second theory, showing that individuals with master's degrees or equivalents exhibit similar, and in some cases higher, prevalence rates of workplace violence experiences compared to those with professional/bachelor degrees. This discrepancy may arise from the possibility that individuals with master's degrees possess greater awareness of workplace violence and higher parameters of accepted behaviour, enabling them to recognize incidents more easily.[14] This does not necessarily indicate that they encounter more situations, but rather that they may be more alert at recognizing them.[14]

It's important to note that the low representation of individuals with doctorate degrees in our study may have influenced these results.

Examination of data specific to how each country impacts workplace violence indicates that Latvia and Lithuania exhibit the highest rates of all forms of workplace violence, including physical and verbal aggression. However the United Kingdom demonstrates the highest incidence of sexual harassment. Italy shows the lowest prevalence of workplace violence in any form, as well as verbal violence and sexual harassment, while Portugal has the lowest prevalence of physical violence. While there is statistically significant higher prevalence of verbal violence in Latvia and Lithuania, the prevalence rates across countries did not exhibit significant differences. Although all these countries belong to Europe according to WHO [41] there are still cultural differences between them, which can impact the results.[8–10,26] It remains to be seen if the cultural differences actually mean more violence or if they just mean the individuals are less tolerant to aggressions and therefore report it more.

The present survey study's findings deviate from those documented in the literature. A Eurofound study from 2017, which examined working conditions across Europe, outlined distinct patterns regarding workplace violence.[26] Portugal was highlighted for its relatively lower incidence rates, with approximately 5% of respondents reporting such experiences.[26] Italy followed with around 10%, while Latvia and Lithuania reported rates ranging between 15% and 20%. The UK exhibited the highest incidence, at approximately 20%.[26]

The present study indicates significantly divergent percentages of individuals reporting experiences of workplace violence, notably higher in this instance. This difference might be attributed to multiple factors. One such factor is the study’s exclusive focus on individuals within the health sector, where studies have shown there’s a higher prevalence of workplace violence.[6,9,13,19,22] Another factor could be the response bias already mentioned, as individuals who have experienced workplace violence before are more inclined to participate in surveys addressing this topic.[18] Additionally, the six-year gap between the two studies might suggest a potential increase in awareness among the European population regarding workplace violence, leading to enhanced recognition and reporting of such incidents.

Looking into how years of practice affect workplace violence, earlier studies suggest that those with fewer years on the job usually face more violence.[11,18,26,42] However, this survey presents a contradictory finding, aligning with another research that shows individuals with

less experience deal with less workplace violence.[14] The inconsistency of results regarding the impact of years of practice of an individual on their experiences of workplace violence may be attributed to methodology differences.[43] Studies who focus on the prevalence of workplace violence in shorter periods of time, like past 6months, year or five years[11,26,29,40], tend to show that individuals with less years of practice suffer more workplace violence, but studies with larger periods of time show the opposite.[14] This can be justified by the fact that individuals who have gathered more years working have also accumulated more years of exposure to workplace violence, creating an inequitable comparison with those who have had fewer years of exposure. Another possible explanation for this difference is that as workers spend more time in practice, they start expecting better treatment from patients, employers, and colleagues, resulting in less tolerance for behaviours that were once deemed acceptable.[14] Statistical significance concerning individuals working for less than 5 years being less likely to experience workplace violence needs careful consideration and cautious extrapolation. While these findings hold true for the present study, readers should be mindful that the methodology employed may not provide a fair basis for comparing exposure to workplace violence.

The data about practice location and type of practice indicate that dental hygienists working in rural areas and those working both in public and private sectors encounter elevated prevalences of workplace violence. Research has documented those factors such as patient volume, waiting times, staff rotation, and work shifts can influence the prevalence of workplace violence. [8,19,44] While these aspects may vary depending on the working location and practice, this study reveals minimal differences, except for individuals working in both public and private sectors experiencing statistically significant higher instances of verbal aggression.

Previous research has established that working alone constitutes a risk factor for experiencing workplace violence.[8,19] However, the current survey reveals an unexpected finding: dental hygienists who occasionally work accompanied by other professionals in the same space exhibit higher prevalences of workplace violence. Researchers have not identified a justification for this difference from existing literature, but it is plausible that the accompanying professional might be the perpetrator of the violence, or another factor may be at play. This topic should be explored in future research on workplace violence among dental hygienists to gain a deeper understanding of its underlying reasons.

In terms of working conditions, research indicates that self-employed individuals typically encounter lower rates of workplace violence compared to employees[11,26], a pattern supported by the findings of the present study. The data reveals that self-employed workers exhibit lower instances of experiencing workplace violence, the only exception being physical violence. One possible explanation for this disparity is the distinct position held by self-employed individuals, who are often perceived to have a more equal footing with their clients.[26] In the case of dental hygienists, for instance, the clients are typically the contracting clinic or health organisation rather than the patients themselves. This dynamic could potentially result in fewer instances of abuse from superiors, as the hierarchical power structure is less pronounced.[26] Regarding the influence of working schedule on the prevalence of workplace violence, no significant pattern was identified. Nonetheless, individuals working part-time appear to be at a heightened risk of experiencing workplace violence.

When investigating the impact of sociodemographic and professional factors on the prevalence of workplace violence across various countries, only gender showed statistically significant results. However, post hoc Bonferroni analysis revealed that this significance stemmed from the lack of male participants from Latvia and Lithuania, as well as Other Countries. Therefore, caution is needed when extrapolating and analysing this statistical result.

5.5 Prevalence of different types of aggressors

When examining the prevalence of various types of workplace violence and their perpetrators, it becomes evident that patients and their companions are the primary aggressors, closely followed by dentists. Research about the health sector consistently highlights patients and their companions as the leading instigators of workplace violence.[14,24,28,29,45,46] Several warning signs have been documented to identify patients prone to such behaviour, including displaying aggressive postures or attitudes, expressing irritation and frustration, and contributing to tense situations.[8] Additionally, various patient background factors can indicate a risk of workplace violence, such as a history of violent behaviour, substance abuse problems, severe mental illnesses, distress, and male gender.[8,9] Dental hygienists being vigilant of these warning signs could potentially prevent instances of workplace violence by enabling them to anticipate and defuse such situations. The

unfortunate reality that dentists rank as the second most common perpetrators of workplace violence against dental hygienists, seen in our results as well as other literature, is not surprising, considering that workplace violence typically stems from individuals with more power than the victims.[15,31] Although the power dynamics within oral health settings are not extensively studied, dental hygienists often operate under the authority of dentists.[47]

5.6 Response actions and underlying reasons after experiencing workplace violence

The top three most common responses action after suffering workplace violence was to ignore the event, followed by making a complaint to the clinical director, and talk to a family member or friend. The finding that over half of the instances of workplace violence were ignored and only one third was reported align with existing research findings on the subject, indicating a notable underreporting of workplace violence.[7,11,18,26,28,29,48] Many aspects can contribute to the difficulty to report workplace violence, such as lack of knowledge of what to do, fear of stigmatization, shame and guilt, and rationalization of violence.[11,20,26] Talking about an experience of workplace violence with a supervisor or family member or friend are frequently used techniques to overcome the event and can provide consolation and recover to move on.[11,49,50]

When asked about why victims decided not to make a complaint after experiencing workplace violence, the most common reason cited was the belief that it would be a waste of time, followed by lack of knowledge of what to do. It’s been widely acknowledged that the main reasons why victims avoid making complaints after suffering workplace violence is the idea that a complaint is a waste of time and the lack of knowledge on what to do.[7,11,18,46] These findings show the importance of removing the taboo of speaking about workplace violence, as well as the importance of preventive measure, such as educating and instructing individuals on how to address such situations and improving the reporting mechanisms.[7,8,24,29]

Among all victims who didn’t make a complaint, 35 individuals did not provide reasons. Instead, they chose the answer "doesn't apply", which would only be suitable for individuals who experienced workplace violence and did make a complaint. Investigators attribute this discrepancy to potential language barriers, suggesting that some individuals may not have

fully understood the question, and therefore choosing an inadequate answer. Statistical analysis revealed a significant difference in this category, indicating that Italian participants faced the biggest difficulty in providing appropriate responses.

5.7 Response actions and underlying reasons after witnessing workplace violence

Fewer than one-third of participants observed another dental hygienist experience any form of workplace violence, with sexual harassment being the most witnessed and physical violence being the least. When comparing the prevalence of witnessed workplace violence to the instances experienced, the observed prevalence is significantly lower. This suggests that such incidents occur in isolated settings where the victim is likely alone and without protection.

Responses to witnessing workplace violence against a dental hygienist mirror those after personally experiencing such incidents. The most common reaction is to ignore the event, followed by persuading the victim to file a complaint with the clinical director. Only a minority of individuals reported making a complaint to the clinical director on behalf of the victim. However, it remains uncertain whether this was because the victim decided to make the complaint themselves or not.

The lack of studies regarding witnessing experiences of workplace violence on a colleague doesn't allow for much comparison, however the results show once again that a significant percentage of individuals ignored the event, mirroring the patterns of underreporting seen in directly experienced workplace violence.[11,26,29]

5.8 Level of knowledge and awareness among European dental hygienists

When inquired about the existence of competent authorities to report workplace violence, more than half of participants don't know if they exist. When inquired about the existence of initiatives to educate on workplace violence in their current workplace, almost half of the participants are sure they don't exist. These data show, once again, the lack of knowledge on the mechanisms to report workplace violence and the lack of initiatives to educate on the

issue, like many other studies have already shown. [7,18,28] The statistical findings indicate that there is a need for increased efforts in the United Kingdom to disseminate awareness regarding existing initiatives for reporting workplace violence. Moreover, Italy and Portugal are urged to develop initiatives aimed at educating individuals about workplace violence.

When it comes to awareness of workplace violence, most participants consider themselves knowledgeable about the topic and the signs to identify it. However, a significant number of dental hygienists report being unaware of the mechanisms to report such incidents. The fact that more than half of participants consider themselves aware of the topic can be because these people are more aware of the problem and can report having suffering more events, when compared to those who are not so aware and maybe didn't want to participate in the study because of that. Once again, the data collected from the questionnaire highlights the unawareness of participants to the mechanisms to report violence, matching the existing research on the topic, and the need to enhance the reporting system. [7,18,28,51]

5.9 Statistically significant differences across countries

The lack of statistical significance across most analysed variables among different countries suggests a consistent experience of workplace violence among dental hygienists across Europe. This finding suggests that the studied variables may not influence differently the prevalence of workplace violence experienced by dental hygienists across various European countries. However, although these results reflect this sample, it's essential to exercise caution when extrapolating them, and further research on the topic would be beneficial for a more comprehensive understanding.

5.10 Strengths and limitations

To the knowledge of the researchers, this is the first Europe-wide study examining the experiences of violence and sexual harassment among European dental hygienists. This study is the first step to investigate workplace violence for dental hygienists in Europe. Several limitations arouse during the study, that should be considered, such as, language barriers, type of methodology for the survey and the possible bias of the participants.

It was evident that language barriers posed challenges. Some participants initially claimed to have made no complaints after suffering workplace violence, only to later answer as if they had made complaints. The same happened with questions such as "if you ever witnessed another dental hygienist suffer from workplace violence, what did you do?", certain participants initially denied witnessing another dental hygienist endure workplace violence, only to later respond as if they had. Investigators speculate that this discrepancy might stem from non-native speakers interpreting "if you ever witness" as a future possibility, rather than "witnessed" indicating a past event. In instances where this confusion occurred, the responses had to be disregarded. To improve accuracy, it would be beneficial to translate the questionnaire into various languages used by different associations, enabling more reliable cross-comparisons of responses among associations.

The approach selected to gather information on workplace violence experiences among European dental hygienists has its pros and cons. Utilizing a closed questionnaire for data collection proved beneficial, as it facilitated the extraction of precise information on particular subjects.[11] However, this method also posed challenges, as it depended on participants' interpretations of behaviours and actions within broader definitions.[11] Research suggests that participants may face difficulty identifying instances of violence and harassment if the provided definition does not resonate with their personal experiences.[43] The use of a questionnaire for data collection can result in data overlap. For instance, an individual who experienced workplace violence may initially indicate they ignored the incident but later reported it to the clinical director. This approach leaves us unaware of what prompted the victim's decision to file a complaint. Similarly, some individuals may have encountered multiple instances of workplace violence, most of which were ignored, while one led to a complaint. Again, we lack insight into the factors that influenced the victim's decision to report. This issue could be addressed by employing interview-based data collection methods, which would provide a more comprehensive understanding of the motivations behind victims' actions. It would be beneficial for the interviews to narrow their focus to a shorter timeframe, such as the past year, to be able to have more accurate data and be able to compare with similar studies.

For future studies, it would be advantageous to collect information through interview formats, ideally utilizing a standardized interview process across all countries, with minor cultural adjustments for improved accuracy. Cultural adaptations and guidance could be

provided with the assistance of delegates from associations affiliated with the EDHF. These interviews should aim to gather both the previously obtained information and additional insights, particularly focusing on the immediate and long-term effects of workplace violence on the victims. Additionally, obtaining more detailed data could facilitate the development of specific measures aimed at preventing this issue.

6. CONCLUSION

Workplace violence poses a significant challenge affecting a considerable portion of European dental hygienists, with verbal aggression being particularly prevalent. Demographic factors such as being female, older, having more years of practice, and higher educational level are associated with higher rates of workplace violence among dental hygienists. Professionals in Latvia and Lithuania appear to face a higher risk, while those in Italy exhibit lower risk to workplace violence. These variances need further investigation to discern whether it stems from differential prevalence rates of violence or varying levels of tolerance towards aggressive behaviours.

Although the association between an employee and increased workplace violence is evident, the influence of practice location, type, and schedule requires further clarification. Dental hygienists who occasionally work alongside another professional seem to be at increased risk, however this phenomenon requires deeper study.

Analysis across countries indicates a uniform experience of workplace violence among dental hygienists, suggesting a consistent challenge across surveyed countries.

It was clear that the number one perpetuator of workplace violence of dental hygienists are the patients and their accompaniment person, followed by dentists. The most common reaction after suffering from workplace violence was to ignore the event, followed by making a complaint to the clinical director, with only less than one third of participants saying it. This clearly denotes the underreport of workplace violence. The main barriers to reporting such incidents were the perception it was a waste of time and the lack of knowledge on what to do.

The most common reaction to witness a peer suffer workplace violence was to ignore the event, followed by persuading the victim to make a complain to the clinical director.

The United Kingdom shows significant gaps of knowledge regarding competent authorities to report workplace violence, while Italy and Portugal report the deficiencies on educational initiatives on workplace violence. These countries should focus on fighting and improving these parameters.

The questionnaire that was created obtained a good validity. Its translation and application across various countries could significantly enhance understanding of this phenomenon.

In conclusion, workplace violence presents a substantial challenge for dental hygienists, aggravated by widespread underreporting. Efforts must focus on both prevention and facilitating reporting mechanisms to address this pressing issue effectively.

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8. APPENDICES

Appendix 1 – Questionnaire "Experiences of Violence and Sexual Harassment of European Dental Hygienists at Work"

Experiences of Violence and Sexual Harassment of European Dental Hygienists at Work

This survey is a component of a research project being conducted for the Master's Degree in Dental Hygiene at Faculdade de Medicina Dentária - Universidade de Lisboa, Portugal.

The objective of this research is to assess the frequency of dental hygienists' experiences of violence and sexual harassment at work.

The survey is composed of 2 parts: the first one collects sociodemographic information, while the second one collects information about the experiences of violence and sexual harassment at work.

Participation in this study poses no risk to the participants.

For scientific purposes, the findings and conclusions of this study will be disseminated both verbally and in writing form, with the data's **confidentiality and anonymity ensured at all the times**.

Completing the questionnaire is estimated to take approximately 5-7minutes. At any moment during the completion of the questionnaire, you have the right to give up from participating in the study or contact the researchers for further information and clarification.

By answering and submitting the questionnaire, you confirm that you understand and agree with the information provided above.

Thank you.

The investigators,

BhD Matilde Santos (matildersantos@edu.ulisboa.pt)

PhD Sandra Ribeiro Graça

PhD Victor Abreu Assunção

Part I – Sociodemographic data

Please select the options about yourself and your career as a dental hygienist:

Gender: ☐ Woman ☐ Man ☐ Other: _____ ☐ Prefer not to say (Select with an X)

Age: _____

Higher School level attained: ☐ Professional degree ☐ Bachelor's or equivalent ☐ Masters' or equivalent ☐ Doctoral or equivalent (Select with an X)

Years of practice as a dental hygienist: _____

Current country of practice: ☐ Austria ☐ Belgium ☐ Czech Republic ☐Denmark ☐ Estonia ☐ Finland ☐ Germany ☐ Ireland ☐ Israel ☐ Italy ☐ Latvia ☐ Lithuania ☐ Malta ☐ Netherlands ☐ Norway ☐ Poland ☐ Portugal ☐ Russia ☐ Slovak Republic ☐ Slovenija ☐ Spain ☐ Sweden ☐ Switzerland ☐ United Kingdom (Select with an X)

Practice location: ☐ Mainly urban ☐ Mainly suburban ☐ Mainly rural (Select with an X)

Type of practice: ☐ Public health service ☐ Private clinical practice ☐ Other: _____ (Select with an X all that apply)

Accompanied while working: ☐ Always ☐Sometimes ☐ Never (Select with an X)

Working schedule: ☐ Full time ☐ Part time (Select with an X)

Employment status: ☐ Employee ☐ Self-employed ☐ Both ☐ Both ☐ Not currently employed (Select with an X)

Part II - Different types of violence at work

Physical violence – unwelcome behaviour that causes harm by using physical force. Can include beating, kicking, slapping, punching, stabbing, pushing, biting, among others.

1. Regarding your career as a dental hygienist, please answer the following questions, about physical violence. (select your answer with and X):

	Never	Once or Twice	Three to Five Times	More Than Five Times
1.1 Have you ever experienced any form of physical violence at work from a patient or accompanying person?				
1.2 Have you ever experienced any form of physical violence at work from a dentist?				
1.3 Have you ever experienced any form of physical violence at work from a dental hygienist?				
1.4 Have you ever experienced any form of physical violence at work from a dental assistant?				
1.5 Have you ever experienced any form of physical violence at work from management staff?				
1.6 Have you ever experienced any form of physical violence at work from another professional (other medical staff, school teachers, brand representatives,…)?				
1.7 Have you ever witnessed another dental hygienist suffer from physical violence?				

Verbal violence – unwelcome behaviour that causes harm by using verbal language. Can include threats, shouts, bullying, mocking, racial discrimination, among others.

2. Regarding your career as a dental hygienist, please answer the following questions, about verbal violence. (select your answer with and X):

	Never	Once or Twice	Three to Five Times	More Than Five Times
2.1 Have you ever experienced any form of verbal violence at work from a patient or accompanying person?				
2.2 Have you ever experienced any form of verbal violence at work from a dentist?				
2.3 Have you ever experienced any form of verbal violence at work from a dental hygienist?				
2.4 Have you ever experienced any form of verbal violence at work from a dental assistant?				
2.5 Have you ever experienced any form of verbal violence at work from management staff?				
2.6 Have you ever experienced any form of verbal violence at work from another professional (other medical staff, school teachers, brand representatives,…)?				
2.7 Have you ever witnessed another dental hygienist suffer from verbal violence?				

Sexual harassment – unwelcome behaviour that causes harm by using physical force or verbal language with sexual nature. Can include touching, groping, pinching, inappropriate comments of sexual nature, invites of sexual nature, among others.

3. Please answer the following questions, about sexual harassment, regarding your career as a dental hygienist (select your answer with and X):

	Never	Once or Twice	Three to Five Times	More Than Five Times
3.1 Have you ever experienced any form of sexual harassment at work from a patient or accompanying person?				
3.2 Have you ever experienced any form of sexual harassment at work from a dentist?				
3.3 Have you ever experienced any form of sexual harassment at work from a dental hygienist?				
3.4 Have you ever experienced any form of sexual harassment at work from a dental assistant?				
3.5 Have you ever experienced any form of sexual harassment at work from management staff?				
3.6 Have you ever experienced any form of sexual harassment at work from another professional (other medical staff, school teachers, brand representatives,…)?				
3.7 Have you ever witnessed another dental hygienist suffer from sexual harassment?				

4. Regarding your career as a dental hygienist, please answer the following questions, about experiences of violence and sexual harassment at work:

4.1 If you've been a victim of any type of abuse (physical violence, verbal violence, or sexual harassment) what did you do? (Select all the answers that apply with and X)

▢ Ignored ▢ Made a complaint to the clinical director ▢ Made an official complaint ▢ Talked to a family member or a friend ▢Asked a colleague for help ▢ Asked for professional psychological help ▢ Resigned from work ▢ Doesn't apply

4.2 If you've been a victim of any type of abuse (physical violence, verbal violence, or sexual harassment) and made a complaint, did the aggressor(s) suffer any type of consequences? (Select with and X)

▢ Yes ▢ No ▢ Don't Know ▢ Doesn't apply

4.3 If you've been a victim of any type of abuse (physical violence, verbal violence, or sexual harassment) and decided to <u>not</u> make a complaint, what were the reasons? (Select all the answers that apply with and X)

▢ You didn't know what to do ▢ You were afraid people wouldn't believe you ▢ Procedures were unclear ▢ You thought it was a waste of time ▢You were worried people would find out about it ▢ Fear of punishment ▢ Fear for your reputation ▢ Lack of trust in the competent authorities ▢ Doesn't apply

4.4 If you've been a victim of any type of abuse (physical violence, verbal violence, or sexual harassment) in which type of practice did it happen? (Select all the answers that apply with and X)

▢ Public Health Service ▢ Private Clinical Practice ▢ Other: _____ ▢ Doesn't apply

4.5 If you ever witnessed another dental hygienist suffer from any type of abuse (physical violence, verbal violence, or sexual harassment) what did you do? (Select all the answers that apply with and X)

▢ Ignored it ▢ Persuade them to make a complaint to the clinical director ▢ Made a complaint to the clinical director for them ▢ Persuade them to make an official complaint ▢ Made an official complaint for them ▢ Persuade them to ask for professional psychological help ▢ Persuade them to resign from work ▢ Doesn't apply

4.6 If you ever witnessed another dental hygienist suffer from any type of abuse (physical violence, verbal violence, or sexual harassment) in which type of practice did it happen? (Select all the answers that apply with and X)

▢ Public Health Service ▢ Private Clinical Practice ▢ Other: _____ ▢ Doesn't apply

4.7 Is there any national competent authority to report workplace violence? (Select your answer with and X)

▢ Yes ▢ No ▢ Don't know

4.8 Is there any initiative to educate on workplace violence at your workplace? (Select your answer with and X)

▢ Yes ▢ No ▢ Don't know

5. **Consider your current workplace(s) (mark your answer with and X):**

	Very unaware	Unaware	Aware	Very aware
5.1 How aware are you about the topic of workplace violence?				
5.2 How aware are you of the mechanisms to report workplace violence?				
5.3 How aware are you of the signs to identify workplace violence?				

Thank you for your help!

9. ANNEXES

Anex 1 – Approval from the ethics council of Faculdade de Medicina Dentária da Universidade de Lisboa

Comissão de Ética

Emissão de parecer

A Comissão de Ética da Faculdade de Medicina Dentária da Universidade de Lisboa (CE-FMDUL), em reunião de 30 de novembro de 2023, apreciou o seguinte pedido de parecer:

Código	Título do Estudo
CE-FMDUL202339	"Protocolo de Investigação: Experiências de Violência e Assédio Sexual de Higienistas Orais Europeus no Trabalho"
Âmbito	Dissertação de Mestrado em Higiene Oral
Investigador principal / Estudante	Matilde Santos
Pertinência do estudo e da sua conceção	Adequados
Benefícios e riscos previsíveis	Avaliação favorável
Avaliação do protocolo	Positiva
Aptidão do investigador principal e restantes membros da equipa	Adequados
Condições materiais e humanas necessárias	Adequadas
Retribuições ou compensações financeiras a investigadores e participantes	Não se aplica
Modalidades de recrutamento dos participantes	Adequadas
Conflito de interesses do promotor ou do investigador	Não referidas
Acompanhamento clínico dos participantes após a conclusão do estudo	Não se aplica
Procedimento de obtenção do consentimento aos participantes	Adequado

A CE-FMDUL deliberou e decidiu emitir **parecer favorável.**

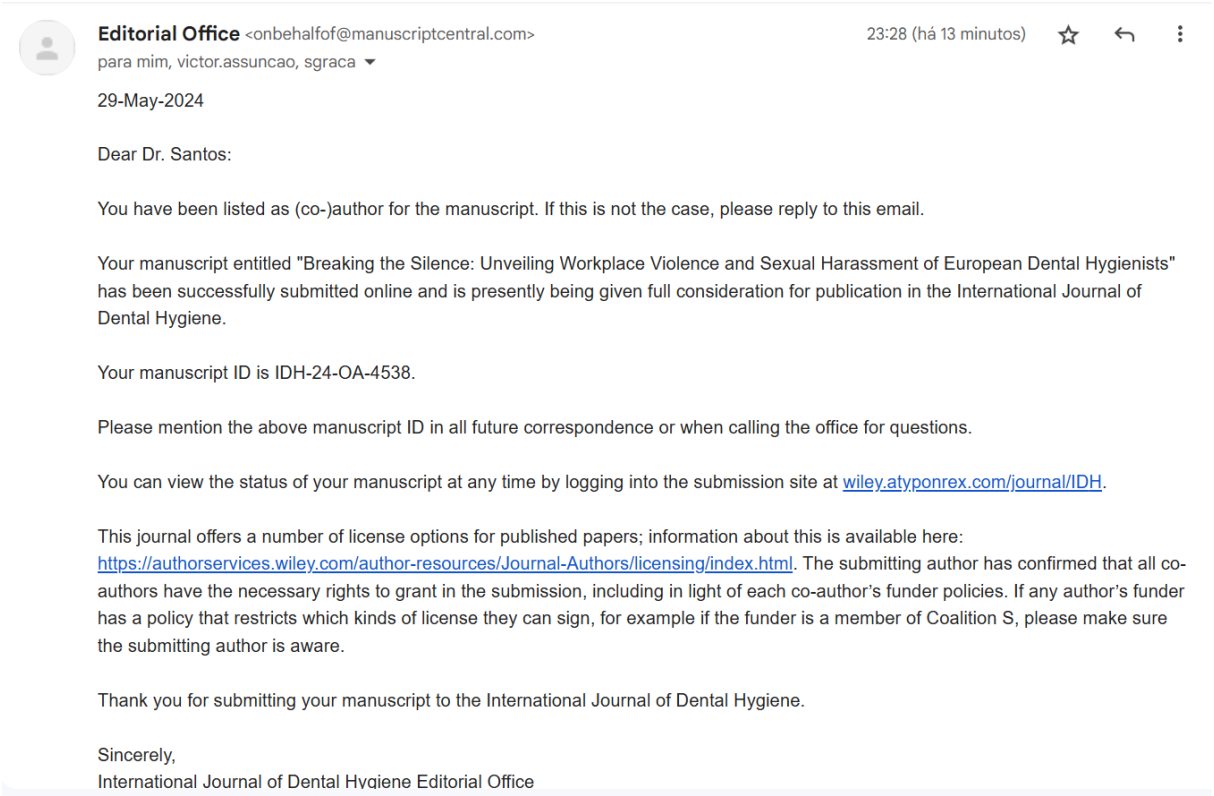
Lisboa, 11 de dezembro de 2023

O presidente

Assinado por: **João Manuel da Aquino Marques**
Num. de Identificação: 05031635
Data: 2023.12.11 15:35:22+00'00'

CHAVE MÓVEL

Anex 2 – Proof of submission of the scientific article "Breaking the Silence: Unveiling Workplace Violence and Sexual Harassment of European Dental Hygienists" to the International Journal of Dental Hygiene



Editorial Office <onbehalfof@manuscriptcentral.com> 23:28 (há 13 minutos)
para mim, victor.assuncao, sgraca

29-May-2024

Dear Dr. Santos:

You have been listed as (co-)author for the manuscript. If this is not the case, please reply to this email.

Your manuscript entitled "Breaking the Silence: Unveiling Workplace Violence and Sexual Harassment of European Dental Hygienists" has been successfully submitted online and is presently being given full consideration for publication in the International Journal of Dental Hygiene.

Your manuscript ID is IDH-24-OA-4538.

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