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Research Article

Policy Changes and Anxiety in Canadian Dental Hygienists During the COVID-19 Pandemic

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Abstract

Background and Aim: The COVID-19 outbreak has profoundly affected the dental hygiene workforce in Canada, revealing gaps in psychological factors affecting oral healthcare providers in response to policy changes. The objective of this study was to understand how Canadian dental hygienists experienced anxiety with policy changes during the COVID-19 pandemic. This study aimed to determine what causes of anxiety were identified by dental hygienists in relation to policy changes and the actions dental hygienists would like to see from regulatory authorities to help manage this anxiety.

Methods: Participants were invited through provincial regulatory body's emailing lists for participation in a longitudinal web-based survey regarding COVID-19 experiences. This qualitative descriptive study nested within a prospective cohort study focused on one open-ended question administered between November 2021 and January 2022. Responses (n = 118) were analyzed descriptively through thematic analysis. Investigator triangulation was used to ensure rigour and confirmability.

Results: Five major themes were identified: autonomy and safety, provision of support services, guideline synchronization, legislatively mandated vaccination and other. The imbalance between autonomy, responsibilities and lack of support was reported among dental hygienists working during the COVID-19 pandemic. Participant responses cited that synchronized protocols among regulatory authorities would facilitate better cooperation in collaborative oral healthcare settings.

Conclusion: Dental hygienists reported experiencing anxiety in relation to policy changes during the COVID-19 pandemic due to conflicting regulatory directives and an unbalanced distribution of responsibility and autonomy within the dental team. Establishing consistent guidelines between regulatory authorities that balance provider autonomy with professional responsibility is warranted.

Keywords: *Dental Hygienists; COVID-19; Anxiety; Regulatory Body; Protocol; Policy Change*

Abbreviations

SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2; PPE: Personal Protective Equipment; AGP: Aerosol-Generating Procedures; BC: British Columbia; AB: Alberta; SK: Saskatchewan; MB; Manitoba; ON: Ontario; QC: Quebec; NB: New Brunswick; NS: Nova

Scotia; NL: Newfoundland and Labrador; WHO: World Health Organization; RDSO: Royal College of Dental Surgeons of Ontario; CDHO: College of Dental Hygienists of Ontario; CDA: Canadian Dental Association; CRDHA: College of Registered Dental Hygienists of Alberta; ADA: American Dental Association; DDS: Doctor of Dental Surgery; Oral Health Care Provider; OHCP; RDH: Registered Dental Hygienist; RDA: Registered Dental Assistant; DDS: Doctor of Dental Surgery; IPAC: Infection Prevention and Control Canada

Introduction

The emergence of the COVID-19 pandemic has had a profound impact on healthcare provision and caused significant psychological distress in healthcare providers on a global scale [1]. The spread of this novel virus, SARS-CoV-2, is primarily through infectious saliva droplets that linger in the air, resulting in airborne transmission and person-to-person infection [2]. Dental hygienists are among the most significant risk groups for transmission and contraction of the virus due to the proximity to patients' oral cavities and the necessity of performing aerosol-generating procedures (AGPs) [3,4]. Upon the World Health Organization's (WHO's) declaration of the COVID-19 outbreak as a global pandemic on March 11, 2020 [5], Canadian public officials issued emergency public lockdown directives, while investigating related response plans [6]. In response to provincially-directed lockdown mandates, all non-essential care, including preventive dental hygiene services, were temporarily suspended to prioritize emergency care to minimize the risk of infection [6,7]. Despite advancements in knowledge since the outset of the pandemic, numerous aspects of the SARS-CoV-2 virus remain unknown and are still under investigation. With many countries, including Canada, easing pandemic restrictions, COVID-19 remains a source of public health concern impacting health care provision and the mental health of care providers.

During the early stages of the COVID-19 pandemic, the number of practicing dental hygienists declined significantly [8,9]. A U.S based study reported that, as of the Summer of 2021, less than half of U.S dental hygienists who left the profession at the beginning of the COVID-19 pandemic returned to the workforce [8]. The U.S. study also predicted a prolonged reduction of practicing dental hygienists in the workplace post-pandemic [8]. Similarly, the Canadian Dental Hygienists Association's (CDHA) recent Job Market and Employment Survey (2021) indicated that 17% of dental hygienists left the workforce and 12% undertook early retirement due to the impacts of the COVID-19 pandemic on their workplace satisfaction [9]. Psychological factors affecting healthcare worker performance have been identified as a research gap since the beginning of the COVID-19 epidemic that requires priority attention [10]. The loss of practicing dental hygienists in the workforce may exacerbate the lack of access to preventive care causing greater disparities among vulnerable populations [11]. Addressing this gap may help expand access to preventive dental care and identify mental burdens impacting oral healthcare providers' (OHCPs) ability to practice in a pandemic. It may also assist policy makers in designing protocols that balance effective policy and OHCPs willingness to comply with new regulations.

In existing studies, protocol changes in preventing COVID-19 transmission were primarily examined from the viewpoint of dentists and public health risk assessment in general [12,13]. Little emphasis has been placed on assessing the perceptions of guideline changes among other primary OHCPs. Currently, there are approximately 23,000 dentists and more than 30,000 dental hygienists practicing in Canada and dental hygienists play an essential role in preventive oral health care [14]. However, there is a lack of evidence-based information on the psychological distress of Canadian dental hygienists practicing during the COVID-19 pandemic. Their first-hand experiences may provide valuable insights into identifying barriers to regulatory changes during pandemic situations that may influence future public health emergency response plans. As the care delivery environment in a pandemic undergoes rapid changes, it is essential to assess dental hygienists' perceptions of anxiety associated with protocol and guideline changes for practice. Therefore, the overall objective of this study was to understand how dental hygienists experienced anxiety in relation to policy changes during the COVID-19 pandemic. Specifically, we aimed to determine what causes of anxiety were identified by dental hygienists in relation to policy changes, and what actions dental hygienists would like to see from regulatory authorities to help manage this anxiety.

Methods

This qualitative descriptive study was nested within a prospective cohort study that examined COVID-19 incidence among Canadian dental hygienists. Registered dental hygienists who held practicing licenses were identified and invited to participate in a longitudinal web-based survey through ten provincial dental hygiene regulatory bodies. Eligible participants were asked a set of structured baseline questions that gathered demographic information and details of clinical activities and COVID-19 status. Those who self-identified as COVID-19 negative at baseline were invited to participate in the longitudinal phase of the study, which consisted of six follow-up questions at intervals of two months for a total of twelve months from December 9th, 2020, to January 9th, 2022. Further details of the study population and questionnaires have been described previously [15].

This study focused on examining a final open-ended follow-up question administered to participants between November 30th, 2021, and January 9th, 2022. Participants were asked, "What are the policy changes from dental regulatory authorities you would like to see in order to assist you to manage your anxiety during the COVID-19 pandemic?" This question focused on assessing dental hygienists' perceptions of how policy changes from dental regulatory authorities may affect their psychological health, specifically, anxiety management while providing care to patients during the COVID-19 pandemic.

Responses collected were exported from the LimeSurvey platform [16] and organized into a thematic spreadsheet. To conduct thematic analysis, each response was independently reviewed and manually coded by two researchers (SY and LM) until major themes were identified. Responses were subsequently reviewed, coded, and categorized under the primary themes identified. As new codes and themes emerged, they were analyzed alongside existing themes and reconciled into appropriate subthemes. Investigator triangulation was used to ensure rigour and credibility of interpretations and findings. Two researchers (SY and LM) carried out the initial theme identification and further discussed and confirmed interpretations with the broader research team. Any uncertainties regarding data interpretation were discussed with the research team until consensus was reached.

This study was approved by both the McGill University (A06-M49-20A (20-06-018)) and Dalhousie University (REB# 2021-5716) Research Ethics Boards.

Results

Canada has thirteen dental hygiene regulatory agencies, ten provincial dental hygiene regulatory colleges, and three territorial healthcare regulatory departments. In this study, registered dental hygienists were recruited from eight of the ten provincial regulatory agencies (BC, AB, MB, ON, QC, NB, NS and NL), in which 1530 individuals registered to participate. Of those, 958 participants provided informed consent, and 876 met the eligibility criteria. In this study, the majority of participants were women (98.6%, n = 857), primarily Caucasian (86.1, n = 754), and averaged 42 years of age (IQR = 33 to 52 years). The highest proportion of responses were received from dental hygiene registrants in British Columbia (26.3%, n = 230), Alberta (25.3%, n = 222), and Ontario (24.0%, n = 210). Clinical dental hygienists, or dental hygienists that work alongside a dentist in private or public sectors, constitute most respondents (92.7%, n = 812), followed by independent dental hygienists (2.9%, n = 25). Most participants worked in urban community settings (86.4%, n = 757) and provided dental care in one location (78.3%, n = 686) during the intended study period. The sociodemographic characteristics of respondents are summarized in table 1.

Of the 876 participants involved in the longitudinal survey, 118 responded to the open-ended follow-up question, "What are the policy changes from dental regulatory authorities you would like to see in order to assist you to manage your anxiety during the COVID-19 pandemic?" Five major themes were identified, including: autonomy and safety, provision of support services, guideline synchronization, legislatively mandated vaccination and other. Figure 1 presents the five major themes and sub-themes identified.

		Total n = 876 (%)
Age	Years (median (IQR))	42 (19)
Sex	Female	857 (98.6)
	Male	19 (2.2)
Ethnicity	White (Caucasian)	754 (86.1)
	Asian	79 (9.0)
	Arab	6 (0.7)
	Black	6 (0.7)
	Indigenous Aboriginal	6 (0.7)
	Latin American	6 (0.7)
	Mixed	11 (1.3)
	Others	98 (0.9)
Province	Alberta	222 (25.3)
	British Columbia	230 (26.3)
	Manitoba	81 (9.2)
	Ontario	210 (24.0)
	Quebec	84 (9.6)
	New Brunswick	12 (1.4)
	Nova Scotia	26 (3.0)
	Newfoundland and Labrador	11 (1.3)
Type of Community Served	Urban	757 (86.4)
	Rural	115 (13.1)
	Remote	4 (0.5)
Number of practices	1	686 (78.3)
	2	150 (17.1)
	3	30 (3.4)
	> 3	10 (1.1)
Type of Practice	Clinical dental hygiene†	812 (92.7)
	Independent dental hygiene§	25 (2.9)
	Other	39 (4.5)

Table 1: *Descriptive characteristics of respondents at baseline.*

†Defined as working alongside a dentist in private or public sectors

§Defined as working independently or along with other dental hygienists, but not with a dentist, in private or public sectors.

Autonomy and safety

Participants expressed a sense of powerlessness at work after resuming clinical practice following lockdown mandates. Several participants reported that balancing regulator's newly established COVID-19 protocols in conjunction with pre-existing office protocols made

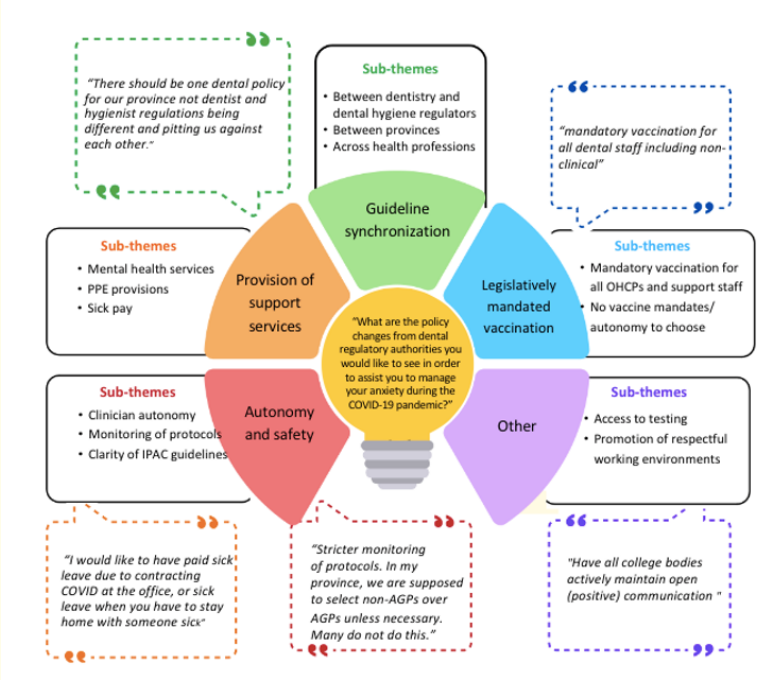

Figure 1: *Themes and subthemes. Five major themes were identified from the open-ended question, "What are the policy changes from regulatory authorities you would like to see in order to assist you to manage your anxiety during the COVID-19 pandemic?" (n = 118 responses), including: autonomy and safety, provision of support services, guideline synchronization, legislatively mandated vaccination and other.*

providing care more challenging. A number of participants used this opportunity to express frustration regarding the volume of guidelines to follow and further cited feeling a loss of autonomy at work. As one participant expressed, "everyone's version of the 'right way' differs. I think that DHs like to have strict guidelines to follow and adhere to and it causes anxiety when not everyone follows the same rules".

Participants further expressed a dissatisfaction with appointment duration for patient care, indicating that time provided remained largely unchanged from pre-pandemic contexts and was incompatible with new COVID-19 infection control guidelines. Here, participants indicated stress relating to clinical expectations of providing the same level of care but within shortened time frames. As this participant offered, "turning over the room takes so much time, the concept of back-to-back patients while maintaining IPAC makes we want to quit. Feels impossible!!!".

Participants also cited frustrations that dental practices may not be adequately monitored by regulatory bodies, further contributing to inconsistencies between COVID-19 guidelines and established office protocols to guide clinical practices consistent with clinician safety. As one participant recommended, "Stricter monitoring of protocols. In my province, we are supposed to select non-AGPs over AGPs unless necessary. Many do not do this".

Many responses under this theme indicated *that* "increased IPAC [Infection Prevention and Control Canada]" guidelines were warranted to set explicit expectations for practice in pandemic contexts.

"All colleges should be in agreement with IPAC requirements and proper fallow time given".

Provision of support services

Several participants reported anxieties related to a lack of pragmatic living supports in the event of becoming infected. Further, being unable to care for family dependents and not being covered for sick leave compensation were cited as concerns amongst participant responses.

"I would like to have paid sick leave due to contracting COVID at the office, or sick leave when you have to stay home with someone sick".

Requests for leniency and protections in cases of missing work resulting from compliance with public health recommendations for testing and isolation were also noted amongst responses. As this participant shared, "it should be required that employers be compliant when you feel unwell and need a COVID test that missing some work is okay".

Some participants reported feeling they lacked knowledge of cognitive coping mechanisms for working under stressful pandemic situations and expressed a need for regulatory bodies to provide increased mental health support services.

"More mental health help outside of the regulatory bodies available" and "more in-person counselling services, not just over the phone", were offered by participants.

Requests for additional supports also extended to having adequate personal protective equipment (PPE) to comply with infection control requirements. Participants expressed stress and anxiety stemming from a lack of guidance on appropriate PPE and adequate provision of equipment. As one participant stated, "N95 masks should be provided with professional mask fitters".

Another offered, "Better PPE requirements, why not N95 masks, why not gowns for every client? Hospital recommendations for AGPs is N95, gown, face shield, gloves...why is dental not that high?".

Participants overall reported that a lack of standardized guidelines on PPE from regulators and perceived laxity towards infection control enforcement within the dental office as contributing to sentiments of anxiety.

"Being much more clear on what is required. The guidelines are so vague and grey and allow anyone to interpret them as they please... This is incredibly anxiety inducing and caused and is still causing great stress".

Guideline synchronization

The majority of participants cited their role as clinical dental hygienists working alongside a dentist in private or public sectors (92.7%). As a result, most participants were providing dental hygiene services in a collaborative clinical setting in conjunction with OHCPs regulated by different regulatory bodies. Participant responses highlighted that dental hygienists felt regulatory authorities for OHCPs should enhance monitoring processes to ensure that all OHCPs working in the same environment were compliant with protocols and guidelines.

"Stronger regulation and enforcement for dentists and relatively unregulated professionals. Policy to put safety, patient health and staff wellbeing ahead of profit margins".

Many participants expressed concerns about practicing alongside other clinical members under COVID-19-related protocols that were ununified, specifically between dentists and dental hygienists. As this participant suggested, "I would like to see the RCDSO [Royal College

of Dental Surgeons of Ontario] and the CDHO [College of Dental Hygienists of Ontario] work closer together to ensure that their guidelines are the same. It was frustrating and confusing when the RCDSO had less strict guidelines for the same procedures compared to the CDHO".

Participants further expressed a need for unified protocols, citing perceived friction between OHCPs working together in the same clinical environment. As this participant remarked, "There should be one dental policy for our province not dentist and hygienist regulations being different and pitting us against each other".

Another stated, "There also needs to be better communication between ALL dental regulatory authorities (DDS, RDA and RDH) to be on the same page for guidelines and protocols especially when they all work in the same office".

Participants who cited working in different clinical settings with other health care providers who utilize AGPs also echoed a desire for unified and consistent protocols infection control across health professions regulatory colleges.

"All colleges should be in agreement with IPAC requirements".

Legislatively mandated vaccination

Participant responses revealed conflicting opinions on vaccination requirements. Many participants cited that mandatory vaccination should be accepted as a normative protective measure by all practicing OHCPs. Many vaccine-accepting participants indicated that regulatory bodies should mandate that all OHCPs and staff be vaccinated upon returning to work, not just dental hygienists.

"Vaccination of all dental personnel as a condition of licensing. For non-licensed staff a condition of employment" and "mandatory vaccination for all dental staff including non-clinical" reflect common sentiments expressed by participants.

A small number of vaccine-hesitant participants suggested that the COVID-19 vaccine should not be mandated, but that regulators should support and uphold individual autonomy regarding the decision to be vaccinated. As this participant responded, "[regulators should] be more sympathetic with dental professionals who are experiencing anxiety due to the pandemic and a true fear of the vaccines available to date".

Other

Responses that were distinct from the established themes were categorized as 'other.' Under this theme, suggestions of making COVID-19 testing more accessible and the establishment of more respectful work environments were cited by participants to as ways in which regulators may help to alleviate anxiety in the workplace. Other responses under this category include those without an opinion and those satisfied with the current regulatory framework.

Discussion

Our study's findings have provided insights into Canadian dental hygienists' perceptions of anxiety experienced in relation to guideline changes during the COVID-19 pandemic. Concerns relating to occupational infection associated with COVID-19 were anticipated to have a psychological impact on dental hygienists owing to their heightened transmission risk while providing oral care. Notably, observations in this study have revealed that anxiety experienced by dental hygienists was attributed to several unique factors, distinct from common perceptions of occupation-related infection risk. The findings suggest that anxiety experienced by dental hygienists was associated with regulatory changes and a loss of balance between autonomy and safety during the COVID-19 pandemic.

Respondents in our study expressed anxieties associated with the unbalanced distribution of responsibility within the dental team, and general sentiments of lacking control in decision-making related to clinical practice. Although dental hygienists are licensed, self-

regulated health care providers, the majority of respondents in this study cited working in private practice alongside a dentist. Private dental offices often operate under a hierarchical business model, establishing their own directives for dental hygienists' daily practices. A difficulty in striking a balance between employer and regulatory body divisions of authority to guide dental hygienists' everyday clinical activities was noted as a contributor to psychological stress in dental hygienists.

Dental hygienists in this study also alluded to the fact that most dental practices were owned by OHCPs regulated by other regulatory bodies that employ different practice standards and expectations for their registrants. In the pandemic context, variances in regulatory approaches between colleges often resulted in unsynchronized COVID-19 protocols and guidelines amongst a team of OHCPs, exacerbating tensions in the workplace [17].

The findings of this study are consistent with studies from Norway [18] and the US [19] that examined the psychological impact of oral healthcare providers' perceptions of work conditions during the COVID-19 pandemic. Both studies indicated that providing a supportive and collaborative environment that makes dental hygienists feel empowered and cared for facilitates higher levels of security and reduced levels of anxiety, even in ongoing pandemic situations [18,19]. The US study reported that dentists had significantly lower odds of anxiety or depressive symptoms than dental hygienists which was attributed to more prevalent independent ownership of dental practices [19]. As the US study indicates, the empowered status of dentists in the workplace provides a "protective buffer" against mental stress [19]. Most dental hygienists who work in private practices may not possess the same locus of control as dentists. A lack of reasonable decision-making space may induce anxiety in the workplace, particularly when dental hygienists are required to adhere to complex or conflicting guidelines and protocols. Further, discrepancies in COVID-19 mandates and protocols between regulatory bodies may be interpreted as differences in responsibilities or expectations towards different OHCPs in the same care-environment. Less empowered members of the care team may face additional responsibilities and pressure within the workplace contributing to increased stress and anxiety.

In addition, frustration among dental hygienists may also be associated with the communication process with patients, as patients may have confusion as to why OHCPs working in the same care setting follow different COVID-19 protocols. Patient confusion may lead to mistrust of their healthcare provider, resulting in difficulties coordinating care and placing dental hygienists at elevated risk for mental distress.

Our study also found that some psychological distresses experienced by dental hygienists were exacerbated by gender role expectations of female care providers. Most dental hygienists in Canada are female, making up 96% of registered hygienists [9], which is consistent with the percentage of female respondents in this study. As observed in this study, respondents were concerned about not being able to fulfill their caregiver responsibilities if infected at work. According to reports conducted prior to, and during the COVID-19 pandemic, females reported higher levels of anxiety and depression than men [20,21]. This may be related to the pivotal role that females perform in a household as caretakers. As reflected in responses citing a desire for increased sick leave compensation and mental health counselling, dental hygienists may attribute this perception to insufficient living supports. Establishing firm protocols better tailored to address and protect the needs of female healthcare workers may facilitate a more supportive working environment, thus limiting the risk of psychological distress.

The findings of this study reflected a distinct divide between COVID-19 vaccine-accepting and vaccine-hesitant respondents. Of note, there was a substantial difference between the two groups concerning factors contributing to anxiety associated with vaccination. Several factors may contribute to conflicting perceptions, including unsynchronized regulatory guidelines, inconsistent vaccination protocols, and conflicting messages. There may also be discrepancies in vaccine expectations and confusion among OHCPs regarding the best course of action regarding vaccination owing to conflicting reports on efficacy and the continuing emergence of new variants.

Limitations of the Study

There are limitations worth addressing in the current study. The term 'anxiety' used in the follow-up question may have been perceived differently by participants. Participant knowledge and familiarity with the term 'anxiety' may have influenced their decision to participate or respond to this follow-up question. This study also collected data from respondents prior to widespread relaxation of public health orders including mask mandates and ease of social gathering restrictions in most Canadian provinces. During the early phases of the pandemic, there was a significant reduction in the number of practicing dental hygienists in the workforce. Despite the satisfactory response rate, this study may be vulnerable to selection bias due to the significant reduction in Canadian dental hygienist workforce during the early stages of the pandemic, resulting in survivorship bias (CDHA). This study is also reliant on self-reported data which is subject to bias. As the dynamics of the pandemic evolve, including new viral variants, changes in epidemiological trends and revised guidelines and protocols, it must be acknowledged that respondents' perceptions may fluctuate. As a result, the findings of this study may not be representative of respondents' perceptions at the time of publication. This reaffirms a need for further research and longitudinal studies on the impact of the COVID pandemic and evolving policy changes on anxiety experienced by practicing dental hygienists in Canada.

Conclusion

This qualitative descriptive study examined one of the follow-up questions of a larger, longitudinal web-based survey that assessed Canadian dental hygienists' experiences during the COVID-19 pandemic. In this study, respondents reported anxiety symptoms in relation to policy changes during the COVID-19 pandemic. Factors contributing to reported anxiety were identified as conflicting regulatory directives and an unbalanced distribution of guideline compliance and autonomy between OHCPs. The findings indicate that establishing supportive workplaces for dental hygienists, particularly within pandemic contexts are required. This can be achieved through regulatory body collaboration to develop consistent guidelines for practice. The implementation of guidelines for practice that balance provider autonomy with professional responsibilities may help to reduce mental strain and anxiety experienced by dental hygienists. Collaboration between OHCP regulatory bodies is warranted as the implications of the pandemic situation may be long-term.

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Conflict of Interest

The authors declared no conflicts of interest.

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