CDHA/CJDH STUDENT WRITING COMPETITION

Our annual writing competition, proudly sponsored by PHILIPS Sonicare, encourages students in a diploma, baccalaureate or degree-completion program to develop a love for writing and research and to recognize the possibilities that such endeavours offer for personal and professional growth. The editorial board of the *Canadian Journal of Dental Hygiene* is delighted to publish the winning literature review entry from its 2022–2023 competition, which ably addresses the Canadian Dental Hygienists Association's *2022–2024 Dental Hygiene Research Agenda* category of "capacity building of the profession."

Dental hygiene shortages and their impact on the Canadian Dental Care Plan

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ABSTRACT

Objective: This narrative review explores current research to broaden the understanding of dental hygienists' experiences and satisfaction in the workplace while suggesting strategies for the retention of dental hygienists and examining how current staffing shortages may impact the forthcoming Canadian Dental Care Plan. **Methods:** An electronic literature search was conducted in the following online databases: PubMed, Google Scholar, CINAHL, and Education Source. Only full-text, peer-reviewed articles written in English were selected for review. **Results:** The search yielded 18 articles with a wide range of study designs and methodologies. **Discussion:** Five key themes emerged from the literature: health impacts, psychosocial environment, strategies for retention, contradictory findings, and implications for the Canadian Dental Care Plan. **Conclusion:** Dental hygienists experience many health, environmental, and psychosocial challenges in their day-to-day working life that affect their job satisfaction and overall willingness to remain in the profession. Strategies for retention are essential for maintaining the current dental hygiene workforce and can have a positive impact on the Canadian Dental Care Plan and its success.

RÉSUMÉ

Objectif : Cette revue narrative explore les études disponibles actuellement pour élargir la compréhension des expériences et de la satisfaction des hygiénistes dentaires dans leur milieu de travail, tout en suggérant des stratégies pour le maintien en poste des hygiénistes dentaires et en examinant les incidences potentielles des pénuries de personnel actuelles sur le Régime canadien de soins dentaires à venir. **Méthodes :** On a procédé à une recherche documentaire parmi la littérature électronique disponible dans les bases de données en ligne suivantes : PubMed, Google Scholar, CINAHL et Education Source. Seuls les articles en texte intégral, évalués par les pairs et rédigés en anglais ont été sélectionnés aux fins d'examen. **Résultats :** La recherche a permis de réunir 18 articles qui employaient un large éventail de méthodologies et de modèles d'étude. **Discussion :** Cinq thèmes clés sont ressortis de la documentation : les répercussions sur la santé, l'environnement psychosocial, les stratégies de maintien en poste, les conclusions contradictoires et les implications pour le Régime canadien de soins dentaires. **Conclusion :** Dans leur vie professionnelle quotidienne, les hygiénistes dentaires font face à de nombreux défis sanitaires, environnementaux et psychosociaux qui ont une incidence sur leur satisfaction au travail et sur leur volonté générale de rester dans la profession. Les stratégies de maintien en poste sont essentielles pour la fidélisation de la main-d'œuvre actuellement en poste dans le secteur de l'hygiène dentaire et peuvent avoir une incidence positive sur le Régime canadien de soins dentaires et sa réussite.

Keywords: dental hygienist; job satisfaction; occupational health; oral health care providers; psychosocial work environment
CDHA Research Agenda category: capacity building of the profession

INTRODUCTION

The Canadian Dental Care Plan is a federally funded program under development that will, in the coming years, provide dental coverage to uninsured low-income Canadians. The Canada Dental Benefit, launched as an interim measure in December 2022, currently provides eligible children up to the age of 12 with a maximum of $650 per year to help cover the costs of professional oral health care services.[1] By the end of 2023, under-18-year-olds, seniors, and persons living with a disability are expected to be eligible for dental coverage. The Canadian Dental Care Plan, once fully implemented in late 2025, will provide dental coverage for all uninsured families with annual incomes below $90,000.[1] While improved access to care is an obvious benefit, many dentists wonder how they will have the capacity to support more patients.[2-4]

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A large portion of dental offices are currently facing staffing shortages, and there are valid concerns about whether there are enough dental assistants and dental hygienists to respond to an increase in the number of patients seeking professional oral health care.[2-4] In a recent analysis done by the Government of Canada of key labour market indicators, such as job vacancies, employment growth, and the unemployment rate, data suggest that demand in this occupational group substantially exceeded supply over the 2019–2021 period.[4] Although it is expected that these conditions will balance themselves out over the 2022–2031 period, this realignment has not yet begun.[4] Similarly, a recent survey conducted by the American Dental Association indicated that 33% to 40% of dental practice owners were actively trying to recruit dental assistants and/or dental hygienists.[3] Almost all of these hiring dentists reported significant challenges in filling vacancies. In Canada, the approximate unemployment rate for dental hygienists is 1%, which is well below the national unemployment rate of 5.5% (as of August 2023).[3-6]

With the implementation of the Canadian Dental Care Plan in combination with the current oral health care staffing shortages, it is crucial to explore the factors that are influencing these shortages, some of which may include injury, family responsibilities, planned and early retirement, and job dissatisfaction.[3,5-12] Discovering what factors may lead dental hygienists to reduce their hours, change offices or leave the profession altogether might offer some insight into what could be done to increase retention of Canadian dental hygienists. While the national dental benefits plan is an essential step in reducing oral health disparities for lower-income Canadians, staffing shortages need to be addressed for successes to be seen.[11,13-15] The aim of this review is to discover influencing factors in dental hygiene shortages and how these shortages could impact the success of the Canadian Dental Care Plan.

METHODS

An electronic literature search of PubMed, Google Scholar, CINAHL, and Education Source was conducted using the following search terms: "qualitative study," "dental hygienist," "job satisfaction," "work environment," "occupational health," "intention to leave," "career longevity," and "retention factors". Only relevant and credible literature written in English, available in full text, and peer reviewed was selected for review. No restrictions were placed on publication dates or on location in order to collect a wide range of data.

RESULTS

The search yielded 18 articles including descriptive phenomenological studies, grounded theory studies, cross-sectional studies, and 1 mixed-method design, which employed both quantitative and qualitative methods. Seven studies were conducted in the United States, 3 in Canada, 2 in Australia, and 1 each in Sweden, Korea, New Zealand, South Africa, Denmark, and the United Kingdom. Literature and systematic reviews were examined for background information.

DISCUSSION

Five key themes emerged from the literature reviewed: health impacts, psychosocial environment, strategies for retention, contradictory findings, and implications for the Canadian Dental Care Plan.

Health impacts

Dental hygienists face a number of occupational health concerns, including biological, chemical, and psychosocial, as well as physical and ergonomic hazards in the workplace that can lead to musculoskeletal disorders (MSDs).[9-12,16] Dental hygiene as a profession is physically demanding, with many practitioners experiencing physical complaints.[7-10,12,17]

Musculoskeletal injuries and disorders affect the movement of the musculoskeletal system, which includes muscles, tendons, ligaments, nerves, discs, and blood vessels.[10] Poor ergonomics and repetitive tasks can lead to muscle fatigue, increased use of joints, and eventually in some cases, MSDs, with occupational stressors increasing this risk.[9-12,16] Awkward postures, standing or sitting for long periods of time with infrequent breaks, prolonged repetitive and/or forceful movements, and fine hand motions are all contributing factors to MSDs.[10,12] In addition, many dental hygienists compromise their ergonomics when working with challenging or uncooperative patients.[11,16] Common sites of musculoskeletal symptoms are the neck, back, shoulders, elbows, wrist/hand, hips, knees, and feet. The 2 most common MSDs among dental hygienists are carpal tunnel syndrome and tendonitis.[9-12]

The impacts of the onset of musculoskeletal symptoms are a reduction in working hours, resulting in a loss of productivity and income, an increased need for medical care, long-term sick leave, and career changes or early retirement.[5,9-12,16] Yee et al.[12] reported that musculoskeletal pain is more likely to cause dental hygienists to decrease their working hours than to change offices.

According to 2 studies completed in the United States in 2005, approximately half of dental hygienists work in several offices or rooms, so they frequently have to adapt to different room and equipment configurations, and often cannot adjust the room to their needs.[9,12] Operatories that are too small limit the dental hygienist's ability to move around the patient chair, forcing them to work in awkward positions.[9,16] Improper patient and operator dental chair design, such as chairs that cannot be lowered or adequately adjusted, affect dental hygienists' ability to perform their tasks ergonomically.[9,10,12,16] In addition, patient characteristics, such as being obese or refusing to recline, exacerbate ergonomic issues.[9,16]

Not using loupes or visual magnification can lead to adverse postural positioning, as can poor lighting.[9,16] While many dental hygienists agree that loupes are beneficial,

not all dental hygienists use them, as they frequently must personally purchase them.[9]

Stress is prevalent in oral health care settings due to workload and production expectations, time constraints, practice management issues, and staffing shortages.[7,11,12,16] Fear of infection, especially during the height of the COVID-19 pandemic, adds to workplace stress.[17] MSDs and long working hours are also common causes of work-related stress and burnout.[10] Burnout is commonly seen in "caring" professions and is characterized by a loss of enthusiasm for work and a low sense of personal accomplishment.[11,16] Burnout is one of the main factors for leaving the profession and was seen in high numbers during the pandemic.[10,11,16,17]

In several studies, concerns for safety and fear of infectious diseases were cited as the main reasons that dental hygienists may be licensed but not practising, other than being on maternity leave.[5,7,10,17] Dental hygiene care requires a close working distance between patient and clinician, elevating the risk of contracting COVID-19 and other transmissible diseases.[10,17] Dental hygienists have been identified as belonging to one of the highest-risk, non-hospital occupation groups at risk for contracting COVID-19.[10,17] The 2021 Job Market & Employment Survey conducted by the Canadian Dental Hygienists Association (CDHA) found that a significant portion of respondents were on leave due to the pandemic, and more were thinking of leaving the profession because of it.[18]

Psychosocial environment

The psychosocial environment in a workplace includes the interactions between people, organizational factors, and the culture of the office.[19] Factors that shape the psychosocial environment are time-related stressors, lack of control, social interactions, office management, and lack of recognition.[7-9,11,12,16,20-22]

Improper scheduling and time-related stress were noted by the majority of dental hygienists in some form.[7-9,11,16] Inflexibility in the amount of time booked per patient, or patients scheduled on a fixed-time basis, has both physical and emotional consequences.[7,9,12] It can also result in the loss of break time; waiting for dental exams compounds the problem.[9,12]

Lack of control is a major contributor to job dissatisfaction, and high demand paired with low control is a major cause of stress.[7-9,11,12,16,20] Dental hygienists noted inadequate control over scheduling patients and expressed that, because they are professionals who are familiar with each patient, they should be able to schedule their own time.[7,9,12] Poor collaboration with dentists and limited involvement in office decisions contributes to the lack of control that many dental hygienists feel.[7,9,12] Lack of control and decision making authority was cited as a major reason for changing offices and reducing working hours in a particular office.[12] Notably, Yee et al.[12] found that low involvement in decision making was associated with a greater likelihood of reducing work hours due to musculoskeletal pain. According to Crawford et al.,[9] "Despite having an average of 24 years of practice and being the major users, a minimal number of hygienists surveyed said that they exerted 'major control' over equipment and instrument purchases."

Social isolation including a lack of professional peers in the office has been shown to increase job dissatisfaction.[7,9] A lack of breaks and part-time work contribute to this dissatisfaction by limiting social interactions and the opportunity to connect with other staff or peers.[9] A lack of respect or understanding of the role of dental hygienists, particularly among dental assistants and office administrative staff, as well as differences in work structure and pay creates division in the office.[9,11]

Job dissatisfaction was attributed in many studies to poor office management and the perceived inadequate management skills of dentists.[7,9,12,16,20] Poor communication, lack of teamwork, and lack of support in times of conflict also contributed to this dissatisfaction.[9,11,12,16] Conflicts with dentists caused dental hygienists to change jobs more frequently, while conflicts with other staff resulted in changing office locations less frequently.[12] In the Yee et al. study,[12] conflict with either the dentist or other staff resulted in some dental hygienists decreasing their working hours. During times of conflict, dental hygienists often feel that dentists favour the dental assistants, with whom they work directly, over dental hygienists who typically work alone.[9,16] Professional and social conflicts are an important consideration, as dental hygienists were found to be more likely to change work locations because of such conflicts than because of musculoskeletal discomforts.[12]

Inadequate pay was found to be the top reason for moving practices, and lack of benefits was also commonly cited in many studies.[7-9,11,12,21,22] A lack of variety of work, job content, underuse of skills, and uncertainty in work conditions also contributed to job dissatisfaction.[11,16] Boredom and dissatisfaction often arise from career stagnation, as promotion prospects among dental hygienists have been found to be relatively limited.[7,11,12]

Strategies for retention

In the office

According to several studies, remuneration is the top reason that dental hygienists stay in practice, and a lack of benefits was frequently noted as a reason for dissatisfaction.[7-9,11,12,21,22] Offering fair, current market value and some form of benefits are the most important factors in retaining and recruiting dental hygienists.

It was also noted that family responsibilities, including maternity leave, are one of the main reasons for leaving the profession altogether. It is therefore important for employers to be aware of this and offer the type of flexibility and work–life balance that may encourage dental hygienists to stay in the profession.[7,9,11,18,20,21] For example, employers could give dental hygienists the option to work either full

or part time, and the freedom to work in one or multiple settings.[7,9,11,12,21] Variety in work was also noted as a factor for retention.[7,9,11,12,21]

Recommendations for proper ergonomics include using adjustable and supportive seating, proper positioning of the patient and clinician, proper lighting and magnification, using ergonomic instruments, and indirect mirror viewing, as well as taking regular breaks with exercise or stretching.[10,12] Improving ergonomics can reduce pain symptoms; formal workplace education should address this concern.[12]

Factors that promote job satisfaction have been identified as good relationships, the opportunity to help others, seeing the results of one's work, being given responsibility, and making decisions.[7,8,11,12,21,23] Improving teamwork and effective communication, as well as offering greater involvement in decision making can improve overall productivity, increase variability of skills, reduce stress, and create value for employees.[8,9,11,12,16] Recognition from supervisors, coworkers or patients is empowering for dental hygienists, as is being recognized as a professional.[8,12,21]

A healthy working environment can lower instances of work-related injuries and stress and improve overall job satisfaction, morale, and dedication.[9,12] Musculoskeletal and psychosocial concerns affect dental hygienists differently.[12] Musculoskeletal discomfort is more likely to cause dental hygienists to decrease their working hours, whereas professional and social conflicts are more likely to lead dental hygienists to seek a change in their work location.[12] Dental hygienists exercise a unique option when there are problems in the office in that they may reduce their hours and pick up work in another setting. As a result, they are less compelled than most employees to take actions leading to change.[9,11,12,21]

In education

Nearly half of the dental hygienists surveyed by Yee et al.[12] believed that there are too few of them in the profession, and the California Dental Hygienists Association found that many are considering leaving the field. These findings suggest that increasing the number of dental hygiene programs or increasing enrollment in existing programs may be needed.[7]

Educators should prepare students with interviewing techniques that would allow them to ask pertinent questions about remuneration, benefits, ergonomic standards, and office dynamics.[7] Education should be given to both dental and dental hygiene students about effective, collaborative communication and should also include training on how to create healthy and respectful workplaces.[12] Stress management techniques, workplace posture assessments, and occupational health and safety principles should be taught during formal education.[9,12,16] In particular, the causes and self-recognition of MSDs as well as proper ergonomic positioning should be taught in all dental hygiene programs, as only half of the dental hygienists in 2 studies reported this type of training during their education.[12,16]

Contradictory findings

Many studies found that the majority of dental hygienists are relatively satisfied with their jobs, despite the previously noted health and psychosocial concerns.[9,12,23] One possible explanation may be the effort–reward model, which considers stress as a consequence of an imbalance between effort and reward.[12] This model has 4 domains: financial reward, esteem reward, promotion prospects, and job security.[12] In the Yee et al.[12] study, survey respondents reported that financial reward in the dental profession is relatively high, they feel valued by their patients, and job security is enhanced by the multitude of potential job locations and ease of moving from one to another.[11,12] However, those dental hygienists also feel undervalued by their coworkers at times, and they noted that promotion prospects are relatively limited.[12]

Studies found that it is common for dental hygienists to take extended breaks throughout their career, mainly due to either childbearing/rearing or going back to school.[11,12,21,22,24,25] Though family responsibilities were identified as a reason for leaving clinical practice, they were also noted as a reason for remaining, likely due to the relatively good pay.[7,11,12,22,24,25]

Studies also found that working part time in multiple offices is both a hardship and an advantage. It was shown that dental hygienists who work 3 days or less per week had higher job satisfaction than those working 4 or 5 days per week.[20,25] Dental hygienists who work in several offices have to adapt to different room and equipment configurations, and often cannot adjust the room to their needs.[9,12] However, variety in work was noted as a reason for retention, and changes in the physical environment may mitigate health impacts.[7,9,11]

Implications for the Canadian Dental Care Plan

Oral diseases are a major problem in Canada, and there are great disparities in dental coverage, with the burden of disease being much higher among disadvantaged groups.[14,26] The lower on the socioeconomic scale people are, the more at risk they are of developing diseases such as caries and periodontitis.[26] The Canadian Health Measures Survey, 2007–2009, found that 47% of lower-income Canadians had at least 1 oral health need identified, compared to 26% of higher-income Canadians.[27]

The Canadian Dental Care Plan aims to increase access to oral health care by providing dental coverage to low-income families and marginalized populations, thereby reducing the stress and financial burden associated with meeting oral health care needs.[15] Such coverage would allow greater numbers of people living in Canada to receive preventive oral care and have a regular oral health care provider, which would lead to overall improvements in oral health.[15,26]

However, there are barriers to the success of this plan. These include not addressing other reasons that marginalized populations do not access care, and staffing shortages. Contributors to poor oral health are multifaceted and are a result of the interplay between the individual, community, and external environment. These contributors are unique for each population group.[13,26] Many disadvantaged populations have had difficult relationships with oral health professionals, and have not felt well understood or have complained of being stigmatized.[13,26] In a study by Farmer et al.,[13] the social determinants of health as well as barriers related to awareness, affordability, availability, and accessibility were commonly reported as causal to accessing and maintaining optimal oral health among vulnerable populations.[13] The concept of oral health care as a low priority extended beyond potential recipients of care to the providers and the wider community.[13,26]

One recurring strategy identified for reducing oral health disparities is the need to increase the availability of care.[13,26] In the United States, new Medicaid members represent a significant new source of dental clinic revenues, and thus Canada can likely expect a similar increase in new patients accessing care once the Canadian Dental Care Plan is fully implemented.[14] The delivery of oral health care is personnel intensive; a significant increase in patients accessing care would therefore require additional staff to keep up with demand.[14]

Work is still needed to ensure the full success of this national plan. Strategies include increasing the availability of professional oral health care; integrating care and collaborating with other health professionals; increasing knowledge and capacity for change.[13,26] Actionable items include changes to education (curriculum expansion or integration); research (reorienting agendas for interventional studies); public health (incorporating dental hygienists in managerial roles); oral health and health care (increasing interprofessional collaboration and integrating oral care into health and long-term care settings); and in communities and among the general public (raising awareness, addressing social determinants of health).[13,15,26] Perceptions and awareness of others and the relationships between providers and communities will support the successful implementation of strategies to reduce oral health disparities.[13,26]

Literature critique

Limitations of this narrative review include the lack of diversity in study types, the lack of Canadian research, and the inclusion of research from other countries that may have very different scopes of practice for dental hygienists and therefore may not be generalizable to the Canadian population. Many quantitative studies included reliable questionnaires and large sample sizes to increase validity. Several studies used online questionnaires or surveys, making it challenging to ensure that participants met the inclusion criteria. Online data collection can, however, provide anonymity that in-person techniques cannot.

Numerous qualitative studies employed grounded theory and phenomenology methodologies. These study designs typically included smaller sample sizes and purposive sampling, which is appropriate for gaining a deeper understanding of dental hygienists' experiences.[28] All studies used either focus groups or interviews, and all interviews were semistructured except for one which was structured. Most limitations and strengths of the focus groups were inherent to the study design. Researchers conducted interviews and focus groups, and when multiple researchers were used to assess the data, they were calibrated, which minimized bias, supported consistency, and enhanced interrater reliability.[28] Some studies mentioned nonverbal behaviours being noted. However, some of the semistructured interviews were conducted over the phone or by email, which would have prevented the observation of nonverbal cues, possibly leading to misinterpretations during data collection.[28]

All qualitative studies were audiorecorded and transcribed, increasing data accuracy and scientific rigour.[28] All except one of the studies were transcribed verbatim, which improves reliability, and many of the studies used numbers to protect identities.[8,28] Most of the studies used saturation to determine the number of interviews needed. A few studies noted the use of reflexivity, pilot focus groups, member checking, and co-coding. Member checking is used to establish validity and limit researcher bias or incorrect interpretation.[8,9,28] Co-coding was used to enhance trustworthiness. None of the studies mentioned the use of triangulation or negative case analysis.[28] Qualitative publications on the job satisfaction of dental hygienists in Canada were relatively limited, and as a result many of the studies came from other countries that may not be representative of the duties that Canadian dental hygienists perform or their workplace experiences. There was also no research available on the Canadian Dental Care Plan, as it is still in development. As a result, this review relied heavily on research on similar programs in the United States.

Most quantitative studies were cross-sectional in design, which raises questions of selection bias and generalizability due to convenience sampling. Furthermore, most studies collected data through self-reporting, which could have possibly led to self-report bias, especially when describing difficult relationships or instances that led to heightened emotions, or misinterpretation of the survey terminology.[9,28]

Research gaps and future research recommendations

Potential future topics include how teamwork affects job satisfaction, what strategies have the greatest impact in preventing burnout, which factors contribute to career longevity and to the success of public health programs, and how repetitive strain injuries affect dental hygienists' careers.[9]

CONCLUSION

Despite dental hygienists' reporting a relatively high satisfaction level with their jobs, current staffing shortages and the impending launch of the Canadian Dental Care Plan necessitate an exploration of key factors for the retention of dental hygienists. This literature review provided a brief introduction to the key factors and strategies that could be implemented in both office and educational settings to increase satisfaction and raise retention rates, which will ultimately benefit the Canadian Dental Care Plan. This national plan will likely produce an influx of new patients to dental and dental hygiene offices, and staffing should be in place to support this increase.

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CONFLICTS OF INTEREST

The author has declared no conflicts of interest.

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