

Mental Health of Canadian Dentists Before and During the COVID-19 Pandemic

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ABSTRACT

Objectives: A growing body of literature highlights the negative impact of the COVID-19 pandemic on the mental health of health care professionals. This paper explores the effects of gender and work/life factors on dentists' mental health before and during the pandemic.

Methods: Data were obtained from a cross-sectional, online survey of Canadian dentists, which was part of a broader study of Canadian professionals' mental health challenges conducted in 2020–2021. Using logistic regression, we compared the influence of life stress, work stress, gender and role in practice on dentists' self-rated mental health before and during the pandemic.

Results: Respondents reported that their mental health had worsened during the pandemic. Among survey respondents ($n = 397$), women dentists (50%) reported worse mental health than men (39%). Those who had higher levels of work and life stress reported more mental health challenges both before and during the pandemic.

Conclusion: Our findings point to the need for more attention to dentists' mental health and highlight the need for gender-sensitive mental health resources and supports for Canadian dentists.

Introduction

Previous research has identified mental health challenges in dentistry, including burnout, depression and psychological disturbances¹ associated with work and personal life stressors, such as long working hours, heavy workloads² and challenging patients.³ Recently, the COVID-19 pandemic created new stressors that had a negative impact on the mental health of the population in general⁴ and health care providers in particular.^{5,6}

The experiences of health professionals were varied. Dentists found themselves vulnerable, not only to the transmission of the SARS-CoV-2 virus during the early days of the pandemic, as their work requires them to be in close proximity to the oral and nasal areas of their patients,^{7–9} but also to the stress of having to close their practices during lockdowns in many regions. The pandemic

highlighted fear of infection, challenges related to obtaining personal protective equipment, the economic repercussions of practice closure, a reduction in the number of patients and working hours^{5,10} and fear of transmission to loved ones, with negative implications for dentists' mental health.

With the increased number of women in dentistry, more attention has been paid to gender differences in dentists' mental health. However, findings from previous research have been contradictory: some studies report that women dentists experience poorer mental health,⁸ while others conclude that there is no gender difference.^{11,12} The influence of gender, work stress, life stress and role in practice on dentists' mental health during the COVID-19 pandemic remains unclear in the

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Canadian context. The purpose of our study was to examine that impact and to determine the source of mental health challenges, with a particular focus on gender, role in practice (e.g., private practitioner, partner in group practice, associate, employee or not in active practice), work-related stress and life-related stress. We considered the influence of these factors before and during the COVID-19 pandemic.

Methods

In 2020 and 2021, we conducted a self-administered online, bilingual (English/French) pan-Canadian survey (using Qualtrics software; Silver Lake, Seattle, Wash., USA) among professionals in health care, education and accounting to explore their experiences related to mental health, leaves of absences and return-to-work.¹³ Recruitment occurred through crowdsourcing, with the assistance of partner organizations, including the Canadian Dental Association and several provincial dental associations across Canada using direct email to members (with a maximum of 2 reminders) and through newsletters, listservs and social media platforms including Instagram, LinkedIn, Facebook and Twitter. At that time, about 25 000 dentists were practising in Canada.

The survey contained 116 items designed to capture respondents' mental health experiences before and during the second wave of the pandemic in Canada, using retrospective questions. Profession-specific questions filtered participants and navigated them to appropriate sections using skip-logic; this resulted in a shorter survey taking approximately 20 minutes to complete. The survey was pilot tested in October/November 2020 and launched at the end of November 2020. Between then and early May 2021, the cross-sectional survey actively collected responses from participants across various professions. Questions that yielded 90% completion rate were retained for analysis.

This study received ethics approval from the research ethics committees at 16 universities across Canada. Informed consent was implied by survey completion, and participation was voluntary. All data collected electronically were stored and analyzed securely at McMaster University's Secure Empirical Analysis Lab, and all statistical analyses were conducted using Stata (StataCorp, College Station, Tex., USA).

In the context of the study, mental health issues included psychological stress, anxiety, burnout, depression, other mood disorders, substance use or dependence, post-traumatic stress disorder and serious thoughts of suicide. However, in this manuscript, we focus on questions related to dentists' self-perceived and self-reported mental health status before and during COVID, with a special interest in work and lifestyle factors that relate to stress, gender and primary role in

practice. Based on findings in the literature, we hypothesized that mental health challenges would be greater for dentists during the pandemic and that work-related stress, life-related stress and primary role in practice (i.e., whether someone had their own practice or worked as an associate) would be significant predictors of mental health challenges. We aimed to look at these factors through a gender lens.

We had 2 outcome variables related to the following survey questions:

"Since the start of the COVID-19 pandemic, how would you say your mental health has been?"

"Prior to the start of the COVID-19 pandemic, how would you say your mental health was?"

Respondents answered these questions on a 5-point Likert-type scale with options ranging from poor to excellent. We began with basic descriptive analyses, followed by bivariate analysis of the influence of work-related stressors on men and women dentists' mental health before and during the pandemic. We then proceeded to logistic regression analyses to explore the influence of our independent variables on dentists' self-reported mental health. The independent variables included work-related stressors, life-related stressors, gender and dentists' role in practice. The first 2 of these variables were measured on 5-point Likert scales where respondents were asked to rate how stressful their work/life was, ranging from "not stressful at all" to "extremely stressful." For both variables, "not stressful at all" was used as the reference category; for role in practice "private practitioner" was the reference category. We included a non-binary response category for gender, but as we had insufficient data to include in the logistic regression analyses, we collapsed this variable to a dichotomy (men and women).

Results

Of the 379 respondents to our cross-sectional survey, 194 identified as women (51%) and 185 (49%) as men. **Table 1** summarizes the distribution of responses across the main outcome variables, by gender, as well as the variables measuring life and work stress during the pandemic. Most respondents (60%) reported that, before the pandemic, their mental health was good or very good (mean score 3.7, i.e., very good). Respondents reported that their health declined during the pandemic, with most rating it fair to good (mean score 2.9, i.e., good). Women reported poorer mental health than men, both before and during the pandemic. As **Table 1** shows, most respondents (74%) reported that work was a bit or quite stressful during the pandemic; with most reporting that life generally was a bit or not very stressful. The most common work-related stressors identified by our respondents were the stress of running a practice, uncertainty and work overload (**Table 2**).

Table 3 presents the results of the logistic regression analyses for both outcome variables: mental health before and during the COVID-19 pandemic. Before the pandemic, women reported poorer mental health than men. Moreover, people who reported stressful work environments and stressful life experiences (during the pandemic) reported poorer mental health before the pandemic. Dentists' role in their practices did not have an impact on reported mental health during either period.

During the pandemic, work-related stress was a strong and significant predictor of poor mental health. Those reporting extremely stressful

work environments were 5 times more likely to report poorer mental health than those whose work environments were not at all stressful. Those who found work a bit stressful were 2.5 times more likely, and those who reported work as quite stressful were 3.5 times more likely to report negative mental health. The impact of life stress on mental health was statistically significant, but the relation was less strong: those claiming extremely stressful and quite stressful life experiences were 2.25 and 1.5 times more likely to report poorer mental health, respectively. The impact of gender remains significant with women reporting poorer mental health than their male counterparts.

Table 1: Descriptive statistics relating dentists' mental health to gender and stress.

Since the start of the pandemic, how would you say your mental health has been?			
	Women, % (n = 188)	Men, % (n = 163)	Total, % (no.; n = 351)
Poor	12.8	5.5	9.4 (33)
Fair	34.0	25.8	30.2 (106)
Good	28.7	28.8	28.8 (101)
Very good	19.4	26.3	22.8 (80)
Excellent	4.8	13.5	8.8 (31)
In general, before the start of the COVID-19 pandemic, how would you describe your mental health?			
	Women, % (n = 183)	Men, % (n = 161)	Total, % (no.; n = 344)
Poor	*	*	*
Fair	13.7	6.2	10.2 (35)
Good	36.6	21.7	29.7 (102)
Very good	35.5	39.8	37.5 (129)
Excellent	14.2	32.3	22.7 (78)
How would you describe the level of work stress since the start of the pandemic?			
	Women, % (n = 185)	Men, % (n = 161)	Total, % (no.; n = 346)
Not at all stressful	*	5.6	2.6 (9)
Not very stressful	16.2	20.5	18.2 (63)
A bit stressful	40.0	44.7	42.2 (146)
Quite stressful	37.3	25.5	31.8 (110)
Extremely stressful	6.5	3.7	5.2 (18)
How would you describe the level of life (outside of work) stress since the start of the pandemic?			
	Women, % (n = 184)	Men, % (n = 159)	Total, % (no.; n = 343)
Not at all stressful	9.8	15.1	12.2 (42)
Not very stressful	28.3	34.0	30.9 (106)
A bit stressful	44.0	38.4	41.3 (142)
Quite stressful	17.9	12.6	15.5 (53)
Extremely stressful	*	*	*

*Values < 5% were suppressed.

Table 2: Work-related stressors before and during the COVID-19 pandemic ($n = 194$ women, 185 men).

Which of the following sources of work stress were most relevant to you?						
Stressor	Before COVID		During COVID		% difference	
	Women, n°.	Men, n°.	Women, n°.	Men, n°.	Women	Men
Work overload	82	60	85	54	4	-10
Stress of running a practice, managing people, meeting budgets	89	95	94	102	6	7
Uncertainty	30	22	107	84	257	282
Poor relations with co-workers/colleagues	27	16	29	17	7	6
Poor relations with patients/clients	18	12	22	11	22	-8
Ethical dilemmas	12	17	27	24	125	41
Lack of psychological safety at work, including bullying, harassment, discrimination or workplace violence	11	0	10	7	-9	
Other (please specify)	16	13	77	60	381	362
Fear of contracting COVID-19			29	23		

Table 3: State of mental health before and during the COVID-19 pandemic ($n = 379$).

	Mental health before the pandemic, OR (SE)	Mental health during the pandemic, OR (SE)
Work-related stress since the start of the COVID-19 pandemic (reference category: "Not stressful at all")		
Not very stressful	-0.705 (0.694)	-1.295* (0.662)
A bit stressful	-1.217* (0.701)	-2.510*** (0.682)
Quite stressful	-1.752** (0.718)	-3.675*** (0.701)
Extremely stressful	-2.178** (0.869)	-4.741*** (0.856)
Life stress (excluding work-related stress), since the start of the pandemic (reference category: "Not stressful at all")		
Not very stressful	-0.484 (0.412)	-0.441 (0.417)
A bit stressful	-1.235*** (0.432)	-1.115** (0.438)
Quite stressful	-1.751*** (0.510)	-1.463*** (0.506)
Extremely stressful	-1.229 (0.793)	-2.257*** (0.802)
Gender (reference category: Men)		
Women	-0.857*** (0.231)	-0.662*** (0.227)
Primary role (reference category: Private practitioner)		
Partner in group practice	0.364 (0.409)	0.0202 (0.392)
Associate	-0.208 (0.251)	-0.187 (0.249)
Employee	0.0563 (0.475)	0.438 (0.463)
Not in active practice	1.047 (1.354)	1.010 (1.377)
Other (please specify)	0.870 (0.575)	-0.268 (0.489)

Note: OR = odds ratio, SE = standard error.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Discussion

During the COVID-19 pandemic, mental health has been a growing concern for dentists across the world. Our research is one of the first studies to compare Canadian dentists' mental health before and during the pandemic, explicitly considering the influence of gender, role in dental practice and related work and life factors. It is not surprising that our dentist respondents reported poorer mental health during the pandemic than before. As shown elsewhere,¹³ dentists were less likely than other professionals to report ever having mental health problems, but they experienced a similar level of decline in mental health during the pandemic.

Gender was significantly related to mental health outcomes, notably with women reporting poorer mental health both before and during the pandemic. This finding is in line with results of several other studies before^{14,15} and during the pandemic.^{16,17} In the context of the COVID-19 pandemic, women dentists have been reportedly more vulnerable to mental health issues, as has been found among other health care professionals, such as physicians.^{13,17} This finding could be attributed to differential gendered impacts of the pandemic, including gender roles, which may be more detrimental to the well-being of women than men.¹⁸ Furthermore, women appear to face greater challenges balancing home and work life, which can further affect mental health.¹⁸

Work-related stressors (such as running a practice, uncertainty and work overload) were strong contributors to poor mental health. Non-work-related stressors also had a negative impact on mental health. We expected that dentists' role in practice would impact mental health, but this was not the case, when other factors were considered.

Other research has identified work-related stressors and their impacts on dentists' mental health. In their study of Nova Scotian dentists, Noushi et al.¹⁰ found that forced closures early in the pandemic were troubling for dentists, had a strong negative impact and created new challenges related to emergency triaging, prescribing and tele-dentistry without financial compensation. Studies reported that fears around contracting the virus contributed to psychological distress and anxiety.^{19,20} Although fear of contracting the virus was mentioned by a minority of our respondents, other worries (uncertainty, workload, practice challenges) were reported more often. Uncertainty was a cause of stress for Nova Scotian dentists, as were lack of personal protective equipment (PPE) and concern for patients.¹⁰

In our study, dentists' perceived mental health worsened during the COVID-19 pandemic. In the Canadian context, dentists' increased levels of stress and anxiety can be attributed to

persistent fear of exposure, stricter PPE and Infection Prevention and Control Canada protocols and regulatory confusion.²¹ Beyond work-related stress, dentists experienced personal stress related to family, finances and the prevailing state of affairs including general uncertainty.²²

Dental care providers suffer from stress, anxiety, depression and post-traumatic stress disorder.¹² Exacerbated work stressors, as found in this study, negatively influence mental health. In addition, new psychosocial stressors have been linked to these outcomes. For instance, general dental practitioners experienced anxiety and fear related to concerns about the adverse effects of COVID-19.²⁰ Fear of infection, additional professional responsibilities and restricted mobility were also associated with mental health adversities.²³ The COVID-19 pandemic led to psychological consequences relating to work factors, such as financial worries, lack of protective equipment, uncertainties relating to career outcomes and fear of losing jobs.^{22,24}

The methods used in this study have some inherent limitations. First, the survey was conducted online with a small sample size, and the nature of the recruitment process means that survey findings are not generalizable. Although we received responses from dentists across the country, most were from Ontario and British Columbia; hence, the experiences of people in other provinces may be underrepresented. We could not explore fully the influence of location of practice on mental health, although preliminary analyses revealed no significant impact. Mental health was self-perceived, and assessment of pre-COVID-19 mental health was retrospective, leading to reporting biases that could not be accounted for in analyses. These are not ideal measures of mental health, especially when the goal is to track mental health over time. Furthermore, the cross-sectional design of this study has inherent limitations and does not allow for eliciting causation. Future research should further explore gender differences in mental health and influences of location of practice.

Conclusion

Canadian dentists' mental health challenges pre-dated the pandemic, but the COVID-19 pandemic clearly worsened their mental health, with work-related stressors and gender being particularly influential factors. Our findings call for more attention to dentists' mental health challenges and highlight the need for gender-sensitive mental health resources and supports for Canadian dentists. Long-term consequences of the impact of COVID-19 on the mental health of dentists must be explored while providing support to mitigate these effects. More research on the factors driving gender differences in dentists' mental health is particularly warranted.

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