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ORIGINAL ARTICLE

Loneliness and social support as key contributors to burnout among Canadians workers in the third wave of the COVID-19 pandemic: A cross-sectional study

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Abstract

Objective: COVID-19 has dramatically affected Western Society's relationship with work and contributed to increased worker burnout. Existing studies on burnout have mostly emphasized workplace culture, leadership, and employee engagement as key contributors to burnout. In this cross-sectional study, we examine the associations between Malach-Pines Short Burnout Measure (MPSBM) scores and participant's self reported personal characteristics, financial strain, workplace conditions, work-life balance, and social inclusion among Canadians living during the third wave of the COVID-19 pandemic.

Methods: To identify the most salient correlates of burnout, Canadian residents, aged 16+, were recruited using paid social media advertisements in French and English to complete a cross-sectional study. Multivariable linear regression and dominance analysis identified the most salient correlates of MPSBM scores. Exposure variables included demographic factors, financial strain, workplace conditions, work-life balance, social support, and loneliness.

Results: Among 486 participants, family social support (adjusted $\beta = -0.14$, 95%CI = −0.23, −0.05), emotional loneliness (adjusted $\beta = 0.26$, 95% CI = 0.18, 0.35), insufficient sleep (adjusted β = 0.38, 95% CI = 0.16, 0.60) and "me time" (adjusted $\beta = 0.22$, 95% CI = 0.03, 0.42), and indicators of financial security (e.g., owning vs renting; adjusted $\beta = -0.36$, 95% CI = −0.54, −0.17; insufficient pay: adjusted $\beta = -0.36$, 95% CI = −0.54, −0.17) were key burnout indicators. People with a bachelor's degree (vs ≤high school diploma; adjusted $\beta = 0.29$, 95% CI = 0.01, 0.58) also had higher burnout scores.

Conclusion: Interventions addressing workplace culture, leadership, and other proximal workplace stressors, while important, are likely insufficient to meet the needs of workers. Our findings suggest that broader, holistic multicomponent approaches that address multiple upstream dimensions of health—including mental health—are likely necessary to prevent and reduce burnout.

KEYWORDS
burnout, financial security, loneliness, sleep, social support

1 | INTRODUCTION

Among any number of workplace maladies, "burnout" has emerged as an unfortunately common ailment facing workers today.[1] The concept of burnout was first introduced in the 1970s and, since then, a growing number of people, from minimum wage employees to high-paid professionals, report experiencing burnout symptoms.[1] In this study, we use the definition of burnout proposed by Malach-Pines, which describes it as a combination of (1) physical, mental, and emotional exhaustion, (2) feelings of dissatisfaction, being trapped, stressed, and hopeless, and (3) and the absence of drive, purpose, and enthusiasm for work.[1]

In understanding and addressing the phenomenon of burnout, it is particularly important to understand its drivers among people living in the wake of the COVID-19 pandemic.[1] Indeed, COVID-19 has impacted the level of control workers have over their work, forced dramatic alterations to workers' routines and working environments, and put the health of many frontline workers at risk.[2] In the midst of this, people are leaving their jobs at alarming rates, particularly within service occupations—creating economic and social disruptions that have cascading effects on society more broadly.[3] Even prior to the COVID-19 pandemic, burnout was heralded as an "emblematic illness" of the epoch.[4] Although it has been difficult for researchers to adequately differentiate burnout from other mental health challenges,[5] previous studies have centered discussions of burnout on management, working conditions, and culture.[6,7] These studies have provided valuable insight into the role that burnout has in contributing to physical disease, mental disorders, or workplace inefficiencies.[8] However, these studies highlight that a more holistic evaluation—accounting for individual and situational factors outside of the workplace—is needed if we are to truly extinguish burnout in contemporary work environments.[9]

Several published literature reviews have previously shown that a diverse set of factors underlie burnout.[10,11] Many of these studies have centered discussions of burnout on management, working conditions, and culture[6,7,12,13]—factors which have been repeatedly identified as contributors to burnout. Other lifestyle factors have reviewed lesser attention, but also indicate that the factors contributing to burnout are wide ranging. For example, one review showed that physical activity has a moderately strong effect in preventing or reducing burnout[14]; another linked burnout to eating behaviors and dietary patterns[15]; a third to workplace violence.[16] Likewise, a growing body of literature has emphasized the importance of social determinants of health, such as gender and socioeconomic status, in understanding burnout.[17] The emergence of COVID-19 has also highlighted social isolation as another key determinant of burnout[18] and it is increasingly evident that social networks and supports can provide some degree of protection against burnout.[19,20]

Based on Hobfoll et al.[21] Social Support Resource Theory, it is hypothesized that social relationships provides a critical reserve of emotional, psychological, and existential, and physical sources that can fortify individuals against acute and chronic stressors—providing them with the energy and enthusiasm needed to thrive in the workplace. Unfortunately, most studies on burnout investigate a limited number of domains and, as such, it is difficult to identify what broad factors may be most important to address in seeking to mitigate the negative effects of burnout.[22,23] Social connection is increasingly researched in relation to burnout[24–26]—likely due to established benefits for other mental health conditions.[27] In the context of COVID-19, it seems urgently necessary to understand what forms of social connection and support might be influencing people's work lives—especially considering that some may be isolated from not only their workplace social connections, but also those established outside of work.[18]

This study aims to identify the most salient factors underlying burnout among Canadians during the third wave of the COVID-19 pandemic using baseline data from a longitudinal cohort study that was established to monitor trends in social and mental health recovery throughout the late-pandemic period.

2 | METHODS

2.1 | Data Collection

Between April 21 and June 1, 2021—during Canada's third wave of COVID-19—we recruited participants using paid advertisements promoted on social media sites, including Facebook, Instagram, Twitter, and Google Ads. Geographic targeting was used to reach people living in Canada or individuals with Canadian accounts. Advertisements featured pictures of individuals represented across ages, genders, ethnicities, sexual orientations, family types, and body types. Advertising text, in

English and French, provided information about the study's purpose, survey length, and honoraria amount. After clicking on advertisements, participants were directed to an informed consent page and were screened for eligibility. Eligibility criteria restricted participation to those who were 16 years of age or older (i.e., the age of consent for research participation without parental consent), lived in Canada, and provided informed consent. Additional analytic inclusion criteria restricted participation to individuals who were employed at time of survey completion. The survey, which was completed using the Qualtrics survey platform, took approximately 21 min (Q_1–Q_3: 10–35 min) to complete and could be completed in either English or French. The survey was structured around six modules. As a means of reducing participant burden, modules 4, 5, and 6 were randomized such that only one-third of respondents completed each of the modules. As this is a secondary data analysis of existing data, these modules were selected as they explored issues not directly relevant to the core-funded research questions. Upon conclusion of the study, participants were compensated for their time by entering their email in an optional lottery to win one of 25 $100 gift card prizes.

2.2 | Ethics

Ethics review for the Canadian Social Connections Survey (CSCS) was conducted by the Research Ethics Board at the University of Victoria (Ethics protocol number 21-0115). All participants provided informed consent prior to participation.

2.3 | Variables

2.3.1 | Burnout

Burnout was measured in module 1 using the 10-item Malach-Pines Short Burnout Measure (BM-10), a scientifically validated and reliable scale used to assess the level of an individual's physical, emotional, and mental exhaustion in the workplace.[1] This measure was selected because it is a short form instrument for burnout suitable for large scale surveys. For each of the 10-items (i.e., "disappointed with people," "tired," "difficulties sleeping," "depressed," "hopeless," "physically weak or sickly," "trapped," "I've had it, helpless," "worthless or like a failure.") participants were asked to rate how frequently they felt a given burnout symptom on a 7-point Likert scale from "Never" (1) to "Very Often" (7). Total burnout scores were calculated by taking the average of item scores and ranged from 1 to 7. Scores of 4 or more are traditionally treated as indicating participants are "Burnt out" while scores of less than 4 indicate lesser burnout.

2.3.2 | Personal characteristics

Participant characteristics were assessed in module 3 using novel measures of age, education level, occupation, ethnicity, gender, sexual orientation, and disability identity. We also assessed self-rated physical and mental health using a 5-point Likert Scales ranging from Poor (1) to Excellent (5). Occupation was determined using the high-level categories from the National Occupation Classifiers.

2.3.3 | Financial strain

Several questions from the CFPB Financial Well-Being Self-assessment tool[28] were used to assess financial strain, including items regarding participant income and home ownership status (own, mortgaged, or rent) were included in module 6. Subjective financial well-being was assessed across several questions measured on a 5-point Likert scale (i.e., "I am just getting by financially," "My finances control my life," "I have money left over at the end of the month," "Because of my money situation, I feel like I will never have the things I want in life").

2.3.4 | Working conditions

Novel questions related to workplace conditions were measured in module 6 and assessed how participants felt about work on a 5-point Likert scale (i.e., "I feel that I am treated with dignity and respect in my workplace," "I have a lot of control over how I do my work," "I am getting paid enough for the work I do," "I am appreciated for the work I do," "I feel supported by my co-workers," "I feel my workplace is fair", "I feel that my work-load is unsustainable," "I think about quitting my job," "I feel stress about my job even when I am not at work."). Likert scales were treated as continuous measures for ease of interpretation. Employment impacts related to COVID-19 assessed whether participants were laid off, got a new job, or had their hours increased or decreased.

2.3.5 | Work-life balance

Questions about participant's perception of how they spend their time were assessed in module 1 by asking whether they spent too much, too little, or just the right

amount of time sleeping, exercising, helping others and volunteering, practicing hobbies and skills, getting "me" time, winding down, and working.

2.3.6 | Social Inclusion

We included multiple validated measures of social inclusion and support in modules 1 and 2 in order to identify specific potential pathways by which social conditions may impact burnout. The 6-item DeJong Emotional and Social Loneliness Scale is a validated scale that consists of 6-items, rated on a 3-point Likert scale. The scale consists of two dimensions measuring emotional loneliness (e.g., "I miss having people around", "I often feel rejected") and social loneliness (i.e., "There are plenty of people I can rely on when I have problems"). Each subscale is scored from 0 to 3, with higher values indicating greater emotional and social loneliness.[29] Final scores on this measure are calculated as a sum of scale items. As is done with the originally designed scale, each item is scored dichotomously with answers indicating neutral (i.e., "more or less") or loneliness receiving 1 point and those indicating no loneliness receiving 0 points.. The Zimet Multidimensional Scale of Perceived Social Support is a validated scale that consists of 12 items rated on a 7-point Likert scale from "Very Strongly Disagree" to "Very Strongly Agree." The scale consists of three dimensions measuring support from friends (e.g., "I can count on my friends when things go wrong"), families (e.g., "I get the emotional help and support I need from my family"), and significant others (e.g., "There is a special person in my life who cares about my feelings"). Each scale dimension is scored on a scale from 1 to 7, representing the average response value across relevant items.[30] The Everyday Discrimination Scale consists of 9-items scored on a 6-point Likert scale measuring the frequency individual experience day-to-day discrimination (e.g., "You are treated with less respect that other people are," "People act as if they are afraid of you."). The final score consists of one dimension and ranges from 9 to 54, with higher values indicating greater discrimination.

2.4 | Data analysis

All statistical analyses were conducted in R 4.1.3.[31] As an initial step, dishonest/ false participants/ poor quality data were screened for by examining IP addresses, completion time, and response patterns (e.g., unlikely response combinations, and straight lining)—erring on the side of inclusion for individual responses. For this analysis, additional analytic criteria restricted inclusion to individuals who were randomly assigned to complete module six, reported being currently employed, and provided responses to all variables used for the planned regression analyses. A complete case analysis was conducted due to our use of regression analyses, which do not tolerate missing values. We did not conduct imputation analyses, as we could not assume that data were missing at random, due to the potential that burnout could correlate with survey fatigue, and thus higher rates of nonresponse.

Descriptive statistics were calculated for the analytic sample, stratified by whether or not participants were classified as "Burnt out" (Score $\geq$4) or "Not Burnt Out" (Score <4; Malach-Pines[1]). In these calculations, frequencies (n) and proportions (%) are reported for categorical variables; means and standard deviations are reported for continuous variables. Differences between included and excluded participants were assessed using bivariable statistics. Chi-square (χ^2) test were used to test differences on categorical variables, one-way ANOVA tests were used for continuous normal variables, and Kruskal–Wallis nonparametric tests were used for continuous non-normal variables. The primary outcome for this analysis was continuous scores on the 10-item Malach-Pines Short Burnout Measure. Bivariable linear regression models were constructed to identify unadjusted effects of explanatory variables on burnout scores. Two multivariable models were constructed to assess the independent and adjusted effects of explanatory variables on burnout scores. The first of these two models included all factors of theoretical relevance. The second included variables selected using a standard backwards-elimination, AIC-optimization procedure. Given some controversy regarding the benefits of backwards-elimination, we provide results of both models given to highlight differences in findings. However, we discuss and focus primarily on those of the backwards selected model as we feel the benefits of AIC in balancing model complexity and explanatory power is appropriate. As an additional model checking procedure, the VIF for the full and final models was calculated using the car package to check for multi-collinearity.[32] A cutoff value of 5 was included to assess multicollinearity. No multicollinearity was identified in the final model at this threshold. After we arrived at our final model, we conducted dominance analysis to assess relative variable importance and to focus subsequent analyses on key mechanisms that might lead to burnout. Dominance analysis identifies the independent contribution of each factor to model by examining its contribution to model R-squared.[33] For these analyses, a conditional dominance plot was constructed showing the average contribution to R^2 of each variable, across all possible models.

3 | RESULTS

A total of 2286 participants initiated the survey, of these, 1218 completed module 6. However, 369 of these individuals were not currently employed and were thus excluded from the current analyses. After removing participants with missing data on variables of interest ($n = 363$), the final analytic sample size consisted of 486 participants. The average age of the analytic sample was 34.7 years (SD = 11.3). Nearly two-thirds of participants (60.7%) reported being white; approximately half were identified as men (48.4%); 38.1% identified as Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, or another sexual minority (2SLGBTQ+); and more than one-in-10 (11.1%) reported having a disability.

Table 1 shows bivariable associations with burnout scores for each explanatory factor. People who were burnt out had higher emotional (Mean = 2.55 vs 2.00) and social (2.11 vs 1.48) loneliness, reported more experiences of discrimination (28.17 vs 24.00), and reported lower support from family (4.37 vs 5.22), friends (4.61 vs 5.21), and significant others (4.68 vs 5.43) compared to those who were not burnt out. Burnout was also higher among individuals who were living with a disability (50.0% vs 28.9%). As indicated by bivariable associations in Table 1, general associations indicated that greater financial strain (e.g., Higher scores among burnt-out individuals on items such as "Because of my money situation, I feel like I will never have the things I want in life."), time imbalances (e.g., burnt-out people being more likely to report too little or too much "me time"'), and workplace dissatisfaction (e.g., burnt-out individuals that were less likely to feel that their workplace is "fair") were also associated with greater burnout across multiple variables.

Table 2 shows results from our multivariable linear models. In final multivariable modeling, higher emotional loneliness ($\beta = 0.26$, 95% CI = 0.18, 0.35), lower social support from family ($\beta = -0.14$, 95% CI = −0.23, −0.05), having a bachelors degree (vs High school diploma or less, $\beta = 0.29$, 95%CI = 0.01, 0.58), getting too little sleep ($\beta = 0.38$, 95% CI = 0.16, 0.60) and too little "me time" ($\beta = 0.22$, 95% CI = 0.03, 0.42), lower self-rated physical health ($\beta = -0.13$, 95% CI = −0.23, −0.04), owning your home (vs renting; $\beta = -0.36$, 95% CI = −0.54, −0.17), and not getting paid enough for the work you do ($\beta = -0.36$, 95%CI = −0.54, −0.17) were associated with higher burnout scores. We also note that in our full model that African, Caribbean, and Black people (vs white people, $\beta = -0.28$, 95% CI = −0.55, −0.01) and Indigenous people (vs white people, $\beta = -0.34$, 95% CI = −0.65, −0.02) had lower burnout scores—but this variable was not retained in the final model. Likewise, having an occupation in Health and Sciences (vs. salespeople, $\beta = 0.31$, 95% CI = 0.02, 0.60) or Management, Business, or finance (vs sales people, $\beta = 0.30$, 95% CI = 0.05, 0.56) was significantly associated with higher burnout in the full model, but this factor was not retained in the final model.

Figure 1 shows results from our dominance analysis. The dominance analysis was based on the variables selected into the final multivariable model. Results of the dominance analysis indicate relatively strong effects of physical health, family social support, emotional loneliness, support from significant other, home ownership, and getting enough sleep. In adjusting for other variables, the effect of emotional loneliness becomes dominant, and the independent effects of other variables become comparable to the remaining factors in the model.

4 | DISCUSSION

The present study examined the role of personal characteristics, social health, time use, and workplace factors in levels of burnout experienced by people living in Canada, aged 16+. Multivariable regression models and dominance analyses highlighted the importance of social inclusion, sleep, and financial security as key factors in preventing burnout—factors which may not be easily addressed by simple alterations to workplace culture and leadership. As noted above, most studies on burnout tend to focus on management styles, workplace conditions, and employee engagement/inspiration as strategies for reducing or preventing burnout.[34] Our data suggest that these factors, while perhaps important and even necessary elements for workplace interventions,[35] are not the only, or even the most influential, contributors to burnout—once we account for a broader suite of socio-ecological contributors,[36] as we do in the current study.

Although there is a growing body of literature focused on workplace wellness that aims to address employee mental health through interventions, such as promoting healthy habits (such as sleep habits[37]) and mindfulness[38,39]—our analyses suggest that mental health interventions alone are likely insufficient to fully address burnout. A broad vision for wellness, not bounded by work hours or office settings, must be accounted for in order to more fulsomely address the determinants of burnout.[40] Indeed, as noted by Koutsimani and Montgomery,[41] burnout is a distinct phenomenon from typical mental health constructs like anxiety and depression; thus, requiring specialized solutions to address it. Such interventions might, for instance, provide structural and individual support an employee's social health and well-being, using tailored, person-centered approaches that address specific, individual needs.[23] The emphasis on social health and health more broadly is supported by research showing

TABLE 1 Descriptive and bivariable statistics showing associations with being burnt out ($N = 486$) "Burnt out" (Score ≥4) or "Not Burnt Out" (Score <4; Malach-Pines, 2005)

Response	Not burnt out score <4 ($n = 334$)	Burnt out score ≥4 ($n = 152$)	*P*-value[b]	Test[c]
Age[a] (M, SD)	34.70 (11.28)	34.58 (11.40)	.913	ANOVA
Gender (*N*, %)				
Man	168 (50.3)	67 (44.1)	Reference	χ^2
Nonbinary	5 (1.5)	8 (5.3)	.056	
Woman	161 (48.2)	77 (50.7)	.044	
Sexual orientation (*N*, %)				
Straight	200 (59.9)	101 (66.4)	Reference	χ^2
2SLGBTQ+	134 (40.1)	51 (33.6)	.879	
Ethnicity (*N*, %)				
White	203 (60.8)	92 (60.5)	Reference	χ^2
African, Caribbean, or Black	43 (12.9)	14 (9.2)	.357	
Arab/West Asian	9 (2.7)	8 (5.3)	.061	
East Asian	22 (6.6)	14 (9.2)	.289	
Indigenous	31 (9.3)	7 (4.6)	.002	
Latin	16 (4.8)	6 (3.9)	.964	
South Asian	3 (0.9)	6 (3.9)	.176	
Other	7 (2.1)	5 (3.3)	.591	
Self-rated physical health[a] (M, SD)	3.70 (0.81)	3.00 (1.05)	<.001	
Living with disability (*N*, %)				
No	307 (91.9)	125 (82.2)	Reference	χ^2
Yes	27 (8.1)	27 (17.8)	<.001	
Education level (*N*, %)				
High school diploma or lower	34 (10.2)	17 (11.2)	Reference	χ^2
College or advanced skills training	130 (38.9)	47 (30.9)	.634	
Bachelor's degree	65 (19.5)	44 (28.9)	.227	
Post-graduate/professional degree	105 (31.4)	44 (28.9)	.547	
Employment status (*N*, %)				
Part time	218 (65.3)	94 (61.8)	Reference	χ^2
Full time	97 (29.0)	39 (25.7)	.649	
Overtime	19 (5.7)	19 (12.5)	.336	
Occupation (*N*, %)				
Sales and service	66 (19.8)	23 (15.1)	Reference	χ^2
Community and civil services	90 (26.9)	45 (29.6)	.031	
Health and science	55 (16.5)	28 (18.4)	.083	
Management, business, and finance	86 (25.7)	37 (24.3)	.317	
Trades	37 (11.1)	19 (12.5)	.069	
COVID-19 related employment impacts (*N*, %)				
I had my hours of work reduced	174 (52.1)	68 (44.7)	.598	
I had my hours of work increased	46 (13.8)	29 (19.1)	.198	
I was laid off temporarily or permanently	29 (8.7)	28 (18.4)	.056	
I got a new job	38 (11.4)	31 (20.4)	<.001	

TABLE 1 (Continued)

Response	Not burnt out score <4 ($n = 334$)	Burnt out score ≥4 ($n = 152$)	*P*-value[b]	Test[c]
Amount of work from home[a] (M, SD)	3.38 (1.17)	3.18 (1.29)	.077	ANOVA
Income (*N*, %)				
Less than $30 000	77 (23.1)	48 (31.6)	Reference	χ^2
$30 000–$59 999	96 (28.7)	41 (27.0)	.873	
$60 000–$89 999	61 (18.3)	32 (21.1)	.820	
$90 000 to $119 999	46 (13.8)	17 (11.2)	.195	
$120 000 to $149 999	17 (5.1)	6 (3.9)	.151	
$150 000 to $179 999	23 (6.9)	2 (1.3)	.022	
$180 000 or more	14 (4.2)	6 (3.9)	.670	
I am just getting by financially[a] (M, SD)	3.16 (1.04)	3.32 (1.08)	.148	ANOVA
My finances control my life[a] (M, SD)	3.05 (1.19)	3.11 (1.12)	.514	ANOVA
I have money left over at the end of the month[a] (M, SD)	3.36 (1.21)	2.89 (1.25)	<.001	KW
Because of my money situation, I feel like I will never have the things I want in life[a] (M, SD)	2.86 (1.14)	3.33 (0.97)	<.001	KW
Home ownership (*N*, %)				
Rent	101 (30.2)	81 (53.3)	Reference	χ^2
Mortgaged	81 (24.3)	40 (26.3)	.033	
Own	152 (45.5)	31 (20.4)	.000	
Time exercising (*N*, %)				
Just the right amount	187 (56.0)	57 (37.5)	Reference	χ^2
Too little	98 (29.3)	75 (49.3)	<.001	
Too much	49 (14.7)	20 (13.2)	.499	
Time helping or volunteering (*N*, %)				
Just the right amount	187 (56.0)	70 (46.1)	Reference	χ^2
Too little	110 (32.9)	69 (45.4)	.001	
Too much	37 (11.1)	13 (8.6)	.568	
Time practicing hobbies (*N*, %)				
Just the right amount	160 (47.9)	53 (34.9)	Reference	χ^2
Too little	113 (33.8)	75 (49.3)	<.001	
Too much	61 (18.3)	24 (15.8)	.248	
Me Time (*N*, %)				
Just the right amount	185 (55.4)	62 (40.8)	Reference	χ^2
Too little	85 (25.4)	51 (33.6)	<.001	
Too much	64 (19.2)	39 (25.7)	.001	
Time sleeping (*N*, %)				
Just the right amount	242 (72.5)	69 (45.4)	Reference	χ^2
Too little	44 (13.2)	51 (33.6)	<.001	
Too much	48 (14.4)	32 (21.1)	.001	
Time winding down (*N*, %)				
Just the right amount	229 (68.6)	85 (55.9)	Reference	χ^2
Too little	55 (16.5)	45 (29.6)	<.001	
Too much	50 (15.0)	22 (14.5)	.394	

(Continues)

TABLE 1 (Continued)

Response	Not burnt out score <4 (n = 334)	Burnt out score ≥4 (n = 152)	P-value[b]	Test[c]
Time working (N, %)				
Just the right amount	214 (64.1)	68 (44.7)	Reference	χ^2
Too little	29 (8.7)	27 (17.8)	<.001	
Too much	91 (27.2)	57 (37.5)	<.001	
I am appreciated for the work I do[a] (M, SD)	3.74 (0.90)	3.32 (0.97)	<.001	ANOVA
I have a lot of control over how I do my work[a] (M, SD)	3.62 (0.93)	3.30 (0.95)	<.001	ANOVA
I feel that I am treated with dignity and respect in my workplace[a] (M, SD)	3.77 (0.92)	3.32 (1.01)	<.001	ANOVA
I feel my workplace is fair[a] (M, SD)	3.73 (0.88)	3.41 (0.92)	<.001	ANOVA
I am getting paid enough for the work I do[a] (M, SD)	3.61 (0.97)	3.05 (1.03)	<.001	ANOVA
I think about quitting my job[a] (M, SD)	2.54 (1.18)	2.70 (1.20)	.032	KW
I feel stress about my job even when I am not at work[a] (M, SD)	2.64 (1.13)	2.82 (1.23)	.011	KW
I feel that my work-load is unsustainable[a] (M, SD)	3.05 (1.07)	3.16 (1.02)	.661	ANOVA
I feel supported by my co-workers[a] (M, SD)	3.75 (0.90)	3.35 (0.96)	<.001	ANOVA
Zimet family social support[a] (M, SD)	5.22 (1.07)	4.37 (1.11)	<.001	ANOVA
Zimet friend social support[a] (M, SD)	5.21 (1.00)	4.61 (1.05)	<.001	ANOVA
Zimet significant other social support[a] (M, SD)	5.43 (1.01)	4.68 (1.37)	<.001	ANOVA
DeJong emotional loneliness[a] (M, SD)	2.00 (0.98)	2.55 (0.66)	<.001	KW
DeJong social loneliness[a] (M, SD)	1.48 (1.21)	2.11 (1.06)	<.001	KW
Everyday discrimination[a] (M, SD)	24.00 (11.93)	28.17 (7.84)	<.001	KW

[a]Numeric variable—Mean (SD) presented.

[b]P-value for differences between participants who were and were not burnt out (i.e., scores ≥4).

[c]Chi-square (χ^2) test were used to test differences on categorical variables, one-way ANOVA tests were used for continuous normal variables, and Kruskal–Wallis (KW) nonparametric tests were used for continuous non-normal variables.

that workplace social encounters play an important role in protecting against burnout[42]—suggesting that workplaces might play a role in limiting the impact of loneliness on mental health, but are not likely the entire solution. Indeed, our finding that family social support was one of the most important preventative factors to burnout indicates that the solution to burnout must go beyond workplace boundaries and allow individuals to develop deeply meaningful bonds with family or chosen family. Based on Social Support Resource theory, which highlights the importance of social support resource reserves to personal well-being, we interpret our findings to indicate that family social support may be especially critical in the contemporary landscape of worker wellness. This may be because workers generally have more immediate access to family resources (perhaps due to greater contact)—however, when the necessary social support is not provided via family sources (perhaps because individuals are cut off from family resources due to distance or other reasons) these individuals are made especially vulnerable—particularly if they are unable to tap into other sources of support (e.g., from friends and significant others). These data highlight the importance of considering the specific mechanisms by which social support might prevent burnout. For example, Koutsimani and Montgomery[41] reported that perceived

TABLE 2 Multivariable Linear Regression Models Identifying Factors Associated with Higher Burnout Scores (N = 486)

	Full model	Final model[a]
Predictors	***β* (95% CI)**	***β* (95% CI)**
Social inclusion factors		
Zimet Family Social Support, per 1 point	**−0.12 (−0.23, −0.00)**	**−0.14 (−0.23, −0.05)**
Zimet Friend Social Support, per 1 point	−0.03 (−0.16, 0.11)	
Zimet Significant Other Social Support, per 1 point	−0.07 (−0.18, 0.03)	−0.09 (−0.17, 0.00)
DeJong Emotional Loneliness, per 1 point	**0.25 (0.15, 0.35)**	**0.26 (0.18, 0.35)**
DeJong Social Loneliness, per 1 point	−0.01 (−0.08, 0.07)	
Everyday Discrimination Scale, per 1 point	0.00 (−0.01, 0.01)	
Demographic factors and personal characteristics		
Age, per 1 year	−0.00 (−0.01,0.00)	
Gender		
Man	Reference	
Non-binary	0.02 (−0.54,0.58)	
Woman	0.10 (−0.07,0.28)	
Sexual orientation		
Straight	Reference	
2SLGBTQ+	−0.01 (−0.19,0.18)	
Ethnicity		
White	Reference	
African, Caribbean, or Black	**−0.28 (−0.55, −0.01)**	
Arab/West Asian	0.18 (−0.27, 0.63)	
East Asian	−0.16 (−0.48, 0.16)	
Indigenous	**−0.34 (−0.65, −0.02)**	
Latin	−0.04 (−0.44, 0.36)	
South Asian	−0.06 (−0.66, 0.54)	
Other	0.11 (−0.40, 0.63)	
Self-rated physical health	−0.11 (−0.21, 0.00)	**−0.13 (−0.23, −0.04)**
Living with disability		
No	Reference	
Yes	0.14 (−0.13,0.41)	
Education level		
High school diploma or lower	Reference	Reference
College or advanced skills training	−0.01 (−0.30, 0.28)	0.02 (−0.24, 0.28)
Bachelor's degree	0.30 (−0.02, 0.62)	**0.29 (0.01, 0.58)**
Post-graduate/professional degree	0.05 (−0.25, 0.35)	0.12 (−0.15, 0.39)
Employment status		
Part time	Reference	
Full time	−0.07 (−0.27,0.13)	
Overtime	−0.18 (−0.50,0.14)	
COVID-19-related employment impacts		
I was laid off temporarily or permanently	0.03 (−0.23, 0.30)	
I had my hours of work increased	0.11 (−0.14, 0.36)	
I had my hours of work reduced	0.05 (−0.15, 0.24)	
I got a new job	0.15 (−0.10, 0.40)	0.22 (−0.00, 0.44)

(Continues)

TABLE 2 (Continued)

Predictors	Full model *β* (95% CI)	Final model[a] *β* (95% CI)
Occupation		
Sales and service	Reference	
Community and civil services	0.25 (−0.02, 0.52)	
Health and science	**0.31 (0.02, 0.60)**	
Management, business, and finance	**0.30 (0.05, 0.56)**	
Trades	0.20 (−0.11, 0.51)	
Financial strain		
Income		
Less than $30 000	Reference	
$30 000 to $59 999	−0.03 (−0.26, 0.20)	
$60 000 to $89 999	−0.02 (−0.27, 0.23)	
$90 000 to $119 999	0.01 (−0.28, 0.29)	
$120 000 to $149 999	−0.05 (−0.47, 0.37)	
$150 000 to $179 999	−0.12 (−0.54, 0.30)	
$180 000 or more	0.03 (−0.42, 0.48)	
I am just getting by financially, per 1 point	0.02 (−0.07, 0.11)	
My finances control my life, per 1 point	−0.00 (−0.08, 0.07)	
I have money left over at the end of the month, per 1 point	−0.04 (−0.11, 0.04)	
Because of my money situation, I feel like I will never have the things I want in life, per 1 point	0.02 (−0.08, 0.11)	
Home ownership		
Rent	Reference	Reference
Mortgaged	−0.12 (−0.34, 0.10)	−0.10 (−0.30, 0.09)
Own	**−0.31 (−0.53, −0.10)**	**−0.36 (−0.54, −0.17)**
Work-life balance		
Time sleeping		
Just the right amount	Reference	Reference
Too little	**0.41 (0.17, 0.65)**	**0.38 (0.16, 0.60)**
Too much	0.23 (−0.01, 0.48)	0.19 (−0.03, 0.41)
Time working		
Just the right amount	Reference	Reference
Too little	0.14 (−0.14,0.41)	0.19 (−0.06,0.44)
Too much	0.18 (−0.01,0.37)	0.16 (−0.01,0.33)
Me time		
Just the right amount	Reference	Reference
Too little	0.14 (−0.08, 0.35)	**0.22 (0.03, 0.42)**
Too much	0.14 (−0.08, 0.35)	0.16 (−0.04, 0.36)
Time winding down		
Just the right amount	Reference	Reference
Too little	0.05 (−0.18, 0.28)	
Too much	−0.14 (−0.38, 0.11)	

TABLE 2 (Continued)

Predictors	Full model β (95% CI)	Final model[a] β (95% CI)
Time exercising		
Just the right amount	Reference	
Too little	−0.02 (−0.25, 0.22)	
Too much	−0.07 (−0.33, 0.19)	
Time practicing hobbies		
Just the right amount	Reference	Reference
Too little	0.13 (−0.08, 0.35)	
Too much	0.07 (−0.18, 0.31)	
Time helping or volunteering		
Just the right amount	Reference	Reference
Too little	0.09 (−0.11, 0.29)	0.14 (−0.03, 0.31)
Too much	−0.11 (−0.40, 0.18)	−0.15 (−0.41, 0.11)
Workplace conditions		
I am appreciated for the work I do, per 1 point	−0.00 (−0.14, 0.13)	
I have a lot of control over how I do my work, per 1 point	−0.02 (−0.13, 0.09)	
I feel that I am treated with dignity and respect in my workplace, per 1 point	−0.08 (−0.19, 0.04)	−0.07 (−0.16, 0.02)
I feel my workplace is fair, per 1 point	0.01 (−0.13, 0.14)	
Frequency of Working From Home, per 1 point	−0.02 (−0.09, 0.05)	
I am getting paid enough for the work I do, per 1 point	−0.08 (−0.18, 0.03)	**−0.09 (−0.18, -0.01)**
I think about quitting my job, per 1 point	−0.04 (−0.12, 0.04)	
I feel stress about my job even when I am not at work, per 1 point	0.05 (−0.03, 0.13)	
I feel that my work-load is unsustainable, per 1 point	0.01 (−0.08, 0.10)	
I feel supported by my co-workers, per 1 point	0.03 (−0.09, 0.15)	
Observations	486	486
R^2	0.476	0.431
AIC	1279.287	1220.914

Note: Variable selection for our final model was conducted using a stepwise backwards selection with AIC minimization. All variables from the full theoretical model were initially included.

Bold values indicate statistically significant associations at 0.05.

family support mediated the relationships between depression and exhaustion (a subdimension of burnout), but not between burnout and depression or burnout and anxiety. The role of support in shaping burnout may therefore be more complex than simply acting as a buffer against stress. As noted by Koutsimani and Montgomery,[41] social relationships can act as a stressor for people experiencing considerable levels of distress. It is possible that people who are highly distressed or burnt-out experience diminishing returns from social investments. Further research is needed to fully understand the conditions under which social support might reduce burnout and to integrate these findings with existing theoretical frameworks describing the mechanisms driving burnout.

Our findings also suggest that factors such as employee pay scales and worker appreciation may play a role in shaping experiences of burnout.[43] Lower income individuals may not have enough disposable income to engage in activities that mitigate direct risk factors for mental illness, such as healthy diet, leisure, and exercise.[44,45] Moreover, financial pressures may contribute to dissatisfaction with work and, in combination, these factors may create or facilitate conditions for burnout to emerge.[43] This may explain our finding that people with Bachelor's degrees are at elevated risk for burnout compared to those with high school diplomas or lower. It is possible that these individuals experience

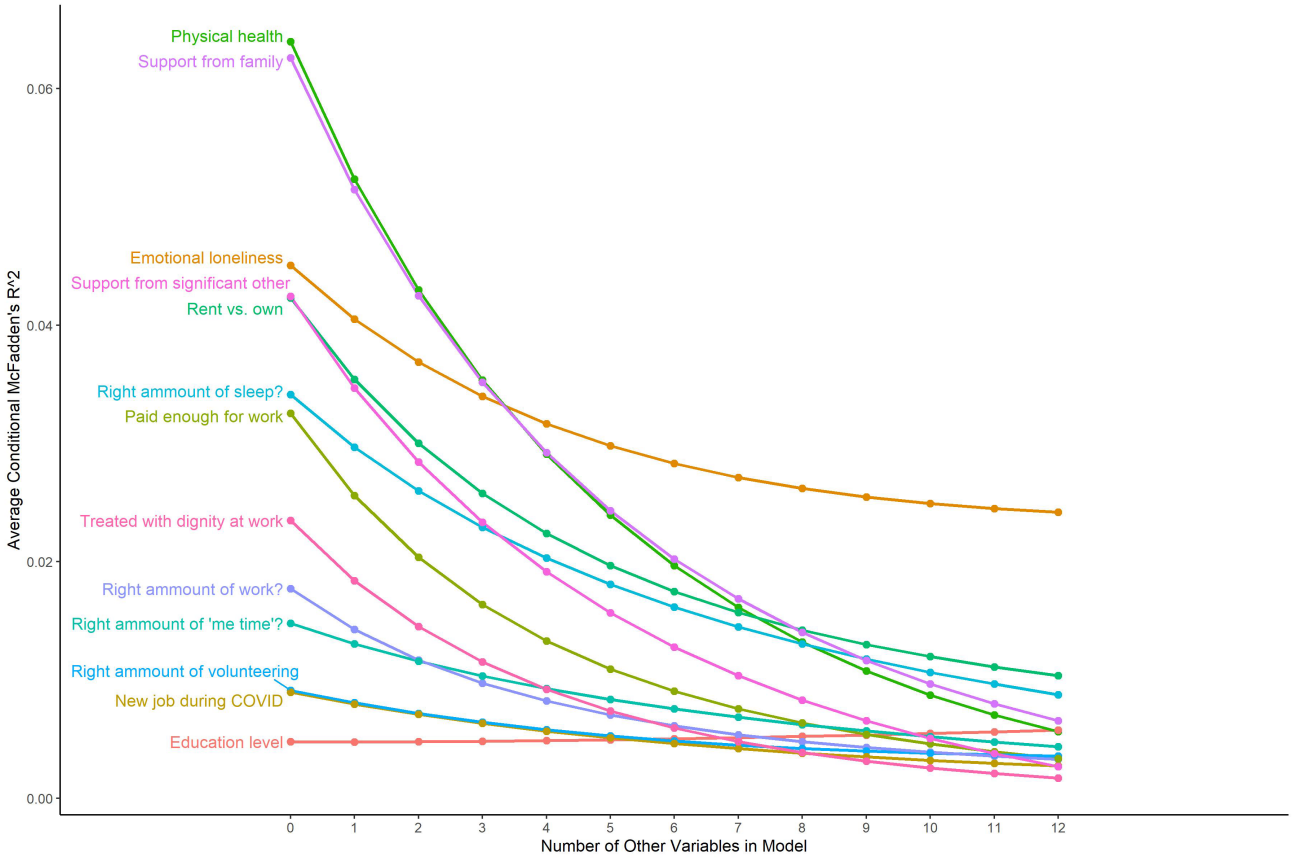

FIGURE 1 Conditional dominance plot

unique financial strains, perhaps due to student loans. Alternatively, they may feel they should be better valued by their employers given their university credentials. Of course, it is also possible that people with university educations self-select into careers that are, in themselves, risk factors for burnout (e.g., caregiving and education).

Finally, we note that improving employee health and accommodating disability are key parts of workplace wellness. Our study showed that physical health is deeply related to burnout, both as measured by self-rated physical health and by the impact of sleep. Employers, employees, and clients will benefit greatly from interventions that support proactive health and wellness for employees. Other studies have emphasized the significant return on investment for employers who invest in employee wellness. Ignoring worker's health therefore seems to have long term negative impacts for workplaces. Policymakers should therefore consider burnout as an occupational disorder with significant impacts for workers. Based on the findings of the present study, we would conclude that such an evidence-based approach would include not only workplace interventions, but also those which help individuals build robust social support and physical health outside of the workplace.

4.1 | Strengths and Limitations

This study has several strengths. We advance the literature—which mostly focuses on caring professions (e.g., medical professionals, social workers, and teachers)—by focusing on a general population of workers, with oversampling among key sociodemographic groups (including 2SLGBTQ+ populations). Furthermore, we assess the extent to which the effects of identified factors on burnout operate through a general impact on mental health. In doing so, we hope to understand whether the mechanisms that contribute to burnout are independent of general mental health stressors. These analyses are meant to address common concerns about the conceptual boundaries between burnout and general mental health concerns, while also illuminating specific opportunities for intervention that go beyond traditional mental health workplace wellness programs.

This study has limitations. First, our sample is a convenience sample conducted during the COVID-19 pandemic. Participation was optional. Only people with active social media accounts would have likely seen our survey advertisements. This makes prevalence estimates difficult to certify and may introduce error in model estimation. For example, we recruited a high number of participants who identified as 2SLGBTQ+ and a low number who reported

as living with a disability. Despite this challenge, we note that our use of multivariable statistics to adjust for potential biases is intended to partially address this challenge by accounting for potential confounding effects that might arise from sampling imbalances. Second, the exclusion of participants who had missing data on our outcome or explanatory factors may introduce an additional layer of bias beyond the inherent bias in online samples. To estimate the potential bias attributable to this effect, we conducted bivariable tests to compare included participants to those who were excluded due to missingness across any of our explanatory variables. Included participants were less burnt out and lonely and felt better about their work environments and financial situation than did the excluded participants. While effect sizes were generally small for these differences, these differences suggest that individuals with better mental health may have been more resilient to survey fatigue and error. As a result, the effect sizes in the primary analyses may be slightly biased. Regardless, the direction of these relationships seems to reinforce our theoretical framework and therefore we suspect that potential biases arising from missingness would not change our general conclusions or interpretations of these results. Third, our analyses are cross-sectional, and the causal paths could be reversed. Many cyclical processes may also be at play—leading to multiple, reverse, and mutual causal effects. For example, it is likely that burnout is protected against by having strong families, but it is also likely that people who experience burnout are unable to maintain the relationships necessary to form socially supportive bonds. Fourth, we note that while we have attempted to capture multiple dimensions about people's workplace environments, it is possible that experiences during the pandemic may greatly differ across occupation groups. Subanalyses within occupations—which are done widely among healthcare and other helping professions—provide insight into how burnout might impact a range of occupations differently. The present study lends some preliminary support for this work—particular with a focus among people in business, finance, and management, as well as healthcare. Finally, we note that the present study is exploratory of nature—aiming to highlight the contribution of relatively unexplored issues that might contribute to burnout beyond traditional workplace indicators.

5 | CONCLUSION

Based on our findings that burnout is correlated with broad social determinants beyond those which are easily modified as part of workplace or occupational interventions, we suggest that addressing workplace culture, leadership, and other proximal workplace stressors, while important, are likely insufficient to meet the needs of workers who are experiencing burnout. Our findings suggest that broader, holistic approaches that address multiple upstream dimensions of health are likely necessary to prevent and reduce burnout in the workplace. Efforts to tailor workplace interventions using person-centered methodology will likely support efforts to support worker mental health and wellness.

AUTHOR CONTRIBUTIONS

All authors contributed to design and conceptualization of study. KGC conducted statistical analyses and prepared the initial draft manuscript. All authors reviewed and provided feedback on analysis and writing. All authors approved final manuscript for publication.

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DISCLOSURES

Approval or Research Protocol: N/A. *Informed Consent*: All participants provided informed consent. Registry and the Registration no. of the study/trial: N/A. Animal Studies: N/A. *Conflict of interest*: None.

DATA AVAILABILITY STATEMENT

The data available for this study is available at www.instituteforsocialconnection.ca/cscs or by request from the study authors.

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