



## Research Article

# The Role of Carer-Friendly Workplace Policies and Social Support in Relation to the Mental Health of Carer-Employees

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Received 19 August 2022; Revised 14 February 2023; Accepted 16 February 2023; Published 13 March 2023

Academic Editor: Tommaso Martino

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Carer-employees (CEs) are unpaid carers who are simultaneously working in paid employment. Workplace stress often compounds with caregiving stress to cause negative health effects for CEs. This analysis investigates cross-sectional data of the 2018 Canadian General Social Survey (GSS) to determine whether CEs who experienced work interferences (WIs), including taking time off work, turning down a job offer or promotion, and taking a less demanding job, were associated with poor mental health due to caregiving responsibilities. Carer-friendly work policies (CFWPs) and social support would lower the mental health impact of CEs and moderate the association between WIs and mental health. Of the 23,025 respondents, 4,291 were CEs. A series of multivariate logistic regressions were conducted on various mental health symptoms (e.g., feeling tired, experiencing appetite loss, and having trouble sleeping). Most WIs were positively associated with mental health symptoms. CFWPs, such as flexible scheduling, the option to work part-time, being able to take a leave of absence or an extended leave, and feeling that CFWPs can be taken without negative impacts on one's career, were negatively associated with at least one mental health symptom caused by the caregiving responsibilities. The option to telework was found to be nonsignificant. Generally, social support was associated with an increased chance of mental health symptoms, apart from help from the community. CEs who worked in workplaces that promoted CFWPs without negative impacts on their careers were less likely to feel anxious when turning down a job offer or promotion. Our study highlights the importance of CFWPs for CEs' mental health. As the number of CEs increases over time, the need for effective and wide-ranging CFWPs becomes more important.

## 1. Introduction

Carer-employees (CEs) are individuals who provide unpaid care or assistance for another adult individual living with a physical, mental, or cognitive condition while simultaneously being a part of the workforce [1]. It has been estimated that caregivers make up 35% of the Canadian workforce, and the majority of caregivers (60%) are juggling work and care responsibilities [2]. However, due to the population aging, an increase in chronic conditions within the older population and other demographic factors, as well as an increase in the number of CEs, are expected [2]. Globally, it has been estimated that the number of individuals above the age of 60 will more than double to almost 2 billion people by 2050 [3].

In 2020, 31% of caregivers were providing more than 10 hours of care per week, which was up from 26% before the pandemic. Those added hours are being spent providing emotional and behavioural support, providing transportation and completing tasks around the home [2]. Research shows that intensive caring is associated with an array of negative work-related impacts, such as quitting, reducing working hours, taking a less demanding job, or early retirement [4, 5]. This suggests that CEs often struggle with managing their double role, leading them to make changes to their paid employment. In a study using the Canadian 2007 General Social Survey (GSS), high-intensity care (spending over 15 hours a week) was associated with being fully or partially retired and, in women, was associated with

working part-time [5]. In this same study, sensitivity analysis also showed that intensive caring may be correlated with early retirement [5]. In a 2009 U.S. survey of unpaid carers, 39.8% of nonworking carers reported having quit their jobs or retired early due to caring demands [6]. Additionally, 52.4% of CEs in the 2009 U.S. survey sample reported that their caring duties interfered with their employment which, crucially, was associated with increased emotional stress that resulted from the demands of caring [6].

It has been estimated that 50% of Canadian CEs are between the age of 45 and 64 years, which are the prime carer years [7]. Replacing these experienced employees will cause the loss of skills in the workforce [2]. In addition, replacing an employee is expensive, as noted in a study by the Society of Human Resource Management where it costs up to nine months of an employee's salary to find and train their replacement [8].

Caregiving responsibilities are associated with the physical and mental health of CEs greatly. Caregiving leaves an emotional and mental health toll on CEs, who often experience "stress, fatigue, anxiety, depression, sleep loss, muscle pain, and other conditions" [9]. Stress-related illnesses and mental health claims are rising in Canada [10, 11], making up 37% and 41% of all deaths for men and women, respectively [12]. Stress-related illnesses and mental health claims have the potential to cut 10 to 20 years from a person's life expectancy [13]. In a study conducted at a large U.S. firm, researchers found that three-fourths of CEs needed to make at least a mild adjustment to their employment, and one-quarter of CEs expressed an unmet need for support [14]. The researchers also found that CEs that made employment adjustments were about twice as likely to have unmet needs for support [14], suggesting that a lack of support may lead CEs to take work leave or reduce working hours. Overall, the demands of caring can cause CEs to adjust their career, leading to increased stress, difficulty balancing their double-role, financial losses, and lost opportunities. Hence, there is an urgent need for CEs to have access to support, such as carer-friendly work policies (CFWPs) [15].

To encourage individuals to stay in the workforce, carer-friendly workplace policies (CFWPs) have been proven to be successful in reducing self-reported health outcomes among CEs [16]. CFWPs broadly include educational workshops and counselling; flexible and customizable work schedules; financial assistance or relief; unpaid leave; paid leave; and changes to workplace culture [1, 16]. Over time, employers have increasingly sought to improve awareness of CFWPs, and CFWPs have become more inclusive and generous [15]. A study found that flexible work arrangements improved CEs' perception of workplace support for their caring role, suggesting that flexible work arrangements cause tangible improvements in perceived support [17].

The literature on CFWPs reflects their effectiveness regarding improving the health outcomes of CEs. In a study using the Canadian 2012 GSS, it was found that having access to CFWPs was associated with more favorable physical health [7]. Additionally, CEs who made employment adjustments, such as reducing hours worked or taking

work leave due to caring demands, and who also had access to CFWPs, were more likely to have favorable physical health [7]. This implies that CFWPs may be effective at reducing the stress due to the employment adjustments and work interferences [7]. In a longitudinal study on the effects of an educational intervention, which included directing participants towards tailored support resources and setting behavioral goals for CEs, it was found that the intervention was effective at improving health and psychosocial health and alleviating depression over time [16]. Additionally, research indicates that workplaces with CFWPs were significantly associated with improving several other aspects of the working experience, including job satisfaction, schedule control, and coworkers' support [1, 15, 18–20].

Contrary to expectations on the mechanisms through which social relationships and social support improve physical and psychological well-being, both directly and as stress buffers [21], previous research using the GSS 2012 [7, 9] found that social support, such as support from direct family and "other support needed," was negatively related to mental health. This may be because those who care for people with serious conditions need more support than they are receiving. This research also determined that CEs receiving financial support were characterized as having lower income, a determinant directly related to poor physical and mental health [7].

*1.1. Theoretical Framework.* Workplace support and social support are plausible ways to encourage CEs to stay in the workforce, alleviate the work-to-family conflict, and improve mental health. The caregiving and stress process model [22] can help explain how CFWPs and social support relate to CE's mental health. The model conceptualizes caregiving as an experience of chronic stress caused by primary and secondary stressors. Primary stressors are defined as hardships and problems stemming directly from caring. Secondary stressors are categorized as either the strains experienced due to the roles/activities external to caring or to intrapsychic strains which involve the diminishment of self-concept. Pearlin et al. [22] emphasize the negative impact of role conflict as a secondary stressor and the positive impact of support as a protective factor that reduces the negative outcomes of stressors.

The previous literature most commonly examined general physical or mental health that was rated using the following options: excellent, very good, good, fair, and poor [7, 23–25]. Even though the single-item measurement of mental health has been widely used with evidence of validity [26], a caregiver's mental health status prior to the commencement of caregiving is an important confounder that might give rise to misleading conclusions about the impact of caregiving on mental health. The new wave of the GSS 2018 provides us with an opportunity to examine various mental health symptoms directly caused by caregiving, such as feeling tired, experiencing anxiety, depression, appetite loss, and trouble sleeping. This study provides us with a better understanding of CE's mental health, specifically

examining the effect of work impacts (WIs), the availability of CFWPs, and social support.

*1.2. Objectives.* The primary objectives of this study are to understand the linkages among WIs, CFWPs, social support, and mental health symptoms using the sample of Canadian CEs selected from the GSS 2018, while controlling for a range of possible confounders. The study addresses three questions:

- (1) Are the CEs experiencing WIs more likely to have worse mental health due to caregiving responsibilities?
- (2) Do CFWPs and social support lower the impact of carer responsibilities on the CE's mental health symptoms?
- (3) Is the association between WIs and mental health moderated by CFWPs or social support?

## 2. Methods

This study uses Statistics Canada's General Social Survey (GSS) 2018. It is a nation-wide, cross-sectional survey that collects information on Canadians who provide care to family and friends with a long-term health condition, physical or mental disability, or problems related to aging, as well as on individuals who receive this care, and about the challenges both groups face [27]. The sampling frame combines landline and cellular telephone numbers from the census and various administrative sources with Statistics Canada's dwelling frame [27]. It covers the population aged 15 years and older and living in a private household (20,258 respondents representing almost 31 million Canadians). Data collection occurred from April 2018 to December 2018. Detailed accounts of the survey design, content, training, and data collection are available at the website of Statistics Canada (<https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=4502>) [27].

The target population for this study was CEs. Participants who met the following criteria were selected for this study: (a) participants who were employed or self-employed in the last 12 months, and especially, respondents who answered yes to either "Last week, did you work at a job or business" or "In the past 12 months, did you work at a job or business?," or answered "Last week, did you work at a job or business in which you were absent" with the reason not being "temporary layoff due to business conditions," "seasonal layoff," or "You had a casual job and no work was available"; (b) participants who were carers that included respondents who answered yes to "During the past 12 months, have you helped or cared for someone who had a long-term health condition or a physical or mental disability?" or "During the past 12 months, have you helped or cared for someone who had problems related to aging?," and; (c) participants where the primary care receiver was an adult aged 18 and older in the survey. In total, 4,291 participants met the criteria for the study and made up the sample of CEs used herein. Each of the options for mental health symptoms, WIs, and

CFWPs was asked as a separate question, so CEs could choose more than one option.

*2.1. Dependent Variables: Mental Health Symptoms.* In this study, the dependent variables are mental health symptoms. Participants were asked to indicate "yes" or "no" to a series of questions about various mental health symptoms caused by family caregiving responsibilities, including feelings of tiredness, anxiety, overwhelm, isolation, depression, short-tempered or irritation, resentment, appetite loss, trouble sleeping, and other health problems during the last 12 months. Table S1 displays the detailed survey questions addressing mental health status due to caregiving responsibilities. An additional variable was constructed to indicate CEs who had been experiencing at least one type of mental health symptom listed above.

*2.2. Work Interference.* One of the key independent variables is WIs. Six types of WIs were used to assess the impact of caregiving on CE's employment, including taking time off work, taking days off work, being fired or laid off or asked to resign, turning down a job offer or promotion, taking on a less demanding job, and quitting a job. All these variables were coded as binary variables (yes/no).

*2.3. Carer-Friendly Work Policies.* There were six variables measuring CFWPs. These variables included whether the workplace provided options for (1) a flexible work schedule, (2) working part-time, (3) taking a leave (paid or unpaid), (4) taking an extended leave (unpaid), (5) teleworking, and (6) whether a flexible work arrangement could be taken without a negative impact on one's career.

*2.4. Social Support.* Caregivers were asked what types of support they received for their caregiving duties. These various types of support were combined into four categories. The first category included help from family and friends, comprising (1) spouse or partner modifying their life or work arrangements, (2) children helping, (3) extended family helping, or (4) close friends or neighbours helping. The second category was help from community, including (1) community, (2) spiritual community, or (3) cultural or ethnic groups helping. The third category included (1) occasional relief or (2) respite care. The third category included gaining a complete break from caregiving and included (1) occasional relief or (2) respite care. Three options for financial support were combined into the fourth category, including (1) financial help from family and friends, (2) financial support from government programs, or (3) federal tax credit.

*2.5. Covariates.* We controlled the hours worked in paid employment per week, as well as the time spent on caregiving tasks weekly. The former indicates the intensity of paid employment, and the latter reflects the intensity of caregiving provided. Social-economic variables included

age, sex, marital status, immigrant status, urban or rural residence, educational attainment, family income, and occupation that was defined by the National Occupational Classification (NOC) [28] and synthesized into 6 groups based on the characteristics of the work (Table 1).

**2.6. Data Analysis.** STATA 14.0 was used to perform the data analysis [29]. It was found that approximately 20% data have missing values in at least one variable of interests. To address missed responses on study variables, multivariate multiple imputation by chained equations (MICE) was performed to avoid potential bias and increase the statistical power. MICE operates under the assumption that, given the variables used in the imputation procedure, missing data are Missing At Random (MAR); this means that the probability that a value is missing depends only on observed values and not on unobserved values [30]. Multiple imputation (MI) basically creates several (M) values for each missing value, representing a distribution capable of reflecting the sampling variability that works to overcome the disadvantage of a single value imputation. Descriptive statistics were presented to describe the characteristics of CEs, as illustrated in Table 1. Primary analyses included a series of multivariable logistic regressions to investigate the association between various CFWPs, social support, WIs, and each or at least one mental health symptom due to caregiving responsibility (Table 2). Besides that, we also included the interactions of WIs and CFWPs if they had significant correlation that were checked using a chi-square test. To end, only the significant interaction terms were retained in the final models. CE's socioeconomic status and the intensity of paid employment and caregiving were also controlled in the regressions. Two sensitivity analysis were conducted: one used the backward stepwise logit regression (Table S2), and one conducted the regression based on the data without missing data imputation (Table S3). The moderate effect of CFWP on the association between the WIs and the mental health of carer-employees was examined using *F* tests. The variance inflation factor (VIF) was used to detect the severity of multicollinearity. Sampling weights were used in all the analyses to generate an estimation representing the entire target population of Canadian CEs. The bootstrap method was used to account for the complex survey design. The odds ratio (OR) and the corresponding *P* value from the logistic regressions were reported. A *P* value of less than 0.05 was defined as significant, and a *P* value between 0.05 and 0.1 was defined as marginally significant.

### 3. Results

**3.1. Descriptive Statistics.** Our sample includes 4,291 CEs extracted from the GSS 2018. Table 1 presents the weighted descriptive characteristics of the variables used in the analysis. Descriptive analysis was implemented via determining the estimated means and standard deviation of the imputed data. Among the target population of CEs, the mean age was 44.2. Half of CEs were female (50.3%), had a high school diploma or below (32.4%), were

nonimmigrants (80.9%) and married/common-in-law (65.0%), living in urban areas (84.4%), had an average income of more than 100 K annually (55.3%), and working in business, sales, and service (38.8%). In addition, CEs worked, on average, 35.3 hours per week in paid employment and 10.3 hours per week providing unpaid caregiving.

In terms of health variables, the CE sample reported feeling anxious (44.7%), tired (42.4%), or irritated (31.8%). Many CEs also reported feelings of overwhelm (30.1%), trouble sleeping (28.9%), or feelings of resentment (18.5%). Lastly, some CEs reported feelings of depression (17.7%), isolation (15.7%), appetite loss (8.9%), or other health effects (3.7%). In addition, more than half of all CEs reported experiencing at least one mental health symptoms above due to caregiving (56.7%).

It was found that over half of the CEs took time off work (66.2%) or took days off work (62.9%). Some CEs turned down a job offer or promotion (8.8%), took a less demanding job (7.4%), quit a job (1.5%), or got fired (0.8%). However, it was also found that many CEs had support from workplace, such as being able to take leave (61.4%), take an extended leave (58.6%), work with a flexible schedule (29.9%), work part-time (23.0%), or telework (8.8%). Additionally, 38.5% of CEs felt that CFWPs could be taken without negative impacts on their career. In terms of social support, more than half the CEs received help from family and friends (62.3%). Meanwhile, 18.6% of CEs received financial aid, 12.4% received support from the community, and 12.0% received occasional relief and respite care.

**3.2. Multivariate Logistic Regression.** Table 2 presents the multivariate logistic regression models on various mental health symptoms. The average of the VIF values for 30 covariates is 1.64. The range of the VIF values is from 1.07 to 3.7. This indicates that the assumption of collinearity among the covariates for the logit regression is not violated. Many WIs were found to be positively associated with negative mental health. The WI of turning down a job offer or promotion and taking a less demanding job was positively associated with every mental health symptom examined. Taking time off work was found to be positively associated with appetite loss and other types of mental health symptoms, with an odds ratio of 2.09 and 1.87, respectively. CEs who experienced being fired were more likely to feel tired and isolated, with odds ratios of 20.1 (CI: 2.5–160.8,  $P < 0.05$ ) and 5.57 (CI: 1.55–20.1,  $P < 0.05$ ), respectively. CEs who quit the job would be 9.79 (CI: 2.02–47.3,  $P < 0.05$ ) and 4.27 (CI: 1.65–11.0,  $P < 0.05$ ) times more likely to experience feelings of anxiety and overwhelm than those who did not. However, the odds of feeling anxiety, irritability, and resentment would be decreased by 34% (CI: 10%–51%,  $P < 0.05$ ), 35% (CI: 10%–53%,  $P < 0.01$ ), and 35% (CI: 6%–56%,  $P < 0.05$ ), respectively, if CEs had taken days off work.

CFWPs were found to be significantly related to the reduced mental health symptoms. Specifically, the odds of feeling depressed would decrease by 35% (CI: 5%–55%,  $P < 0.05$ ) if CEs had a flexible working schedule. CEs who

TABLE 1: Descriptive statistics of carer-employees based on the observed data.

Variable	(%)	Std. Dev
Social economic variables		
Age ( <i>M, SD</i> )	44.18	14.62
Male	49.67	50.00
Immigrant	19.15	39.35
Urban	84.38	36.31
Income		
<40 K per year	12.18	32.71
40–60 K	11.05	31.36
60–80 K	10.93	31.21
80–100 K	10.53	30.70
100 K+	55.31	49.72
Education		
High school or below	32.44	46.82
Trades, college, CEGEP, etc	29.77	45.73
Bachelor's degree or university diploma	26.77	44.28
University degree above BA	11.02	31.32
Occupation		
Management	9.01	28.63
Business, sales, and services	38.78	48.73
Natural and applied sciences	8.28	27.55
Health	8.37	27.69
Education, social, and art	19.23	39.41
Transport, agriculture, and manufacture	16.34	36.98
Hours spent caregiving/week ( <i>M, SD</i> )	10.29	21.38
Hours working at paid employment/week ( <i>M, SD</i> )	35.25	13.82
Marital status		
Married/Common-in-Law	65.0	47.7
Separated/Divorced/Widow/	8.1	27.3
Single	26.9	44.4
Mental health symptoms		
Tired	42.35	49.42
Anxious	44.66	49.72
Overwhelmed	30.14	45.89
Isolated	15.68	36.36
Irritated	31.82	46.58
Depressed	17.71	38.18
Resentful	18.51	38.84
Appetite loss	8.94	28.54
Sleep loss	28.94	45.35
Other	3.65	18.77
Any symptom	56.72	49.55
CFWPs		
Flexible schedule	29.88	45.78
Part-time option	23.04	42.11
Leave	61.35	48.70
Extended leave	58.60	49.26
Telework option	8.83	28.38
No negative effect	38.48	48.66
Social support		
Help from family and friends	63.27	1.22
Help from community	12.38	0.85
Occasional relief or respite care	12.01	0.86
Financial help	18.63	1.04
WIs		
Time off	66.16	47.32
Days off	62.90	48.31
Fired	0.79	8.86
Quit	1.48	12.06
Turned down offer	8.79	28.32
Less demanding job	7.37	26.14

TABLE 2: This paper deals with the existence and nonexistence of solutions for the following weighted quasilinear elliptic system, where near their minima and the dimension Moreover, we use the well known Pohozaev identity for prove the nonexistence result. Logistic regression models on various mental health symptoms based on MI data after missing-data imputation ( $N = 4291$ ).

Variables	Tired		Anxious		Overwhelm		Isolated		Irritated	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<i>WI</i>										
Took time off work	1.12	0.79-1.58	0.94	0.69-1.3	1.25	0.88-1.77	1.32	0.84-2.08	1.17	0.82-1.67
Took days off work	0.76	0.55-1.07	0.66***	0.49-0.9	0.92	0.66-1.27	0.79	0.52-1.2	0.65***	0.47-0.9
Fired	20.1***	2.51-160.81	1.37	0.43-4.34	2.23	0.7-7.12	5.57***	1.55-20.07	2.79	0.68-11.4
Quit	1.15	0.27-4.97	9.79***	2.02-47.34	4.27***	1.65-11.02	1.31	0.44-3.93	1.17	0.36-3.88
Turned down job offer or promotion	6.72***	4.06-11.12	8.22***	4.13-16.34	5.26***	2.61-10.62	3.20***	2.09-4.9	2.28***	1.46-3.55
Took a less demanding job	3.83***	2.21-6.63	2.43***	1.39-4.24	3.02***	1.86-4.9	2.14***	1.3-3.52	3.40***	2.14-5.39
<i>CFWP</i>										
Flexible schedule	0.85	0.64-1.13	0.87	0.65-1.16	0.90	0.66-1.22	0.77	0.52-1.14	0.91	0.66-1.24
Part-time option	0.84	0.63-1.12	0.81	0.59-1.09	0.78	0.57-1.06	0.67**	0.45-1	0.85	0.62-1.15
Able to take leave	1	0.73-1.38	1.00	0.71-1.4	1.15	0.81-1.64	1.06	0.7-1.61	1.04	0.73-1.47
Able to take extended leave	1.26	0.92-1.72	1.35*	0.96-1.9	1.39*	0.98-1.96	1.51*	1-2.29	1.35*	0.96-1.92
Telework option	1.17	0.74-1.85	0.67*	0.42-1.06	0.81	0.49-1.33	1.15	0.66-2.03	0.88	0.53-1.47
CFWP without negative impact	0.76*	0.58-0.99	0.76*	0.57-1	0.57***	0.44-0.76	0.72*	0.51-1.02	0.59***	0.44-0.8
<i>Social support</i>										
Support from family and friends	1.43***	1.14-1.81	1.46***	1.16-1.85	1.62***	1.26-2.08	1.03	0.77-1.38	1.58***	1.23-2.04
Support from community	0.76	0.54-1.07	0.85	0.61-1.19	0.76	0.54-1.08	0.65**	0.42-1	0.71*	0.49-1.02
Occasional relief or respite care	1.51**	1.05-2.18	1.96***	1.29-2.97	1.51**	1.04-2.19	1.24	0.82-1.87	1.38	0.93-2.04
Financial support	1.55***	1.12-2.09	1.19	0.87-1.62	1.27	0.94-1.71	1.40*	0.98-2.01	1.34*	0.98-1.84
<i>Interaction terms</i>										
Turned down offer x no negative impact	N/A	N/A	0.31**	0.1-0.97	N/A	N/A	N/A	N/A	N/A	N/A
Turned down offer x able to take leave	N/A	N/A	N/A	N/A	0.40**	0.17-0.97	N/A	N/A	N/A	N/A
<i>Covariates</i>										
Hours spent caregiving per week	1.02***	1.01-1.04	1.03***	1.02-1.05	1.02***	1.01-1.02	1.01***	1.01-1.02	1.02***	1.01-1.02
Hours spent working per week	1	0.99-1.01	1.01*	1-1.02	1.01	1-1.01	1.00	0.99-1.01	1.00	0.99-1.01
Age	1.02***	1.01-1.03	1.02***	1.01-1.03	1.01***	1-1.02	1.02***	1.01-1.03	1.01***	1.01-1.02
Male	0.69***	0.54-0.88	0.63***	0.49-0.82	0.48***	0.37-0.62	0.52***	0.37-0.72	0.73**	0.57-0.95
<i>Marital (compared to married)</i>										
Formerly married	0.96	0.68-1.35	0.86	0.61-1.2	1.27	0.88-1.81	1.17	0.76-1.8	0.74	0.52-1.07
Single	0.86	0.63-1.17	0.93	0.68-1.28	1.00	0.73-1.37	1.33	0.91-1.95	1.03	0.74-1.43
Immigrant	0.82	0.61-1.11	0.96	0.71-1.29	0.83	0.61-1.14	0.90	0.62-1.32	0.99	0.71-1.36
Urban	1.42**	1.07-1.88	1.18	0.9-1.56	1.28*	0.96-1.7	1.26	0.9-1.77	1.02	0.76-1.37
<i>Income (compared to under 40K per year)</i>										
40-60 K	0.80	0.5-1.26	1.03	0.65-1.61	1.17	0.74-1.83	1.14	0.65-2	0.95	0.61-1.46
60-80 K	0.90	0.56-1.44	1.13	0.71-1.8	1.28	0.8-2.03	1.03	0.6-1.77	0.78	0.49-1.26
80-100 K	0.68	0.42-1.09	0.82	0.51-1.33	1.16	0.71-1.89	0.94	0.52-1.71	0.87	0.55-1.4
100 K+	0.79	0.52-1.2	0.84	0.55-1.27	1.29	0.85-1.96	0.73	0.43-1.22	0.87	0.57-1.33
<i>Education (compared to high school or below)</i>										
Trades, college, CEGEP, etc	1.31*	0.99-1.73	1.38**	1.03-1.83	1.09	0.81-1.46	1.49**	1.02-2.17	1.48***	1.11-1.98
Bachelor's degree or university diploma	1.00	0.73-1.37	1.18	0.85-1.63	0.93	0.67-1.28	1.55**	1.04-2.29	1.78***	1.25-2.53
University degree above BA	0.89	0.61-1.3	1.49**	1.03-2.15	0.85	0.56-1.3	1.99***	1.21-3.27	1.73***	1.16-2.59
<i>Occupation (compared to management)</i>										
Business, sales, and services	0.99	0.68-1.44	0.91	0.63-1.33	0.96	0.65-1.42	1.01	0.62-1.64	1.53**	1.02-2.29
Natural and applied sciences	1.05	0.64-1.74	1.52*	0.93-2.47	0.78	0.46-1.34	0.96	0.49-1.89	1.27	0.72-2.27
Health	0.88	0.53-1.46	0.68	0.41-1.12	0.57**	0.34-0.97	0.74	0.37-1.48	0.85	0.51-1.43
Education, social, and art	0.94	0.61-1.45	0.83	0.54-1.27	0.90	0.58-1.42	0.78	0.43-1.39	0.95	0.6-1.51
Transport, agriculture, and manufacture	0.86	0.55-1.35	0.69*	0.45-1.06	0.91	0.57-1.45	0.90	0.49-1.65	1.15	0.72-1.82

TABLE 2: Continued.

Variables	Depressed		Resentful		Appetite loss		Trouble sleeping		Other		Any symptom	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<i>WI</i>												
Work time off work	1.50*	0.97-2.33	1.49*	0.99-2.26	2.09**	1.18-3.72	1.26	0.84-1.9	1.87**	1-3.5	0.78	0.55-1.13
Took days off work	0.72	0.48-1.08	0.65**	0.44-0.94	0.76	0.45-1.28	1.08	0.73-1.6	1.30	0.7-2.41	0.6**	0.45-0.9
Fired	2.45	0.64-9.38	3.45*	0.97-12.19	2.30	0.48-10.94	1.61	0.51-5.08	0.62	0.14-2.67	N/A	
Quit	1.22	0.37-4.04	1.11	0.44-2.84	1.07	0.3-3.81	0.97	0.34-2.72	0.89	0.3-2.66	8.07**	1.61-66.5
Turned down job offer or promotion	3.39***	1.79-6.4	3.95***	2.08-7.49	6.16***	2.8-13.55	4.59***	2.93-7.2	2.67***	1.5-4.78	8.21***	3.7-18.1
Took a less demanding job	2.33***	1.46-3.72	2.14***	1.36-3.37	2.45***	1.35-4.45	3.42	2.17-5.39	2.59***	1.4-4.76	8.53***	2.55-30.62
<i>CFWP</i>												
Flexible schedule	0.65**	0.45-0.95	0.78	0.55-1.12	0.91	0.54-1.52	0.84	0.6-1.17	0.97	0.56-1.68	0.81	0.56-1.04
Part-time option	0.62***	0.43-0.89	0.54***	0.38-0.77	0.60**	0.37-0.97	0.68**	0.49-0.95	0.70	0.36-1.35	0.72**	0.49-0.94
Able to take leave	1.22	0.81-1.85	1.21	0.83-1.76	2.03**	1.16-3.54	1.11	0.79-1.58	0.96	0.5-1.85	1.12	0.79-1.64
Able to take extended leave	1.29	0.86-1.92	1.16	0.8-1.67	1.15	0.7-1.9	1.40*	1-1.96	1.52	0.76-3.05	1.15	0.75-1.57
Telework option	1.02	0.57-1.81	1.32	0.76-2.29	1.43	0.67-3.03	1.15	0.66-2	1.30	0.58-2.9	0.85	0.46-1.37
CFWP without negative impact	0.85	0.62-1.17	0.93	0.68-1.28	0.43***	0.27-0.7	0.71**	0.53-0.95	0.74	0.44-1.26	0.7**	0.54-0.99
<i>Social support</i>												
Support from family and friends	1.11	0.83-1.48	1.30*	0.97-1.74	1.49*	0.99-2.25	1.25*	0.96-1.63	0.92	0.57-1.48	1.36**	1.05-1.75
Support from community	0.88	0.6-1.3	0.71	0.47-1.08	1.22	0.73-2.04	0.70*	0.48-1.04	1.43	0.78-2.63	0.7*	0.45-1.03
Occasional relief or respite care	1.29	0.83-2.01	1.10	0.72-1.68	0.79	0.46-1.35	1.41*	0.96-2.07	1.20	0.63-2.26	1.51*	0.97-2.5
Financial support	1.50**	1.06-2.13	1.30	0.92-1.85	1.67*	1.04-2.69	1.42**	1.02-1.97	0.87	0.5-1.53	1.47**	0.92-2.09
<i>Interaction variables</i>												
Turned down offer * no negative impact	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Turned down offer * able to take leave	N/A	N/A	0.44**	0.2-0.95	0.37**	0.15-0.95	N/A	N/A	N/A	N/A	N/A	N/A
<i>Covariates</i>												
Hours spent caregiving per week	1.01***	1-1.02	1.01***	1-1.01	1.01***	1.01-1.02	1.02***	1.01-1.04	1.01***	1-1.02	1.06***	1.02-1.12
Hours spent working per week	1.00	0.99-1.01	1.00	0.99-1.01	1.02***	1.01-1.03	1.01	1-1.01	1.00	0.99-1.02	1.01*	1-1.02
Age	1.01***	1-1.02	1.02***	1.01-1.03	1.00	0.99-1.02	1.03***	1.02-1.03	1.02	1-1.04	1.02***	1.01-1.03
Male	0.60***	0.45-0.79	0.62	0.46-0.83	0.58**	0.39-0.88	0.65***	0.49-0.86	0.63	0.36-1.11	0.69***	0.44-0.79
<i>Marital (compared to married)</i>												
Formerly married	0.91	0.59-1.41	0.92	0.61-1.4	1.00	0.56-1.8	0.99	0.69-1.43	1.87*	0.96-3.63	0.83	0.52-1.16
Single	0.89	0.61-1.29	0.94	0.65-1.36	0.89	0.52-1.53	1.15	0.82-1.62	0.90	0.45-1.79	1	0.77-1.55
Immigrant	1.24	0.87-1.78	0.99	0.68-1.43	1.05	0.64-1.73	0.93	0.67-1.29	0.64	0.33-1.22	0.97	0.64-1.33
Urban	1.23	0.89-1.7	1.09	0.78-1.51	1.78**	1.11-2.84	1.59***	1.17-2.15	0.82	0.47-1.43	1.04	0.68-1.27
<i>Income (compared to under 40 K per year)</i>												
40-60 K	0.87	0.53-1.45	1.36	0.81-2.28	0.75	0.36-1.55	0.81	0.49-1.33	0.82	0.39-1.72	0.8	0.55-1.52
60-80 K	0.63*	0.38-1.05	0.91	0.53-1.57	0.63	0.29-1.37	0.79	0.48-1.3	0.91	0.4-2.03	0.8	0.5-1.46
80-100 K	0.73	0.42-1.27	1.27	0.72-2.25	0.44**	0.2-0.98	0.59**	0.35-1	0.83	0.38-1.81	0.66*	0.41-1.18
100 K+	0.65*	0.41-1.05	1.07	0.65-1.77	0.42**	0.21-0.84	0.87	0.53-1.42	0.93	0.45-1.91	0.81	0.53-1.34
<i>Education (compared to high school or below)</i>												
Trades, college, CEGEP, etc	1.42**	1.01-1.99	1.17	0.83-1.64	0.96	0.61-1.52	1.50***	1.11-2.03	1.92*	0.99-3.7	1.51***	1.07-2.00
Bachelor's degree or university diploma	0.97	0.66-1.42	1.21	0.84-1.77	1.03	0.62-1.71	1.05	0.74-1.5	1.86	0.88-3.93	1.28	0.87-1.88
University degree above BA	0.86	0.52-1.41	1.01	0.62-1.64	0.76	0.38-1.53	0.94	0.62-1.42	2.29*	0.96-5.45	1.23	0.82-1.86
<i>Occupation (compared to management)</i>												
Business, sales, and services	0.97	0.62-1.53	1.30	0.81-2.07	0.73	0.4-1.34	0.92	0.63-1.34	1.05	0.47-2.38	0.92	0.47-1.07
Natural and applied sciences	1.54	0.86-2.76	1.24	0.66-2.35	0.50	0.2-1.28	0.93	0.55-1.57	0.59	0.17-2.06	1.31	0.68-1.92
Health	0.85	0.47-1.57	1.08	0.57-2.03	0.38**	0.16-0.89	0.79	0.45-1.39	0.60	0.22-1.68	0.65*	0.31-0.88
Education, social, and art	0.77	0.46-1.29	1.27	0.73-2.21	0.58	0.28-1.2	1.09	0.71-1.67	0.90	0.37-2.2	0.86	0.5-1.22
Transport, agriculture, and manufacture	0.83	0.48-1.42	1.27	0.74-2.18	0.56	0.26-1.2	0.92	0.58-1.46	0.77	0.26-2.3	0.76	0.4-1.03

Note. (1) Abbreviations: OR, odds ratio (2) \* P < 0.01 is represented by \*\*, P < 0.05 is represented by \*\*\*, and P < 0.10 is represented by \* (3) N/A cells indicate that the variables were not included in the model.

had option to work part-time were less likely to feel isolated, depressed, resentful, experiencing appetite loss, trouble sleeping, and any symptom. Meanwhile, believing that CFWPs can be taken without adverse career impacts was negatively associated with feeling tired, overwhelmed, irritated, experiencing appetite loss, trouble sleeping, and any symptom. However, CEs who can take a leave would be 2.03 (CI: 1.16–3.54,  $P < 0.05$ ) times more likely to experience appetite loss than those who cannot.

In terms of social support, it was found that support from family and friends, occasional relief or respite care, and financial support were positively associated with feeling tired, anxious, or overwhelmed. However, the odds of experiencing feeling isolated would be decreased by 35% (CI: 1%–58%,  $P < 0.05$ ) if CEs received the help from the community.

CEs who experienced turning down an offer or promotion, when workplaces promote them to believe the CFWPs can be taken without adverse career impacts, were less likely to feel anxious. In addition, being able to take a leave of absence significantly decreases the positive association between turning down a job offer and the feelings of overwhelm, resentment, and appetite loss.

With respect to the other covariates, we found that more hours spent caregiving per week increased age, and being female was all significant and positively related to mental health symptoms.

#### 4. Discussion and Conclusion

Adopting the Pearlin et al. stress process model [22], this study generally confirms the known literature showing that CFWPs were successful in reducing adverse mental health symptoms, while WIs were positively associated with better mental health [7, 16]. Additionally, social support was positively associated with CE's poor mental health [9]. More importantly, our study also shows that CFWPs have a significant moderate effect on the association between the WIs and the mental health of CEs, specific to workplaces with a culture where the CFWPs can be taken without negative impact on one's career. Interestingly, the results reveal that the flexible schedule is significantly related to reduced depression but not to other types of mental health symptoms. The finding is consistent with the recent systematic review [31] that suggests that worktime flexibility may modestly improve self-rated mental health; however, the evidence is limited and based on observational studies with varying mental health outcomes. Overall, findings provide valuable evidence for better understanding the mental health outcomes of CEs who are committed to both paid employment and caregiving responsibilities.

**4.1. Work Interference and Mental Health.** It was found that the WIs, including taking time off work, being fired, quitting, turning down an offer or promotion, and taking a less demanding job, were positively associated with feeling depressed, tired, and experiencing appetite loss. This was consistent with the findings of Wang et al. [7], when the self-

reported mental health was examined. At the workplace, many CEs choose not to self-identify for a fear of being seen as less committed and being passed over for promotions or positions involving extensive travel [7, 32]. Unfortunately, this hesitation to seek assistance may have the consequence of worsening mental health status [32]. They may feel isolated or lonely, feelings that have been associated with depression, anxiety, substance abuse, and higher incidences of heart disease and stroke [32]. These stressors are often aggravated by the lack of support provided by health and social systems across Canadian provincial jurisdictions [33–35].

Interestingly, we found that taking days off work was significantly negatively associated with feeling anxious, irritated, or resentful. The work impact of taking days off may be negatively associated with mental health due to the increasingly available paid leave, as reported in the recent scoping review of CFWPs in the English-speaking world [15]. Taking days off work may provide time for physical activity, which has been shown to decrease symptoms of anxiety and depression [36].

**4.2. CFWPs and Mental Health.** Similar to the study by Ding et al. [16], this study found that CFWPs were negatively associated with adverse mental health symptoms. More specifically, the option to work part-time and the workplace culture that allowed CFWPs to be taken without negative career impacts were significantly negatively associated with appetite loss, trouble sleeping, and any mental health symptoms. CFWPs such as a flexible schedule was only significant for feeling depressed, while being able to take a leave of absence was only significant for experiencing appetite loss. However, the option to telework was not significant in any of the mental health symptoms we analyzed.

The findings have important policy implications. In Canada, workplaces have started to provide some forms of CFWPs, such as flexible working schedules, reduced work hours, or the option to telework [19]; however, this analysis suggests that not all CFWPs were found to benefit the health of CEs and suggests that a selective range of particular CFWPs may be more effective. This research suggests that when a workplace has a culture in which employees believe CFWPs have no adverse impact on their careers, CE's mental health can be significantly improved. It indicates that there is the need to promote workplace responsiveness to CE and to highlight the importance of workplace support and improve the awareness of CFWPs through programs such as campaign, education, and workshop.

**4.3. Social Support and Mental Health.** In terms of social support, it was found that CEs who received support from family and friends and financial support (from friends, family, the government, etc.) were more likely to report mental health symptoms. This is consistent with the findings of Williams et al. [9], where social support of all forms was negatively associated with the employment of caregivers. Reasons for this phenomenon are speculated to be due to CEs needs being extensive and wide ranging, encompassing



practical, financial, social and emotional needs. Support from the community was found to be negatively associated with feeling isolated/lonely. This is aligned with previous research which emphasized the importance of social participation to avoid depressive symptoms in CEs [37]. An additional finding was that occasional relief and respite care was associated with poorer mental health. This could be because occasional relief or respite care may not be enough of a break to make a difference or could be an additional expense on CEs which may, in turn, increase their stress.

**4.4. CFWPs as a Moderator on WIs.** Results from the moderation analysis revealed that workplace support has a significant moderate effect on the association between the WIs and the mental health of CEs. Findings suggests that CEs who experienced turning down a job offer or promotion are more likely to feel overwhelmed, resentment, and experience appetite loss; however, when a workplace allows them to take a leave of absence, CEs are less likely to have these symptoms. Also, when a workplace has a culture where CEs believe CFWPs can be taken without any adverse impact on the career, CEs are less likely to feel anxious when they experience turning down an offer or promotion. CEs have a desire to accomplish both caregiving and working roles and responsibilities, rather than reducing their involvement solely in either caregiving or working [38]; consequently, when CFWPs are available, WIs and negative mental health symptoms are moderated. CEs can therefore better deal with their caregiving responsibilities and their paid employment tasks. Further, a supportive workplace characterized by CFWPs likely improves the interactions between CEs and the workplace, such as increasing the CE's sense of belonging and maintaining positive social relationships. When CEs have positive experience in the workplace, this likely boosts their ability to balance work and family responsibilities and the associated strains. Further, providing specialized training on the CE experience to both supervisors and managers may increase the awareness of the need for CFWPs [1, 7, 39].

**4.5. Limitations.** There were several limitations to this analysis. First, as this is a cross-sectional study, the causal relationship between WIs, CFWPs, social support, and mental health could not be determined since they only represent a one-time measurement of both the alleged cause and effect. Second, there is a wide range of various CFWPs captured in the GSS but no indication as to when they were taken, e.g., before or after caregiving, so the effect of the CFWPs cannot be examined from difference-in-difference analysis. Second, one fifth of the data were missing (20%) and managed via multiple imputations. The results may have been more robust and accurate if there were less missing data. Third, the mental health symptoms were self-reported, which often result in the social desirability bias, recall bias, and common-method variance bias that happens when variations are caused by the instrument rather than the actual predispositions of the respondents. The use of a structured interview could have helped better measure the caregiver's mental health. Forth, the comorbidities of

caregivers are considered while focusing on the mental health only. Fifth, due to the large number of multiple hypotheses tests, the likelihood of making a Type-I error can dramatically increase. Bonferroni corrections or other type adjustments could be used to deal with the issue of multiple comparisons. However, those rigid adjustments are not without risk and are often applied arbitrarily [40]. Lastly, the disease diagnosis of the care recipient was not collected in the GSS. Since it is the key indicator to measure the care needs, the availability of this information would have provided additional value to specifically examining the provision of supports for CEs in the workplace, as well as the social supports more broadly.

**4.6. Conclusion.** The results of this analysis are useful in highlighting the importance of CFWPs for CE's mental health. Our research suggests that the option to work part-time is associated with the reduced mental health symptoms. A workplace that promotes CFWPs without negative impacts on CE's career can modify the effect of WI on their mental health. As the number of CEs increases over time, the need for effective and wide-ranging CFWPs is becoming more and more important.

## Data Availability

The authors used the Canadian General Social Survey (GSS) 2018. They accessed the data through the Statistics Canada Research Data Center (RDC) at McMaster University. Access to data is restricted, and the data cannot be released outside of the RDC due to the confidentiality.

## Additional Points

*What Is Known.* (i) Work Interferences (e.g. reducing work hours, taking days off, etc.) have a negative association with the mental health of carer-employees. (ii) Social support is generally positively associated with poor mental health. (iii) CFWPs are helpful in reducing mental health symptoms of carer-employees. *What This Paper Adds.* (i) The option to work part-time and the workplace culture that carer-friendly work policies could be taken without negative career impacts were negatively associated with appetite loss, trouble sleeping, as well as having any mental health symptoms. (ii) Carer-friendly work policies have a significant moderate effect on the association between the WIs and the mental health of carer-employees. (iii) Carer-employees who worked in a workplace that promote that carer-friendly work policies without negative impacts on career were less likely to feel anxious when turning down a job offer or promotion.

## Ethical Approval

The procedures including consent and confidentiality requirements were approved by the Chief Statistician at Statistics Canada and were conducted according to the Statistics Act.

## Conflicts of Interest

The authors declare that they have no conflicts of interest.

## Acknowledgments

Funding was provided via a CIHR/SSHRC Healthy, Productive Work Partnership Grant: “Scaling up the Carer Inclusive Accommodating Organizations Standard.” Canadian Institutes of Health Research (CIHR); 890-2016-3018 (SSHRC) (Dr. Allison Williams, PI).

## Supplementary Materials

S1 displays the detailed survey questions on the mental health status due to caregiving responsibilities. S2 presents the results of logit regression using the backward selection for predictors, and only significant variables were retained. S3 is the results based on the data without missing-data imputation. All results are consistent with the key findings reported on Table 2. (*Supplementary Materials*)

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