FEASIBILITY & COST-IMPLICATION ANALYSIS OF THE CARER-INCLUSIVE ORGANIZATIONAL STANDARD AS AN INTERVENTION

FEASIBILITY & COST-IMPLICATION ANALYSIS OF THE CARER-INCLUSIVE ORGANIZATIONAL STANDARD AS AN INTERVENTION

By:

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Abstract

Canada's aging demographics has produced a crisis in which the working age population is increasingly required to provide unpaid care for aging friends, family or relatives while maintaining employment responsibilities. Currently, there are 8.1 million carers in Canada, with 6.1 million of these carers simultaneously managing their own careers/paid employment alongside these care duties. This dual role of carer and employee places physical and mental burden on a growing number of carer-employees, and is associated with adverse effects on both health and work performance. The literature suggests that adverse effects such as stress, depression, anxiety are associated with caregiving burden, and can manifest in physical symptoms affecting health such as sleep deprivation or fatigue. Additionally, care-work conflict may impede work responsibilities by increasing absenteeism/presentism, reducing productivity, delaying career development and early retirement from the workforce. As a result of these adverse consequences, an understanding of the role the employer plays in supporting carer-employees needs is critical, as these arrangements are mutually beneficial for both employer and carer-employee.

However, evidence of the effectiveness of workplace interventions for carers is nascent; additional investigation is needed in order to bridge this gap and encourage widespread uptake of carer initiatives in the private sector. In this dissertation study, an intervention is implemented within a large-sized workplace. We evaluate the following questions: 1) How has COVID-19 impacted the workplace and the nature of caregiving?; 2) What are the gaps within the workplace pertaining to baseline carer-supportive workplace culture?; 3) Does our designed intervention improve work and health outcomes of employees?; 4) Is the intervention cost-saving from the employer's perspective? These research questions contribute to the paucity of knowledge on this topic as well as providing actionable evidence and tools for employers and policymakers to stimulate change.

We found that with the transition to remote working during COVID, carers were struggling with the work-life balance due to the undefined boundaries between work, care and personal life, this effect was exacerbated by the closure of community carer supports, thereby increasing feelings of isolation. However, flexibility and privacy was gained as a result of this arrangement. In designing a tailored intervention, we highlighted that within our partnered workplace, carers had significantly less coworker support, and employee-rated family supportive supervisor behaviour was dispersed across all potential score ranges. As a result, our designed intervention focused on generating a supportive and approachable work culture for carers, centered around education and consciousness-raising. With the implementation of the intervention however, we found mixed results. We did not observe significant changes in employee health and work outcome variables post-intervention compared to pre-intervention, nor did we find the intervention to be cost-saving. However, carers and managers/HR communicated their positive informative experiences with the intervention and highlighted its capacity of practicality in the future. These findings in conjunction suggests that the intervention may be a starting point for culture change, however, further research is needed across a variety of contexts.

Acknowledgements

First and foremost, it is with the deepest of appreciation that I thank my supervisor, Dr. Allison Williams for her steadfast support and indelible guidance throughout my past 5 years at McMaster.

Without her push, I would not have had half the opportunities, skills, and growth that I have been fortunate to experience during my time at McMaster. I hope that I may someday grow into a researcher and mentor as self-assured and inspirational as Dr. Williams.

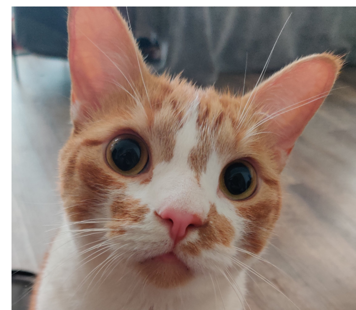
I also extend many thanks to my committee members: Dr. Jenny Ploeg, Dr. Niko Yiannakoulias, and Dr. Amiram Gafni. Each of you have been instrumental in my development not only as a professional but as a person, a community member and a global citizen. Dr. Ploeg's guidance has been imperative in grounding my work back around the people and communities I serve. Academia is an ivory tower but its foundations are based on the human experience. Thank you to Dr. Yiannakoulias for his insight and nuance on data, big and small, and for furthering my comfort with being wrong; I would like to think I have become a more reflective and critical researcher as a result. I can only hope to one day be as familiar or comfortable with as many methods as him. Last but not least, many thanks to Dr. Gafni, who has been influential in questioning and shaping my understanding of decision-making and human behaviour. It is with his expertise that my own comprehension of economics and evaluation have been challenged and developed further than I could have achieved on my own or with anyone else.

On a more personal note, my acknowledgements would be remiss without mention of my partner, Cameron, for his resolute encouragement and unflinching loyalty, standing beside me and sharing the load, as I weathered each tribulation over the past 5 years. Thank you for your boundless love, listening without judgement, and helping without pretension. A PhD is a long process but I have never once walked alone.

I also want to thank each of my friends, labmates, and colleagues over these past few years for their endless encouragement and unwavering companionship. I am tremendously grateful to have so many people in my corner, to share in each and every one of my celebrations and ordeals. I am privileged to be surrounded by many talented and inspirational individuals, and I have learned a great deal from all of them. The entire list of all the people that have supported me in this degree would run an entire page, but I wanted to highlight a select few: Anastassios, Shelley, Lisa, Kevin, and Raisa. Thank you (and thank you those unnamed as well) for sharing in this part of my life, and providing a listening ear.

A very special thank you to my family for their patience and stanch confidence in me. A big thank you to my parents for their encouragement and conviction, not only during this degree but for my whole life. I am grateful for all their sacrifices and providing me the tools and agency pursue my own self-actualization. Thank you to my sister, Amanda, for pretending to be interested in my work and for always being available as a listening ear and providing advice without prerogative. This degree belongs to them as much as me.

And finally, I want to thank my cat Mango, for always reminding me when it is time for a snack or a nap. I hope to one day be as obstinately self-assured in every action as him.



Preface

This dissertation comprises of six chapters in the following order: introduction, four peer-reviewed research articles, and a conclusion. The first research article, chapter 2, has already been published in *The Canadian Geographer*. This article explores the consequences of COVID on work and caregiving and the adaptations that carer-employees have assumed to manage this metastable dynamic. Chapter 3, the second research article explores the baseline conditions of our partnered workplace using mixed-methods. Specifically, we seek to understand the gaps in policy and workplace culture so that an intervention can be customized based on the specific needs of the workplace. Chapter 3 has been submitted for consideration to the *Journal of Family and Economic Issues*. Chapter 4 is a mixed-methods exploration of the intervention post-implementation, specifically assessing if the intervention produced changes in the workplace. This paper is in the process of submission to *Safety and Health at Work*. The last research paper, chapter 5, is a cost-implication examination of the intervention from the employer's perspective. We examine the burden of caregiving on the workplace using monetary estimates as well as an investigation of potential averted costs associated with the intervention. This paper has been published in the *International Journal of Environmental Research and Public Health*.

The first author was responsible for recruitment of the collaborating workplace, liaison with workplace collaborators, study design, data collection, analysis, literature review and writing of each of the papers. Dr. Allison Williams co-authored all of the papers and contributed expertise on carer-employee subject matter, research design, interpretation and writing of peer-reviewed papers. Dr. Jenny Ploeg provided guidance on qualitative and mixed-method analysis, triangulation, interpretation, and review of manuscripts for Chapter 3 and Chapter 4. Dr. Niko Yiannakoulias supported the quantitative analysis and writing of Chapter 4 by providing expertise in statistical methods. Dr. Amiram Gafni assisted in Chapter 5 by lending their expertise in economic evaluation methods, theory and review of the manuscript drafts. The four peer-reviewed articles that comprise this thesis are outlined in the following section.

Chapter 2

Ding, R., & Williams, A. (2022). Places of paid work and unpaid work: Caregiving and work-from-home during COVID-19. *The Canadian Geographer/Le Géographe canadien*, *66*(1), 156-171.

Chapter 3

Ding, R., Ploeg, J., Williams, A. (2022). A Workplace Environmental Scan of Employed Carers during COVID-19. Submitted to the Journal of Family and Economic Issues.

Chapter 4

Ding, R., Yiannakoulias, N., Ploeg, J., Williams, A. (2022) A Virtual Workplace Intervention for carers during COVID: Impacts and perspectives. In preparation.

Chapter 5
Ding, R., Gafni, A., & Williams, A. (2022). Cost Implications from an Employer Perspective of a Workplace Intervention for Carer-Employees during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *19*(4), 2194.

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Chapter 1: Introduction

1.1 RESEARCH CONTEXT

1.1.1 *Population Transition*

This current century has witnessed some of the largest revolutions in recorded history and is still poised on the precipice of even larger changes to come. By the turn of the millennium, the post-industrial revolution had arrived in most high-income nations, and with it, the rise of accessible technology and rapid progression of globalization (Philipson, 2009). The consequences of these reforms are far-reaching across all societal domains. On the individual level, citizens of post-industrial nations enjoyed new economic opportunities, geographic mobility, expansion of education and health sectors, and development of communications technologies (Bell, 2000). However, these societal transformations, while offering solutions to the concerns of economic development from the previous century, gave rise to a host of new challenges.

The start of the millennium saw the Canadian healthcare sector in crisis. Healthcare was still recovering from the funding cuts of the 1980s which, despite recent advances in technology and medicine, left hospitals perpetually operating at 95+% capacity, and primary care providers overworked (Deber, 2003). Another key dilemma however was beginning to emerge. The 2011 census showed the largest increase in the number of seniors aged 65+ in Canada since Confederation, growing by 14.1% from the 2006 census (Taylor, 2012; Canadian Encyclopedia, 2020). This jump would only be eclipsed by the 2021 census, which recorded an 18.3% increase in seniors from 2016, the largest recorded increase so far (Statistics Canada, 2021). Currently, older adults number 7 million in Canada, or approximately 18.5% of the total population (Statistics Canada, 2021). Population aging is common in post-industrial societies. It is a symptom of longer life expectancies due to advances in healthcare and declining fertility rates, owing to increasing education and labour force participation of women (Yenilmez, 2015). However, in the absence of an overhaul of existing healthcare and economic systems, this transition is troublesome.

Healthcare spending on older adults is expensive, with the average senior costing the Canadian Federal government $12,000 annually, compared to $2,700 for Canadians under 65 years[1] (Gibbard, 2018). In 2019, the total cost of publicly funded homecare and nursing care was $22 billion (MacDonald et al., 2019). This expenditure is in large part due to the chronic nature of care involved with degenerative and lifestyle diseases (i.e., cancer, cardiovascular disease, dementia) which tend to manifest with age. Canada's population is projected to continue aging well into the foreseeable future. By 2030, it is projected that older adults will comprise approximately 23% of Canada's total population, numbering 9.5 million (ESDC, 2014). By 2050, the publicly-funded cost of eldercare is estimated to reach $71 billion (MacDonald et al., 2019). It can be seen here that the impeding disease burden associated with large-scale population aging is immense. While the majority of the population aging literature focus on the plight of the formal healthcare system,

[1] While healthcare in Canada is delivered on the provincial level, funding is provided by the Federal government to be divided amongst the provinces.

it is the families for the elderly and the infirm who will feel the pressures first and in some cases, most acutely.

1.1.2. *Caregiving in Canada*

The deinstitutionalization of eldercare occurred alongside the healthcare cutbacks of the 1980s, where lack of hospital beds and nurses lead to non-acute services being relegated to the community and the homes of the infirm and their families (Deber, 2003). As a result, unpaid care provided by family and friends is increasingly common. These unpaid caregivers, more simply known as carers, number 8 million in Canada and provide invaluable services to their care recipients, taking on tasks such as transportation, meal preparation, financial organisation, housework, scheduling/attending appointments, physical/medical assistance, and emotional labour (Sinha, 2013; Statistics Canada, 2020). Most carers provide approximately 5-9 hours of care weekly, or a mean of 290 hours per carer annually (Sinha 2013; MacDonald et al., 2019). In fact, the majority (75%+) of care provided is performed by carers in the community/home, with public care and private care comprising only 18% and 8% of all care respectively (MacDonald et al., 2019). The total annual economic contribution of unpaid caregiving labour is valued at $25-26 billion, using replacement costs (Hollander et al., 2009).

Understandably, the carer role is complicated and often contentious with other roles within the carers' life. Care responsibilities are time-intensive, emotionally draining, and unpredictable. In the majority of cases, carers have no formal training and as a result, face steep learning curves in navigating the expectations and responsibilities of caregiving. In addition, new forms of care are constantly emerging with technological development and globalization. Transnational caregiving in the form of financial support for care recipients (often of older family members) and emotional labour, is increasingly common with the rise of migration (Spitzer at al., 2003). With the occurrence of COVID, caregiving has also shifted. Carers face new challenges, such as minimizing potential COVID exposure by isolating, providing social stimulation at a distance, arranging delivery of food/medicine, all while navigating changes to the healthcare system and their own paid work (Lightfoot et al., 2021). All in all, caregiving is a taxing life course experience, and is associated with a number of adverse effects such as decline in physical and psychosocial health, sleep disturbance, heightened anxiety, social isolation and burnout (Schulz et al. 1997; Robison et al., 2009; Bauer & Sousa-Poza, 2015).

In this dissertation, we focus primarily on eldercare, which typically consists of an adult carer providing care for their parent(s) with age-related needs; this arrangement represents the most common (48%) care situation (Sinha, 2013). However, we take care to recognize the diversity within the carer experience, as a highly individualized journey. For example, care towards friends and grandparents represent another 16% and 13% of care relationships respectively, followed by extended family (10%) and spouses (8%) (Sinha, 2013). While in previous cycles of the General Social Survey (GSS), women were more likely to be carers than men, as of 2018, there is no longer a significant difference (Li et al., in press). That is not to say that caregiving is now completely egalitarian; women are still more likely to provide 20+ hours of care weekly compared to men. In addition, female carers are also more likely to report higher stress, depression, physical/emotional strain and guilt than male carers, with greater disruptions to lifestyle and employment in order to accommodate caregiving (Duxbury et al., 2011; Penning & Wu, 2016). The most common carer

age demographic (44%) is 45-64 years, which coincides with the age when workers are in their prime earning years (Sinha, 2013). However, younger (15-44 years) and senior (65 year+) carers make up 43% and 12% of the remaining carer sample respectively, with their own unique challenges. Senior carers are at risk of greater health conditions due to age and are more likely to be caregiving for a spouse, which is associated with greater distress and burden (Penning & Wu, 2016). Meanwhile, younger carers often face financial concerns, social isolation, emotional distress due to role reversal (when caregiving to a parent or grandparent), and experience conflicts with childcare (Rose & Cohen, 2010; D'Amen et al., 2021).

1.1.3. *Labour Market Consequences of Care Provision*

Within recent years, and especially with COVID's spotlight on the vulnerability of older adults, the dilemma of carers has been increasingly recognized by employers. A survey of 291 Canadian employers found that 70% were generally aware of caregiving issues within their workplace, however, these employers tended to underestimate the extent of these issues (Lero et al., 2012; Employer Panel for Caregivers, 2015). In reality, the economic consequences of caregiving on the labour market is already extensive, with impacts to both employers and carers given that 35% of the Canadian workforce are currently carers (Sinha, 2013).

Carer-employees are defined as unpaid carers who simultaneously juggle their own paid work responsibilities. There are currently 6.1 million carer-employees in Canada, with this number expected to increase alongside the aging population (Sinha, 2013). As a result of caregiving conflicts with work, carer-employees often incur penalties in their career in the form of reduced work hours, lower job satisfaction, and higher risk of burnout. Carer-employees are less likely to remain employed than their non-caregiving counterparts, with significant lifetime wage losses, resulting in reduced future earning potential (Lilly et al., 2010; Earle & Heymann, 2012). Forty-eight percent (48%) of carer-employees report absenteeism due to caregiving conflicts, averaging approximately 8-9 days of missed work annually, with 15% reducing their work hours by an average of 9-10 weekly hours (Fast et al., 2014). Further, many carer-employees report spillover effects into their home life, where work-care conflicts impede on personal and social life; 40% of carer-employees (N=25,021) indicated feeling frustration and anger due to competing demands on their time (Duxbury & Higgins, 2014). On a macroeconomic scale, the Canadian economy lost 256 million hours of work, and a departure of 557,689 workers from the labour force due to work-care conflicts in 2012 (Fast et al., 2014). In the same year, 1.6 million carer-employees took leaves from work, and 600,000 reduced their weekly hours of work, amounting to approximately $1.3 billion worth of productive work lost annually by workplaces (Employer Panel for Caregivers, 2015).

Accordingly, there is incentive for workplaces to support their current and future carer-employees via implementation of carer-friendly policies and programs (Williams et al., 2017). These policies can help carer-employees remain employed and better manage work-life conflict, while providing benefits to employer's bottom line via increasing retention, loyalty and productivity (Mofidi et al., 2019). Carer supportive policies were reported amongst 50% of large-sized US employers (N=975), with typical carer-friendly initiatives including: flexibility, eldercare counselling via Employee Assistance Programs (EAPs), protected leaves, flexible health spending accounts covering care-recipients, and eldercare referral services (Dembe et al., 2008). In other cases where

no formal policy existed, work-care conflicts were managed on a case-by-case basis (Employer Panel for Caregivers, 2015). In the business management literature, workplace flexibility in the *where* and *when* of paid work is typically regarded as the gold standard for the realignment of workplace demands due to the changing needs of the 21st century households (Christensen & Schneider, 2011). Job-protected leaves and flexible work schedules are known to reduce absenteeism and work-life conflicts (Duxbury & Higgins, 2014). A literature review of family-friendly workplace policies found that advertisement of said policies were associated with increases to employee productivity and attitude towards employers (Kossek & Ozeki, 1999). On a local scale, we have previously found that education-based carer interventions used to inform carers in the workplace of available work and community resources, significantly improved health and work-related outcomes in carer-employees (Ding et al., 2020; Ding et al., 2021). Elsewhere in the literature, however, the efficacy of educational interventions on behaviour change leading to health/work improvements is mixed; some studies report significant changes with educational interventions while most either did not produce significant changes or did not assess the education-behaviour change link (McCluskey & Lovarini, 2005; Novak & McIntyre, 2010; Unsworth et al., 2013; Gregory-Smith et al., 2015). Overall, despite the abundance of evidence in favour of workplace carer-supportive interventions, the available literature is sparse. Current recommendations to address the intersection of work and aging call for workplaces to focus on proactive measures such as risk reduction, recognition of older workers and potential carer burden, and promotion of workplace-based health and wellness resources (Pitt-Catsouphes et al., 2015).

It is important to clarify that even when access to these carer initiatives is available, utilization is inconsistent. Approximately 50% of surveyed carer-employees (N=7,966) indicated that they felt unable to make use of flexible work arrangements as it would be perceived negatively by their higher-ups (Duxbury & Higgins, 2014). Many carer-employees also have reservations reaching out to their supervisors or human resources (HR) for support in fear of disciplinary effects on their career; as a result, by the time HR is involved, the carer-employee's situation or work performance has already been in significant decline (Sethi et al., 2016). Workplace interventions accordingly, should also be targeted at organizational work culture in order to reduce barriers to uptake.

1. 2 RESEARCH PURPOSE

The purpose of this dissertation is to design, implement and evaluate a workplace intervention for carer-employees. This work builds upon the results of a previous pilot study at a large-sized workplace in the education sector (Mofidi et al., 2019; Ding et al. 2020; Ding et al., 2021). A prospective economic evaluation by Mofidi et al (2019) proposed that an educational intervention delivered to carer-employees at their place of work may be cost-beneficial across six varying scenarios of effectiveness. Ding et al (2020; 2021) found quantitative evidence to suggest that this intervention was capable of significantly improving both the health and work experience of participants 6-months post intervention. Using a qualitative and quantitative mixed-methodology integrated in an exploratory sequential framework, we customized the aforementioned pilot intervention to a new partnered workplace, a large-sized engineering company in the oil and gas industry. The findings from this program of research will be used to build evidence in support of workplace carer-supportive programs and policies, as well as to inform future iterations of this, or other similar interventions. We do not anticipate that this will be the final iteration of this designed

intervention; on the contrary, we hope that future research in this field further refines the design and process of this intervention such that it is suitable across a variety of workplace contexts in a post-COVID world.

In this project, we ask the following questions with respect to the carer-employees experience in the workplace of concern:

1) How has COVID-19 impacted the workplace and the nature of caregiving?

   Given the (unexpected) onset of COVID, we seek to develop contextual information about changes to how and where work is being performed, how work culture may have changed, and how communication and leadership styles have changed with COVID. In addition, for carer-employees within the workplace, we seek information on how the caregiving role and its associated responsibilities have been transformed with COVID, in order to identify carer needs. This is necessary to ensure that the intervention is grounded in the reality of work and care during COVID.

2) What are the gaps within the workplace pertaining to baseline carer-supportive workplace culture?

   This objective explores the current state of the workplace in terms of policies, programs, supports and workplace/supervisory culture prior to the implementation of the intervention. This establishes the pre-intervention baseline, as well as identifying weaknesses or areas of improvement, to build the intervention. The specifics of the intervention will be designed based on findings from this objective.

3) Does our intervention improve work and health outcomes of employees?

   This objective entails the actual evaluation of the intervention. After implementation, employee-reported health and work outcomes will be compared to pre-intervention outcomes, in order to determine the presence of intervention effects and their effect sizes.

4) Is the intervention cost-saving from the employer's perspective?

   To provide evidence to employers about the feasibility of the intervention, we assess the cost savings; that is, if the intervention pays-for-itself by averting absenteeism, presenteeism, turnover, and colleague impact costs. This contributes to the business case of carer interventions for employers.

1.3 DISSERTATION CONTENTS

This section will map out the structure and timeline of each of the four content chapters. Overall, mixed-methods data collection occurred intermittently over a 12-month period between June 2020 to June 2021. Specifically, there were three points of data collection, designated: Time 1, Time 2, and Time 3. Time 1 occurred during June-July of 2020, Time 2 occurred from Jan-Feb of 2021,

and Time 3 occurred during June of 2022. The intervention was implemented between during April 2021, the approximately mid-point between Time 2 and Time 3. It is important to clarify that the following chapters use different naming conventions for each time-point than outlined here (i.e., pre and post-intervention); this was done so that each chapter could be submitted independently to peer-review academic journals without outlining the context of the entire dissertation project and methodology.

Chapter 2 employs Time 1 data to address the first research objective pertaining to COVID impacts on work and caregiving. Using semi-structured interviews and thematic analysis, we interviewed carer-employees (N=5) about changes to their work and caregiving responsibilities during COVID, as well as new challenges participants were facing. These interviews revealed that, on the grounds of reducing infection risk of COVID, carer-employees were required to work-from-home where lockdowns necessitated caregiving from a distance. These actions transformed associations of the home through the competing demands of work, caregiving, and personal life occurring simultaneously within the same physical space. Unique challenges arose from this new spatial arrangement, including: social isolation from colleagues, loss of external carer/community resources, increased work disruptions at home, and prolonging of carer-employee workdays to compensate for said disruptions. At the same time, participants also lauded benefits such as: increased privacy, schedule control and reduced wasted time (i.e., commutes, casual conversations).

Building upon the Chapter 2 findings, Chapter 3 is an environmental scan of the workplace using Time 1 data. Both qualitative and quantitative methods were used to address research objective 2 and investigate the workplace context in greater detail. A workplace wide survey was circulated and descriptive statistics presented baseline scores of survey outcome variables. Overall, work and health scores were average across the general survey respondents, as well as the carer subgroup, with carers reporting significantly reduced perceptions of co-worker support than their non-carer colleagues. Thematic analysis on semi-structured interviews with carer-employees (N=5) and managers, senior executives and HR (herein referred to as key informants) (N=4), complimented survey findings to provide greater context and nuance to day-to-day operations and work culture. We identified the need for the workplace to have greater visibility of carer resources, as well as standardized training for managers, based on the wide variation in supervisory support reported by carer-employees via the survey.

Chapter 4 evaluates the effectiveness of the intervention by comparing Time 2 and Time 3 data using qualitative and quantitative methods (objective 3). Wilcoxon-rank sum tests on pooled cross-sectional workplace survey data were used to assess for significant differences between Time 2 and Time 3 responses. We did not observe any significant differences in survey variables between Time 2 and Time 3. However, semi-structured interviews with carer-employees (N=6) and key informants (N=4) illustrated positive experiences with the intervention for both groups. Carer-employees and key informants described greater knowledge of carer statistics, issues, and solutions, as well as an enhanced agency regarding future work-care conflicts. Participants also provided context for the intervention, mainly in that the work-from-home environment likely mitigated potential intervention effects due to the fragmented nature of the workplace and associated communications.

The 4th objective was addressed in Chapter 5 by way of a cost-implication analysis to assess the cost associated with intervention creation and implementation, recognizing the context of the COVID-19 pandemic, as well as if the intervention averted any costs. Absenteeism, presenteeism, turnover and co-worker impact were assessed on the workplace-wide survey distributed at Time 2 and Time 3 and monetized using mean hourly wage. The intervention cost was similarly monetized using time estimates for its design and implementation. Changes in survey outcomes were compared pre and post intervention. We found that the intervention costed the workplace $21, 056.88 in labour. Overall, we were not able to determine cost-effectiveness over the analytic time period of our study, as it was observed that there was a net increase of $4,293,594.19 in costs post intervention (including the intervention implementation) due to increases in presenteeism, turnover and coworker impact. However, based on chapter 4, these changes are statistically non-significant.

This dissertation concludes with Chapter 6, which is an overview of the key findings from all four content chapters, as well as implications going forward. Limitations pertinent to the overall program of research are also identified.

We note that due to the nature of the sandwich thesis, chapters 2-5 have been submitted to as stand-alone journal articles. As a result, the literature and methodology of these chapters are similar and recap much of the same information.

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Chapter 2: Places of paid work and unpaid work: Caregiving and work-from-home during COVID-19

2.1 Abstract

Eldercare and places of eldercare have been radicalized with the advent of COVID-19. Growing concerns about the safety of long-term care homes, coupled with the continuation of stay-at-home orders, mean that carers are reconstructing new meanings and places of care provision. Increasingly for many Canadians, the home is rapidly becoming the nexus of one's domestic, work and caregiving world. By interviewing working carers (n=5) living throughout Canada, this study investigates the changing meanings of home as a place for care during the COVID-19 pandemic. Drawing upon lived experiences of informal carers engaged in the workforce, we observe a blurring of spatial and temporal boundaries between places of work and places of care. Specifically, we note that the integration of carescapes and workscapes into a single domain presents both benefits and tensions to carers, such as increased schedule flexibility and disruptions at work, respectively. Parallel to this, we also explore how previous places of safety and respite, such as independent senior residences and long-term care homes, are perceived as sites of danger and anxiety due the vulnerability of seniors to COVID-19. This dynamic is likely to continue well into the future, as long-term care homes fall out of favour and carers adopt a more integrated approach to caregiving within their daily lives.

Keywords: caregiving, carer-employee, COVID-19, work-from-home, place

Key Messages:

- The home during COVID-19 has become a blended place, occupied by activities of care provision, paid work, and personal life.
- This integrated landscape presents benefits to working carers such as increased flexibility, alongside challenges such as lack of external carer supports.
- These landscapes may continue in a post-COVID world, as organizations contemplate continuation of digital/ hybridized workplaces and long-term care homes fall out of favour.

Lieux de travail rémunérés et non rémunérés : la prestation de soins et le travail à la maison durant la COVID-19

Les services aux aînés et les lieux qui offrent des services aux aînés ont été remis en question avec l'avènement de la COVID-19. Des préoccupations croissantes au sujet de la sécurité à long terme au sein des établissements de soins, combinées aux décrets de confinement, signifient que les personnes soignantes ont dû trouver un sens nouveau à leurs actions ainsi que des lieux différents de prestation de soins. Pour de nombreux Canadiens, le domicile devient alors le lien avec le monde domestique, le lieu travail et celui de la prestation de soins comme personne aidante. En interrogeant des personnes soignantes qui travaillent (n=5) et qui vivent à divers endroits au Canada, la présente étude analyse les significations changeantes du domicile comme lieu de soins durant la pandémie de COVID-19. Nous inspirant d'expériences vécues par des soignants informels qui font partie de la population active, nous observons la disparition des frontières spatiales et temporelles entre les lieux de travail et les lieux de soins. Plus particulièrement, nous

notons que l'intégration des lieux de travail et des lieux de soins dans un seul milieu représente des avantages et des tensions pour les personnes soignantes. Parallèlement à ceci, nous examinons également la façon dont les maisons de retraite, par exemple les résidences pour aînés et les maisons de soins de longue durée, sont perçus comme des sites de danger et d'anxiété en raison de la COVID-19. Cette dynamique se poursuivra probablement dans le futur puisque les maisons de soins de longue durée ont perdu leur attrait aux yeux du public et que les personnes soignantes adoptent une approche plus intégrée à l'égard de la prestation de soins dans leur vie quotidienne.

Mots-clés : prestation de soins, personne soignante, COVID-19, travail à la maison, lieu

2.2 Introduction

With the COVID-19 pandemic that first swept through Canada during March of 2020, large-scale institutional changes were implemented in order to prevent uncontrolled spread of the virus. Workplaces closed and emergency remote working mandates were implemented, non-essential retail was shuttered, and many tertiary services were reduced, relocated, or terminated. Other industries continued operation under occupational health risk. These societal changes fundamentally shifted the fabric of many Canadians' networks, both relational and material, leading to adjustments in their daily lives. Work, school, recreation, and personal activities have since become constrained in both time and place for all Canadians. Globally, the effects of COVID-19 on the daily lives of caregivers are immense and well-documented, with arguably no cohort more impacted by the pandemic than unpaid family carers, and specifically carer-employees (Carers UK 2020; Heilman et al. 2020; Ontario Carergivers Organization 2020; Hughes et al. 2021).

Initially, COVID-19 was regarded as a disease of concern to the elderly, immunocompromised, and those with underlying health conditions. Early in the pandemic, emerging research in Ontario found that the infection rate and crude fatality rate was up to four times higher in the 80+ age cohort than all other cohorts (Public Health Ontario 2020). Given this, attention turned to long-term care homes where the high density of vulnerable populations, coupled with lack of funding, created local hotspots of infection with often severe, if not fatal, consequences to the residents. Under constant media scrutiny, the deficits in Canada's healthcare system for older and/or disabled adults, as well the plight of carers, became acutely visible to the public's eye. The gaps in Canada's chronic and long-term care provision were exposed, problematizing care in a rapidly aging society. As an aging society, Canada has a growing need for chronic and long-term care provision. Projections estimate that by the year 2046, the number of older adults (65+) requiring care will double (CMA 2016). As allies of the Canadian healthcare system, carers routinely provide the brunt of care work; up to 80% of all care of older adults is estimated to be provided by informal carers, often over several years (Keefe 2011; Sinha 2013). Common care duties include providing transportation, housework, house maintenance scheduling and coordinating appointments, and emotional support (Sinha 2013; Statistics Canada 2020). However, carers themselves should also be recognized as a group that requires support, given that the carer role is often burdensome, time-intensive, and emotionally-charged. Out of a total of 7.8 million carers, the vast majority (> 75%) are simultaneously employed, meaning that work-life

balance and burnout were salient issues for carer-employees even prior to the pandemic (Statistics Canada 2020).

"Carer-employees" are defined as employed workers that simultaneously provide informal care to friends or family members (Williams et al. 2017). Numbering 6.1 million in 2018, Canadian carer-employees were a growing cohort even prior to the pandemic due to Canada's aging population, and a healthcare system that places emphasis on community eldercare (Sinha 2013). The dual burden of managing both carer and worker roles is known to lead to adverse consequences in personal health and wellbeing; it also has a number of employment-related consequences such as reduced productivity, absenteeism, presenteeism, high turnover intentions, and decreased job satisfaction (Fast et al. 1999; Fast and Lero 2014). These work-related consequences represent not only lost income for the carer-employee, but reduced performance from the employer's perspective.

Unsurprisingly, carer-employees have undergone radical shifts in their daily activities since the COVID-19 pandemic began. On top of disruptions to their work landscape, care landscapes have also been altered due to reduction of external carer supports (such as respite care and day programs), outbreaks in long-term care homes, and shut down of non-essential hospital and healthcare services as hospital capacity became strained with COVID cases (Embracing Carers 2020; Lafferty et al. 2021). As a result, care burden has been heightened by shifts in the places and ways that care provision is carried out, especially when considering that care-recipients are often high-risk populations vulnerable to the COVID-19 virus. Stay-at-home and social/physical distancing orders force carer-employees to perform the majority of paid work and informal caregiving out of their homes. While the home has long been a central subject of study in caregiving and labour research, the pandemic has catapulted these discussions on eldercare and the home-work dynamic into the mainstream public forum.

These extensive changes have implications on the process of placemaking, which in turn, determines the lived experience within networks of politics, culture, economy, gender, and care (Pierce et al. 2011). This paper seeks to elucidate the dynamic linkages between carer-employee experience and landscapes of care and work, during the COVID-19 pandemic.

2.3 Literature review

2.3.1 Placemaking and the home

Central to our analysis are the concepts of "placemaking" and "place." Placemaking encompasses an iterative process detailing the continuous making and remaking of spatial arrangements into networks of meaning (Pierce et al. 2011). A constitutive process, placemaking is a mechanism that is arguably fundamental to the human experience; it is within human nature to constantly assign dynamic meanings and order to otherwise culturally barren landscapes (Massey 1991). Place is the arena through which we navigate and interact, and is imbued with culture, identity, social relationships, and history. There is perhaps no other place as recognized and paramount to human experience than the home.

Viewed as a nexus of everyday life, the home is inextricably bound to all other places and processes through activities of our everyday lives (Kwan 1999). The home has historically been regarded as a site for all things private and domestic, being spatially removed from processes of (paid) labour (McDowell 1999). This specific conception of the domicile dates back to antiquity and was assigned agency by patriarchal systems that favour male labour and female care. It is within these frameworks that the act of care provision is assigned these domestic qualities. However, in recent years, the home has been increasingly recognized as an intricate and diverse space, filled with a multitude of sometimes competing activities, relations, and spatial arrangements (Milligan 2005).

During the COVID-19 pandemic, Canadians became acutely cognizant of our own daily spatial arrangements, and specifically, how limitations in our mobility have led to changing relationships with our homes. The notion of being confined in place creates tensions in normative behaviours, enjoyment, and utilization of our homes as our space-paths shrink (Devine-Wright et al. 2020). Globally, many people report feelings of isolation, depression, anxiety, and overwork as stay-at-home orders anchor our movements to the home (Benke et al. 2020; Shevlin et al. 2020). This is especially true for those with caregiving responsibilities, such as parents of young children or carers to older adults. At the same time, those in precarious/crowded living conditions or those not afforded the privilege of working from home must cope with conflicting and often adverse conceptions of the home (Devine-Wright et al. 2020). These experiences highlight the fluid nature of the home, as a place that is constantly reimagined and subject to greater sociopolitical and global events, but reified on an everyday scale. It may be seen that the COVID-19 pandemic could herald a new renaissance for diverse and alternative understandings of the home-place.

2.3.2 Hidden labour within the home

Bodies of feminist scholarship elucidate that home is a site of hidden labour for many women. Acts of childcare, caregiving, household maintenance, and other activities necessary for maintaining and promoting life are regarded as reproductive labour and are routinely carried out by women, often without pay (Hester 2018). These acts, and the people charged with their administration, are consistently devalued in contrast to labour that is performed outside of the home and traditionally by men. However, the contribution of this labour to the household and society is immense. It is estimated that women spend approximately 2.8 hours per day on unpaid labour compared to 1.9 hours for men (Moyser and Burlock 2018). The most recent Statistics Canada report values the total economic contribution of unpaid reproductive labour in Canada, using specialist replacement costs, at $297 billion per year (Hamdad 2003). Informal caregiving provided by carers, which comprises a large part of reproductive labour, has been valued at $25 billion per year (Hollander et al. 2009). In the case of carers, their acts of care provision are particularly important as they alleviate strain on the Canadian healthcare system, in the face of the incoming influx of seniors as our population ages.

Prior to COVID-19, the division of labour was noted as becoming more egalitarian over time (Sinha 2013; Moyser and Burlock 2018). As more women entered the labour force, unpaid work no longer defaulted to women as men became more active in domestic work and care provision. In 2018, 54% of carers identified as women compared to 46% who identified as men

(Statistics Canada 2020). As such, discourse on balancing paid work, reproductive labour, personal responsibilities, and leisure time is becoming increasingly inclusive and apparent in the mainstream.

COVID-19 has, however, laid bare existing disparities pertaining to hidden labour within the home. A New Zealand study found that, among couples during the pandemic, both partners reported that the female counterpart unfairly engaged in more domestic work, such as parenting and housework, leading to dissatisfaction (Waddell at al. 2021). This inequality is further exacerbated in households with young children, as women are more likely to be occupied with childcare and education upon the closing of schools and childcare centres, while men are more likely to be occupied by paid work (Casale and Posel 2020; Van den Eynde et al. 2020).

2.3.3 The workplace

The workplace, as a site of masculine paid labour, exists as a foil to the domestic and feminine home. It is a sphere of production, earning potential, economic power, and complex social relations, dominated by male presence (Kwan 1999). Historically, the workplace was assumed to be a discrete sphere, physically and temporally separated from the realm of non-work. However, since the 1970s, with the increasing labour force participation of women, globalized trade, and knowledge-based economies, many workplaces have decoupled from the traditional 9-to-5 in-office model (Burke 2004; Attaran et al. 2020). From 1976 to 2017, the number of dual-income households has risen, with approximately 58.8% of households being dual-income in 2017 (Moyser and Burlock 2018). During this same period, single-parent households doubled to account for 14.2% of all households. Advances in computer-based information technologies and social collaboration tools offer flexibility to traditional work models without sacrificing productivity, thereby facilitating organizational restructuring regarding the places and time that paid work is performed (Moshiri and Simpson 2011; Attaran et al. 2020). These changes highlight the employee demand and trend towards modification of the dominant employment paradigm, questioning specifically the *how* and the *where* of paid work.

Demographic and societal shifts have led to workplaces mediating discourse on work-life balance strategies, in order to help employees reconcile work with familial responsibilities and thereby keep firms competitive and employees engaged (CATNOSHP and Board on Health Sciences Policy 2000; Burke 2004). Arrangements such as digital/mobile offices, flexwork, compressed work weeks, and remote working have become more widespread in recent years as means of attracting, retaining, and supporting workers (Thompson et al. 2015; MacLean 2018). Research in this area has shown that availability of flexible working policies benefits employees by enhancing leisure time, work-life balance, and employee satisfaction, while decreasing absenteeism and presenteeism (Fast et al. 1999; Wheatley 2017; MacLean 2018). Further, oftentimes these arrangements provide employees the agency and schedule control to re-contract both the location and time of paid work to provide maximal benefit to their personal schedule while meeting work obligations (Thompson et al. 2015). Given these trends, the work-home binary has become increasingly muddied within recent years as we shift away from strict industrial economies to flexible and adaptive industries.

However, availability of flexible work policies is not synonymous with utilization of those policies. It is thought that employees who access work-life benefits, such as flexwork, may be stigmatized and limit career progression, although research on this area offers conflicting insights (Konrad and Yang 2012; McNamara et al. 2012). In Canada, 47% of female and 45% of male carer-employees reported not feeling comfortable utilizing flexible work arrangements out of concern regarding career progression (Employer Panel of Caregivers 2015). While an estimated 86% of Canadian workplaces offer at least one form of flexible work arrangement, this number is not representative of actual uptake by employees, which is influenced by organizational factors, such as workgroup culture, and individual characteristics such as length of work tenure, hours worked, supervisory status, and family-care status (Lambert et al. 2008; MacLean 2018). As such, up until recently, paid work for most was a spatially fixed activity that anchored many Canadians' daily space-time paths outside the home.

2.3.4 COVID-19

The COVID-19 pandemic has fundamentally challenged the way in which Canada approaches eldercare and paid work. No other population has been as severely impacted by COVID-19 than the elderly; no activity has been more constrained than paid work. This reality disproportionately amplifies the responsibilities of carers, as they navigate the shifting burden of both care and work during tumultuous times. Of 755 Canadian carers surveyed, 70% reported worsening emotional and mental health during the pandemic, with average weekly time spent caring increasing 28% to 21.6 hours per week at the time of Canada's 2nd wave of cases (fall 2020), compared to the pre-pandemic baseline (Embracing Carers 2020). Social/physical distancing orders and loss of external support for their care-recipient has meant that many carers have been singularly providing care without respite or breaks, and often in the form of emotional support, leaving them vulnerable to poorer mental health (Embracing Carers 2020; Mata et al. 2020; Lafferty et al. 2021). At the same time, since many carers are working remotely from their own homes, they have seen their own homecare responsibilities increase and compound with work and caring obligations, as their work and home worlds collide and integrate in previously unforeseen ways. The current pandemic has accelerated the dissolution of work-home binaries, creating new and unique challenges for carer-employees as their mobility remains limited.

The purpose of our study is to explore the ways in which carer-employees experience and navigate their care and work challenges during the COVID-19 pandemic. Specifically, we draw upon concepts such as place and placemaking to frame the transitory nature of the home as it hosts multiple activity landscapes within its spatial boundaries.

2.4 Methods

This study utilized qualitative semi-structured interviews to examine the changing meanings of care provision and paid work during the COVID-19 pandemic. With approval from the Research Ethics Board (MREB 2434), we recruited five carer-employees from a large-sized workplace in the oil and gas industry during the summer and fall of 2020. With the assistance of the company's Human Resources (HR) staff, email invitations to participate in interviews were distributed to all employees. The invitations detailed the following eligibility criteria: currently employed (full-time

or part-time) at the respective workplace; and currently or within the last three months, a carer to a friend or family member for reasons relating to old age, health, or disability. Five eligible participants responded to the study call and were provided with letters of information prior to committing to the study to ensure full informed consent. While our study parameters were open to carers to all recipients, our recruited sample were composed of carers providing care to older relatives. Overall, the majority of participants in our sample were female, in non-management type positions, and had moderate to high care responsibilities. Table 2.1 displays participants' demographic and employment information, in addition to details of their care situation.

Table 2.1. Participant demographic breakdown and care situation.

Participant	**Age**	**Sex**	**Job position**	**Care-recipient**	**Care situation**
Leslie	35–44 years	Female	Administrative	Grandfather	Long-term care home, age-related caregiving; 0–4 hours of care provision weekly.
April	45–54 years	Female	Administrative staff	Mother	Care-recipient lives independently in nearby dwelling, age-related caregiving; 15–19 hours of care provision weekly.
Donna	55–65 years	Female	Technical staff	Mother	Care-recipient co-habiting in same dwelling, passed away at start of COVID, dementia-related caregiving; 10–14 hours of care provision weekly (prior to passing).
Ron	35–44 years	Male	Technical staff	Grandparents	Care-recipients live independently in nearby dwelling, age-related caregiving; 5-9 hours of care provision weekly.
Anne	45–54 years	Female	Team lead	Mother	Care-recipient lives independently in nearby dwelling, cancer-related caregiving; 10–14 hours of care provision weekly.

*All names are pseudonyms.

Participants were individually interviewed over the phone, where verbal consent was obtained prior to the interview. Only the first author had communication with the participants, in order to maintain confidentiality and anonymity from colleagues and employers. Participants received a copy of the interview schedule ahead of time and were probed on topics such as: caregiving before and after COVID-19, work burden before and after COVID-19, care-work conflicts, and workplace accommodations. While interviews were scheduled for an hour, with participant permission, interviews sometimes continued past the time limit with follow-up questions to the point of intra-interview saturation, where no new topics were being introduced by participants. Follow-up questions were probed to gain a comprehensive picture of the minutiae of day-to-day life, including but not limited to: typical work schedules, daily/weekly care activities,

frequency of work meetings, expectation of working in person, and general activities of other household members. The interview guide (see Appendix 2.A) was developed in an iterative participatory process between the authors of this paper and key stakeholders within the participating company (e.g., HR staff and senior executives). Each interview was recorded with participant permission and immediately transcribed and analyzed thematically using NVivo 12.

During each interview, a research field journal was also kept, recording the observational context and detailed descriptions of each interview to ensure critical reflexivity. To generate reliability, marginal coding was also recorded in the research field journal in the form of early interpretation of and speculation about results to ensure constant analysis and active listening. These notes from previous interviews were constantly compared during interviews to assess for saturation. Participants were also invited to member check their own transcripts; however, none of the participants were able to do so due to conflicting schedules and time demands.

Line-by-line coding was used by reviewing all interview transcripts in detail and assigning a code to each line of the transcript, in order to allow themes to inductively emerge. As we were particularly interested in the "what," "where," and "when" of participants' daily activities, all codes were then manually screened for key terms pertaining to activities, locations, and references to time of day, and indexed separately. In subsequent iterations of interview review, themes were then placed into overarching thematic nodes pertaining to places such as home and work. These themes were further refined based on positive or negative descriptions of each place and are presented as our themes in the next section.

2. 5 Findings

This section describes the associated themes and subthemes revealed by participants interviews. A total of four themes were identified: new meanings of place, caring from a distance, caregiving and work conflicts, and spatiotemporal flexibility in time. All names used with participant quotes are pseudonyms.

2.5.1 Theme 1: New meanings of place

This theme describes how COVID-19 precautions have transformed previous association with place. Three sub-themes are identified based on the following places: 1) isolation of home from the external world; 2) home as a workplace, and; 3) long-term care and retirement homes.

Isolation of home from the external world. Home is understood to be a concept that extends beyond the one's physical residence. It is a landscape imbued with the dynamic meanings of one's identity, culture, personal history, privacy, and comfort. The home during COVID-19 has acquired several nested connotations due to the various novel activities now being carried out within it.

As with many places, participants have apprehensions regarding the home, and their ability to maintain the safety of home from the COVID-19 virus. The daily flow of individuals in and out of homes has been disrupted and limited to immediate household members, with provincial regulations encouraging stay-at-home mandates save for essential trips. This is complicated by the reality that many care-recipients currently live independently, but rely on regular assistance from their carers, meaning carers must minimize exposure risk for two households. Given this, the home

is now regarded as both an isolating place and a safe place that needs to be preserved. Carers are acutely aware of this particular dynamic and struggle to maintain a balance of protective self-isolation and care provision. External formal or non-familial homecare or respite services have also been cancelled due to high risk, leaving many carers to manage caregiving without any external supports.

One participant stated that the burden of caregiving during COVID-19 is greater due to them managing the care burden singularly: "since COVID, nobody can come [assist with care] because it's more dangerous. So, I'm the only one who comes and sees my mom and helps her do anything" (April).

Carers also described the shrinking of their care-recipient's world, as many leisure activities previously enjoyed and contributing to care-recipients' emotional and mental health became unavailable. "COVID limits people's activities. So for someone who was already confined pretty much to a wheelchair, [my mother] wasn't interested in going for a walk, but she was up for going to a movie to a restaurant" (Donna).

Home as a workplace. Parallel to the reclusive nature of the home, the home is also simultaneously a site of paid work. The workplace in this study is the Canadian division of a multi-national oil and gas consulting company that has largely been able to pivot towards working from home, with a select few technical employees occasionally visiting field sites or labs for work. This collapse of the workplace and home into a single landscape for many employees has fundamentally changed not only associations attached to the home, but also the future of the workplace.

The ability to work from home was a favourable accommodation for participants, largely due to enhanced flexibility and the leisure of working in a familiar and closed environment. One participant reflected that the home environment allowed colleagues to be more at ease when working, as well as establishing boundaries with work and non-work activities:

> I find I have much better boundaries at home. I think it's because I'm already home. So, walking away from my computer is me walking away. Where at work, I'm at the office and no one's making me leave like, I'll just stay there and keep working forever … with coworkers, it definitely I feel like people are a little bit more relaxed. Maybe because they're at home? But I definitely feel like for the most part, there's less stress in a lot of people's lives. (Leslie)

However, this work-from-home arrangement also posed challenges for some participants, regarding disruptions to their workflow. Another participant commented, "I'm much more efficient at [the]work[place]. And at home there's always something to do. I think that's true for everyone" (Ron).

Participants acknowledged that while working from home, they experienced fewer social interactions with work colleagues. Some participants found these interactions meaningful and lamented the loss of the social cohesion characteristic of their workplace. "I feel a little more disconnected from everybody, the whole group. There's less feeling of us being one big team. It's not good for networking and building relationships within the office" (Ron).

For others, these interactions were distractions from work, and working from home allowed them to be more productive:

> Being in the office just physically takes up so much more extra general time, people want to come by and have conversations and talk to you and you have to go get tea for people or, you drop things off like supplies. I'm more concentrated in what I do at home. I'm working more steadily on relevant work. (Leslie)

Despite the noted challenges, many participants vastly preferred the work-from-home arrangement due to greater schedule flexibility and time saved on commuting. Knowing that these remote workplaces are a viable option forecasts the potential for employers to move away from traditional workplace models and remain virtual well after COVID-19.

Long-term care and retirement homes. Observations regarding long-term care homes has been largely negative, with participants feeling frustration and anxiety regarding safety of their care-recipients in these environments. One participant described their experience attempting to visit their care-recipient who is living alone within a facility:

> Before, it was very much incorporating physical visits with my grandfather. And now we cannot see him at the [long-term care] homes, it's been in lockdown since March [2020]. One [caregiver] is assigned to come for visits, but even then, it has to be scheduled during their scheduled hours. It's 20-minute intervals and in a very public place. Maybe next summer, you can take them out, take your old person out for a short amount of time. But it's more like "where do you take them" and it's all about the bubbles, like "how big is my bubble?" (Leslie)

Carers felt disconnected from the care of their family members living in long-term care homes due to visitation limitations and increased barriers in communicating with facility staff involved in their care. In addition, where once these facilities were known as sites of care and respite for carers, they were now seen as sites of danger, due to COVID-19 and the high density of highly vulnerable seniors in a single location. The same participant describes this change in mentality:

> Had we known [about the state of care homes] maybe he wouldn't have been in there. It was the smart, safe place originally. And now, well, I can never see him. What if he's not being treated good, or is he happy or really lonely? ... The future generations will learn from this … maybe looking at having options for their elderly to just stay within their homes. (Leslie)

Due to the media reports about inadequate upkeep and high rate of outbreaks within care facilities, the negative perception of these homes extended to non-users of these facilities as well. Carers describe reluctance to make future use of long-term care facilities due to the poor response of these facilities to COVID-19. One participant maintained reservations regarding long-term care homes should their elderly care-recipients' condition deteriorate further, stating that:

> With the nature of COVID and the care homes, we really have to really reconsider, are we gonna put them in a care home or would they be better off coming and staying with us? ... [the care homes] would be a very last option if nobody else could take them. (Ron)

2.5.2 Theme 2: Caring from a distance

If carescapes are defined as the places and process of forming and maintaining social and familial relations, COVID-19 has redefined the dimensions of carer's carescapes (Bowlby 2012). The dangers of physical proximity mean that certain forms of care provision are largely conducted remotely, out of the carer's own home, and in other cases, caregiving occurs physically distanced in the care-recipient's residence.

Greater emphasis has been put on the emotional aspect of care provision, given that physical caregiving is more difficult and dangerous during COVID-19. As one carer put it, "now my caregiving is turned to like phone calls. And checking in verbally versus actually physically going to visit him" (Leslie).

Under the new paradigm of caregiving during COVID-19, almost paradoxically, the avoidance of senior family members is also a form of care provision, as distance is the best way of ensuring their continued protection. While carers recognize the benefits of this isolation, at the same time, some lament on the loss of time spent with their recipients: "It's just not as intimate as it was before. [My] kids like to sit on their lap. That used to be one of their favorite things. Now it's just pictures with the kids at a distance" (Ron).

2.5.3 Theme 3: Caregiving and work conflicts

Given the transformations in ways and places of both care provision and paid work, it is foreseeable that there are conflicts when, at times, both activities are occurring out of the same physical space. These conflicts are recognized to be bi-directional as explored within the sub-themes, although carers indicate that work conflicts more commonly affect care provision than the other way around.

Work affecting caregiving. Participants more frequently reported conflicts in which work responsibilities took precedence over care responsibilities, resulting in care work being negotiated around paid work. As one carer reflected, "I put work before I put a family caregiver first. And that's how it should not be, but my work doesn't suffer" (Leslie).

One participant described their average day, in which the care and time spent with their mother is slotted around breaks during their paid work day:

> I'm working from [my mother's] home, what I do is I come have breakfast- prepare breakfast for my mother and then I start to work. At lunch, we prepare lunch together, have lunch and then she's downstairs watching TV and I'm upstairs in the

> study room. I can come down and have some tea with her in the afternoon because I'm working from home, I can be here with her. (April)

This same participant noted that their care-recipient did not cohabitate with the participant and their partner, instead residing independently in their own dwelling to minimize interruptions when working from home: "Our house is too small and so we don't have a place where she can be. And when my husband works from home, he doesn't want her to be in the same house because she would keep on interrupting. She can't live with us" (April).

Caregiving affecting work. Caregiving impacts on work tended to be less common; however, such situations arose in cases of end-of-life care, or in caregiving situations with higher burden. In these situations, participants tended to show greater concern towards care provision than fulfilling work objectives.

One participant described their struggle in balancing work obligations with caregiving obligations, and their insistence on being able to work from home in order to provide care to their recipient: "My prior direct manager, the regional manager, had wanted me to come in several days a week … which was fine, but not in the last month of my mom's life. That would have not been great. It was just better for me to be home full-time" (Donna).

Participants communicated that in their roles, they were occasionally expected to physically return to their worksite, creating anxiety for participants who were physically providing care to recipients. Their anxiety centred around COVID-19 exposure risk for their recipients, even if participants were not cohabitating with their care-recipients and visited their recipients while physically distanced.

One carer in a manager position expressed the lengths that some employees, including themselves, would go to in order to maintain the protective effects of isolation for their care-recipients: "You just have to take all the precautions ... a lot of people, they will rather not go to work, if the work really means having to have contact with people all the time. Some people choose not to go to work, reduce hours, to self-isolate" (Anne).

Theme 4: Spatiotemporal flexibility

One of the distinguishing characteristics (and silver linings) of the COVID-19 pandemic is the increased flexibility regarding schedule control in the form re-contracting of time and space/place. The sub-themes of temporal flexibility and spatial (in)flexibility explore this dynamic.

Temporal flexibility. Participants described a departure from their regular non-pandemic schedule, where both paid work and care duties are now being performed in a more integrated fashion, largely due to the fact that working from home allowed participants greater schedule control during a large portion of their workdays. Even participants with flexible and supportive supervisors/managers stated that they enjoyed greater freedoms working from home, and were able to integrate minor non-work activities throughout their workday by extending their traditional working hours.

One participant attested to the usefulness of this flexibility, given that caregiving cannot always be scheduled outside of the traditional 9-to-5 workday, particularly in the case of high-intensity care or end-of-life care. Within their work position, the completion of the work deliverables was a higher priority than working within designated work hours. This, paired with the paid work from home dynamic, allowed for Donna to more effectively juggle end-of-life caregiving for their mother with their work obligations than if they had to commute to the workplace:

> There might be interruptions during the day ... I was normally working, working through the weekend a bit—even though I had my mom full-time by myself. [Caregiving] was more difficult the last month. I couldn't really get much done [during the workday] because she just needed more frequent care. I couldn't just do something for an hour and come back for her. … I was getting my work done by working but on the weekends ... I can be a little bit flexible and work until a little bit later. (Donna)

A similar sentiment was shared by another participant, Anne, who also highlighted the temporal flexibility in both working and caregiving for their mother from home:

> For me, I can honestly say that the COVID lockdown helped. Because with the company, allowing us to work from home, that really helps to be able to spread out one's workday, and also enable someone to be able to provide support, you know, whether physically or remotely in some way needed. (Anne)

Spatial (in)flexibility. Alongside increases in temporal flexibility in conducting care and paid work, there is the simultaneous flexibility and inflexibility in the spatial dimensions of one's everyday activities. First, as described previously, COVID-19 has collapsed one's environment into a select few places, with the home reigning as the most prominent site. For our participants, while caring was sometimes still undertaken at the same site pre-COVID, there were spatial limitations in place such as physical distancing and social bubbles. In our study, we observed both spatial inflexibility and flexibility in action at the home. While activities such as paid work may no longer be performed at their usual sites, and avenues of care may have changed, virtual landscapes and communications technologies have emerged as a solution to this spatial inflexibility, allowing work and caregiving to be reassigned for the most part, to the home.

Remote working is one key example of the structural shift that many organizations have adopted in the face of COVID-19, allowing for spatial flexibility in where activities are carried out. Participants spoke of benefits of this spatial flexibility, as it saved them travel and commute time during the day, which they could now use for other activities, or for leisure time. One participant described their situation prior to COVID-19:

> I was exhausted, I was burnt out. I carpooled with my husband, so I was at the office from 7am to 5pm. Most days, I was just exhausted working 10-hour days for 8 hours' worth of pay. Our commute was an hour each way. Working from home totally changed that, I feel much better. The hours that I sat [in traffic], I removed

> my commute. I didn't realize how unhappy I was pre-COVID. Now it's very obvious. (Leslie)

Caregiving during the day was also described as being easier at home, as not only could it be done alongside work duties, but also the emotional burden of caregiving was easier when performed at home:

> [Caregiving] is challenging, but it's not difficult. I think it's more of the emotional aspect of it. ... If I had to be physically in the office, and have to stay in the office for 8 hours, it would have been so difficult having to always excuse, or take time off, because I needed to perform certain functions [for caregiving], or if you're feeling emotional on a particular day. By me being able to work from home within this period has been really helpful. Because I don't necessarily have to tell anybody. As long as I get my work done, and I'm able to fulfill my deliverables, how I get it done, that's not necessarily matter. I don't necessarily have to provide an explanation as long as we work. (Anne)

2.6 Discussion

2.6.1 What we found

Our study set out to explore how the COVID-19 pandemic has impacted carer-employees in their paid work and caregiving roles, leading to the emergence of new meanings of the home-place. Employing thematic analysis of semi-structured interviews, we analyzed the experiences of five carer-employee as both carers and employees during the pandemic, investigating changes in their roles and daily activities, and changes in the sites where these activities are carried out. We observed that the first theme, and the related sub-themes pertaining to new meanings attached to places, dominated the conversation.

The home is a fluid cultural territory that is bound to complex networks of politics, economy, familial relationships, gender, and work (Blunt 2005). Our findings endorse this view by highlighting shifts in the process of placemaking as a result of a global pandemic. The COVID-19 pandemic has removed the physical separation of the home and the workplace, with activities no longer being spatially fixed. Aspects of carescapes and workscapes have been integrated into a single landscape, with activities of unpaid and paid work occurring side by side in the same physical sphere. It cannot be overlooked that the home has been radically transformed, transitioning from a private and domestic place into a pivotal place that is not only the backdrop for professional work, but simultaneously a place for domestic and caring work, and consequently, a key agent in these processes. Many participants perceive the home as an active operator in day-to-day activities, influencing the type of activities being carried out. This is seen in participants' conception of the home during COVID-19—as a safe haven, distanced from the transmission risk associated with public spaces. As such, participants were active in maintaining the protective status of the home, placing limitations on who and how many people have access to the home, as well as what activities are appropriately done there.

This can be further demonstrated in participants' work-life balance, as the home affords working carers a sense of privacy; they can work comfortably in their own homes, while being able to engage in caregiving away from the prying eyes of coworkers or supervisors. This is advantageous in several ways: 1) the home is often the preferred location of care (Woodman et al. 2016); 2) time and resources are saved due to omitting commutes; and 3) carers can blend their caring and employee roles in order to minimize work-life conflict. Historic models of work organization assume a division of labour where the male breadwinner is not burdened with domestic and familial/caregiving responsibilities (Glass and Estes 1997). In reality, this is not congruent with contemporary family and work dynamics. The flexible work options available during the COVID-19 pandemic transform the home, for better or for worse, into a blended space of domestic, professional, and caring activities.

It is important to delineate here that parallel to gains in temporal flexibility, we observed a trade-off with greater constraints in one's spatial locations of care/work. While spatial flexibility is certainly recognized in the form of remote working arrangements, almost all other activities are spatially bounded at this time. This relationship, where greater re-contracting of time exists in conjunction to the observed diminution of one's physical world, represents carer-employee's negotiations of space-time tensions around responsibilities of home, care, and paid work. In this way, the home during the COVID-19 pandemic provides greater agency to carer-employees by allowing greater control of their daily schedule in the form of spatiotemporal flexibility.

For carer-employees, this trade-off is favourable, as all participants requested the ability to continue working from home after the COVID-19 pandemic passes. This is despite some of the identified challenges associated with working from home, such as greater distractibility and loss of a coworker community. As such, associations of the home are deepened by the dynamic linkages between the home, care, and paid work domains occurring out of the same physical space.

One finding that emerged organically without specific prompting was carer-employees' image of long-term care homes. While previously considered places of respite for carer-employees, long-term care and retirement homes were perceived by participants as hostile and dangerous. During Canada's first wave of COVID-19 infections from April to June 2020, 80% of COVID-related deaths occurred in Canada's 2,039 long-term care homes (Webster 2021). In comparison, other OECD countries averaged approximately 38% of deaths from long-term care over a similar time period (CIHI 2020). While we are unable to comment on the generalizability of this finding, the media exposure on the poor state of long-term care homes and similar conglomerate residential settings signals that the future of caregiving is likely to remain the responsibility of family. It may even be feasible that, in a post-COVID world, carescapes and workscapes remain integrated, as for-profit long-term care falls out of favour and as some employers move towards virtual offices or hybrid models of work.

2.6.2 What this paper adds

To the best of our knowledge, this paper is one of the first of its kind, examining the transformation of meanings of home for carer-employees during the COVID-19 pandemic. While there is a paucity of information on this specific intersection of caring, place, paid employment, and

COVID-19, we have drawn upon and have contributed knowledge to larger bodies of research in related fields.

The notion of the dissolution of the home-work binary explored within our paper is not unique; feminist geographers have long demanded the reconceptualization of the home away from being purely a domestic sphere, given the hidden and unpaid process of reproductive labour carried out by women in the home (Domosh 1988; Dyck 2005). Caregiving, as a form of reproductive labour, naturally aligns with lines of inquiry for feminist scholars and is relevant in the context of our study, as the home is perceived not only as a feminine sphere, but a preferred site of care provision (Woodman et al. 2016; England 2010). It is telling that the majority of our sample identified as women, given that the recruited workplace in the oil and gas industry is male-dominated. In our study, we take this assimilation of work and home further by blurring spatial divisions of home, paid work, *and* care, which produces additional work-life conflicts ,but also presents benefits such as greater schedule flexibility. However, it should be noted that within the context of the pandemic, many of our participants lacked agency to choose these caregiving and work arrangements themselves. Instead, this blurring of spatial and temporal boundaries arose out of necessity and may not represent the ideal or requested model of care and work. Nonetheless, participant experiences reconceptualize the home, and may help push away the stigmatization of the home as solely a feminine sphere through opening the dialogue to alternative models of care and work, in which structural and social barriers to performing care work are mitigated, allowing men to become more involved in care provision.

Care provision depicted through our participant's experiences align with current and developing research on caregiving during the COVID-19 pandemic. Emerging research from the United Kingdom suggests that 11% of carers reduced work commitments and 9% left the workforce altogether during the pandemic in order to manage caregiving alongside work (Carers UK 2020). This was largely due to the reduction in external services and supports during this pandemic that have placed a larger burden of care on the carer-employee; this is parallel to our first theme regarding home as an isolating place. A similar pandemic-specific study examined carer-employee experiences with work and care in Ireland, detailing comparable findings such as increased workloads and/or careloads and loss of external care supports, alongside some silver linings, such as enhanced integration of care provision during their day (Lafferty et al. 2021). One hopeful prospect of the pandemic is that it has thrust discussions of caregiving, home, and placemaking into the mainstream. We would go so far as to argue that it is only because of a global event such as COVID-19, that discourses on such matters have been confirmed by the collective experience during stay-at-home mandates and constant media exposure.

For employers, this paper is important as it illustrates a prospective future for their labour force given the high transferability of these findings to other workplaces. The practicality of digital workplaces has been growing, even prior to COVID-19—a trend attributable to the rise of global economies, freelance/consulting work, and digital technologies (Felstead 2008; Austin-Egole et al. 2020). And while our participants experienced challenges associated with working and caregiving from home, the flexibility afforded to working carers by the pandemic granted them high levels of personal agency, schedule control, and comforting seclusion. It is known that workplaces that employ flexible work arrangements, such as flextime or remote working, enjoy positive organizational outcomes such as greater employee performance, retention, and job

satisfaction (McNall et al. 2009; De Menezes and Kelliher 2017; Austin-Egole et al. 2020). Our paper aligns with existing research that calls for an imminent reconceptualization of home as a hybridized sphere of professional and personal activities, as flexible work arrangements become more popular in a post-COVID world (Ciolfi et al. 2020). As employers start to consider what workplaces should look like post-pandemic, there is an urgent need to consider the perspectives and experiences of workers with family care responsibilities.

2.7 Limitations

We recognize that our study has several limitations, with the most prominent being our small sample size. As our interviews were conducted during the transition from in-office working to working from home, as well as during the second wave of COVID-19 infections, we encountered difficulty attracting participants given larger events taking place with respect to work and/or care obligations. This small sample size also has ramifications for representation, both in sex and gender, as well as across the various types or levels of work. Because of this, generalizations are limited and likely not representative of the entire carer-employee population. Despite this, we believe our findings are still relevant as lack of a large sample does not erase the lived experiences of our participants, and their stories may still offer insight for key stakeholders.

2.8 Conclusion

COVID-19 has pushed the concept of spatiotemporal limits of places and spaces out of academia and into mainstream media discourse. Within the context of (reducing) viral transmission, place matters—not only in terms of the physical landscape, but also in terms of the associated sociocultural landscapes attached to places. The home has traditionally been viewed as the nexus of one's domestic world. However, this meaning has been reconstructed in the advent of COVID-19, given the rising rates of working from home and the sustained presence of stay-at-home orders. The COVID-19 pandemic calls attention to the ways that carer-employees go above and beyond their normal duties by adapting their home and daily routines to accommodate their multiple roles. In doing so, the home internally transforms and contains diverse networks of work, care, and social relations.

Our paper adds to existing bodies of labour and feminist research that examine the dissolution of the home-work binary in the 21st century. Notably, we investigate how the intensification of paid work and caregiving activities within the home, due to COVID-19, has accelerated the integration of the home and paid work domains. This arrangement produces both opportunities and drawbacks for carer-employees. On the one hand, they have increased temporal flexibility, schedule control, and comfort; on the other, there is loss of social connections, external carer resources, and greater paid work disruptions. Despite this, many carer-employees indicated that they would prefer a continuation of remote working or a hybridized work schedule containing remote working and on-site work. Alongside these themes, carer-employees also described also poor experiences and perspectives on long-term care home, which forecasts an uncertain future for the future utilization of these homes by carers. We anticipate that the challenges faced by carer-

employees during the pandemic are likely to continue in the future, as carescapes and workscapes retain some form of integration.

These findings provide valuable lessons for employers, policymakers, and carers as we contemplate how workplaces and care provision may look like in a post-COVID-19 world. We caution all key stakeholders to remember the contributions and experiences of employed carers during the COVID-19 pandemic, in the drafting of future polices, services, and resources.

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Appendix 2.A

Interview Guide

Questions and suggested probes for semi-structured interviews with carer-employees.

1. Why did you decide to join this research?

2. Has your caregiving behaviour changed since COVID-19?
    a. PROBE: changes in time spent caregiving, changes in activities, places of caregiving
    b. What challenges have you encountered while caregiving during COVID-19?
        i. PROBE: Do you anticipate returning to your "normal" routine?

3. How has your paid work responsibilities been affected by COVID-19?
    a. Have demands on your time changed?
    b. How about your workload?
    c. Has there been any changes in work flexibility? Ex. place of work
    d. Were you satisfied with your work situation before COVID-19?
        i. PROBE: flexibility, workload, demands on time
    e. Are you satisfied with your current work arrangements and supports during COVID-19?
    f. Would you like to see these arrangements continue to be offered after COVID-19?
    g. Would you consider using these arrangements again in the future?

4. Have you noticed changes in workplace culture since COVID-19?
    a. In terms of co-workers?
    b. Supervisors?
        i. PROBE: communication, supports, use of benefits, flexible work arrangements

5. Are you currently finding it difficult to balance paid work, caregiving, and personal time?
    a. PROBE: current and future difficulties

6. What would you like to see being implemented in your current workplace to help you as a carer-employee?
    a. What have you found to be most useful in helping you manage or cope as a carer?
    b. What have you found to be most useful in helping you manage as an employee?

7. Is there anything we forgot or should know?

Chapter 3: A Workplace Environmental Scan of Employed Carers during COVID-19

3.1 Abstract

The carer-employee experience has undergone multiple shifts during the COVID-19 pandemic. This study seeks to understand how changes in the workplace as a result of the pandemic have impacted employed carers with their ability to perform both care obligations and paid work responsibilities. Using an online workplace-wide survey at a large Canadian firm, we conducted an environmental scan of: the current state of workplace supports and accommodations, supervisor attitudes, and carer-employee burden and health. Our findings demonstrate that while employees are generally in good health, care burden and time spent caregiving has been higher during COVID-19. Notably, employee presenteeism is higher during the pandemic than it was previously, with carer-employees experiencing significantly reduced levels of co-worker support. The most common workplace adaptation to COVID-19, work-from-home, was preferred by all employees as it allowed greater schedule control. However, this comes at the cost of reduced communications and sense of workplace culture, especially for carer-employees. We identified several actionable changes within the workplace, including: greater visibility of existing carer resources, and standardized training of managers on carer issues.

Key Words Caregiving; workplace; COVID-19; work-life conflict

3.2 Introduction

The World Health Organization (WHO) formally declared COVID-19 a pandemic in March 2020. However, well before its official classification, the virus had already disrupted the lives and routines of millions around the world, and continues to influence many radical shifts across all corners of life. Undeniably, the COVID-19 pandemic rapidly became the instigating element of many small and large scale transformations, from our activities of daily living to the global socio-political stage. One of the most prevalent reimagining taking place in our daily lives is the way that employees experience and carry out paid work, causing additional strain on workers who are involved in the often intensified care provision of family and friends.

A changing demographic landscape was already underway prior to the arrival of COVID, with changing labour force needs. Canada is currently classified as an aging nation, with approximately 18.4% of the population over the age of 65, with projections of continued progressive aging in the near future (Statistics Canada, 2021). This pattern of age distribution has wide-scale ramifications for employers in multiple ways. First, the available labour supply shrinks as older workers retire and there are fewer available younger workers to replace them due to declining fertility rates. Secondly, as workers themselves age and progress in their careers, they are more likely to be involved in the care provision of their aging relatives. As of 2018, there are 7.8 million carers in Canada (approximately 1 in 4 Canadians), with 6.1 million of these carers also engaged in the labour force (Statistics Canada, 2018; Employer Panel for Caregivers, 2015). While historically, the carer role fell onto women, the increasing labour force participation of women and rise in dual-income households point to a more balanced distribution of care responsibility, with 54% of carers

identifying as women and 46% as men (Sinha, 2013). The responsibility of being a carer to family and friends often conflicts with paid employment responsibilities, leading to tensions in both roles.

Carer-employee burden is defined as the strain and role conflicts associated with the simultaneous management of both paid work obligations and unpaid care provision to family and/or friends (Ding et al., 2020). This burden may be both dynamic and bi-directional, with paid work impacting on caregiving and vice versa. From previous research, it was observed that when carer and worker roles conflict, paid work responsibilities often take priority over caregiving, regardless of carer-employees' own preferences (Ding et al., 2022). This type of conflict, known generally as work-family conflict, is associated with decreased job satisfaction and increased job turnover, role stress, and burnout (Boles et al, 2001; Marks, 1998). Conflicts which result in caregiving taking precedence over paid work, known as family-work conflicts, are understudied in comparison to work-family conflicts, although there is some evidence that adverse consequences may manifest in both the work and home domains (Boles et al, 2001).

When unaddressed, carer-employee burden is costly to employers. In Canada, it is estimated that $1.3 billion worth of productive work is lost annually due to caregiving impacts on paid work, leading to absenteeism and turnover (Employer Panel for Caregivers, 2015). Approximately 40% of carer-employees reported disruptions to their work schedules (ie., arriving late, taking time off, etc.) due to caregiving responsibilities, with 15% reducing weekly hours of work to accommodate caregiving (Sinha, 2013). From the US, a national survey (N=4335) found that being a carer to an adult with health issues increased risk of wage loss by 29%, with each additional hour spent per week on care provision increasing this risk by 3% (Earle & Hayman, 2012). Dumont et al (2015) found that over a 101-day observational window, carers to palliative care recipients missed on average 32.35 and 41.42 hours of work due to caring responsibilities in urban and rural areas respectively. Other non-easily monetized consequences of carer-employee burden include: increased stress, anxiety, depression, job turnover, and decreased: social connections, life satisfaction, and career progression (Schultz & Sherwood, 2008).

This dynamic has worsened during the COVID-19 pandemic; not only has there been large-scale deviations to our everyday mobility and locations of work and care, but older adults and those with prior health issues are most vulnerable to severe inflection by the virus, leading to heightened anxieties for carers. Previously, carers of older adults, on average, spent 17 hours per week on caregiving (CIHI, n.d). However, the pandemic has intensified care demands due to loss of social supports, respite services, and healthcare access. A national survey from the UK found that 81% of carers were providing more care during the pandemic than prior to, with 58% of carers reporting the associated stress of caregiving during the pandemic as having negative impacts on their own health and wellbeing (Carers UK, 2020). A Canadian longitudinal survey found that participants reported significantly higher depressive symptoms as the pandemic continued; this was particularly true for female carers, who reported higher depression and anxiety symptoms than their male carer counterparts (Wister et al., 2022). In addition to changing care landscapes, the work experience was also radicalized, with furloughs, lay-offs, physical distancing, uptake of personal protective equipment (PPE), and pivot to remote working widespread. These changes are accompanied by worsening employee mental health, and increased financial difficulties, and job anxiety (Hamouche, 2020). Although research on carer-employee experience during COVID is

sparse, it is conceivable that carer-burden has significantly increased during COVID as a result of shifts in the work-care dynamic.

Workplaces can play pivotal roles in mitigating carer-employee burden. As of 2017, the Canadian Standards Association (CSA) published a workplace standard on how employers can and should support their employees who are caregiving, signaling that there is an increasing spotlight on workplaces and their role in supporting carers (CSA, 2017). Supportive workplace culture is a well-known buffer to adverse consequences of work-family conflict, with some scholars suggesting that informal systems of support play a more crucial role than formal supports at influencing job satisfaction, stress, caregiver stress, turnover and absenteeism (Behson, 2005, Miller et al., 2001). Work-family conflict was found to be reduced by employee access to schedule flexibility, family-friendly supervisors, and supportive coworkers (Hammer et al., 2011). Conceptual models theorize that supportive workplaces form an organizational impetus for supervisors and coworkers to decrease work interference on family, leading to reduced job turnover and higher commitment (Kossek et al., 2010; Ahmad & Omar, 2010; Fiksenbaum, 2014). The presence of a family supportive supervisor at work reduces the risk of carer-employee wage loss by 37%, with access to paid leave providing a 30% reduction in risk (Earle & Heymann, 2012). Given this, it is within the best interests of workplaces to consider implementing carer-friendly practices, as workplace needs of economically active Canadians will continue to shift in the coming years.

The current literature on caregiving and paid employment however, is lacking in how the work landscape has changed with COVID, and how carer-employees are adapting their work and care responsibilities. This knowledge is necessary as an appropriate workplace baseline must be established so that 1) future interventions have a local context in which they operate within and; 2) interventions can be tailored to the needs and gaps of a specific workplace. For these reasons, an environmental scan is necessary within each workplace prior to intervention design and implementation.

3.3 Objectives

We conducted an environmental scan of the employee workplace experience during COVID-19, with particular emphasis on carer-employees and their experience balancing informal caregiving with paid work obligations. Recognizing the long-term effects of COVID on the workplace and on workplace culture, this scan will later serve as the contextual baseline for a workplace intervention aimed at increasing carer-employee supports, which was implemented a few months following this scan.

We set out to answer the following questions:

OBJECTIVE 1: In what ways has the paid work experience changed with COVID-19?
OBJECTIVE 2: Do the work and health outcomes of carer-employees differ significantly from non-carer/regular employees?
OBJECTIVE 3: How can workplaces adapt to support their employees, caregiving or otherwise?

3.4 Methods

This study follows an explanatory sequential structure, where quantitative data was analyzed first, followed by qualitative data used to generate in-depth meaning and understanding. During the spring of 2020, a call for workplaces was distributed electronically and word-of-mouth through: partnered universities and research networks, conferences, national and provincial carer networks and non-profits. Eligibility criteria was solely that the workplace was interested in promoting a carer-friendly workplace, with no restrictions on workplace size or industry. One suitable workplace was identified and recruited after referral by Carers Canada. After informal discussions with our participating workplace, the workplace was formally recruited in June of 2020 after obtaining a signed letter of consent from senior executives.

Starting from June 2020, data were collected concurrently from three main sources: 1) a workplace-wide sociodemographic survey; 2) qualitative interviews with carer-employees and key informants (e.g., managers), and; 3) internal policies and procedures documents obtained from the organization's Human Resources (HR) department. The survey was open to participants for four weeks; during this time, interviews were being conducted with key informants.

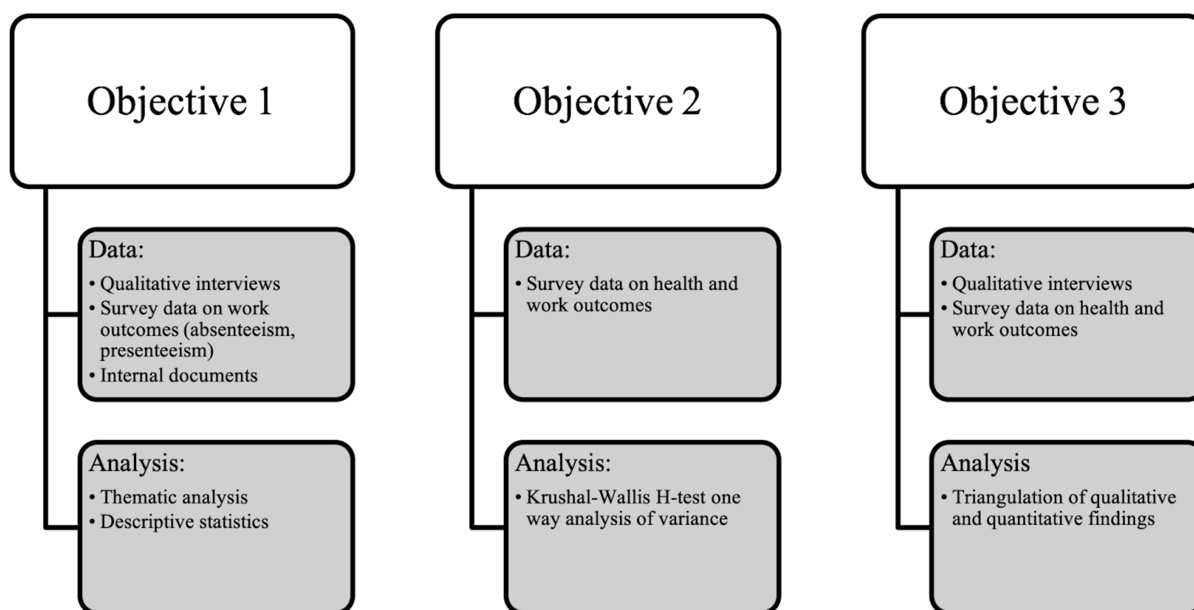

Fig 3.1. Methodological breakdown of the data and analysis involved with each of the three outlined objectives

3..4.1 Survey

With assistance from the company's HR department, the workplace wide survey was first circulated electronically at the end of June 2020, followed by three reminder emails. The survey

was open to all employees in the workplace, with the incentive of winning a $100 Amazon gift card. Exclusion criteria consisted of employees who were contractors or consultants from other workplaces. The online sociodemographic survey contained questions related to employee age, gender, ethnicity, income, family status and carer status. As well, scales pertaining to COVID-19 effects on their work and family life, the status of workplace accommodations due to COVID-19, and general employee health and workplace culture were included.

Health scales included were the SF-12 and CES-D-10, which are global measures of self-reported health and depression. The SF-12 contains two sub-components: the Physical Component Score (PCS) and Mental Component Score (MCS), which rates physical and mental health respectively (Maruish, 2012). The CES-D-10 is a short-form version of the validated Center of Epidemiological Studies scale, which assesses participant mood and depression risk in a population (Eaton et al., 2004). General self-efficacy (GSE-10) captured participants' sense of self-belief surrounding coping ability (Chen et al, 2001). The Zarit burden scale was only presented to participants that indicated that they were carers, and assessed the extent of carer burden (Bédard et al., 2001). Work scales included were: job satisfaction (Rentsch & Steel, 1992), coworker support (O'Driscoll et al., 2004), work-family conflict and family work conflict (Netemeyer et al., 1996), schedule control (Thomas & Ganster, 1995), and family supportive supervisor behavior (Hammer et al., 2013). The World Health Organization's Health and Work Performance Questionnaire (HPQ) scale was used to capture presenteeism and absenteeism, referring to loss of productivity while at work and unplanned missed work respectively (Kessler et al, 2003). Table 3.1 depicts information pertaining to each scale and scoring methods. All scales were selected for their reliability and validity.

Table 3.1. Score range, scale direction, and interpretation of all survey-collected outcome variables

Scale Title	*Number of items*	*Likert Scale*	*Score range*	*Scale Direction*
Self Reported Health (SF-12)	12	1 to 5	0-100	Higher score indicates better health; linearly transformed T scores based on 2009 US general population with a mean of 50 and standard deviation of 10
Center of Epidemiological Studies Depression CESD-10	10	0 to 3	0-30	Higher score indicates greater risk of clinical depression, scores of 11 or greater indicates high risk
General Self Efficacy	10	1 to 4	10-40	Higher score indicates better self-confidence
	12	0 to 4	0-48	Higher score indicates greater caregiver burden, score of 10-20 is

Zarit Caregiver Burden				considered mild burden, with scores >20 considered high burden
Work Family Conflict	5	1 to 5	5-25	Higher score indicates more conflict
Family Work Conflict	5	1 to 5	5-25	Higher score indicates more conflict
Coworker Support	4	1 to 6	4-24	Higher score indicates more sense of global (for both work and non-work reasons) support from colleagues
Absenteeism (HPQ)	1	1 to 10	NA	Higher score indicates more missed work, where 0 represents no lost work and negative scores represent overtime work
Presenteeism (HPQ)	1	1 to 10	0-100	Higher score indicates better productivity
Job Satisfaction	5	1 to 7	5-35	Higher score indicates increased satisfaction with paid work
Schedule Control	8	1 to 5	8-40	Higher score indicates greater freedom pertaining to work schedule
Family Supportive Supervisor Behaviour	4	1 to 5	4-20	Higher score indicates greater supervisor support of family conflicts

Other non-scalar survey questions included turnover intention, which was probed by asking if participants had considered leaving their job within the past 12 months, with the option of a "yes" or "no" response. COVID specific questions were selected after a thorough review and discussion with our research team. Given that one of our objectives of the environmental scan was to be able to understand how workplaces have changed with COVID-19 prior to implementation of a multi-level intervention, our selected questions were chosen to best reflect potential actionable changes for our future intervention. In our survey, we probe existing COVID accommodations, satisfaction with accommodations, care hours before and during COVID, and care work conflicts.

3.4.2 Interviews

Interviews with key informant stakeholders and carer-employees were conducted in order to gain a rich and nuanced understanding of workplace dynamic, culture, accommodations, and changes with COVID, as a supplement to quantitative data. Survey participants were also prompted about the Canadian Standards Association's Carer Standard and its suitability to their work environment.

All interviews were completed over the phone, with verbal consent obtained from each participant. Interview prompts were semi-structured and, for the most part, the same between both stakeholders and carer-employees. Table 3.2 depicts the characteristics of each interview participant. See Appendix 3.A and Appendix 3.B for the list of interview prompts.

Table 3.2. Interview Participant demographic information (N=9)

Participant	Age	Sex	Job position	Inclusion Criteria (Carer or Managers/HR)
Jaime	35–44 years	Female	Administrative	Carer
Christine	45–54 years	Female	Administrative staff	Carer
Kelly	55–65 years	Female	Technical staff	Carer
Kevin	35–44 years	Male	Technical staff	Carer
Anna	45–54 years	Female	Team lead	Carer
Kane	55–65 years	Male	Senior manager	Manager/HR
Dorothy	45–54 years	Female	HR personnel	Manager/HR
Cherie	45–54 years	Female	Manager	Manager/HR
Maria	45–54 years	Female	Manager	Manager/HR

3.4.3 Internal Documents

Several internal documents were provided to our research team from the organization's HR, including information on organizational size, average wages, gender ratio, ethnicity and age distribution, as well as documents on benefits and accommodations, employment assistance program (EAP), and official policies on diversity, equal opportunity, and human rights. In addition to these, we also reviewed publicly available documents on the organization's website, such as their health, safety, security and environmental performance documents. Research notes were also taken during meetings with HR to capture other contextual information that emerged in discussion.

3.4.4 Recruitment and demographics

The link to the online survey and call for interview participants were distributed via e-mails from HR. In total, we interviewed 4 key informants and 5 carer-employees, recruited through the call

for participants attached to the emails. From the surveys, we received 80 responses - 43 full and 37 partial responses. See Table 2.3 for demographic characteristics of survey respondents.

3.4.5 Analysis

Thematic Analysis

With participant permission, interviews were audio recorded and transcribed verbatim after the surveys and analyzed thematically using NVivo 12. The full description of the process of thematic analysis is described in a prior publication (Ding et al., 2022). Pseudonyms are used herein to protect the anonymity of participants. Findings were triangulated using a modified version of Farmer et al.'s triangulation protocol (2006), where findings were classified into convergence, silence, and dissonance. Convergence refers to when both quantitative and qualitative data are in agreement on a specific theme or finding, whereas dissonance describes when quantitative and qualitative data differ. Silence refers to when a specific theme/finding is only present in either the quantitative or qualitative data.

Survey Data

All quantitative data analysis was conducted on R. 4.0.3. Likert outcome variables for each participant were converted to numerical scores and summed according to scoring guidelines.
Descriptive or summary statistics were also generated for categorical data and visualized. For presenteeism, as the HPQ includes a prompt for retrospectively assessing presenteeism 12 months ago, a paired t-test was conducted to assess for significant differences in presenteeism at the time of the survey, and presenteeism 12 months ago. Two correlation matrices, a general matrix and one for carers, were developed using the Kendall method on pairwise data to assess collinearity using data collected from the surveys. The matrices also give insight to underlying relationships between outcome variables, helping explore objective 2 and suggest potential areas of improvement for objective 3. Data were tested for normality, linearity, homogeneity of variances, and outliers. Non-normal data were subjected to Levene's test to assess heterkoskedacity. A Kruskal Wallis-H test was conducted to test differences in measured outcome variables between carers and non-carers, given the nonparametric nature of the data. While only 43 full survey responses were obtained, where possible, partial surveys were included for analysis if outcome variable scales were answered in full.

3.4.6 Triangulation

Key findings related to our research questions were identified separately in quantitative and qualitative data. These findings were then compared and contrasted with each other. Specifically, we examined areas of convergence, silence, and dissonance across the two datasets, consistent with a mixed methods analytic approach (O'Cathain et al., 2010). These findings were cataloged in a table format and presented in Appendix 3.C.

3.4.7 Ethics & Rigour

The study was approved by university ethics (MREB 2434) during the spring of 2020, after the onset of the COVID-19 pandemic. During the recruitment process with our workplace, several virtual meetings were held with senior executives to fully convey the nature of the research and

expected collaboration. A letter of information/consent was provided and signed by the Vice-President of Human Resources (HR), allowing for the collection of data from the workplace.

Letters of information/consent were also provided to interview participants prior to the interview, and all participants verbally provided their informed consent. The online survey contained a consent page, outlining the purpose of the research and providing an opportunity to exit the survey at any time. Participants were also invited to review transcripts and modify their responses after transcription.

Rigour was employed throughout all steps of the project, from conception to data analysis and reporting of findings. The mixed methods design was specifically selected in order to develop greater and nuanced understanding of the problem and results, as well as compensating for limitations of each method (Brown et al., 2015). Quantitative instruments were selected for their demonstrated reliability and internal validity across a number of contexts, and qualitative interview questions were developed with input from our research team and stakeholders from our partnered organization. Interview questions were also rehearsed with research team members several times during the design process for clarity. Research field notes, thick description, audio recording (with participant permission), and transcription was captured during all interviews to ensure credibility and transferability. The integration/triangulation of quantitative and qualitative data was achieved by first separately and sequentially analyzing the quantitative and qualitative data; followed by cross referencing each of the qualitative themes with a quantitative result. Critical reflexivity was practiced by maintaining a journal of researcher reflections during the design, data collection and analysis stages.

3.5 Results

3.5.1 Workplace Context

The following section details the intricacies of the overall workplace, based on internal documents and meeting notes. The workplace investigated in this study is the Canadian division of a large international corporation in the engineering consultant field. The Canadian division is considered a large sized enterprise, employing approximately 4000 employees prior to COVID-19.

Overall, employees tend to be highly educated and technically skilled, with a mean hourly wage (benefits not included) of $43.01, with a standard deviation of $21.01. Benefits comprise of approximately 20% of base wage and include an EAP, health and dental care, and insurance. As a consulting labour force, the majority of the technical workforce charges clients per hour for their time and expertise, which is augmented with smaller overhead staff; this, therefore, leads to large variations in wages. Fieldwork or labwork tend to be more common responsibilities for junior or newer employees, with senior employees taking on more bureaucratic responsibilities. A diverse range of ethnic backgrounds are represented within the workplace. Notably, the majority of employees identify as male, with approximately one third of the workforce identifying as female. The mean age of the workforce is 45.3 years, with a standard deviation of 13.4 years.

The workplace has a number of initiatives engendering a healthy workforce, with many publicly viewable and easily accessible documents and statements regarding the organization's stance on workplace health, safety and security. In addition to insurance-provided dental and health benefits, the Employee Assistance Program (EAP) is fairly robust, with resources such as counseling, training, webinars, and phone lines across many topics including, but not limited to, depression, anxiety, family issues, and caregiving. Interestingly, this workplace also operates several internal support networks, including one for caregiving specifically. These initiatives are all introduced during employee orientation and onboarding for new employees; however, they are not regularly reinforced or publicized, outside of the occasional email newsletter. As an engineering firm, physical occupational health is heavily addressed during meetings and email alerts, while initiatives for mental health or work-life balance are not as frequently discussed.

3.5.2 Descriptive Statistics

While the survey sample consisted of 80 responses, only 43 were full responses, although another additional 6 responses were mostly (over 90% completion) full responses. These incomplete responses were used, where possible, for summary statistics on each specific question, but excluded during pairwise analysis. Of the 80 respondents, approximately 13 identified as carers and 14 identified as team leaders (in a position with authority over other employees). Carer and team leader designation were not mutually exclusive, with some team leaders also identifying as carers. The interview sample (N=9) were also potentially respondents to the survey, although we did not confirm their participation in the survey to maintain anonymity of responses. For the remainder of this paper, we shall focus on the experiences of carers compared to non-carers; however, we recognize that there are a wide variety of experiences within other groups, such as parents with young children or team leaders.

To begin, Table 3.3 outlines the basic sociodemographic profile of respondents. Overall, participants in both the surveys and interviews were located across Canada, most commonly in full-time employment and married; the age distribution of the participants was fairly even, with the 25-34 age group most represented. Participants were university educated, mid to senior level employees, and the majority had salaries over $50,000 annually.

Table 3.3. Descriptive Characteristics of Survey Respondents

	Non-Carer (N=36)	**Carer (N=13)**	**Overall (N=49)**
Gender			
Female	**12 (33.3%)**	**5 (38.5%)**	**17 (34.7%)**
Male	**19 (52.8%)**	**5 (38.5%)**	**24 (49.0%)**
Prefer not to say	**1 (2.8%)**	**0 (0%)**	**1 (2.0%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Age			

18-24 years	**3 (8.3%)**	**0 (0%)**	**3 (6.1%)**
25-34 years	**11 (30.6%)**	**1 (7.7%)**	**12 (24.5%)**
35-44 years	**9 (25.0%)**	**1 (7.7%)**	**10 (20.4%)**
45-54 years	**3 (8.3%)**	**4 (30.8%)**	**7 (14.3%)**
55-64 years	**6 (16.7%)**	**3 (23.1%)**	**9 (18.4%)**
65+ years	**0 (0%)**	**1 (7.7%)**	**1 (2.0%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Marital			
Common-law	**2 (5.6%)**	**0 (0%)**	**2 (4.1%)**
Married	**23 (63.9%)**	**9 (69.2%)**	**32 (65.3%)**
Single	**7 (19.4%)**	**0 (0%)**	**7 (14.3%)**
Other	**0 (0%)**	**1 (7.7%)**	**1 (2.0%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Race			
Latin American/Hispanic	**1 (2.8%)**	**1 (7.7%)**	**2 (4.1%)**
Prefer not to say	**3 (8.3%)**	**0 (0%)**	**3 (6.1%)**
South Asian	**2 (5.6%)**	**0 (0%)**	**2 (4.1%)**
Southeast Asian	**1 (2.8%)**	**0 (0%)**	**1 (2.0%)**
West Asian	**1 (2.8%)**	**0 (0%)**	**1 (2.0%)**
White	**23 (63.9%)**	**8 (61.5%)**	**31 (63.3%)**
Arab	**0 (0%)**	**1 (7.7%)**	**1 (2.0%)**
Missing	**5 (13.9%)**	**3 (23.1%)**	**8 (16.3%)**
Employment Contract Type			
Contract full-time	**1 (2.8%)**	**1 (7.7%)**	**2 (4.1%)**
Full-time	**27 (75.0%)**	**8 (61.5%)**	**35 (71.4%)**
Part-time	**3 (8.3%)**	**1 (7.7%)**	**4 (8.2%)**
Seasonal full-time	**1 (2.8%)**	**0 (0%)**	**1 (2.0%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Education			
High School Diploma/GED	**1 (2.8%)**	**1 (7.7%)**	**2 (4.1%)**
College/apprenticeship/ technical diploma or equivalent	**4 (11.1%)**	**2 (15.4%)**	**6 (12.2%)**
Master's or equivalent	**10 (27.8%)**	**1 (7.7%)**	**11 (22.4%)**
Doctoral or equivalent	**1 (2.8%)**	**0 (0%)**	**1 (2.0%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Income			
$30,000-$49,999	**1 (2.8%)**	**1 (7.7%)**	**2 (4.1%)**
$50,000-$69,999	**8 (22.2%)**	**3 (23.1%)**	**11 (22.4%)**

$70,000-$99,999	**9 (25.0%)**	**1 (7.7%)**	**10 (20.4%)**
Over $100,000	**11 (30.6%)**	**3 (23.1%)**	**14 (28.6%)**
Prefer not to answer	**3 (8.3%)**	**2 (15.4%)**	**5 (10.2%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Tenure			
Under 1 year	**7 (19.4%)**	**0 (0%)**	**7 (14.3%)**
1-4 years	**5 (13.9%)**	**1 (7.7%)**	**6 (12.2%)**
10-14 years	**6 (16.7%)**	**5 (38.5%)**	**11 (22.4%)**
14-19 years	**3 (8.3%)**	**2 (15.4%)**	**5 (10.2%)**
5-9 years	**9 (25.0%)**	**1 (7.7%)**	**10 (20.4%)**
Over 20 years	**2 (5.6%)**	**1 (7.7%)**	**3 (6.1%)**
Missing	**4 (11.1%)**	**3 (23.1%)**	**7 (14.3%)**
Supervisor			
No	**24 (66.7%)**	**12 (92.3%)**	**36 (73.5%)**
Yes	**12 (33.3%)**	**1 (7.7%)**	**13 (26.5%)**

3.5.3 Work Experience of Survey Respondents (N=49)

Table 3.4 highlights the mean scores, as well as the median, min, max, and missingness of the work and health related variables captured in the survey.

Table 3.4. Survey scores (mean, median, min and max) for carers and non-carer groups

	Non-Carer (N=36)	**Carer** (N=13)	**Overall** (N=49)
Self Reported Health (Physical Component)			
Mean (SD)	55.3 (4.58)	56.5 (4.63)	55.59 (4.56)
Median [Min, Max]	56.7 [43.3, 62.4]	56.5 [48.1, 64.47]	56.71 [43.30, 64.47]
Missing	1 (2.8%)	1 (7.7%)	2 (4.1%)
Self Reported Health (Mental Component)			
Mean (SD)	48.5 (10.0)	46.7 (11.6)	48.07 (10.37)
Median [Min, Max]	50.1 [22.1, 62.4]	48.4 [21.5,60.2]	50.08 [21.52, 62.38]
Missing	1 (2.8%)	1 (7.7%)	2 (4.1%)
General Self-Efficacy			

Mean (SD)	32.4 (3.76)	31.8 (3.84)	32.2 (3.75)
Median [Min, Max]	32.0 [24.0, 40.0]	31.0 [27.0, 38.0]	32.0 [24.0, 40.0]
Missing	2 (5.6%)	1 (7.7%)	3 (6.1%)
Zarit Burden			
Mean (SD)	NA (NA)	20.1 (10.5)	20.1 (10.5)
Median [Min, Max]	NA [NA, NA]	16.5 [6.00, 41.0]	16.5 [6.00, 41.0]
Missing	36 (100%)	1 (7.7%)	37 (75.5%)
Depression			
Mean (SD)	6.74 (5.82)	7.50 (7.59)	6.93 (6.24)
Median [Min, Max]	5.00 [0, 21.0]	5.00 [0, 24.0]	5.00 [0, 24.0]
Missing	2 (5.6%)	1 (7.7%)	3 (6.1%)
Turnover			
N/A	4 (11.1%)	2 (15.4%)	6 (12.2%)
No	19 (52.8%)	6 (46.2%)	25 (51.0%)
Yes	13 (36.1%)	5 (38.5%)	18 (36.7%)
Absolute Absenteeism			
Mean (SD)	8.70 (35.1)	21.8 (25.8)	12.1 (33.2)
Median [Min, Max]	0 [-42.0, 120]	20.0 [0, 84.0]	0 [-42.0, 120]
Missing	4 (11.1%)	2 (15.4%)	6 (12.2%)
Absolute Presenteeism			
Mean (SD)	78.2 (12.6)	84.5 (6.88)	79.8 (11.7)
Median [Min, Max]	80.0 [50.0, 100]	90.0 [70.0, 90.0]	80.0 [50.0, 100]
Missing	3 (8.3%)	2 (15.4%)	5 (10.2%)
Absolute Presenteeism (Previous Year)			
Mean (SD)	85.5 (7.11)	90 (6.32)	86.6 [7.13]
Median [Min, Max]	90 [70,100]	90 [80,100]	90 [70,100]
Missing	3 (8.3%)	2 (15.4%)	5 (10.2%)
Job Satisfaction			

Mean (SD)	26.0 (5.53)	27.2 (3.40)	26.3 (5.07)
Median [Min, Max]	27.0 [14.0, 34.0]	26.0 [22.0, 32.0]	27.0 [14.0, 34.0]
Missing	3 (8.3%)	2 (15.4%)	5 (10.2%)
Schedule Control			
Mean (SD)	30.1 (6.31)	30.5 (6.65)	30.2 (6.32)
Median [Min, Max]	31.0 [17.0, 40.0]	32.0 [21.0, 40.0]	31.0 [17.0, 40.0]
Missing	3 (8.3%)	2 (15.4%)	5 (10.2%)
Work-Family Conflict			
Mean (SD)	13.7 (5.03)	14.6 (6.33)	13.9 (5.30)
Median [Min, Max]	15.0 [5.00, 22.0]	13.5 [5.00, 25.0]	15.0 [5.00, 25.0]
Missing	4 (11.1%)	3 (23.1%)	7 (14.3%)
Family Work Conflict			
Mean (SD)	10.4 (4.23)	11.7 (4.60)	10.7 (4.30)
Median [Min, Max]	10.0 [5.00, 24.0]	11.5 [6.00, 22.0]	10.0 [5.00, 24.0]
Missing	4 (11.1%)	3 (23.1%)	7 (14.3%)
Family Supportive Supervisor Behavior			
Mean (SD)	14.1 (4.39)	14.4 (4.12)	14.2 (4.28)
Median [Min, Max]	14.0 [4.00, 20.0]	14.5 [7.00, 20.0]	14.0 [4.00, 20.0]
Missing	4 (11.1%)	3 (23.1%)	7 (14.3%)
Coworker support			
Mean (SD)	14.9 (4.55)	9.30 (3.09)	13.5 (4.85)
Median [Min, Max]	16.0 [5.00, 22.0]	9.50 [4.00, 15.0]	14.5 [4.00, 22.0]
Missing	4 (11.1%)	3 (23.1%)	7 (14.3%)

Presenteeism and absenteeism were evaluated using the HPQ scale using measures of absolute presenteeism (ratio of one's actual work performance with one's potential performance) and absolute absenteeism (number of work hours lost) over the past four week period. Absolute presenteeism and absolute absenteeism appear to be high across the entire sample (including both carers and non-carers). A mean absolute presenteeism score was calculated at 79.8, and a mean absenteeism score of 12.1 was obtained; this indicates that employees were, on average, performing at 79.8% of their full potential, and that approximately 12.1 work hours were lost per employee over the four week period. A paired sample t-test found that employees had significantly

higher presenteeism during the current year (M =79.8, SD =11.7) when compared to the previous year (M= 86.6, SD =7.13), indicating productivity losses during COVID, $t(43) = 4.97$, $p<0.001$.

Other work related outcomes, such as coworker support, schedule control, job satisfaction, work-family conflict, family-work conflict, and family supportive supervisor behavior can be viewed in Table 3.4.

The correlation matrices, Fig 3.2 and Fig 3.3, did find several significant associations between health and work variables, suggesting weak-moderate associations. Overall, associations were more prevalent and stronger among the carer cohort, although this may be a function of the smaller sample size. Across the entire sample, we observe several notable correlations of interest. The mental health component of the SF-12 was strongly and negatively associated with depression, work-family conflict, and family-work conflict, while being positively correlated with presenteeism scores, general self-efficacy, and schedule control. Presenteeism scores were strongly and negatively associated with depression risk. Work-family conflict, family-work conflict, and depression appear to be correlated with each other, while family supportive supervisor behaviour is negatively correlated with work-family and family-work conflict.

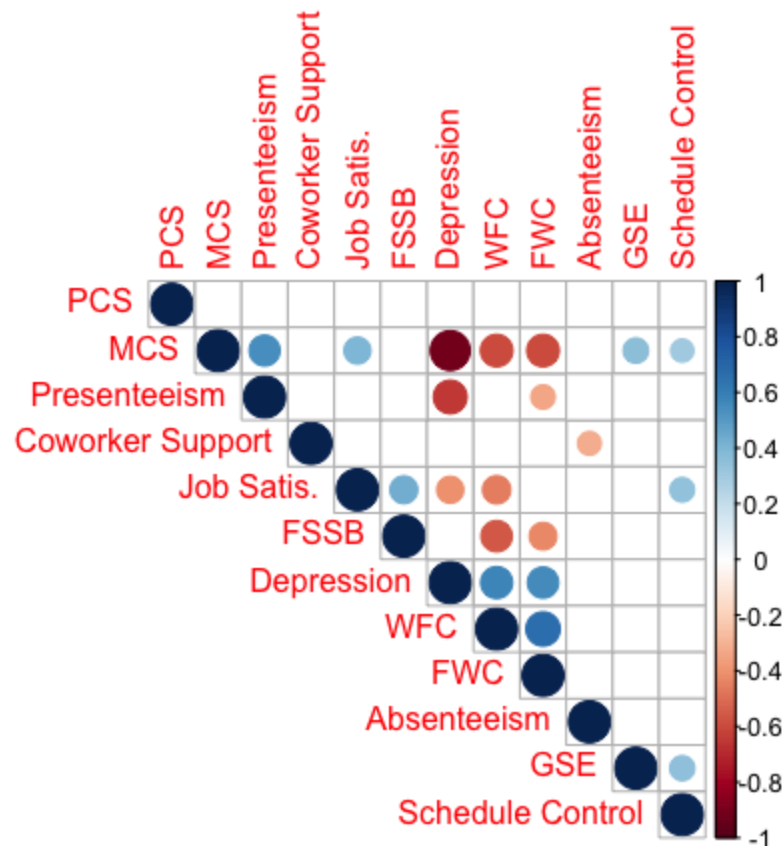

Fig 3.2. Correlation matrix plot across entire sample, where only significant (p<0.05) associations are reported. Blue represents positive correlations whereas red represents negative correlations. Intensity of the colours and size of circle plots indicate strength of association.

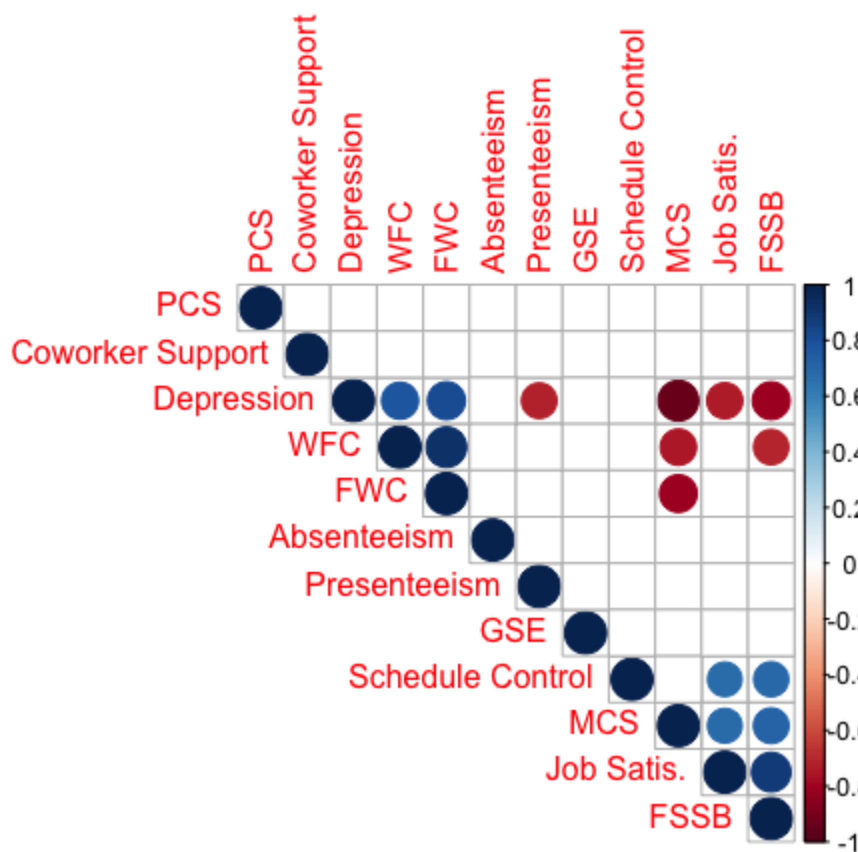

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Fig. 3.3 Correlation matrix plot for carer-employee responses, where only significant (p<0.05) associations are reported. Blue represents positive correlations whereas red represents negative correlations. Intensity of the colours and size of circle plots indicate strength of association.

Qualitative data was used to capture the nuances of workplace culture from both the perspectives of carers and stakeholders, in order to compliment descriptive findings pertaining to objective 1 and 2. It was observed that the current workplace culture was characterized as: high pressure, having a lack of work life balance and a large variation in managerial attitudes towards caregiving responsibilities.

Due to the nature of the workplace as a consulting firm, there is high pressure to meet client demands, producing high work burden and stress. One participant remarked "we're a consulting business. So there's this constant pressure that they're billable to clients all the time. That does cause people pressure and stress"- Dorothy

This pressure has compounded due to COVID-19, due to a large proportion of the workforce working from home and generating unique stresses there as well. Another participant described the pressure to simultaneously know how to use unfamiliar technology while maintaining their billability,

"They haven't provided formal training to use [virtual conferencing

> technology/telework]...I don't know how people are just supposed to morph and just know how to do this stuff….how much time should you spend playing around with the technology? If they also still want us to be as utilizable as possible, that's meaning, as much of our time as possible to be billed to clients, not just overhead training. So how much am I supposed to be doing that on my own time? Am I supposed to do that on work time?" -Kelly

This pressure also generates unhealthy work-life balance with pressure to prioritize work over personal life. One participant indicated that this pressure had increased since lockdown measures with COVID-19:

> You just have to suck it up. I'm only too happy to have a job. When the lockdown happened, there wasn't a lot of work to do. We had to send staff on layoffs, and some people just quit. And basically they were just [a few of us] in one department. And then the workload just became too much for us to handle. It's crazy. It's horrible. -Anna

Most notably, direct managerial attitudes were identified as being most conducive to establishing and maintaining work culture prior to and during COVID measures. One carer-employee participant described their experience with an unsupportive direct manager prior to COVID-19, "I didn't feel like there was a support system behind me, or I didn't know who I could reach out and talk to. I really felt I had no power. And that if I had said, I would like to take two weeks off because I'd like to spend that time with my [parent], I don't feel like the support would have been there. And I feel like my job would have been at risk. -Jaime".

However, positive attitudes towards family responsibilities not only improve employee satisfaction but also employee retention. Another participant describes the benefit of being given flexible work arrangements prior to COVID-19,

> "The flexibility was huge; that made my quality of life. If I hadn't had a workplace that would allow me to work from home, it would have been devastating. They got me for life by letting me do this. They got my loyalty, I'll be always grateful for that. Because it allowed me to be able to be there for my [parent]...And if they never gave me another cost of living increase ever again, I wouldn't really feel entitled to complain. Because how do you put a price tag on that? Like, how many tens of thousands of dollars is it worth teams to do that? Well? A lot, right." -Kelly

Overall, given the unique sector that this workplace is in, it is apparent that even prior to COVID-19, this particular labour force experienced high stress and high workload, with large variation in managerial attitudes towards family responsibilities such as caregiving.

3.5.4 COVID-19 Specific Workplace Changes

Since the Spring of 2020, a large component of the workforce has been able to transition to work-from-home. However, given the nature of the industry, there are many employees still required to work onsite or in the field. The workplace has also laid off several hundred employees due to COVID-19 and the related project cancellations.

The most common work accommodations used were work from home arrangements and sanitization of work spaces. Approximately 35% of respondents (N=22) indicated that they were completely satisfied with the company's response to COVID, and another 44% (N=29) indicated that they were mostly satisfied. When prompted about post-COVID accommodations, the majority indicated that they preferred to keep flexible work arrangements, such as work from home, as permanent.

When probed about whether flexible work options would be continued to be offered post-COVID, one manager stated:

> "100%, yes. I would say reluctancy was much more on the employee side to work from home [prior to COVID]. But I think the pendulum has definitely swung to where the employees want to work from home more. And it's now up to [management], where we are going to take advantage of the fact that we can implement a much more robust work-sharing, work from home, partial office partial working from home situation for many more people that I think will embrace and take advantage of the opportunity" -Kane

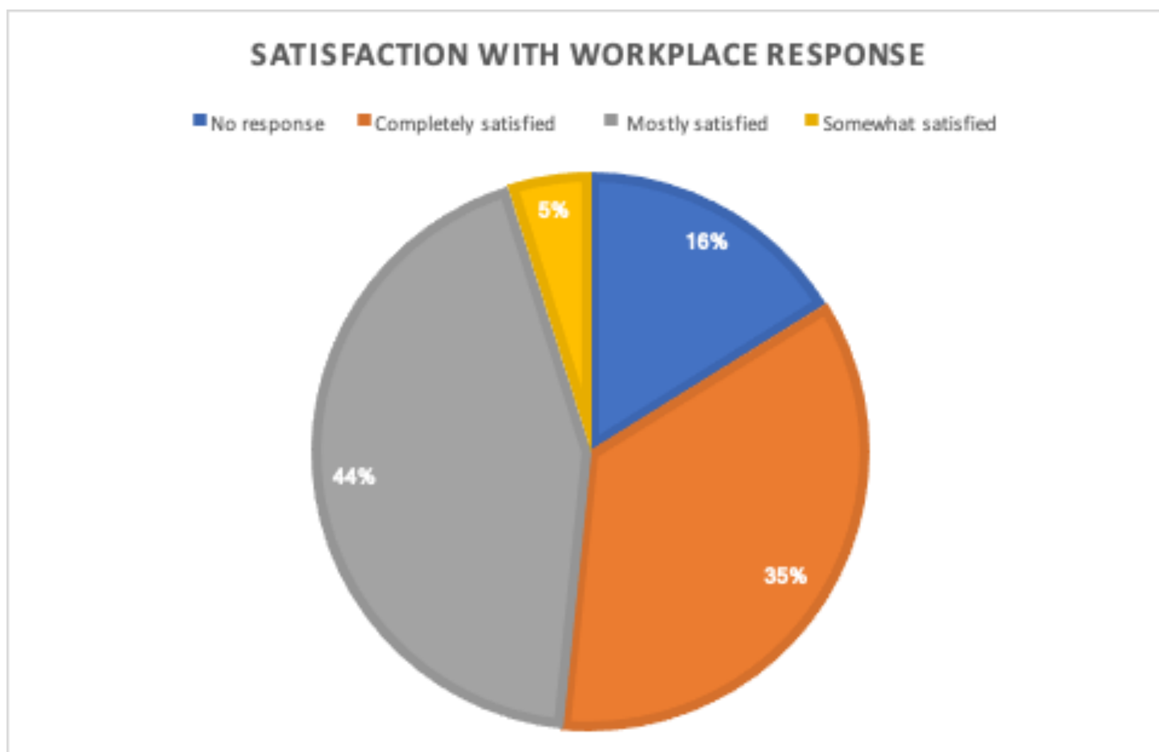

Fig 3.4. Employee satisfaction with their employer's response to COVID-19 (N=66)

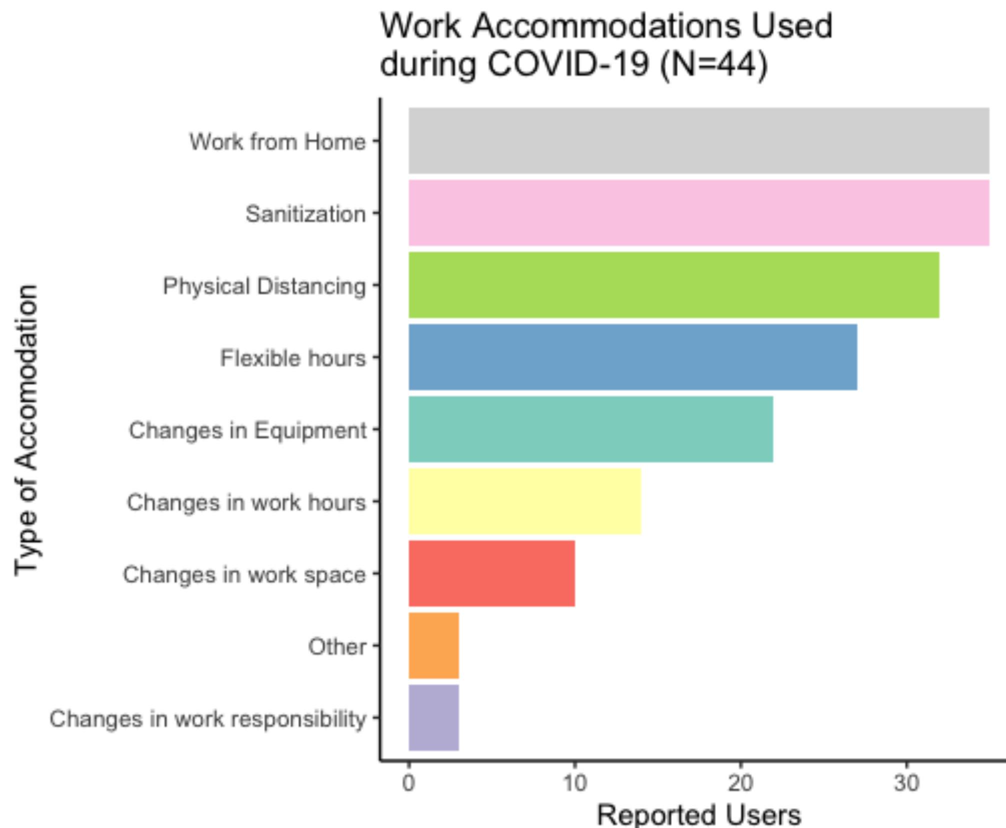

Fig 3.5. Employee- reported COVID-19 accommodations (N=44)

Communication during COVID has notedly been altered, with some participants describing communication as strictly professional. While some participants state that it is beneficial due to less wasted time, others describe a loss of community. "we haven't had a chance to build up that sense of community. Maybe because we're each in our busy little spot " -Christine

Another employee described the technical challenges of collaborating virtually on projects,

> "sometimes, like one hand doesn't know what the other one is doing. There's too many project managers and they're not communicating among the project managers; staff get caught in the middle, and they're just pulled in too many directions. With everyone working from home that's become definitely more prevalent there. When everyone was working in the office, we'd have an in person meeting and then everyone would on a weekly basis, we'd all say, Okay, this is what I'm up to. I'm going to be going here next Tuesday. And then someone was like, Oh, well, what about this? There was better communication and project coordination [prior to COVID]".-Kevin

In general, there are large variations in changes to workload with COVID. Many participants describe the workload as constant or having increased. One employee in a senior role stated, "the workload has increased because people are laid off..[it's] technically much higher during this

COVID-19, because you have all these projects with fewer people to do it. I can say I'm doing the job of three people combined." -Anna

Regardless, all employees touted the benefit and desire to remain working from home.

3.5.5 Carer-employees

Of the 13 carer-employees in the sample, weekly care hours prior to COVID-19 followed a bi-modal distribution with clusters around the 0-9 hours (N=6) and the 15-20+hours (N=4) . However, after the onset of COVID-19, the distribution sharpened toward more hours, with 5 carer-employees now indicating that they were providing over 15-20+ hours of weekly care. There were an approximately equal number of male (N=5) and female carer-employees (N=5), with 3 declining to identify their sex.

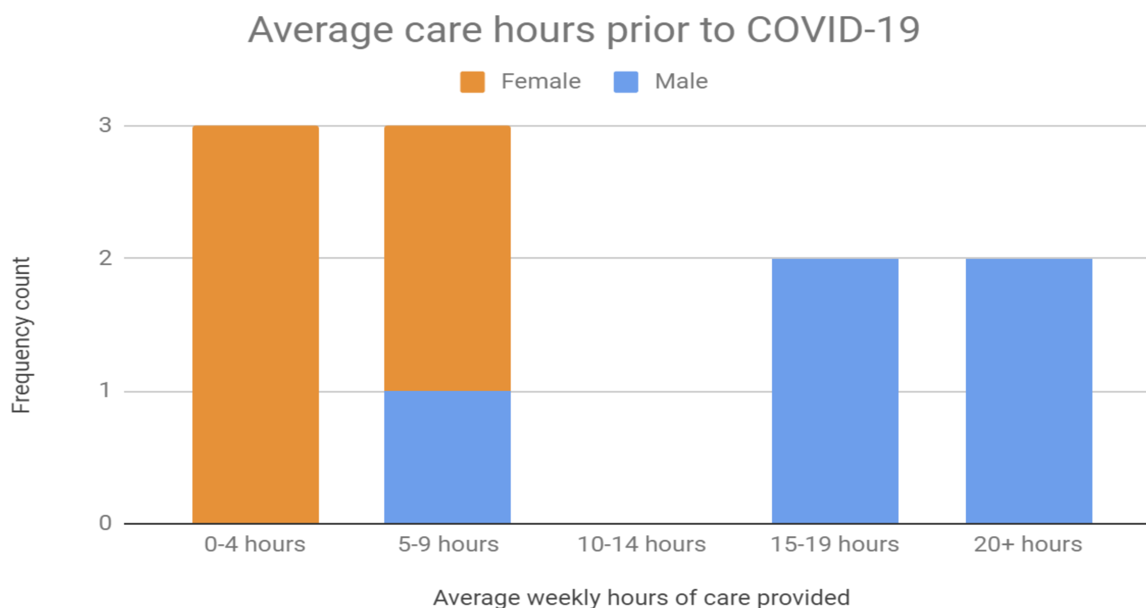

Fig 3.6. Average weekly hours of care prior to COVID-19

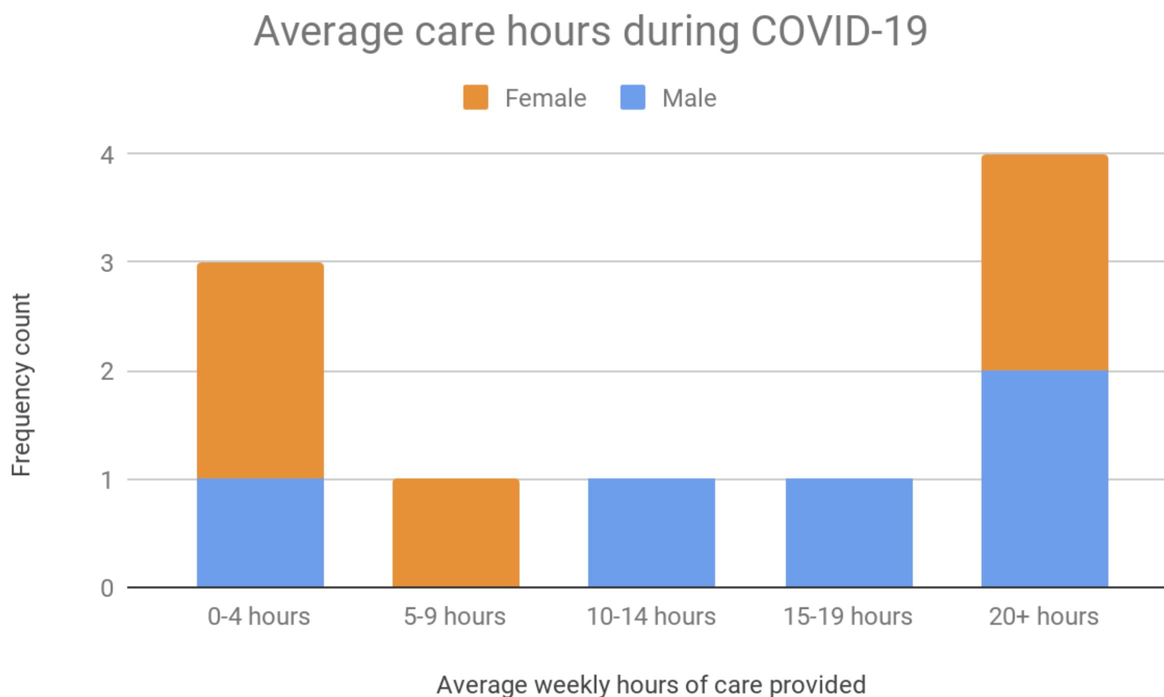

Fig 3.7. Average weekly hours of care during COVID-19

Table 3.4 depicts carer burden as measured by the Zarit Burden Index score. A mean score of 20.1 was obtained among the sample of 13 carers. Half of the carer sample had scores greater than 17, indicating high care burden.

Table 3.5 displays results of the Kruskal-Wallis test between carers and non-carers. The only observed significant difference in outcome variables between the two groups is in rated coworker support, with carers indicating lower perceived coworker support. Otherwise, carers do not differentiate from non-carers in any other outcome variable.

Table 3.5. Kruskal-Wallis One Way Analysis of Variance between carer and non-carer groups

Response Variable	df	H-value	p-value
Self-Reported Health (PCS)	1	0.22646	0.6342
Self-Reported Health (MCS)	1	0.078757	0.779
General Self-Efficacy	1	0.43484	0.5096
Depression	1	1.1504	0.2835
Absenteeism	1	0.11477	0.7348
Presenteeism	1	0.48426	0.4865
Job Satisfaction	1	0.57986	0.4464
Schedule Control	1	2.2313	0.1352

Work-Family Conflict	1	0.079201	0.7784
Family-Work Conflict	1	2.4997	0.1139
Family supportive supervisor behavior	1	0.007936	0.929
Co-worker support	1	5.621	0.01775***

Carers in general report varying levels of conflicts between work, caregiving, and their personal time as seen in Fig 3.8. Work responsibilities interfered with caregiving, but caregiving responsibilities were more likely to interfere with work.

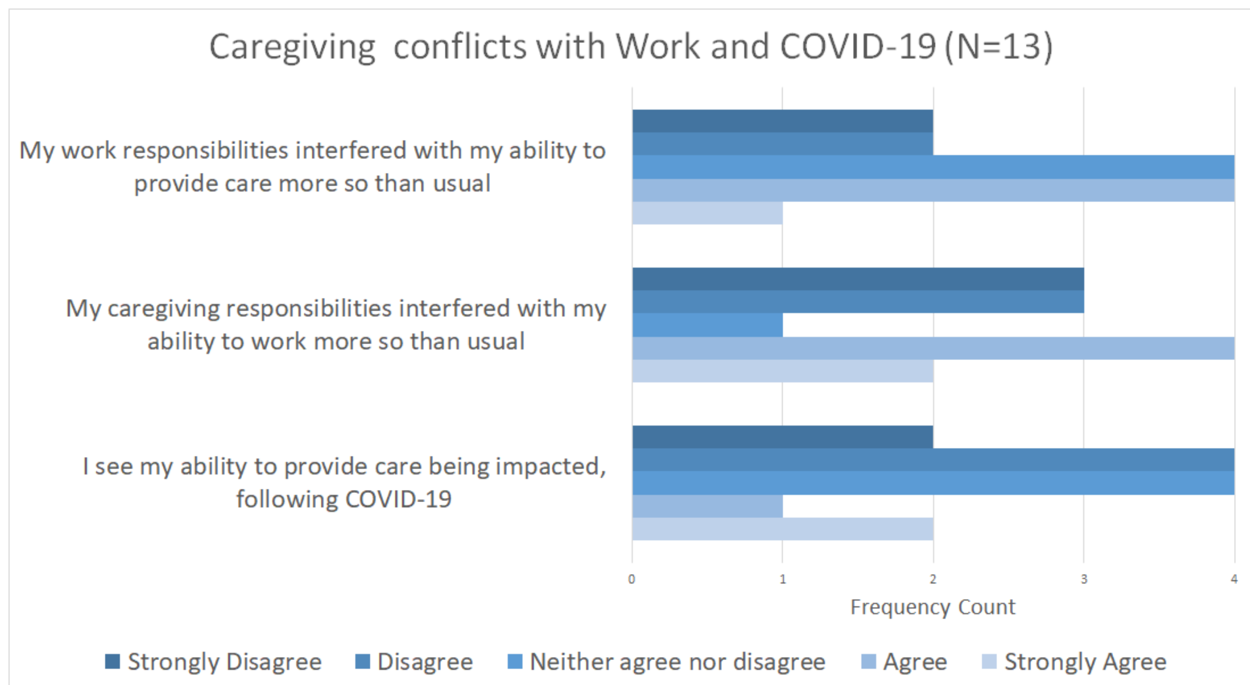

Fig 3.8. Carer self-assessment of the direction of work-care and care work conflicts during COVID-19

Carers identified several conflicts, such as: unsupportive work environment, lack of knowledge on existing policies, and changes in caregiving due to COVID-19.

Unsupportive work environments generally fostered conflicts between work and caregiving, which resulted in paid work taking precedence over caregiving. As one participant described:

> "I feel like if I take time off work, I risk being deemed like I'm not working as much as I should be - I feel guilty...When my [parent] got diagnosed with cancer, [they] were given less than three months to live. And I worked every day...I felt like I couldn't take time off work to go be with [them] ...you're feeling guilty and there's still work expectations. And I'm not wanting to cheat out on work by any means. But there's things I look back on, and I'm like, why did I put work first?"- Jaime

Carers in general were not aware of formal existing policies and resources within the workplace and preferred use of informal arrangements discussed with their direct supervisor. Alternatively, carers used vacation/sick days or part-time off (PTO) which allowed them to manage caregiving without involvement of other supervisors or employees. As previously identified, the lack of formal use of policies/procedures may relate to unsupportive work culture and managerial attitudes. One carer identified the challenge in trying to navigate and locate information on a specific benefit on the internal website, “I don't know, I couldn't find a document. I looked on the websites, I searched to find for [key word]. Nothing.” -Kelly

This is incongruent with what in actuality is offered by the workplace. Supervisors, while having varying knowledge of carer resources, on average identified more resources than what carers were aware of or utilized, including: employee assistance programs (EAPs) specifically for caregiving, an internal carers network, formal telecommuting arrangements, professional development check-ins, webinars, condensed hours and other benefits.

Other challenges were caregiving conflicts introduced by COVID-19. With provincial restrictions set on household visits, physical distancing, and long-term care, many carers identified that the ways that they provide care had changed, with effects on their personal time and work life. Some carers indicated that caregiving is now a more singular process given that outside help is not possible due to COVID restrictions. Kelly explains, “before COVID, my brother would come over for three or four hours, most weekends, he'd spell me off for an afternoon or anything and that would allow me time one on one with my partner or to do errands”. Others describe how community level services have been reduced, leading to greater onus for carers to provide these services themselves, “I also was expecting handi-dart [to] pick her up and take her to the senior center so she can be busy there. So that cannot be done so it's basically just the activities that we do together here with her, only myself and her [now].” -Christine

Another participant explained their reservations about a return to the physical workplace due to ramifications on their family members’ health and safety via potential exposure,

> “Do I want to risk my [care recipient] from someone that I've maybe made contact with? We're supposed to be encouraged to go into the office from time to time and [I] take transit. I have made the office aware that I don't really want to take transit because I could have the opportunity to see my [care recipient] coming up. But, how do you manage that going forward? If I can never see [them] if I'm taking transit, and I eventually have to go back to work and take transit, what happens?” -Jaime

This same participant describes changes in levels of concerns as they are unable to see their grandparent in the nursing home, “You can't see [them]...you know, [they] fell last week and didn't even tell us, the care home told us...[care recipient] doesn’t tell me what the schedule is and [they] never call me back. So it's really the onus is on me to get a hold of [them]”. -Jaime

These additional barriers to caregiving were noted to cause increased stress and anxiety to some carers. However, for other carers the extra time due to work from home arrangements has allowed more personal time, thereby mitigating some of the time constraints.

The HR department noted that they are interested in enacting changes to their workplace to foster a more supportive and carer-friendly work environment due to concerns in the past. One supervisor commented that, "[supporting carers is] vitally important. We come to work to support our families and live a life. Not come to work because it's your life ...we all have to deal with it at some point. You know, we as a company, owe it to our employees to support them through those hard times." -Kane

3.5.6 Employee health

Employees generally report good health, as indicated by the SF-12 and CES-D scales in Table 3.4, with the distribution right skewed. However, approximately a third of the survey sample had CES-D scores over 10, indicating a high clinical risk of depression. General self-efficacy across the survey sample had a mean score of 32.2, indicating fairly high levels of self-efficacy.

Many participants spoke about the efforts that their HR department was taking in order to promote mental health resilience during COVID-19. One manager remarked:

> "we get them in place, and resources to make sure that we're spending that quality time with our people. And we're checking in really often and again, but I don't think we do it enough. And so I think that needs to happen a little bit more. And we need to really get a really good sense of are people truly doing well? Are they really? Are they really mentally focused? And is this something that works for them or not? So I think we need to get a little bit better with that and be really, really looking, zoning in on workloads and whether or not they're manageable." -Cherie

Another manager describes the deleterious effects of employees with unsupported mental health due to burnout, "they're not able to stay efficient, or work because their attentions are distracted. But they also feel they can't stop working because they can't afford not to stop working. And so, you know, that just causes the stress cycle, right?" –Kane

3.6 Discussion

The purpose of this environmental scan is to generate contextual knowledge regarding baseline assessments of workplace culture, health, satisfaction, and changes to a large sized Canadian firm during the COVID-19 pandemic. This was done in order to facilitate the implementation of a tailored carer-supportive workplace policy intervention and ensure that such an intervention was grounded in the local context of the workplace. To our knowledge, this is the first study of its kind, utilizing a mixed-methods framework in evaluating the workplace context, with a focus on carer outcomes, during COVID-19.

We set out to answer the following questions:

OBJECTIVE 1: In what ways has the paid work experience changed with COVID-19?

OBJECTIVE 2: Do the work and health outcomes of carer-employees differ significantly from non-carer/regular employees?
OBJECTIVE 3: How can workplaces adapt to support their employees, caregiving or otherwise?

To address our first objective, it is necessary to establish the work environment prior to COVID. Our qualitative findings found the nature of the workplace was characterized as a high stress environment, prior to and during COVID. This was reflected in an emphasis on achieving client deliverables and bill-ability that signals the prioritization of productivity within the workplace. Interview themes specific to working from home during the pandemic speak to: higher overhead costs and administrative work, more technological challenges, as well as the pervasive culture of bill-ability. We observe silence in the quantitative data regarding this area.

We found convergent qualitative and quantitative evidence that the paid work experience has been changed for both carers and non-carers due to COVID. Qualitative themes describe the transition to remote working, with burdens such as a decline in interpersonal work relationships and communication issues. Complimenting this, survey results showed convergent evidence that, during the pandemic, work outcomes such as presenteeism increased when compared to previous years. Participants reported a mean presenteeism score of 86.59 in the previous year (2019), compared to presenteeism of 79.78 during June 2020; this represents a significant 6.81% drop in productivity. Mean absenteeism was reported at approximately 12.1 hours of work lost in the past month (June 2020). Absenteeism scores only cover the prior four week period and, as such, disallow comparability prior to the pandemic; however, we note the large standard deviation in absenteeism rates, indicating that employee absenteeism is highly varied.

When compared to the literature, this workplace's current absenteeism and presenteeism rates appear to fall within the range expressed in the literature, even with the drop in productivity between pre-pandemic and pandemic rates. For example, baseline rates of absenteeism and presenteeism (pre-pandemic) across industries were found to vary widely; Schwatka et al. (2018) found low absenteeism and presenteeism among employees of large sized enterprises (n=1680, all industries); 12.3% had missed at least 1 hour of work within the past four week period and only 21.6% reported working at their best performance. At the same time, an Australian study (n=4593) looking at the general 18+ workforce found a mean presenteeism score of 63.61 (Johnston et al, 2019), comparable to our observed score of 79.78. The National Institute of Health and Occupational and Health (NIOSH) in the U.S found no significant differences in absenteeism rates during the COVID pandemic (April 2020) as compared to their 5-year baseline rates in non-essential service industries (Groenewold, 2020).

To revisit Table 3.4, the apparent decline in presenteeism scores (increase in presenteeism) is likely attributable in some part to emergency remote working measures during COVID-19. One possible conjecture is that remote working offers employees' flexibility in terms of work hours, allowing for absenteeism rates to remain stable or improve while presenteeism may increase due to distractions at home. Participants readily described the benefits of remote working, such as enhanced efficiency due to less wasted time on commuting and socializing. This is similarly reflected in our quantitative data, where respondents reported being largely in favour of remote working, and were satisfied with their workplace's response to COVID. However, working from home is known to stretch the temporal limits of the workday, with employees deviating and

working longer than their typically scheduled hours and as an adaptation to at-home distractions for carer-employees (Ding & Williams, 2022).

While we use wage hours not worked as a proxy for absenteeism rates, the true impact of absenteeism is likely higher, as firms with high team-specific human capital incur costs related to reduced team productivity on top of individual absences (Zhang et al., 2017). Overall, we note that COVID has exacerbated existing dynamics of work-life balance.

OBJECTIVE 2 Do the work and health outcomes of carer-employees differ significantly from non-carer/regular employees?

Our Kruskal-Wallis test found no significant differences between carers and non-carers in any of the health and work outcome survey variables, with the exception of co-worker support. Carers reported significantly less co-worker support when compared to non-carer employees. This is echoed in the qualitative interviews, where carers describe increased burdens during COVID and unsupportive work environments, leading to feelings of isolation at work. It is likely that the combination of increased carer burden and unsupportive work environments had an additive effect, creating an overall poorer perspective on support systems in the workplace, and exacerbating work–life tensions. Elsewhere in the literature, it is known that coworker supports have significant interaction effects on carer burden and work impairment, where high levels of coworker support has a buffering effect on carer burden and work impairment (Fujihara et al., 2019).

Despite this, the Kruskal-Wallis test reflects that lower levels of coworker support for carer-employees did not translate over to health and/or work deficits (nor advantages), as compared to non-carer employees. However, the correlation matrices speak to the multi-modal and interconnected nature of the work experience. The significant correlation between coworker support and absenteeism signals areas of potential future deficits, if not addressed by the employer.

Overall, we observe that across the entire sample (both carers and non-carers) work-related outcome variables such as: job satisfaction, schedule control, work-family conflict, and family-work conflict, tend to be fairly average, even during COVID, and did not significantly differ between the two groups. Interestingly, while the mean score for family supportive supervisor behaviour was moderately supportive at 14.2 (across the entire sample), there is wide variation in levels of reported supervisory support; some participants rated extremely poor levels of family supportive supervisor behavior. From the interview data, carers with unsupportive supervisors disclosed that their supervisors did not improve or offer additional support with COVID, especially with the curtailing of communications into business-only. Rather, the shift to remote working buffered their interactions with their supervisors, given that employees had agency to recontract their workday around familial obligations such as caregiving when working from home. This shift in flexibility favours carer-employees and aligns with current suggested business practice models. Prior to COVID, the majority of interventions targeting work-life balance were centered on making use of flexible working arrangements as a primary intervention. As such, it is to the benefit of carer-employees to retain some form of flexibility or remote working.

Health outcomes pertaining to self-reported health, depression and general self efficacy are also average/typical across the entire workplace sample. It is notable that, while on average the survey

sample is in good health, a third of survey respondents were at risk of depression. This is an area of divergence from the interview themes, as many managers speak of mental health initiatives available for employees, despite relatively few non-manager participants knowing of these resources. It is known from the literature that a high frequency of depressive symptoms is correlated with burnout, highlighting a potential area that workplaces should pay attention to.

Although we did not find many significant differences between the carer and non-carer group, our findings are notable in that they highlight the heightened tensions that carer-employees are precariously navigating during the pandemic. Carers in our study identified increases in care burden as a result of modifications to care behaviour, as necessitated by COVID-19. Loss of external carer supports, such as community services and friends/family, due to stay-at-home orders and lockdowns meant that the caregiving role was experienced more singularly.In addition, carers were concerned with transmission risk as they moved between sites of work and sites of care. Overall, carers are spending more weekly time on care provision, and often in novel ways compared to pre-pandemic routines. These additional strains placed on carers are compounded by the high-stress work environment. These findings are consistent with research emerging from the UK, where carer-related anxiety, financial burden, and time spent caregiving has elevated (Carers UK, 2020). This area of discrepancy with non-carers is preeminent, as it has the potential to lead to future health and work complications for carers if left unchecked.

One area of dissonance observed from the qualitative findings concerned the visibility and communication of organizational supports for carers. Notably, carers communicated a lack of knowledge on what was available to them from the workplace, with none of the carer participants knowing about the internal carer network. However, managers in the interviews were able to list several supports, including EAP benefits and the carer network. This discrepancy brings attention to a disconnect in communication about these services.

OBJECTIVE 3: How can workplaces adapt to support their employees, caregiving or otherwise?

From our findings, we identified two main gaps pertaining to future workplace intervention design and implementation, with the goal of remediation: lack of consistent managerial support, and, lack of visible and explicit messaging regarding caregiving and/or resources available for carers. We note that the theme of unsupportive work culture, in the form of managers and coworkers, was raised concurrently in the qualitative and quantitative findings, and presents a tangible barrier to carer-employees. We acknowledge that the pandemic facilitated the widespread uptake and acceptance of remote working, and thus removed the need for workplace interventions during COVID to address flexibility. Instead, we suggest centering campaigns on improving workplace culture. Virtual workplaces and teams often lack opportunities for team bonding, leading to diminishment of social cohesion, trust and support (Newman & Ford, 2021). COVID further disconnects employees, which leads to underlying anxieties specific to: individual and public health, finances, physical distancing mandates, as well as general uncertainty left in the wake of the pandemic; this espouses insular and individualized experiences with paid employment (Kniffen et al. 2021,). The targeting of leadership and visibility of work-life initiatives for carers thereby sends a message of organizational commitment and support throughout crisis situations, as well as throughout employees' life trajectory.

We propose the following interventions:

1. An educational visibility campaign promoting workplace carer policies
2. Standardized training of managers

These recommendations follow the CSA's current workplace standard for carers, where building awareness and establishing competency of leaders is a foundational step towards cultivating a carer-friendly workplace (CSA, 2017).

Carers would benefit from a visibility campaign aimed at: increasing the profile of carer-employees within the workplace, promoting existing policies and resources, and visibility committing organizational support to carer issues. This intervention may manifest in the form of email alerts, virtual and physical posters/banners, message board announcements, social media alerts, and pre-meeting announcements. Lunch and learn seminar sessions may be offered to any interested employees during lunch breaks, highlighting carer statistics, as well as the resources available in the workplace, and at the provincial and federal scales. In our case, this process is facilitated by the fact that our partnered workplace already contains numerous internal supports and policies for carers, such as: an internal carer network, EAPs, and several leaves. As a result, the workplace focus should be on bringing attention to these existing services. Other organizations may need to take time to review, update, and create such policies. Visibility or informational interventions -- with a focus on building awareness to induce behavioral and attitude change -- are often low cost and correspondingly, easily implemented as they utilize existing infrastructure. Information-based interventions in the workplace are generally effective, although with small-to-moderate effect sizes; Bellon et al. (2019) found in their meta-analysis of three randomized control trials, that psychosocial and educational interventions in the workplace were capable of significantly reducing depression risk of employees. Other systemic reviews found that approximately 70% of psychosocial and educational interventions (N=23) designed for improving workplace safety report positive impacts (Aburuman et al., 2019). Few studies directly assess workplace interventions for carer-employees; in a previous pilot study from our own research program that was conducted at a university workplace, we found evidence that informational interventions were capable of significantly improving health and work outcomes of carer-employees (Ding et al., 2020; Ding et al., 2021).

However, given that organizational culture is often deep-rooted to the inherent leadership structure of a workplace, we propose that this visibility intervention component runs concurrently to a supervisory training component. Supervisory training should contain mandatory sessions, run by a trained workplace champion, educating managers/supervisors on: changing demographic trends, economic contributions of carers, carer burden and health, legal obligation of employers, as well as available federal and provincial resources, and empathetic/compassionate approaches to work-family conflict. Training sessions should also include role-playing through different potential situations, accompanied by a guidebook document. Managerial attitudes and support of their employees is crucial to forming workplace culture, to the extent that employees may mirror supervisory work-life balance behaviour. Thus, training sessions for managers have the capacity to induce wider culture change by changing or increasing discourse on work-family conflicts. Unsupportive managerial attitudes have been known to cause reluctance in employees' utilization of formal workplace supports and accommodations, harming carer-employee job satisfaction and putting this cohort at risk of burnout, psychological distress and turnover (Crain & Stevens, 2018).

Organizational culture change is highly context dependent; qualitative studies find that successful workplace culture change interventions centered around mental health promotion are contingent on a number of specific organizational elements, such as support from leadership, affirmative dialogue, and positive working group dynamics (Knaak et al., 2019). It is notable and of interest that in our environmental scan, employees (caregiving and non-caregiving) generally reported wide variations in family-supportive supervisor behaviours during COVID-19. While supervisors interviewed within our study were generally supportive of caregiving responsibilities in general, as well as being knowledgeable of supports and accommodations in the workplace, there is evidently a breakdown in communication elsewhere, as the carers themselves were unaware of the said policies, and some had negative experiences with their direct supervisors. Managers are often transformative agents within the workplace, as they exercise authority over: the types of support employees may receive, delivery of information from executives, and implementation of work-life initiatives, thereby dictating organizational culture on a day-to-day level (Straub, C., 2012). Generally, employees who report their supervisors as empathetic to work-family issues, tend to have increased coping ability, productivity, team functionality, and loyalty to the workplace, in addition to lower levels of anxiety, depression, and work-family conflict (Straub, C, 2012). From our own correlation matrix, we observe family supportive supervisor behaviour is positively correlated with job satisfaction. This is supported by evidence from the literature, where the strong association between supervisory support of work-family-life matters and job satisfaction is well established (Crain & Stevens, 2018). In this manner, the training and education of leadership personnel to be more carer-supportive compliments the effects of the visibility campaign and offers the overall intervention a better chance of success. Within the context of COVID, it is even more crucial for managers and supervisors to display empathy and support towards work-family conflicts, as many employees (caregiving or otherwise) are navigating heightened tensions and burdens.

3.7 Limitations

All findings should be interpreted within the limitations of the study. First and foremost, our sample size for both the survey and interview components were small and, as such, limited in scope. Recruitment for participants was hampered by COVID regulations in force at the time of data collection, where most employees had recently shifted to working from home and navigating new work dynamics and technologies. We hypothesize that due to these (at the time) recent events, recruitment emails were lost among the shuffle. In addition, we recognize that generalizability of our findings are limited, given that our respondents from the partnered workplace was largely highly educated, well-paid, and had relatively little cultural diversity. These findings may not be applicable to other workplaces with a different demographic makeup or different employee profile.

3.8 Conclusion

The COVID-19 pandemic has demonstrated not only shifts in the work landscape, but the changing needs of the labourforce, particularly for carers that are navigating the dual burden of unpaid

caregiving and employment. In our present study, we find that the work experience during the pandemic has fundamentally changed, for both carers and non-carers. As most employees have been working from home, the work experience has become more isolating, leading to a disconnect from colleagues and the organizational culture, as well as increases in presenteeism. However, at the same time, employees report greater schedule control and flexibility as a function of remote working, which is advantageous for carer-employees in balancing care demands. While care demands and conflict are greater during the pandemic, most carer-employees (and non-carer employees) were found to be in good health, despite additional/shifting care responsibilities, such as more frequent phone calls. Overall, we note that health and work outcomes do not different significantly between carer and non-carer employees, except for coworker support, where carer-employees report significantly less support.

From our findings, we identified two major areas that are pertinent to future intervention design and implementation. The first pertains to visibility and consistency of messaging around workplace supports and resources for caregiving and work-family conflicts. Managers and HR personnel were unable to identify said resources, while carer-employees were generally unaware, indicating a breakdown of communication. Second, survey results and some participant experiences depicted a wide variation in family supportive supervisor behaviour, signally inconsistency in managerial attitudes and approaches to work-family conflict. These findings set the stage for future workplace interventions going forward. Based on our findings, we propose that within this workplace, interventions should contain visibility/educational campaigns, in the form of posters, email announcements, as well as announcements at the start of meetings, highlighting carer statistics as well as existing resources. Concurrently to this, managers should undergo standardized training on carers in the labour force, with an emphasis on compassionate language, legal obligations, and available resources within the workplace and community. In doing so, we hope that such interventions are capable of promoting carer-inclusive and carer-supportive workplace culture, benefitting both carer-employees and employers. For policymakers and employers, we hope that our research may guide or form the foundations for subsequent interventions in organizations interested in supporting their carer-employees

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Appendix 3.A

CARER-EMPLOYEE INTERVIEW

[Hand out information regarding the Standard highlights. Give few minutes to look over.]

1. Why did you decide to join this research?

Caregiving Prompts

2. Has your caregiving behaviour changed since COVID-19?
   a. PROBE: changes in time spent caregiving, changes in activities
   b. What challenges have you encountered while caregiving during COVID-19?
      i) Do you see these challenges as being long-term challenges?
         PROBE: Do you anticipate returning to your "normal" routine?
   c. Do you see the carer role being transformed permanently by COVID-19? Why or why not?

Work Prompts

3. How has your paid work responsibilities been affected by COVID-19? Have demands on your time changed? How about your workload? Has there been any changes in work flexibility?
   a. Were you satisfied with your work situation before COVID-19?
   i) PROBE: flexibility, workload, demands on time
   b. Are you satisfied with your current work arrangements and supports during COVID-19?
   c. Would you like to see these arrangements continue to be offered after COVID-19? Would you consider using these arrangements again in the future?
4. Have you noticed changes in workplace culture since COVID-19? In terms of co-workers? Supervisors?
   a. PROBE: communication, supports, use of benefits, flexible work arrangements

Intersection of Care and Work Prompts

5. Are you currently finding it difficult to balance paid work, caregiving, and personal time?
   a. PROBE: current and future difficulties
6. What would you like to see being implemented in your current workplace to help you as a carer-employee?
   a. What have you found to be most useful in helping you manage or cope as a carer?
   b. What have you found to be most useful in helping you manage as an employee?

CSA Standard Prompts – Refer again to Standard summary document/highlight

7. Do you see the Standard helping you manage your work? Your caregiving life? What are benefits of the Standard becoming available for use by employees in general?
   a. Probe: comparison of benefits to workplace vs benefits of employees if respondents do not discuss first themselves
8. In your experience, what supports/services/accommodations, what aspect of the Standard do you think are most useful to you as a carer?
   a. What are the least useful? Why?
9. What would you add or improve about the Standard to make it better?
10. Do you see this Standard being useful in all situations? Are they any situations in which the Standard cannot cover? Take into account social, cultural, ethnic lenses.
11. Are there any concerns about implementation of this Standard?

Is there anything we forgot or is there something important that we should know?

Appendix 3.B

KEY INFORMANT INTERVIEW

[Hand out information regarding the Standard highlights. Give few minutes to look over.]

1. Why did you decide to join this research?

Current Workplace Prompts

2. What do you personally consider as the priorities of your organization? This can be in terms of the actual work that you do, your employees, or other societal aspects.
3. Are you satisfied with your workplace's organizational culture at the moment?
   a. Are there any changes that you would like to see made?
4. Are there policies, programs or supports in place, that you are aware of for your employees to support work-life balance? Are there any specific to employees who are currently caregiving?
   a. Do you see these services as adequate? What about in the coming years?

COVID-19 Prompts

5. What measures has your workplace/department taken to in response to COVID-19?
   a. Are these measures sustainable in the long-term?
   b. Are these arrangements likely to be continued to be offered after COVID?
6. Carer-employees must provide care to a loved one for health, disability or age-related reasons while maintaining employment obligations. Do you think the dual burden shouldered by CEs is a concern at the moment to your organization?

7. Given that the COVID-19 pandemic is impacting the elderly and immunocompromised populations severely, have you made any arrangements for employees juggling caregiving on top of employment? Why or why not?
    a. Has COVID-19 changed your perception on the challenges of the carer-employee role?
    b. How important do you think it is to your organization to support employees who are currently juggling caregiving and employment? What about employees who may "juggle" in the future?
    c. Would you provide supports for employees who are caregiving after COVID-19?

Standard Prompts – Refer to Standard summary/highlight document

8. Where do you see the Standard fitting in with your organizations' goals mandate?
9. In what ways do you see the helping your organization? What are the anticipated benefits to implementation of the Standard? Probe: organizational efficiency and work-life balance as priorities
10. What aspects of the Standard do you think are most useful to you? To your employees?
    a. What are the least useful? Why?
11. What would you add or improve about the Standard to customize it to your organization?
    a. Do you foresee any situation in which the Standard is not adequate?
    b. Are there any situations in which the Standard will not apply? Ex. Religious events, cultural forms of care Probe: limits to the Standard, COVID-19
12. Are there any concerns about implementation of this Standard?
13. In the future, do you foresee the process of implementing/changing employee programs (ex. Benefits, accommodations, campaigns) being affected due to COVID-19? In what ways?

Is there anything we forgot or is there something important that we should know?

Appendix 3.C. Convergent mixed method triangulation of qualitative findings with quantitative results

Component	Quantitative	Qualitative	Triangulation
Workplace Context	Large-sized workplace (>3500 employees), highly educated, mean hourly wage of $43.01/hour		Qualitative (Silence)

Carer experience	50% of carers have high carer burden (Zarit Burden >17)	Carers experiencing additional burdens managing carework and paid work during COVID	Convergent
	Weekly care hours increased with COVID-19	Additional caregiving challenges introduced by COVID-19 such as concerns with COVID transmission, phone calls, lack of external resources	Convergent
	Carers report signficantly reduced levels of coworker support as compared to non-carers (p>0.017)		(Qualitative) Silence
		Carers have lack of knowledge on existing carer policies	(Quantitative) Silence
Work experience	Generally good health, with 50% of the survey sample with CES-D scores indicating risk of depression (CES-D > 10)	High workload due to workculture emphasis on bilability, leading to burnout; increased work demands due to layoffs	Convergent
	Absolute presenteeism 79.8	New teleconferencing technology to use; Challenges with virtual collaboration	Convergent
	Absolute absenteeism is 12.1		Qualitative (Silence)
	Rated family supportive supervisor behavior overall moderately supportive, at a mean of 14.1 (SD 4.28) across the survey sample, with large range in scores	Wide variation in participant experiences with supervisors; some participants feel unsupported by their supervisor, while others feel very supported; Supervisors were knowledgable in available supports in the workplace for carer-employees	Convergent
		Carers were not aware of many supports and programs within the workplace	Dissonance
COVID-19	High level of schedule control (mean of 30.2)	Majority of employees currently working-from-home, increased flexibility	Convergent

Chapter 4: A Virtual Workplace Intervention for carers during COVID: Impacts and perspectives

4.1 Abstract

Workplaces are situated in a precarious predicament; as global populations age, the working-age cohort will become more involved in caregiving roles for friends and family. To assist employees in managing work-care conflict, an educational intervention was implemented in a workplace setting with the goal of cultivating a carer-friendly workplace culture. Using Wilcoxon rank sum tests, pooled cross-sectional survey data was used to assess for significant changes before and after the intervention in the following outcome variables: self-efficacy, depression, carer burden, work-family conflict, family-work conflict, family-supportive supervisor behaviour, schedule control, coworker support, job satisfaction, absenteeism, and presenteeism. Qualitative interviews with carers and HR/managers were conducted post-intervention to develop nuance and context to the intervention experience in the workplace. We did not observe evidence of significant changes in survey outcomes pre and post intervention, however, qualitative themes spoke positively of the intervention and described increased knowledge and agency as a result. Overall, these results suggest that there is greater awareness in a smaller scale within the workplace, acting as a foundational step for potential future culture and behaviour changes.

4.2 Introduction

During the 21st century, increasing gender equity, the rise of (accessible) technology, expanding geographic mobility, and the growth of knowledge industries have instigated reforms in workforce representation and work-life reconciliation, alongside a departure from the pure economic exchange contract between employers and their employees (Drucker, 1995; Tsui et al., 1997). The onset of the COVID-19 pandemic has been a catalyst in normalizing flexible and adaptive models of work (Kudyba, 2021). More employers are socially-conscious in the post-industrial era; unfavourable reputations and poor workplace culture can lead to employee turnover, reduced performance, and difficulty attracting talent (Herman & Gioia, 2001; Younis & Hammad, 2020; Hideg & Krstic, 2021). With the rise of globalization and knowledge workers, employees are a firm's most essential capital; investment in employee-centred initiatives provides firms with a competitive edge in attracting and retaining skilled employees, as well as enhanced job satisfaction (Berkley & Watson, 2009; Tsui et al., 1997).

These changes in the labour market occur amongst the backdrop of an aging population. Increasing life expectancy and decline in fertility rates among post-industrial nations gave rise to a disproportionate ratio of older adults (Bloom et al., 2015). By 2050, it is projected that the number of older adults (65+) will double to 1.5 billion worldwide (United Nations, 2020). The economic and disease burden of chronic illness and degenerative aging is high, and the invisible labour attached to the growing demand for eldercare leads to ancillary consequences to the economy, such as impaired productivity and labour market engagement (Dall et al., 2013; Bruhn & Rebach, 2014). Family caregiving, that is, the unpaid labour provided by family to a recipient for health-related reasons, is an increasingly common behaviour in the shadow of population aging (Eifert et al., 2016). Caregiving has substantial impacts on the labour market – 35% of working-age

Canadians (approximately 6 million carer-employees) are currently juggling care duties at home, leading to increased work-life conflicts, depression risk and reduced physical health (Grady & Rosenbaum, 2015; Ontario Caregiver Association, 2021).

Family carers (herein referred to as carers), provide between 70-80% of all care labour, involving activities such as: transportation, meal preparation, housework, financial assistance, physical/medical assistance, and emotional support (Special Senate Committee on Aging, 2009; Sinha, 2013). These activities demand on average 290 annual hours of unpaid labour (MacDonald et al., 2019). Correspondingly, caregiving often interferes with work obligations in the form of missed work, reduced productivity, and delayed career advancement; culminating in a 30% risk of wage loss for carer-employees of older adults (Earle & Heymann; 2012; Tal & Mendes, 2019). Canadian employers are estimated to lose approximately $8,674 -11,077.81 per carer-employee annually due to these conflicts (Mofidi et al., 2019; Ding et al., 2022). The Canadian economy lost a total of $1.3 billion worth of labour due to caregiving conflicts with work in 2012 (Employer Panel for Caregivers, 2015). With COVID, carers face greater burdens due to increased health risk to care recipients and reduction in external support services, leading to greater work disruptions (Parrish et al., 2021; Ding & Williams, 2022).

While employers now are more capable of and more favourable towards employee support initiatives, the impact of caregiving on workplaces is generally under-recognized by companies, with majority of surveyed employers (n=114) expressing surprise at the current estimated number of carers in Canada (Employer Panel for Caregivers, 2015). Carer-supportive initiatives such as flexible work accommodations, protected leaves, and compassionate dialogue, are likely to benefit: 1) older and more experienced/skilled employees, given that majority of carers are aged 45-65; and 2) women, as they make up 54% of all carers and are more likely to take on greater carer burden (Sinha, 2013). Furthermore, carer-targeted interventions also proactively benefit the non-caregiving workforce, as caregiving (both providing and receiving) is a life-course experience that almost all persons will eventually undergo (Bruhn, 2014).

This paper presents an evaluation of a workplace carer-employee intervention, in order to advocate for widespread implementation of carer-supportive interventions among workplaces. The workplace partner in this study is a large-size engineering consulting company located with offices across Canada. The workplace context has been previously explored (Ding et al., Forthcoming). To summarize, based on internal documents provided by HR, we know that the overall workforce is educated, and well-paid. The mean age of employees is approximately 45.3 years, with 66% of the workforce identifying as male. With the advent of COVID, the majority of the workforce is currently working-from-home.

4.3 Materials and Methods

4.3.1 Design and Procedure

This paper describes the findings from one phase of a larger multi-phase program of research. Contextual data were collected prior to this phase and published previously, providing insight to

the nature of the workplace, as well as employer and employee responses to COVID (Ding & Williams, 2022).

A pre-post test mixed-methods design was used to assess the impacts of a carer workplace intervention on its employees (Fig 4.1). An exploratory sequential framework was employed, with qualitative data used as a supplement to quantitative findings. Quantitative survey data assessed macro-level changes in workplace experience of employees while qualitative interviews were used to generate rich context and nuanced understandings of the potential effects of the intervention.

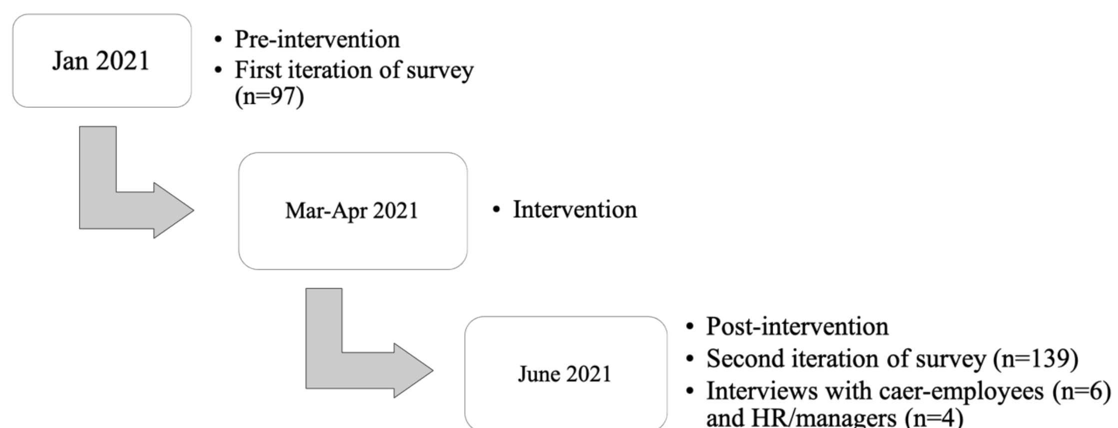

Fig 4.1. Visual depiction of the methodology and data collection process

A large (3500+ employees) Canadian national workplace in the oil and gas industry was recruited in early 2020. Data collection began at the start of 2021 and concluded in the summer of 2021, over a 6-month period. With the assistance of Human Resources (HR), a workplace wide online survey was distributed to the emails of all Canadian employees twice; once at the start of the year and again after 6 months, with the workplace intervention implemented at the midpoint between data collection points. Survey eligibility required respondents to be current employees at the workplace (any contract type, either full-time or part-time), excluding external contractors/consultants. Although the focus of the research was on carers, the survey was open to both carer and non-carer employees, recognizing that intervention benefits may also be realized in non-carers as well. The number of full survey responses obtained was 97 at pre-test and 139 at post-test, representing an approximate 2.77% and 3.97% response rate respectively.

Concurrent to the final survey, semi-structured interviews were held with: 1) carer-employees and, 2) key informants such as HR personnel, managers, and senior executives. The call for interview participants was included in the same email as the survey announcement, with the same eligibility criteria applied. Six interviews (n=6) with carer-employees and four with key informants (n=4) were conducted over the phone, after obtaining verbal informed consent from each participant. One carer-employee participant declined to be audio-recorded, as such, only interview notes are available from the participant. All participants were offered an honorarium in the form of a $25 gift card. Interview questions are available in Appendix 4.A and Appendix 4.B.

4.3.2 Intervention

The overall goal of the intervention was to build internal capacity of carer supports in the workplace and promote a carer friendly culture. Prior to intervention implementation, the intervention was designed in collaboration with an internal steering committee. The committee, composed of several carer-employees and HR employees, met monthly in the latter half of 2020, with discussions lead by the first author. Based on the findings from previous work, a set of customized actionable changes was identified and developed into a series of tools over the course of several months by the steering committee (Ding et al., forthcoming).

The intervention itself was an education-based campaign, implemented over the course of 8 weeks. The first half of the intervention involved the roll-out of the following tools: a set of infographic posters circulated via email, and verbal announcements made by managers during the start of meetings, introducing the campaign and advertising existing workplace programs and policies, such as an internal carers support network. After 4 weeks, the following intervention tools were introduced: standardized training of managers, lunch and learns, and series of guidance documents for managers on managing carer-employees, recognizing burnout, and a resource list for carer-employees. The resource list contained information on community, provincial, and federal programs and policies for carers and care recipients.

The intervention was implemented with the assistance of HR virtually due to remote working mandates in place at the time.

4.3.3 Measures

Eleven outcome variables were selected for inclusion in the survey, in order to capture work and care dynamics of employees. Work variables included: absenteeism, presenteeism, job satisfaction, schedule control, coworker support, and family supportive supervisor behaviour. Health variables included: depression and self-efficacy. Work-life conflict variables included the reciprocal scales of work-family conflict and family-work conflict. Details of the scales can be viewed in Table 4.1.

Table 4.1. Survey scales with pre-test (N=97) and post-test (N=139) means and medians

Response variable	Scale name	Measure	Potential score range	Pre-test mean (sd)	Pre-test median	Post-test mean (sd)	Post-test median
Self efficacy	GSE-10	Self-confidence during adverse situations	10-40	31.8 (4.36)	32	31.6 (4.09)	31

Depression	CES-D-10	Frequency of depressive symptomology	0-30	9.49 (6.27)	9	9.05 (5.91)	7
Carer burden	ZB-SF	Influence of carer burden on physical and mental health (carers only)	0-48	17.4 (10.1)	15	19.1 (9.04)	19.5
Work family conflict	WFC	Work role impact on family responsibilities	5-25	13.8 (4.99)	14	13.8 (5.29)	14
Family work conflict	FWC	Family role impact on work responsibilities	5-25	11.0 (4.50)	10	10.2 (4.73)	10
Family supportive supervisor behaviour	FSSB-SF	Exhibition of supervisory behaviours in support of employee family life	4-20	14.8 (3.76)	15	14.4 (4.13)	15
Schedule control	SC	Freedom and employee control over work hours	8-40	29.5 (6.07)	29	27.8 (7.13)	29
Coworker support	CWS	Sense of colleague support in work and non-work issues	4-24	13.9 (5.18)	14	14.5 (5.27)	13
Presenteeism	HPQ	Reduced productivity at work	0-100	78.6 (15.4)	80	77.6 (15.7)	80
Absenteeism	HPQ	Number of hours missed from work	NA (dependent on contracted hours)	-0.118 (48.2)	0	3.93 (35.0)	0
Job satisfaction	JS	Employee satisfaction with work experience	5-35	25.9 (4.27)	26	25.7 (5.41)	26

*Presenteeism is reverse scored, where a higher score is higher productivity

4.3.4 Participants

The sociodemographic characteristics of survey respondents at each survey time point can be viewed in Table 4.2. Generally, the gender distribution of respondents was slightly to moderately male leaning, with a wide age representation. Consistently across both time points, respondents primarily identified as white and most had incomes of over $70,000.

Table 4.2. Social and demographic characteristics of survey respondents at pre-test and post-test

	PRE-TEST (N=97)	POST-TEST (N=139)
GENDER		
Female	35 (36.1%)	64 (46.0%)
Male	60 (61.9%)	68 (48.9%)
Prefer not to say	2 (2.1%)	3 (2.2%)
Non-binary	0 (0%)	3 (2.2%)
Missing	0 (0%)	1 (0.7%)
AGE		
18-24 years	6 (6.2%)	12 (8.6%)
25-34 years	20 (20.6%)	43 (30.9%)
35-44 years	32 (33.0%)	35 (25.2%)
45-54 years	21 (21.6%)	29 (20.9%)
55-64 years	14 (14.4%)	18 (12.9%)
65+ years	4 (4.1%)	2 (1.4%)
RACE		
Black	3 (3.1%)	2 (1.4%)
Chinese	7 (7.2%)	7 (5.0%)
First nations	4 (4.1%)	1 (0.7%)
Korean	1 (1.0%)	1 (0.7%)
Latin american/hispanic	4 (4.1%)	5 (3.6%)
Southeast asian	0 (0%)	5 (3.6%)
South asian	5 (5.2%)	8 (5.8%)
West asian	2 (2.1%)	0 (0%)
White	64 (66.0%)	102 (73.4%)
Arab	0 (0%)	2 (1.4%)
Metis	0 (0%)	2 (1.4%)
Multi-ethnic	2 (2.1%)	0 (0%)
Prefer not to say	5 (5.2%)	3 (2.2%)
Missing	0 (0%)	1 (0.7%)
INCOME		
UNDER $15,000	0 (0%)	2 (1.4%)
$15,000-$29,999	1 (1.0%)	5 (3.6%)
$30,000-$49,999	6 (6.2%)	15 (10.8%)
$50,000-$69,999	27 (27.8%)	32 (23.0%)
$70,000-$99,999	20 (20.6%)	36 (25.9%)

OVER $100,000	31 (32.0%)	33 (23.7%)
PREFER NOT TO ANSWER	11 (11.3%)	15 (10.8%)
MISSING	1 (1.0%)	1 (0.7%)
CARER		
CARER	36 (37.1%)	40 (28.8%)
NON-CARER	61 (62.9%)	99 (71.2%)

Characteristics of interviewees are displayed in Table 4.3. below.

Table 4.3. Demographic and job characteristics of interview participants (post-test only)

Participant	**Age**	**Sex**	**Job position**	**Inclusion Criteria (Carer or Managers/HR)**
Mike	45-54 years	Male	Technical staff	Carer
Janet	45-54 years	Female	Administrative staff	Carer
Angela	45–54 years	Female	Administrative staff	Carer
Erin	55–65 years	Female	Technical staff	Carer
Andrew	35–44 years	Male	Technical staff	Carer
Carol	45–54 years	Female	Team lead	Carer
Jim	55–65 years	Male	Senior manager	Manager/HR
Karen	45–54 years	Female	HR personnel	Manager/HR
Katie	25-34	Female	HR personnel	Manager/HR
Mindy	45–54 years	Female	Manager	Manager/HR

4.3.5 Analysis

Survey data were analyzed using Wilcoxon rank-sum tests, to compare median differences in the distribution of each outcome variable at post-test compared to pre-test across all survey respondents. The Wilcoxon rank-sum test was also applied to the subgroup analysis of carer-employees, given that it is conceivable that the intervention may differentially impact carer-

employees compared to the general workforce. All survey Likert scales were converted to numeric scores and summed for each scale. The means, medians and standard deviations of each outcome variable are reported in Table 4.1. The Wilcoxon test was selected as survey data were non-parametric. Normality and homogeneity of variance were assessed using the Shapiro-Wilk test and Levene's test respectively. While the survey data was found to have homogeneity of variance across all survey scales, most scales had a non-normal distribution, even after log transformation, making parametric tests unsuitable.

Most interviewees consented to audio-recording, after which, the interviews were transcribed and analyzed inductively using reflexive thematic analysis via NVivo 12. One participant declined to be audio recorded but consented to the researcher taking notes during the interview; these notes were used for analysis for broader themes, although direct quotes were not recorded. The full description of the thematic analysis methodology has been previously published (Ding & Williams, 2022).

4.3.6 Triangulation

The qualitative and quantitative data were first analyzed separately and integrated at a later analysis stage, using an exploratory sequential framework, where qualitative themes were largely used as supplement to quantitative findings. The full framework used for mixed-method triangulation as well as rigour strategies have been described in a prior environmental scan paper (Ding et al., forthcoming).

4.4 Results

4.1 Quantitative

The intended goal of our implemented intervention was to improve work, health and work-life conflict outcomes in employees within the workplace. Survey data were analyzed using one-way Wilcoxon rank-sum test to assess if survey outcome variables were significantly different post-test. The results of the Wilcoxon test are presented in Table 4.4 Below

Table 4.4. Wilcoxon rank sum test for all survey respondents comparing pre-intervention (n=97) and post-intervention (n=139) scores

Variable	*W statistic*	*p-value*	*Effect size*
Self-efficacy	6924	0.7233	0.0231
Depression	7057	0.5409	0.0399
*Carer burden**	644	0.4318	0.0908
Work-Family conflict	6742	1	0.0000632
Family-Work conflict	7627.5	0.08209	0.113

FAMILY SUPPORTIVE SUPERVISOR BEHAVIOUR	7140	0.4373	0.0506
SCHEDULE CONTROL	7562.5	0.1113	0.104
COWORKER SUPPORT	6476.5	0.607	0.0335
ABSENTEEISM	6220.5	0.6239	0.0323
PRESENTEEISM	6933	0.7033	0.0249
JOB SATISFACTION	6870.5	0.8029	0.0163

* Carer burden was only assessed in respondents who indicated they were carers; with N=36 pre-test and N=37 post-test

Overall, we did not observe statistically significant differences between pre-test and post-test medians in any of the outcome variables. Effect sizes according to Cohen's d for all variables were negligible (Cohen, 1992). Similarly, for the carer subgroup, no significant differences were observed between pre-test and post-test in any of the outcome variables.

Table 4.5. Wilcoxon rank-sum test for carer respondents scores at pre-intervention (n=36) at post-intervention (n=40)

Variable	*W-statistic*	*p-value*	*Effect size*
Self-efficacy	738	0.8547	0.0216
Depression	808	0.3619	0.105
Carer burden	644	0.4318	0.0908
WFC	642.5	0.4213	0.0928
FWC	699.5	0.8343	0.0246
FSSB	871	0.1146	0.182
Schedule Control	733.5	0.8922	0.0161
Coworker support	775	0.5692	0.0659
Absenteeism	716.5	0.8637	0.0204
Presenteeism	761.5	0.6596	0.0511
Job satisfaction	891	0.07532	0.2

4.2 Qualitative

Post-test interviews were conducted with carer-employees (N=6) and key informants such as managers, HR, and senior executives (N=4), with one carer-employee declining to be audio recorded. Two main themes pertaining to experiences with the intervention were identified and are presented below. Illustrative quotations are identified by respondent name.

4.2.1 Theme 1: Intervention benefits

This theme describes benefits of the intervention as identified by carers and key informants. In general, all interview participants spoke positively of the intervention, detailing the importance of caregiving, the timeliness of the topic, and the information itself.

a) Enhanced knowledge on carer issues from key informants

All managers, senior executive and HR personnel interviewed expressed newfound knowledge of carer statistics and enhanced understanding of the carer-employee role as a result of the intervention, with the standardized manager training session recognized as the predominant avenue for this education. One HR employee expressed surprise upon learning of the prevalence of working carers in Canada, "I think that's really eye opening to people, including myself, I had no idea that there were that many people working and caregiving. So, I thought that [the intervention] was really great." –Karen

As a result of this knowledge, key informants described how the intervention impacted their perception and mindset of work-life issues overall, leading to greater compassion and leniency towards carer issues in the workplace.

One senior executive described how the workplace endorsement of carers and presence of carer-related support documents and guidelines on the intranet assisted their managers in approaching work-care conflicts and combatting sigma related to caregiving. Organizational support of carer-employees, via the intervention, assisted in establishing a standard of care and accommodation from managers.

> "There's a stigma around [caregiving], or at least there has been in the past that I've had to help address with people in the organization… identifying that we support caregivers and the ability to work flexibly around caregiving responsibilities has been a positive message and, and opened up a lot of people's eyes to what some people need to do to support their families.. I had one [manager] that reported to me who unfortunately didn't feel as compassionate and supportive of one of their [own employees who were caregiving]. So I used the campaign to remind my direct report that they need to be able to support people. And so, I'd say the campaign gave us an opportunity to openly discuss it. -Jim

Overall, the intervention was well received by key informants, with respondents recognizing the intervention and its associated tools as essential work resources for managers as well as carers. One key informant reflected:

> "without this campaign, employees wouldn't have been aware of some of the resources that we have, there wouldn't be these discussions or even perceptions of support. Maybe prior to the campaign, an employee would have no idea that their manager would be supportive of their caregiving duties, and maybe they just didn't bring it up. So, I think with this campaign, it really did bring awareness and just does help

> make it a more carer inclusive organization. So, I think it was 100% worthwhile." –Katie

b) Carer improvements in knowledge and agency

All carers responded positively to the intervention; not only did the intervention provide timely and educational resources, but the workplace-led ratification of a carer-centric campaign provided validation and reassurance to carers in both their care and work roles.

One carer described a reinforced sense of carer identity and camaraderie as a result of the intervention,

> "my way of thinking is different now. I don't feel like as guilty, like I'm the only one. I feel like I'm part of a group, and we're in the same situation. And that it's okay. It's okay. So, in the way I think I have changed, kind of like a change in mindset, almost." - Angela

Another carer disclosed that one of their primary challenges as a carer is understanding and navigating the different resources, tax benefits, and legal rights of carers. They described how prior to the intervention, they experienced frustrations with the lack of accessibility and transparency regarding the carer role, leading them to feel unprepared for the reality of caregiving. Their reflections on the intervention however, suggest a hopeful way forward, by virtue of the educational nature of the intervention granting clarity.

> "a lot of my frustrat[ions] really stem from this convoluted roadmap that leads to nowhere in the system. All that caregivers are looking for is some guidance and strategy and direction. So your campaign was valuable there… the resources and better understanding provide some clarity on caregiving approach."-Mike

The intervention also highlighted workplace-provided supports and accommodations (reduced work schedule, flexibility, employee assistance programs, compassion from colleagues etc…) in addition to community resources. Participants had positive perceptions of their employer as a result, and conveyed greater confidence and agency managing work-care conflicts in the future.

While many participants had not personally used some of the resources available, as their situation did not demand it, one carer described their experiences with the resources during a bereavement period.

> "it was really great going through this [intervention], because I didn't even know the support that we had, I didn't know. I didn't know until this campaign started. So, you kept sending all those emails, and when I was reading that I said, 'Okay, hey, let me just see what this thing is all about'. And I was like, 'Oh, wow. So we have all these resources'. And then when my [care recipient] unexpectedly just passed, and I was like, 'Okay, let's see how this stuff really

> works. You know, can we walk this walk?' So for me, I'll say, it's been very helpful getting to know the resources. And I can say that it also helps me to ask directly for certain support, to enable to enhance my work life balance." -Carol

Notably, all participants indicated that they were more comfortable and more likely to reach out to their employer or manager for support should their caregiving burden increase in a way that becomes difficult to manage their work and care responsibilities.

4.2.2 Theme 2: Intervention Drivers and Barriers

Participants (both carers and key informants) identified the changing social climate as the driving factor integral to the realization of the intervention. The most proximal cause of this shift in norms was attributed to COVID, which normalized flexibility and remote work, allowing for greater integration of work and personal life. The pandemic has also catapulted discussions of eldercare and aging into common discourse. Employers and carers were noted as being more willing to discuss family issues as a result.

> "COVID forcing everyone to learn to work from home on a regular basis has really helped. Like when [someone] says 'I want to be working remotely,' that may not have gone over so well two or three years ago, whenever everyone was working in the office. Definitely perspective has changed on the working from home, and taking time off to go and support care for family." –Andrew

At the same time, participants also acknowledged COVID as a barrier to the intervention's goals. Participants and key informants conveyed a sense of isolation and fragmentation in workplace culture as a result of working from home, thus, the intervention had difficulty permeating virtually. One HR staff reported high amounts of burnout among their staff as a result of remote work,

> "it's challenging because we've rolled out this campaign in a time where the workplace is in such flux. We're all remote, there's burnout, people are just tired of COVID. There already are challenges with culture in general, because we have to stay connected, and we're all not working together. So, I would hope that the managers who did attend [standardized manager training] have made progress and gotten a little bit better in being flexible in being accommodating and that their employees have felt that"-Karen

On a broader scale, attitudes about corporate social responsibility had been changing prior to COVID. Within the past few decades -- as a result of greater societal awareness of issues of inequity, inequality and discrimination -- the responsibilities bestowed upon institutions has expanded to not only protect but empower their diversity of employees. One carer describes how they perceive the intervention as falling under the general umbrella of social responsibility, alongside initiatives for mental health and EDI (Equity, Diversity, and Inclusion).

> "There's all the ugly racial politics and mental health, and the need to really recognize that discrimination exists, that people have been dealing with that. Think of it 20 years ago, would you have a corporate email about racism? …I think [workplace] has really making a huge effort to do a lot of different things to support employees that are just good social good things to do. Like they have a diversity and inclusion group, the carer [steering] committee. They were emphasizing mental health, they've tried to make people aware of resources during COVID"
> - Erin

4.5 Discussion

This paper examines the effectiveness of a workplace educational intervention for carer-employees. Using quantitative methods, we found that the intervention was not associated with improvements in work, health, and work-life outcomes among the general respondent sample nor the carer subgroup. In contrast, qualitative interview themes were largely positive and described several intervention benefits, such as: enhanced knowledge for carers and key informants, greater personal agency, and positive perceptions of workplace support. The remote working context due to COVID was described as being both a driver and a barrier to the intervention. While the pandemic facilitated discussions of eldercare and caregiving –thereby bolstering the impetus of the intervention –remote working lead to a loss of social cohesion and feelings of isolation, thereby mitigating a supportive workplace culture. The interviews suggest that the intervention may have some level of success at improving knowledge and agency in the short-term; however, these changes were not captured and reflected in the results of the workplace-wide survey, indicating that these effects may be more fragmented or not pervasive. At this time, we are unable to ascertain the scale of intervention-induced changes, other than the localized pockets of qualitative evidence presented in our interviews.

Overall, the qualitative and quantitative findings, in combination, suggest that while macro-level improvements are not evident in the workplace, subtle shifts in workplace culture are currently underway and may be realized in the future. The intervention may be capable of inducing smaller-scale effects within select groups of employees, particularly those with a higher carer burden or perhaps managers of teams with high work-life conflict; however, it is unclear if these will eventually translate into tangible differences on a workplace-wide level.

That being said, it should be noted our study had a relatively short 6-month observational period. Our current quantitative results do not disqualify the possibility of quantifiable intervention benefits being realized in the future. It is known that interventions often take time for effects to manifest; a review of interventions for drug and alcohol-use found that interventions with longer timeframes (10 years+) were more likely to report positive intervention effects and cost-savings (Hoang et al., 2016). Some studies report that policy-based educational interventions intended for diet-related behaviour change produced favourable cost-effectiveness only beyond a 50-year timeframe (Mitchie & West, 2013). However, organizational awareness has been found to be a strong predictor for behaviour change, with prior studies finding that awareness campaigns serve as the crucial first step to wider culture change (Bennett et al., 2004; Young et al., 2015).

Furthermore, it should not be assumed that an intervention's effects only appear linearly; interventions can have a dynamic relationship with the recipients' needs, such that as recipient needs change over time, the intervention can differentially affect recipients based on their situation (Paterson et al., 2009). In this way, interventions can be viewed as an individualized and adaptive process, contingent upon participant need. This is especially true given that based on HR's internal report, the majority of the employees of this workplace are male; thus are less likely to have substantial carer burden. It may be possible that on a longer timeframe, or with changing carer needs, we may reach different conclusions on intervention effectiveness.

Previous literature indicates that psychoeducational interventions for carers produce inconsistent results in improvements to carer mental health, quality of life, and behaviour change (Eagar et al., 2007; Nickel et al., 2018; Kishita et al., 2018). It has been hitherto surmised, that this irregularity is likely due to the complexity of carer burden and individual care situations (Eagar et al., 2007). A prior pilot study conducted at a university workplace, found that a similar education intervention was capable of significantly improving health and work outcomes (Ding et al., 2020; Ding et al., 2021). However, this study was piloted prior to COVID and conducted in person. It may be feasible that the online delivery of the intervention was not suited for remote working, given that many employees were burnt-out working from home.

Demographic transitions, such as population aging and the rise of dual-income households, point to the growing need for employers to be flexible and supportive, as the labour force navigates increasingly complex relationships between work and personal life. When job resources are not compatible with the reality of their employees' needs, employers face repercussions in the form of greater burnout, reduced satisfaction and commitment (Mauno et al., 2006). To cement this need for carer interventions, Canada's Human Rights Act specifies that employers have a duty of accommodation to their employees, with caregiving a protected class under family status. With these "carrot-and-stick" influences alongside population aging and COVID, the need for carer-supportive workplaces is at an all-time high. It is estimated that by 2050, care hours will increase 43% to 415 care hours annually, representing a huge loss of employee capital for workplaces (MacDonald et al., 2019). To our knowledge, this study is the first of its kind, assessing a workplace-intervention for carers delivered during the pandemic. While our quantitative results are not statistically significant on the workplace level, qualitative interview themes suggest that virtual education-focused interventions may serve as a starting point for organizations interested in generating positive changes in carer and managerial knowledge of carer issues and resources. We encourage employers to be proactive at addressing work-care conflicts, as they will undoubtedly compound in the future.

We acknowledge that our study has a number of limitations, with the primary source being COVID. As echoed by participants, COVID and work-from-home likely interfered with data collection and implementation of the intervention. We had difficulty attaining online survey responses amongst the virtual and burnout-prone circumstances, leading to low response rates. As a result, the use of non-parametric tests reduces the power of our results, compared to parametric tests. In particular, the Wilcoxon Rank-sum test is imprecise due to its inability to handle data of equal ranks/measurements. In addition, given the unique context data were collected and analyzed

under, findings from our study are difficult to generalize to other workplaces and to non-pandemic conditions.

4.6 Conclusion

Caregiving is a normative and ethical process, rooted in human nature, but burdensome when performed alongside work duties. This paper examines the outcome of a carer intervention, implemented within the workplace. The intended goal was to engender workplace culture change in relation to a carer-friendly work environment, as well as improving work and health outcomes for employees. We did not find evidence of workplace-level improvements in work and health outcomes in the short-term (6-months), however, smaller-scale non-quantifiable benefits such as enhancements to overall knowledge on carer issues and resources were observed. These effects suggest that additional intervention benefits may appear in the future, as it takes time for the intervention to permeate work culture. Regardless, we endorse that all employers and policymakers should contemplate the adoption of similar carer interventions, given that the number of unpaid carers, and consequently, work disruptions, is projected to increase as population aging continues for the foreseeable future. COVID has heightened the mainstream profile of carers, and popularized remote working. These transformations, alongside changing social climate and corporate attitudes, point towards an opportune environment for the success of such initiatives.

4.7 Literature Cited

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Appendix 4.A. Retrospective Interview Guide – Carer-Employee

1. How has life changed over the last 12 months? In terms of:
    a. work
    b. caregiving (if applicable)
    c. and your health

2. Are you in the same or different position at work? (if respondent is a repeat interviewee)

3. Has caregiving burden, or the stress associated with caregiving, changed over the last 6 months? Why?

4. Does [workplace] have any organizational goals or priorities related to supporting their employees? Have these goals changed during the pandemic?
    a) Have you noticed a change in organizational priorities over the past 6 months?

5. Are you aware any of [workplace]'s policies, programs, supports and resources for carer-employees? Which ones? Where did you hear about these policies/programs/supports?

[Read Aloud] *As you may know, our campaign at [workplace] was a targeted carer-friendly workplace campaign, aimed at increasing the profile of carer-employees as well as encouraging a supportive workplace culture via several avenues such as standardized manager training, informational posters, tools, and seminars.*

6. Have you seen advertisements or discussions relating this campaign? Which of these aspects were you aware of?

7. Did you attend the caregiver education seminar offered [on date]?
    a. What did you think of the content?
    b. Have you made any changes to your work-life balance as a result of the seminar?
    c. As a result of the seminar, have you initiated discussions about caregiving with anyone (i.e., either your supervisor or coworker)?
    d. From the carer campaign, have you personally used of any of the resources advertised through the campaign emails and/or on the Intranet?
    e. Do you know where to find these resources?
    f. Do you know where or who to ask to get more information about carer resources?

8. What aspects of the workshop did you like?
    a) Which resources do you think were most useful to you? Why?
        PROBE: were they suitable your needs?
    b) Useful in general?

9. Has your balance between work and caregiving changed over the last 6 months? Why?
    a) PROBE: workplace resources, supervisor attitudes, coworker support

b) PROBE: mental vs physical difficulties in managing work-life balance

10. Have you noticed any differences in the visibility of carer supports and resources?
    a) Have you noticed any differences in how managers or coworkers discuss carer issues within the workplace? i.e. quality, quantity, timing?

11. Do you perceive any differences in workplace culture over the last 6 months?
PROBE: supervisor behavior? Co-worker behavior?

12. Do you think your general health has improved due to the changes brought about by the campaign?
    a. Has your mental health been improved because of the campaign?
    b. Has your physical health been improved because of the campaign?

13. Do you think your ability to perform your work has improved because of the campaign?
    a) Ability to negotiate accommodations
    b) Ability to meet work obligations
    c) Ability to stay focused on work

14. Do you think your ability to provide unpaid family care has improved because of the campaign?

15. Have you noticed any changes in your supervisor/manager as a result of the campaign?
    PROBE: has your supervisor/manager's behaviour changed with you with respect to your unpaid care work?

16. Do you feel [workplace] is committed to supporting its carer-employees? Please rate on a scale from 1-5, with 1 being not very much and 5 being very much.

17. Do you feel that the carer-friendly campaign is a short-lived program or do you feel it will have staying power or longevity going forward? Please rate on a scale from 1-5, with 1 being not very much and 5 being very much.

18. What aspects of the campaign did you like?

19. What aspects of the campaign do you think could have been improved?

20. What would you change if you could re-do the study again?

21. What factors from work would make it easier to manage your current burden? (Skip if care recipient has passed away)
    a. What about factors from your *personal life* that would make it easier to manage your current burden?

22. What motivated you to take part in this research?

Appendix 4.B. Retrospective Interview Guide – Key Informants (Managers/HR/Executives)

1. How has life changed over the last 12 months? In terms of:
    a. work
    b. caregiving (if applicable)
    c. and your health

2. Are you in the same or different position at work? (if respondent is a repeat interviewee)

3. What do you think are [workplaces]'s organizational priorities? This can be in terms of the actual work that you do, your employees, or other societal aspects.
    a) In your experience, what do you personally consider as the priorities of your organization?
    b) Have you noticed a change in organizational priorities over the past 6 months?

4. Are you aware any of [workplace]'s policies, programs, supports and resources for carer-employees? Which ones? Where did you hear about these policies/programs/supports?

[Read aloud] *As you may know, our campaign at Wood was a targeted carer-friendly workplace campaign, aimed at increasing the profile of carer-employees as well as encouraging a supportive workplace culture via several avenues such as standardized manager training, informational posters, tools, and seminars.*

5. Have you seen advertisements or discussions relating this campaign at [workplace]?

6. From the carer campaign at [workplace], have you personally used or communicated to your employees of any of the resources advertised by [workplace] through campaign emails and on the Intranet? If not, why? Which ones?
    a. Do you know where these resources are located if they are needed?
    b. Do you have enough knowledge about these resources to feel comfortable directing employees to these resources?
    c. Has your knowledge on carer resources at [worplace] increased as a result of the campaign?

7. Have you participated in the manager training workshops?
    a. What did you think of the content?
    b. Have you made any changes to your supervisory style as a result of the training?
    c. Are you spending more or less time on supporting your employees as a supervisor/manager than before the manager training workshop?
        i. Ex. Check-ins? Communication?
        ii. How much time? When?
        iii. PROBE: if they had enough time in their daily schedule to accommodate carer-employees; if not, how are they managing this expectation?

8. What aspects of the workshop did you like?
    a) Which resources do you think were most useful to you? Why? PROBE: were they

suitable to the needs of your team? To you as a manager?
b) Useful in general?

9. What aspects of the workshop did you feel could have been improved?

10. Over the last 12 months, have you recognized any differences in workplace culture? Probe: when was this difference noticed (12 vs 6 months ago), behaviors of other supervisors, Co-workers, Employees in general
a) What about workplace culture specific to carer-employees?
b) Do you notice any changes in your own behaviors related to supporting workplace

culture?

11. Have you noticed any changes in the employees under your supervision as a result of the campaign? PROBE: have your employees' behaviour changed with you with respect to their needs?

12. Have you noticed any changes in the number of employees using workplace supports for carer-related reasons?
a) Has this made a difference in organizational performance? Other?

13. Do you think carer-employees' ability to perform their work has changed over the last 6 months?
a) Do you notice any changes in their physical health? b) Mental health? Other?

15. Would you think it would be useful to see this campaign run again? Why or why not?

14. Has this campaign been a worthwhile use of time and effort on your end? Why or why not? What about from an organizational perspective? Why or why not?

16. Do you feel [workplace] is committed to supporting its carer-employees? Please rate on a scale from 1-5, with 1 being not very much and 5 being very much.

17. Do you feel that the carer-friendly campaign is a short-lived program or do you feel it will have staying power or longevity going forward? Please rate on a scale from 1-5, with 1 being not very much and 5 being very much.

18. What motivated you to take part in this research? Probe: Content of this research, this study is examining carers in the workplace, is this a topic that you are interested in? Why?

19. Would you consider this study, overall, as feasible to other organizations? Why or why not?

Chapter 5: Cost Implications from an Employer Perspective of a Workplace Intervention for Carer-Employees during the COVID-19 Pandemic

5.1 Abstract

In developed countries, population aging due to advances in living standards and healthcare infrastructure means that the care associated with chronic and degenerative diseases is becoming more prevalent across all facets of society—including the labour market. Informal caregiving, that is, care provision performed by friends and family, is expected to increase in the near future in Canada, with implications for workplaces. Absenteeism, presenteeism, work satisfaction and retention are known to be worse in employees who juggle the dual role of caregiving and paid employment, representing losses to workplaces' bottom line. Recent discourse on addressing the needs of carer-employees (CEs) in the workplace have been centred around carer-friendly workplace policies. This paper aims to assess the potential cost implication of a carer-friendly workplace intervention implemented within a large-sized Canadian workplace. The goal of the intervention was to induce carer-friendly workplace culture change. A workplace-wide survey was circulated twice, prior to and after the intervention, capturing demographic variables, as well as absenteeism, presenteeism, turnover and impact on coworkers. Utilizing the pre-intervention timepoint as a baseline, we employed a cost implication analysis to quantify the immediate impact of the intervention from the employer's perspective. We found that the intervention overall was not cost-saving, although there were some mixed effects regarding some costs, such as absenteeism. Non-tangible benefits, such as changes to employee morale, satisfaction with supervisor, job satisfaction and work culture, were not monetarily quantified within this analysis; hence, we consider it to be a conservative analysis.

Keywords: carer-employee; intervention; COVID-19; cost savings

5.2 Introduction

Aging populations are seen as a robust indicator for advanced living conditions in developed countries, and are often associated with high life expectancy, advanced healthcare and quality of life. Globally, older adults (65 years+) are the fastest-growing age cohort, growing at 3% per year [**1**]. In Canada, older adults comprise approximately 18% of the general population, with this proportion expected to increase in the near future [**2**]. This demographic trend warns of incoming pressures to labour markets and healthcare systems, as the comparatively smaller number of economically active Canadians are becoming more involved in the provision of care for the growing older adult cohort.

The implications of population aging are numerous and pervasive across different societal dimensions. Widespread population aging places strain not only on healthcare systems, which are not equipped to provide long-term care for chronic and age-related diseases, but also the family members charged with the administration of care. In this way, eldercare costs are two-fold: (1) approximately half of Canada's total healthcare spending is on older adults, despite them comprising of about a fifth of the total population [**3**] and; (2) caregiving, performed by family and friends, is time-consuming and labour-intensive, with consequences for the carers [**3**,**4**].

In Canada, the neoliberalist reforms of the 1980s moved the bulk of eldercare provision away from the responsibility of the state and into the community and homes of the infirm; consequently, the majority of care (75%) is now provided by family members in the community, and often within private dwellings [**5**,**6**,**7**]. Long-term care homes, private community or homecare services with personal support workers and nurses, as well as mobility and hearing devices for the elderly, are costly and, as a result, usually not publicly funded. By outsourcing chronic and acute care provision to family and friends, this cost-effective solution frees up hospital beds, shortens hospital stays and releases healthcare resources to be utilized elsewhere [**8**]. Informal or family carers frequently opt to take on the responsibilities of a (health)care provider themselves, in lieu of hiring assistance. From a societal perspective, carers avert approximately CAD 25 billion in healthcare costs by performing labour themselves [**9**].

As of 2018, there are approximately 7.8 million carers in Canada aged 15 years or older; this represents approximately 25% of the total population [**10**]. The majority of care takes place within the care recipients' independent dwellings as, in recent years, an increasingly geographically mobile population means that cohabitation is becoming less common [**8**,**11**]. Generally, carers tend to be women (54%), who are more likely to perform more time-intensive care tasks, such as physical or medical assistance. However, demographic trends suggest that care provision is becoming more equal among the genders, as men's involvement in care has greatly increased. While men comprised just 23% of the carers in 2002, this figure has increased to 46% in 2018 [**11**,**12**]. In addition, most carers (44%) are between 45 and 65 in age, with the majority (47%) providing care for an elderly parent/parent-in-law [**11**]. Our paper herein spotlights eldercare situations as the most common care relationship. However, that is not to say that other types of caregiving are not present; for example, cancer is the second most common condition requiring care, followed by cardiovascular disease and mental illness. Developmental and physical disabilities each make up under 5% of all care situations [**11**].

The majority of Canadian carers (64%) report spending less than 10 h per week providing care on average; they perform tasks such as transportation, medical services, emotional support, financial assistance, housework and meal preparation [**10**]. However, care intensity is largely dependent on the personal situation and the needs of the care recipient, and is subject to rapid change [**10**]. Approximately one in five Canadian carers (21%) give what is considered to be high-intensity care provision, reporting over 20 h of weekly care per week [**8**]. Overall, the average annual time spent caregiving is estimated to be 290 h for the typical carer; however, it is projected that this figure will grow to 415 annual hours by 2050 due to the aging of the baby boomer cohort, coupled with increases in lifespan and smaller households with fewer children to provide care [**7**].

Carers themselves are increasingly regarded as a cohort that needs care. The unpaid labour performed by carers places considerable pressure on other aspects of their lives, which is reflected in reported adverse effects, such as increased stress, anxiety and depression, when compared to non-carers [**13**]. Carers may reduce social engagements, neglect personal responsibilities and reduce labour force engagement (in the form of shifting to part-time work or declining career advancement) in order to dedicate more time to caregiving. In other care situations, carers may feel unable to reduce their paid work hours due to the financial pressures of caregiving: approximately 41% of Canadian carers spend CAD 100–300 monthly on out-of-pocket caregiving-related expenses [**4**]. This situation leaves carers trapped in a precarious position and, thereby,

more prone to burnout. Moreover, 28% of all carers are "sandwiched" between childcare and eldercare, introducing additional role tensions [**11**]. Although not a focal point within this paper, the sandwich carer demographic is a growing trend as dual earner families become more common, and women elect to have children later in life [**14**,**15**]. The process of care provision is emotionally charged and can sometimes be non-linear in its progression; as a result, carers often experience mixed emotions towards the carer role, ranging from affection to guilt, and sometimes resentment, as their care responsibilities interfere with their other commitments, such as personal time or work obligations [**16**,**17**,**18**].

From a labour market perspective, carers have the potential to create adverse disruptions to employers and firms if unsupported. There are approximately 6.1 million carer-employees (CEs) in Canada, defined as unpaid or family carers that are simultaneously engaged paid employment [**11**]. The common age range of carers (45–65 years) represents the most experienced workers in the labour force, with industry-specific skillsets and knowledge [**11**]. CEs' impact on the Canadian labour market is substantial; it is estimated that an annual CAD 1.3 billion worth of productive work is lost due to care–work conflicts that result in CE absenteeism or turnover [**19**]. In the US, this estimate reaches USD 33.6 billion worth of annual lost productive work for all full-time CEs, however, this cost discrepancy is attributable to the US' larger population [**20**]. American employers may expect to lose approximately USD 2110 annually per CE, while in Canada, the estimate is CAD 8674 per CE lost annually [**20**,**21**]. This divergence may be explained in part by way of the US estimates considering only high-intensity carers (12+ weekly hours of care) and using conservative national estimates of turnover, absenteeism and presenteeism costs, while the Canadian cost estimates use an in-depth case study. Further to these labour market costs, care–work conflicts can also result in adverse work outcomes that are not easily monetized, such as declines in mental health, poor employee morale and reduced job satisfaction [**13**,**22**]. Consequently, it is in the best interests of employers to mitigate these effects by supporting their CE population.

The COVID-19 pandemic has exposed the cracks in Canada's problematic eldercare system, accelerating the downstream ramifications for employers. The pandemic has created dangerous conditions for current carers, produced new carers and has led to the acute exacerbation of CE burden. A report from the UK finds that not only are carers providing more care hours now than prior to the pandemic, but about 20% of CEs reported either reducing their work hours or leaving their job due to caregiving [**23**]. Overall, the ongoing global events of the past two years have demonstrated that the needs of CEs can and should no longer be ignored at an organizational level, if not for the sake of human decency, then for the impacts to the organization's bottom line.

This manuscript is part of a multi-project research program on carer-employees and organizational policy. The objective of our overall research program is to introduce and evaluate the immediate impacts of a carer intervention within a workplace setting. Based on the Canadian Standards Associations' *Carer-Inclusive and Accommodating Organizations Standard*, called the *carer standard* going forward, the intervention was customized for the specific needs of our partnered workplace [**24**]. This paper, as part of the larger program of research, specifically focuses on the cost implications of the intervention in order to build evidence for employer uptake of carer-related work initiatives. Through this, we hope to incentivize employers to implement mutually beneficial carer-supportive campaigns within the workplace. Although we seek to assess whether

the intervention is cost-saving for the employer in a 6-month observational period (that is, if there is a net reduction in employer expenditure within our observed variables), we recognize that cost savings are only one of many considerations for a worthwhile intervention. Moreover, the short observation timeframe excludes future averted costs from our analysis.

5.3. Materials and Methods

5.3.1. Study Design

This study's methods are based on a previous methodology created by Mofidi et al. (2019) under a prior research program [**21**]. This current project is a subsequent iteration of this original study, where an educational intervention has been implemented, albeit at a different workplace. Using cross-sectional surveys, we use a pre–post study design to observe and monetize changes in self-reported work variables (absenteeism, presenteeism, turnover, impact on coworkers) prior to and after the intervention. The participating workplace is the Canadian division of a large-sized multi-national engineering firm in the oil and gas industry, employing 3500 workers in Canada. A cost implication analysis was employed in order to evaluate if the intervention has been cost-saving from the employer's perspective in the workplace studied. Specifically, we ask: (1) Does the intervention reduce costs (sometimes referred to as averted costs) from the employer's perspective? (2) Do these averted costs outweigh the implementation costs of the intervention?

An educational intervention was designed and tailored to the needs of the participating workplace. A needs analysis (needs assessment and gap analysis to determine gaps in workplace policy and procedures pertaining to carer-employees) was conducted at the participating workplace in the summer of 2020 with the assistance of the employer's Human Resources (HR) department. Key stakeholders and carer-employees were interviewed, in addition to implementing a preliminary version of a workplace-wide survey, which was circulated to all employees of the workplace, caregiving or otherwise. Both the interviews and survey assessed workplace culture, satisfaction with management, COVID-19 precautions and thoughts on the *carer standard*. A steering committee, composed of carer-employees and HR personnel, was formed in the fall of 2020 in order to guide the analysis and collaboratively design relevant and feasible intervention tools to best fit the participating workplace's specific needs and gaps. A lack of a consistent and supportive workplace culture around carers was identified as a core issue to be addressed by the intervention.

In the first few months of 2021, the intervention was implemented over a 10-week period with the partnered workplace, in collaboration with the HR department. The goal of the intervention was to increase awareness and supports for carer-employees (CEs) at the workplace and, in doing so, to induce carer-friendly workplace culture change. Intervention tools included: standardized manager training, workplace "lunch and learns", promotional posters, informational documents containing information on Federal and provincial carer resources, burnout management and recognition techniques and manager guidelines for communicating with carer-employees. Intervention content included: statistics, current research, recommendations and stories pertaining to carer-employees, with the overall goal of highlighting not only the struggles and needs of this growing population, but the role of the workplace in supporting their carer-employees. Altogether,

the intervention was designed to foster a more carer-friendly workplace, with appropriate resources and with compassionate and understanding managers, so that carer-employee work outcomes may be improved, which would, ultimately, lead to savings to the employer's bottom line.

The intervention was designed as a one-time intervention, with an observational window of 6 months between pre-test and post-test. As a result, discounting was not applied.

5.3.2. Input Data

A workplace-wide survey was distributed immediately prior to the intervention (pre-test) as well 4 weeks following the intervention (post-test), capturing both demographic variables as well as work-related variables, such as absenteeism, presenteeism and turnover intention. The inclusion criteria for the surveys only required survey respondents to be employees (either full time or part time) of the participating workplace, with external contractors or consultants excluded. While we collected survey data from both CEs and non-carer employees, in this paper, we focus our analysis on CE data only. Non-carer employee data are only used as a baseline for the presenteeism and turnover variable, as described later. All analysis and calculations were performed in Excel.

We estimated the total number of CEs within the workplace via multiple scenarios, with our default scenario obtained by assuming that one-third of all employees were providing unpaid caregiving, based on current Canadian estimates [**19**]. A sensitivity analysis was also conducted to generate different scenarios with differing estimates of organizational CE proportions from the baseline of CEs making up one-third of all employees (from −10% to +10%).

From HR data, the hourly total compensation rates were calculated to be CAD 51.61 with benefits included (approximately 20% of the base wage). This wage rate was used to estimate the monetary value of time and labour of all employee groups, including CEs, supervisors and HR personnel. Where data were not available, we draw estimates of costs from the literature, as outlined in the following sections.

5.3.3. Intervention Costs

The intervention was assumed as a one-time cost, with costs derived only from the time and labour costs of employees involved, given that the intervention was implemented entirely virtually because of the COVID-19 pandemic. Researcher time and labour was estimated using the workplace wage rate as a proxy, as the role of the researcher is replaced by an employee in other such workplace situations. The intervention design and implementation are divided into 4 stages:

1) Needs analysis → front-end meetings with HR, interviews with key stakeholders, baseline assessment of workplace environment via workplace-wide survey;
2) Intervention design → design and creation of intervention tools with an internal steering committee, based on the needs identified from the previous stage;
3) Intervention implementation → email advertisement of promotional posters, planning and execution of training and lunch and learns;
4) Monitoring and evaluation → post-intervention interviews and survey assessment.

Monetary valuation is based on 2021 Canadian dollars; no discounting was applied, as all data were collected and the evaluation was completed within one year (December 2020 to June 2021).

5.3.4 Costs Saved to Employer Stemming from the Intervention

Using cross-sectional survey data, pre-test and post-test data were collected on four variables: (1) absenteeism, (2) presenteeism, (3) turnover and (4) impact on colleagues. These were converted into monetary estimates, using the average hourly organizational wage rate of CAD 51.61. The following sections detail the calculation of costs for each of the four variables of interest. We assigned the pre-test timepoint as the baseline or "no intervention" scenario, representative of the cost implication of unpaid caregiving on the employer. All the following costs were calculated twice, once using pre-test baseline data and again with post-test data from the survey. These cost estimations are used in the cost implication analysis, detailed later. Any averted costs at the post-test timepoint compared to the pre-test timepoint are considered the "benefits" of the intervention.

We take care to clarify that this analysis is a conservative estimate, as our evaluation is a partial estimation of costs. For example, potential outcomes (including their potential monetary implications), such as changes in quality of life, job satisfaction and work stress, are not captured.

5.3.5 Absenteeism

Absenteeism, referring to lost productive time, was captured via the workplace survey using the human capital approach. We categorize absenteeism into two distinct types: short term (occasional single or partial days missed), and long term (extended leaves or reduction in work schedules/responsibilities). To estimate short-term absenteeism, CEs were probed about their absences (either full day or part day in the past 12 months) attributable to their caregiving responsibilities. Long-term absenteeism was queried by asking CEs if they had: reduced their weekly work hours for caregiving-related reasons and, if so, by how much, and how long this period of reduced work lasted. Using a conservative estimate, for CEs who were still on reduced working hours at the time of the survey, their long-term absenteeism endpoint was set as the day the participant responded to the survey.

Each workday was assumed as the standard 8 h, with the monetary conversion of this time estimated with the workplace average wage of CAD 51.61 hourly. From the survey, a sample mean and an associated cost were generated and designated as the per-case cost. It should be noted that not all CEs in our sample reported either short-term or long-term absenteeism; given this, the per-case estimate refers to the costs associated with a CE that does report absenteeism. A separate per CE column averages the cost of absenteeism across all CEs in the sample.

5.3.6 Presenteeism

Non-specific presenteeism, defined as reduced productivity at work for any potential reason, was assessed and scored using the World Health Organization's HPQ questionnaire for all survey respondents pre-test and post-test, caregiving or otherwise. Respondents self-reported their work performance over the preceding 4 weeks. The maximum score of 10 indicated no lost work, and a

lower limit of 0 indicated total lost work. This self-assessment was converted to a score out of 100 to signify the percentage of actual work performed and, by extension, the lost work. A sample mean for presenteeism was calculated for both carers and non-carers, with the non-carer presenteeism assumed as the baseline. Presenteeism scores were multiplied by the hourly wage rate and then by the total hours worked in a year (assumed at 2080 h, based on a standard 52-week work year), generating an estimate for the monetary cost of lost productivity.

Presenteeism score = 100 − (Participant self-reported productivity × 10)

5.3.7 Turnover

Carers and non-carers were surveyed for their turnover intention by probing if they had considered quitting their job in the last 12 months. Non-carer frequency of responding "yes" was used as baseline for comparison. Turnover intention is frequently used as a predictor and, at times, a direct proxy for turnover behaviour, with the literature finding varying degrees of association between turnover intention and actual turnover in private industry. While not completely interchangeable, correlations ranging from 0.32 [**25**] to 0.45 [**26**,**27**,**28**] suggest moderate associations between the two variables. Our study, adopting a conservative approach, uses a 30% estimator for turnover behaviour, where 30% of employees that indicate turnover intention actually follow through. From this, we assumed that the costs of turnover were 6 months' worth of mean employee income to account for recruitment and retraining costs [**20**].

5.3.8. Impact on Colleagues

Deviation from normal work routines and responsibilities have the potential to impact CEs' immediate work team, such as supervisors or coworkers. Common accommodations/tasks, such as supervisory support and meetings, reallocation of work to coworkers and other general troubleshooting, represent lost productive work hours that may have been utilized for other work tasks. To estimate these costs, CEs were asked how many hours they spent per month arranging work-related accommodations with colleagues or supervisors for unpaid caregiving reasons. This value was converted to a yearly estimate, and then doubled to account for time spent on the supervisors'/coworkers' end. The mean value was translated to a cost amount using hourly wages.

5.3.9. Cost Implication

Our evaluation seeks to determine if the workplace intervention is cost-saving in the short term by assessing the following questions:

1) Does the intervention avert costs (absenteeism, presenteeism, turnover and impact on coworkers) for the employer?
2) Do these averted costs outweigh the implementation costs of the intervention?

For each of the cost categories obtained from our survey sample (absenteeism, presenteeism, turnover and impact on coworkers), mean costs per CE were used to extrapolate a sum workplace-wide cost, using the assumption that a third of all employers were carers. Workplace-wide costs were accordingly evaluated from the employer's perspective twice: in the no intervention scenario (pre-test), and in the post-intervention scenario (post-test) over a 6-month period. Costs savings

refer to the difference in cost between the two scenarios, with the assumption that this difference did not change during our observational window. Pre-test data are assumed as the baseline for comparison. Averted costs refer to the reduction in cost (immediately) after the intervention. Future averted costs were not measured due to our short timeframe and, as such, our analysis is a conservative approach to cost savings. A cost implication analysis was performed by subtracting the implementation costs of the intervention from the averted costs.

5.4. Results

5.4.1 Participant Demographics

The demographic breakdown of survey respondents is presented in **Table 5.1**. The workplace-wide survey was distributed twice, first in December 2020 (pre-test), and later in June 2021 (post-test). Participation in the survey was open to all employees of the workplace, with 44 CEs (45.3% of all responses) participating in the pre-test, and 40 (25% of all responses) participating in the post-test. **Table 5.1** presents CE cross-sectional data only, given that CEs are our population of interest in this study.

Table 5.1. Demographic breakdown of carer respondents at pre-test and post-test

Demographic		Pre-test (N=44)	Post-test (N=40)
Gender			
	Male	20 (45.5%)	15 (37.5%)
	Female	15 (34.1%)	25 (62.5%)
	Other	0 (0%)	0 (0%)
	Missing/NA	9 (20%)	0 (0%)
Age			
	18-24	1 (2.3%)	2 (5%)
	25-34	4 (9.1%)	8 (20%)
	35-44	13 (29.5%)	8 (20%)
	45-54	11 (25%)	17 (42.5%)
	55-64	5 (11.4%)	5 (12.5%)
	65+	2 (4.5%)	0 (0%)
	Missing/NA	8 (18.2%)	0 (0%)
Marital Status			
	Married/Common law	28 (63.6%)	29 (72.5%)
	Separated/Divorced	2 (4.5%)	3 (7.5%)
	Single	6 (13.6%)	7 (17.5%)
	Widowed	0 (0%)	1 (2.5%)

Other	0 (0%)	0 (0%)
Missing/NA	8 (18.2%)	0 (0%)

*Missing/NA data reflects participants choosing not to answer demographic questions

Interestingly, the gender composition of our CE sample differed at both data collection points, ranging from male dominated (57.1% male) at pre-test to female dominated at post-test (62.5%). This is not necessarily reflective of the workplace's overall makeup. As a male-dominated firm, approximately one-third of the overall workplace identifies as female, despite making up more than a third of our survey respondents. Overall, the 35–54 age group is most common during both time points; this is in line with the average age of the overall workplace, with a mean age of 43.4 for women and 45.9 for men. It should be noted that a number of participants at pre-test did refrain from identifying their gender and age, which limited further inferences being made on the gender and age of our sample. Demographic information, such as marital status, was not available for the overall workplace.

Of the 3500 total employees at the workplace, we generalized that one-third (N = 1155) were CEs based on the literature for CE prevalence across all industries in Canada. While we assume this as the default scenario, a sensitivity analysis was also conducted to examine differing levels of cost associated with CE prevalence above and below this baseline.

5.4.2. Intervention Costs

We estimate the total cost of the intervention to be CAD 21,056.88, based on labour estimates for the four cost categories outlined in the methods section. The largest costs are front- and back-loaded, with the needs analysis (CAD 7586.67) and the monitoring (CAD 7122.18) accounting for over half of all costs. Both of these cost categories made extensive use of researchers' time, which was substituted with the mean workplace hourly wage. **Table 5.2** below depicts the full cost breakdown.

Table 5.2. Cost categories for the intervention, from initial needs analysis to the monitoring stage

Intervention Cost Categories		Time (hours)	Cost
	Front-end HR meetings	9	$464.49
	Interview with key stakeholders	18	$928.98
Needs Analysis	Survey Analysis	120	$6,193.20
Intervention Design	Design and creation of intervention tools	80	$4,128.80

	Feedback from steering committee	20	$1,032.20
Intervention Implementation	Circulation of promotional posters	3	$154.83
	Planning and execution of lunch and learns/seminars	20	$1,032.20
Monitoring and Evaluation	Post-test interviews	18	$928.98
	Survey Analysis	120	$6,193.20
TOTAL		408	$21,056.88

5.4.3. Absenteeism

As depicted in **Table 5.3**, at the pre-test, approximately 45.5% of CEs in the sample reported having short-term absenteeism related to caregiving within the past 12 months, while only 16% report having taken long-term absences. From this sub-sample, mean short-term and long-term absenteeism is estimated to be 90.2 and 145.1 annual productive hours lost, respectively. This equates to an approximate cost of CAD 4655.22 and CAD 7490.68 in lost working hours to the employer for each CE that ends up having short-term or long-term absences, respectively. Generalizing to the entire workplace using the per-CE costs, at baseline or in a no intervention scenario, a combined CAD 3,820,237.41 is being lost annually due to caregiving-related absenteeism.

Table 5.3. Mean absenteeism (in hours) in pre-test and post-test

	Pre-Test Lost working hours (past year) (N=44)			**Post-Test Lost working hours (past year) (N=40)**		
Lost time	**Mean**	**SD**	**CEs percent***	**Mean**	**SD**	**CEs percent***
Long-term	145.14	176.1	15.91%	73.33	76.73	22.00%
Short-term	90.2	130	45.45%	70.43	101.92	57.50%
Impact on coworkers	104.2	101.4	50.00%	122.57	126.024	59.57%

*CE percent denotes the percentage of the CE sample that reported each form of lost time

As outlined in **Table 5.4**, cost savings were observed post-test in short-term absenteeism (CAD—1020.33 per case) and long-term absenteeism (CAD—3706.11 per case), while increases

in the cost from the baseline were found for CE-specific presenteeism (CAD +1610.23 per case). However, from the pre-test to the post-test, we observe an increase in the frequency of CEs reporting absenteeism, thereby offsetting some of the cost savings. In total, workplace-wide cost savings for absenteeism are approximately CAD 444,557.53.

Table 5.4. Cost breakdown in each cost category at pre-test compared to post-test

	Pre-Test (No intervention)			Post-Test (Post-intervention)		
Cost Item (Annual)	**All CE cost**	**Per-case cost**	**Per-CE cost***	**All CE cost**	**Per-case cost**	**Per-CE cost***
Short term absenteeism	$2,443,747.15	$4,655.22	$2,115.80	$2,414,022.85	$3,634.89	$2,090.06
Long-term absenteeism	$1,376,490.26	$7,490.68	$1,191.77	$961,657.03	$3,784.56	$832.60
Presenteeism Non-CE	NA	$21,136.98	NA	NA	$22,435.90	NA
Presenteeism CE	$29,620,700.71	$25,645.63	$25,645.63	$32,980,771.82	$28,554.78	$28,554.78
Difference in presenteeism	$5,207,490.29	$4,508.65	$4,508.65	$7,067,308.25	$6,118.88	$6,118.88
CE Turnover	$661,480.28	NA	$572.71	$2,275,606.28	NA	$1,970.22
Impact to colleagues	$3,105,657.56	$5,377.76	$2,688.88	$4,352,317.23	$6,325.73	$3,768.24
TOTAL	$12,794,865.53	$43,169.29	$11,077.81	$17,070,911.64	$42,299.97	$14,780.01

*Per-CE column refers to the typical cost associated with one CE and is calculated with total workplace cost and CE organizational count. The per-Case column refers to the costs associated within a single instance of (mean) absenteeism, presenteeism, and impact to colleagues, recognizing that not all CEs may experience absenteeism, presenteeism, etc…

Table 5.5 depicts the sensitivity analysis, outlining variations in costs employers may expect based on different organizational CE counts. The default scenario (one-third of total employees are CEs) is used throughout this paper.

Table 5.5. Sensitivity analysis of various estimations of CE count (total number of CEs employed at the workplace)

Scenario	CE Count across workplace	All CE cost pre-intervention	All CE cost post-intervention	Net Difference*
CE Count Increased by 10%	1143.45	$14,074,352.09	$18,778,002.80	$ 4,703,650.72
CE Count Increased by 5%	1091.475	$13,434,608.81	$17,924,457.22	$ 4,489,848.41
Default	1155	$12,794,865.53	$17,070,911.64	$ 4,276,046.11
CE Count Decreased by 5%	987.525	$12,155,122.26	$16,217,366.06	$ 4,062,243.80
CE Count Decreased by 10%	935.55	$11,515,378.98	$15,363,820.48	$ 3,848,441.50

*net difference does not include the cost of the intervention

5.4.4. Presenteeism

Using non-CE presenteeism rates as a baseline, we note that CE presenteeism is higher than non-CE rates at both pre- and post-test. At pre-test, the difference in CE and non-CE presenteeism costs are CAD 4508.65 per case; accordingly, the total cost of CE presenteeism to the workplace is estimated at CAD 5,207,490.29 in the no intervention scenario.

We observe that presenteeism for both CEs and non-CEs have increased at post-test, with the difference between CEs and non-CEs growing to CAD 6118.88 per case. In total, we estimate additional workplace-wide costs of CAD 7,067,308.25 for CE presenteeism.

5.4.5. Voluntary Turnover

Using a similar approach as with presenteeism, we assumed non-CE turnover intention as the baseline for both the pre- and post-test. Using the reported turnover rates in **Table 5.6**, together with the estimation that one-third of participants who indicated turnover intention would also embody turnover behaviour, we extrapolate that, across the entire workplace, the employer would expect an annual turnover of approximately 175 CEs and 330 non-carer-employees at pre-test (sum total of 505). This extrapolation is increased to 219 CEs and 358 non-carer-employees (577 total) at post-test. These turnover estimates comprise approximately 14.4% and 16.5% of the total workplace labour force at pre-test and post-test, respectively. This is roughly aligned with what we know from the literature to be the Canadian voluntary turnover estimates of 12% across all industries [**29**]. The difference in turnover rates between CEs and non-CEs was used to estimate how many extra CEs would leave the workforce when compared to non-CEs in an equal sample group. From this, we estimate that 12 extra CEs would turnover at pre-test compared to an extra 42 CEs at post-test.

Table 5.6. Turnover intention of respondents at pre-test and post-test

	Have you considered leaving your job in the last 12 months?		
		Yes	No
Pre-Test	Carer	45.45%	54.55%

	Non Carer	42.25%	57.75%
	Difference	3.20%	-3.20%
Post-Test	Carer	56.76%	43.24%
	Non Carer	45.74%	54.26%
	Difference	11.01%	-11.01%

Per case estimates of turnover costs are assumed to be 50% of annual salary for both CEs and non-CEs. Workplace-wide voluntary turnover costs are estimated to be CAD 661,480.28 compared to non-CEs at pre-test. These costs increase to CAD 2,275,606.28 at post-test.

5.4.6. Impact on Colleagues

At pre-test, 50% of the CE sample reported having spent time communicating about, or making some form of work accommodation/arrangement (i.e., requesting telecommuting, rearranging work) with their supervisors or coworkers due to caregiving reasons. The mean number of hours spent on such tasks is estimated to be 104.2 h annually, accounting for CE time as well as supervisor/coworker time. We assessed that the per-case costs are approximately CAD 5377.76 for each employee that reports impacts on colleagues, resulting in a workplace cost of CAD 3,105,657.56.

We note increased time spent on communicating and arranging work at post-test, leading to an increase in costs to the employer (CAD +6325.73 per case, up from CAD +5377.76). Thus, workplace-wide costs are up to CAD 4,352,317.23 at post-test.

5.4.7 Net Cost Analysis

At the baseline pre-intervention scenario, we observe total caregiving costs to the employer to be CAD 12,794,865.53, which averages out to a per-CE cost of CAD 11,077.81. This is compared to a post-intervention workplace cost of CAD 17,070,911.64, or CAD 14,780.01 per CE. We observe negative cost savings, or increased costs of CAD 4,276,046.11 across the workplace. Intervention costs were found to be CAD 21,056.88. In sum, the net cost of the intervention, including the cost of the intervention and the negative averted costs, is CAD 4,293,594.19.

5.5. Discussion

In this study we attempt to identify the monetary implications of a workplace-based intervention for improving carer-employee (CE) outcomes in a large-sized engineering firm. In doing so, we hope to generate evidence of whether the intervention is capable of paying for itself in the short term via averted costs. We take care to highlight that we utilize a conservative approach, with a narrow range of costs as well as a short timeframe; as such, we do not acknowledge or monetize all forms of savings or future savings. As a result, this evaluation is only a conservative cost implication analysis from the employer's perspective.

It is estimated that the total burden of caregiving on the employer at baseline (no intervention) is CAD 12,794,865.53. Overall, we did not observe the intervention being effective at averting costs. Our analysis found that the intervention did not pay for itself, but rather cost the workplace CAD 4,293,594.19 when compared to the baseline (inclusive of the CAD 21,056.88 cost of the intervention).

While we did not find the intervention to be cost-saving overall in the 6-month period, the intervention exhibited evidence of savings in some areas. When examining the cost items separately, from pre-test to post-test, we observed cost savings in absenteeism, both short-term and long-term. These savings amount to CAD 3,820,237.41 workplace-wide, or CAD 3,799,180.53 if factoring in intervention costs. These savings, however, are negated by increased expenses in other cost categories, such as presenteeism, turnover and impact on colleagues.

Although the intervention did not report overall cost savings, we take notice of several subsidiary findings of interest to employers. First, we note that turnover intention is higher among CEs than non-CEs. This finding aligns with results from the literature, which posits that CEs are more likely to turnover due to work–life conflicts [**30**]. This forecasts a concerning trend for workplaces: as CE prevalence is projected to increase in the near future, there may likely be a rise in turnover costs to employers.

Second, we would caution the interpretation of the high presenteeism costs. As with many workplaces, our partner workplace largely operated under a work-from-home mandate due to COVID-19. As a result, we anticipate that while reported presenteeism during working hours was high, this may not directly represent lost work. An earlier qualitative paper from this same workplace found that CEs were re-contracting their work hours outside of traditional working times, as remote working provides carers greater agency to negotiate their home, care and work responsibilities using a schedule that is most beneficial to them [**31**]. In this regard, we speculate that employees are still accomplishing the majority of their work tasks, albeit outside the usual 9–5 schedule due to work disruptions at home. This is supported by findings from the COVID-19 literature; a European study found high rates of presenteeism among staff at a university workplace due to stress associated with working from home and living conditions [**32**]. Similarly, remote working from home has long been associated with benefits, such as greater schedule control and flexibility, but is characterized as having an increase in distractions, even prior to the pandemic [**33**]. Consequently, it is possible that the CAD 7,067,308.25 cost estimate of CE presenteeism, which comprises a large proportion of the costs, may not accurately represent lost work.

The literature on carer-employee workplace interventions is sparse, and even fewer studies evaluate the cost implications of carer-employee interventions, let alone during the pandemic; this makes comparisons difficult. From our research group, a pilot evaluation at a similarly sized (4000 employee) university workplace established a baseline cost to the employer of CAD 8,916,342 (CAD 8674 per CE) under non-pandemic conditions [**21**]. Our present study calculated the baseline cost as CAD 12,794,865.53 (CAD 11,077.81 per CE), although we include the benefits paid by the employer in our study. In the previous pilot study, the majority of costs originated from absenteeism and turnover costs; in the current study, presenteeism is the largest contributor to costs. We theorize that this shift is largely a function of remote working mandates and burnout during COVID-19, increasing presenteeism rates. Our prior pilot study found that a similar

workplace intervention was able to generate positive outcomes in work and health variables, such as family-supportive supervisor behaviour and self-reported health; however, absenteeism and presenteeism were unassessed in these studies [**34**,**35**]. Elsewhere in the literature, workplace interventions based on work–life policies in professional industries tend to produce increased productivity at an organizational level [**36**]. However, monetary estimates are lacking within the literature. Further, within the context of the pandemic, it is unclear how our estimates may differ from estimates obtained prior to the pandemic.

While this intervention was not found to be cost-saving in the short term, we acknowledge that there are several variables at play. The conservative approach may have excluded the evaluation of other tangible but unmeasured benefits, such as improvements in job satisfaction or supervisor behaviour. Indeed, a large focus of the intervention was centred on creating a carer-friendly workplace culture through establishing a supportive environment for CEs; this may not have necessarily translated into absenteeism, presenteeism, turnover and/or impact on coworker rates.

Further, due to the design of the intervention, it may be expected that increases in cost items, such as impact on coworkers, may develop to an extent. Given that the intervention was centred around employee supports with an emphasis on supervisory support/compassion, this may lead to more CEs seeking out these supports, thereby increasing costs in the form of greater supervisor time spent on caregiving issues. These increases in immediate costs may be beneficial if they avert greater costs in the future. In a similar realm, the novelty of the intervention and short timeframe of data collection may also mean that benefits related to averted costs may not be apparent yet. While the initial costs are front-loaded, benefits to carers may not manifest until several years after, potentially when situations characterized by higher care burden arise.

Finally, to address the elephant in the room, COVID-19 restrictions were in force during the entirety of our study, with data collection for pre-test and post-test occurring during Canada's second and third waves of cases. During these waves, lockdowns and stay-at-home orders were enforced, with only essential services (i.e., groceries stores, pharmacies) remaining open, while schools and care services (i.e., respite care, personal support worker services) were closed. It is likely possible that these lockdowns may have prompted respondents to inflate reports of absenteeism, presenteeism, turnover and impact on coworkers. With COVID-19, it is difficult to ascertain if the intervention was truly ineffective, or if the global state of work rendered intervention effects undetectable. It may also be that information-based interventions are less effective during global crisis conditions, due to underlying anxieties. Gabriel and Aguinis recommend targeted workplace interventions for burnout during the pandemic (i.e., mindfulness meditation and cognitive behaviour therapy), as these types of interventions are more likely to mitigate emotional exhaustion and distress tolerance [**37**].

One of the main strengths of the intervention is that it is one of the first of its kind to introduce a workplace intervention for carers during the COVID-19 pandemic. While the pandemic did complicate the design and implementation of the intervention, particularly as the intervention had to be executed and monitored remotely, the need for such an intervention at workplaces was salient and timely. Given that the COVID-19 virus impacted the elderly and immunocompromised most severely, the importance of caregiving was illuminated on a larger scale within mainstream media

[38,39]. At the same time, the restructuring of work meant that employers and employees were questioning the dominant paradigm and the future of work [40,41]. In combination, the pandemic's "silver lining" was that it facilitated discussions of workplace programs and policies to support CEs, who were being disproportionately burdened by the pandemic. The workplace should be recognized as an agent with the potential for the facilitation of supports for all employees, carers included. This is crucial, as shifts in the social structure of labour due to women continuing to enter the workforce mean that the division of labour becomes more equitable in households, and work–life conflicts become more common across all employees [42]. Pandemic impacts on the work landscape, and the associated sequelae, may be rampant for years to come, during which changes in work structure and responsibilities may become normalized. From a policy perspective, it may even be preferable to "strike while the iron is hot": disaster management literature posits that disasters are often transformative agents, opening the door for policy change vis-à-vis consciousness raising and pressure for change [43].

While we did not find immediate cost savings within the timeline of our study (6 months), this does not preclude the possibility of future savings. As such, it is difficult to conclusively determine that the intervention is not cost-saving overall; rather, it is not cost-saving in the short term.

In fact, potential future benefits to the employer include: (1) the organizational framework has been established so that future iterations and modifications of the intervention are less time-intensive; and (2) organizational support for employee wellbeing endeavours communicates commitment to employees and is positively associated with employee loyalty [44,45]. Given that workplace culture change often takes place over the span of years, it is therefore unsurprising that there was a lack of immediate cost savings [46,47]. Even within our paper, we monetized only a slice of potential intervention effects. It may be possible that, in the future, cost savings may manifest in other areas that are not captured within the variables examined in this paper. One caveat that should be noted is that, within our present analysis, the intervention is a one-time cost. In the future, should the intervention be implemented again, costs would rise accordingly; however, we anticipate that these implementation costs may be lower due to the existing groundwork in place.

Given the global rate of aging, caregiving conflicts with work are predicted to escalate in the future as the number of carers continue to grow. Employers, HR professionals and policymakers should be proactive in implementing carer-supportive programs and policies not only from a social responsibility lens, but also as an incentive for employees. Given the unique context of COVID-19, we do not seek to generalize our findings to non-pandemic scenarios but, instead, position this as an in-depth examination of an intervention for carers customized for COVID-19, with the potential for long-standing effects. We do not anticipate that this will be the last pandemic or crisis that has workplace repercussions and, as a result, our findings may be useful for future events.

5.6 Policy and Program Implications

Within the field of economics, the concept of cost savings is used as a tool for decision making when budgets are limited and competing costs exist. Positive savings indicate that an intervention does not require additional resources and, thus, is easier to implement, as it does not compete with other programs for the scarce resources available. As a matter of fact, it releases resources to be

used elsewhere. The cost savings of an intervention, however, are not the sole end goal of an intervention, nor are they mutually exclusive with intervention effectiveness. Non-cost-saving interventions become a matter of maximizing goals within an existing budget.

It is important to reiterate that, in the context of our study, the lack of observed intervention effects and cost savings does *not* necessarily mean that: (1) this will be the case in all scenarios, and (2) the *carer standard* intervention is not worth implementing. As previously noted, the conservative nature of our approach meant that not all costs (and subsequently averted costs) were captured and monetized in our analysis. It is possible that a more comprehensive analysis, which includes and monetizes additional variables and captures the impacts over an extended period of time, may find a different result.

Irrespective of whether our implemented intervention does pay for itself or not (in the short term), the issue of unsupported CEs in the workplace remains; employers need to consider CE interventions, such as the *carer standard*, in the workplace, if not for the sake of cost savings, then certainly out of respect for human dignity and those entrusted in the care and protection of it. Our intervention was found to be not immediately cost-saving; that is, it requires additional workplace resources. In this way, the goals of the intervention (i.e., workplace culture changes) are prioritized over cost savings. There will come a time where each one of us will be placed in the position of being a carer, and eventually a care recipient. Employers should utilize this cost implication analysis as part of, but not the sole criterion for, their decision making. Indeed, innovative and progressive campaigns are rarely cost-saving, and while this intervention was not found to pay for itself, it does not mean that it is unaffordable [**48**]. However, the lack of short-term cost savings does raise questions concerning where the resources that fund such an intervention come from, and what other programs are being rejected in its favour. Private companies need to determine their own organizational priorities, and their acceptable timeline on returns on investments. We propose that employers, policymakers and all relevant stakeholders, as part of their individual decision making, consider the current and future needs of their labour force and view CE interventions as an investment in their CEs, and not merely a cost-saving tool.

5.7 Limitations

We acknowledge that while the timing of the COVID-19 pandemic provided benefits, it also introduced several limitations. Firstly, given the restrictions on "regular" work (i.e., remote work or working from home), it is difficult to generalize findings outside of a pandemic scenario, given that the measured variables were reflective of participants' pandemic work situation. For example, absenteeism rates may be lower during the pandemic compared to non-pandemic situations due to the prevalence of remote working and the movement of many services (i.e., medical appointments) towards a digital medium. The evaluation of the intervention is difficult during the pandemic, as it is not wholly possible to isolate intervention effects from provincial and national events associated with the crisis. Further, given that the impacts of the carer-friendly workplace culture change intervention may not have been fully experienced by the time of the post-intervention survey, the full impact of the intervention may not have been comprehensively captured.

Another limitation was the small sample size used for analysis. Despite being a large-sized workplace, we were only able to recruit 44 and 40 CEs at the pre-test and post-test, respectively,

making it difficult to determine if this sample is representative of the entire CE cohort at this workplace. In addition to the known challenges of recruiting CEs to research, which were further complicated by the pandemic, post hoc discussions with HR endorsed that the recruitment difficulties were likely attributable to the influx of email communication associated with remote working, leading to emails regarding the surveys being drowned out [**49**]. While we treat CEs as a single group, we must also recognize that there is immense diversity within the carer identity. For example, sandwich carers are a sub-group of carers with unique and exacerbated role tensions due to the intersection of childcare, eldercare and work responsibilities. We do not examine the specific needs of this group in this paper and, as such, we are limited in establishing the demographic context.

Lastly, the cross-sectional design of the study poses limitations in interpretation. While our pre-test and post-test sample remained somewhat consistent in makeup, it is not possible to conclusively determine cause and effect with respect to the intervention and the observed outcomes.

5.8. Conclusions

Global aging has underscored the need for workplaces to be supportive of their carer-employees, with this being exacerbated during the COVID-19 pandemic. This study examines the cost implications of a workplace intervention, the implementation of the *carer standard*, targeted at creating a carer-supportive work culture. Using a conservative approach, we observed and monetized costs relating to absenteeism, presenteeism, turnover and impact on coworkers prior to and after the implementation of the workplace intervention. We find that although the intervention did not pay for itself within a 6-month window (i.e., it was not cost-saving), being calculated at a net cost of CAD +4,293,594.19 across the workplace, pandemic conditions made it difficult to determine the true impact of the intervention. Nonetheless, the implementation and execution of such an intervention may provide non-tangible benefits to the employer, such as the establishment of groundwork and strong organizational messaging, paving the way for future iterative campaigns. Subsequent studies should seek to incorporate additional variables in the analysis, extend the study window in order to fully capture intervention impacts and examine workplaces in other industries, in order to explore future cost savings and the reliability and generalizability of the findings.

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6.1 CONCLUSION AND FUTURE RESEARCH

6.1.1 Introduction

The goal of this dissertation was to fill the knowledge gap in the carer-employee literature during COVID in Canada, by evaluating the proximal impacts of a workplace-based educational intervention for carer-employees. Through our case study on a large-sized employer in the natural resource sector, we developed an evidence-based approach towards intervention design, evaluation and policy, by involving carers and workplace representatives in the process. Over the course of 12-months, we collected multiple rounds of quantitative survey data and qualitative interviews with carers and key informants in order to develop the local context of the workplace, as well as to monitor for any changes in survey variables or perceived experiences of carers/key informants over time. Additionally, a customized intervention was designed based on the identified needs and gaps of the workplace, as determined by the initial environmental scan. The intervention was created with the intention of fostering a carer-supportive workplace culture, as well as promoting knowledge on existing resources. While we partnered and worked with the workplace's HR department predominantly, our priorities were with the carers. In truth, we would go as far to argue that the ultimate beneficiary of such an intervention (should it be effective at changing workplace culture) are future carers, who may never know the tribulations of such role conflicts, as they are experienced in our present-day society. The following section details the main contributions of this overall program of research to the larger literature. It is our intention that this body of work be used as a resource for policy decision-makers in making informed decisions concerning uptake of workplace interventions.

6.1.2 *Contribution to bridging the knowledge gap on the intersection of COVID, employment, and care*

With the emergence of COVID at the end of 2019 the world experienced radical transformations across all scales, from the geopolitical domain to the everyday stage; these have debunked traditional understandings of labour, both paid and unpaid. It would not be unreasonable to postulate that the literature across most fields will be demarcated by a pre-pandemic and a current/post –pandemic discontinuity. Indeed, much of the prior knowledge on caregiving and intervention design (unsurprisingly) did not take into account crisis conditions and remote working. Even the most commonly identified carer workplace accommodation, flexible working,

was uncertain to provide the same amount of reprieve during the pandemic, given the pivot towards remote working which naturally provides greater autonomy over one's work schedule.

Chapter 2 endeavours to fill the paucity within the labour and care literature and explored how the introduction of COVID changed dominant paradigms around work and care using interviews with carer-employees. What emerged was a chronicle of uncertainty of the future of paid and unpaid caregiving, as well as the increasing dissolution of work, care, and personal life boundaries. When granted greater flexibility in their day, participants expressed both shortcomings and benefits to the arrangement. Namely, while the forced integration of various domains allowed for more effective management of care responsibilities and privacy, the trade-offs included greater work distractibility and loss of a sense of community. Despite these reservations, overall, this arrangement was favourable to participants. These findings inform future research, in this project and beyond, by highlighting carer-employee experiences, concerns and preferences, as workplaces envision the future of work.

6.1.3 *Development of a virtual intervention protocol and dissemination of several publicly available intervention tools for general public use*

This dissertation was directly responsible for the creation of a workplace intervention for carers suitable for virtual implementation during COVID. As documented in Chapter 3, the entire process of data collection, intervention design, and implementation was participatory with carer-employees and HR employees from the partnered workplace. Using both qualitative interviews and quantitative descriptive statistics from surveys, the gaps in policy and shortcomings of the workplace were identified, and a steering committee was formed to inform intervention tool design. In addition to the methodology provided in Chapter 3 to target laypersons, the process was documented in an implementation guide document, with all versions of the tools, surveys, interview guides, and recordings of the presentations provided to the workplace, with applicable tools posted on their intranet. This was done so that these tools could reach a wider audience, providing the workplace the ability to run the intervention campaign again without starting from the ground-up. In addition, the generic versions (with identifying workplace information removed) of all designed tools were posted online for any employer or carer to utilize (https://ghw.mcmaster.ca/tools-and-curriculum/). In doing so, the intervention provides academic and non-academic audiences with the ability to recreate and implement similar interventions.

6.1.4 *The intervention did not produce significant changes in survey variables*

In Chapter 4 we evaluated whether the post-intervention data was significantly different (i.e., if it came from a different distribution) than the pre-intervention data using the Wilcoxon-rank sum tests on pooled cross-sectional survey data. We ultimately found that this was not the case, given that there was not a statistically significant difference between pre-intervention and post-intervention data. These results illustrate that: 1) the intervention did not generate workplace-level improvements to survey variables, and 2) discernible differences did not manifest within the 6-month observational period. However, we caveat these findings by maintaining that intervention effects may still appear in the future, and that the intervention effects may not be wholly captured via the selected survey instruments. This distinction is important for employers and policymakers, particularly as they consider an acceptable timeline of "return".

6.1.5 *The intervention was not cost-saving*

Overall, we did not observe the intervention as cost-saving. In Chapter 5 we were able to assess changes in costs over time through creating monetary estimates for absenteeism, presenteeism, turnover, and impact on coworkers (collected via the same workplace-wide survey employed in Chapter 4. We found that the intervention did not avert costs; instead, the majority of the cost categories (presenteeism, turnover, impact on coworkers) actually increased, and as determined in Chapter 4 this was not statistically significant. Absenteeism improved slightly, however; this effect was also deemed non-significant in Chapter 4. The intervention design and implementation process was valued at $21,056.88 worth of labour, using the workplace's mean hourly wage. Including the interventions costs, the workplace was estimated to have lost $4,293,594.19 worth of productive work due to caregiving impacts on work. As one of the first studies to examine the costs of caregiving burden on the workplace during COVID, these findings signal to workplaces and policymakers not only the bottom-line impacts of caregiving on employee productivity, but also cautions the use of virtual and short-term interventions, if workplaces are prioritizing cost-savings and immediate action.

6.1.6 *The intervention was associated with increases to knowledge and agency for carer-employees, as well as key informants*

Using thematic analysis, Chapter 4 supplements the quantitative findings by illuminating the experiences of carer-employees and key informants' post-intervention. All participants described the intervention as beneficial and positive to the workplace overall. Carer-employees asserted improvements to their overall carer knowledge, in terms of resources for their care-recipient, as well as newfound knowledge about the carer role more generally. In addition, carer-employees communicated that they feel more confident managing work-care conflicts in the future, as they are now aware of all the tools, resources, policies and rights available to them. Specifically, they indicated they feel more comfortable reaching out to workplaces for resources and to HR proactively. On the opposite side, key informants (that is, managers, senior executives and HR) also stated newfound appreciation and understanding of the nature of caregiving. The endorsement of the carer intervention by the workplace, and the standardized training also gave managers valuable strategies for approaching conflicts in a consistent manner across the board. Overall, all interview participants described the intervention experience as being worthwhile and useful, particularly as the need arises in the future. This raises two takeaways: 1) the intervention was observed to be useful, albeit on a small scale, and; 2) as described by participants, the realization of intervention effects may occur in the future, as care situations change. This is notable as it raises questions with respect to the timescale in which interventions should be monitored and, for employers, if these effects are desirable or "worthwhile" if systemic changes are not observed, or if they are only observable in the long-term. Employers and HR should consider these nuances to intervention implementation as they contemplate their own intervention and how they may align with organizational priorities.

6.2 Limitations

In this project, we recognize that there are a number of limitations that impede the strength of our conclusions. First and foremost, the limitation that plagued this research was the presence of COVID and its downstream impacts on society at large. The original conception of this project was formulated prior to COVID; as a result, at the start of the pandemic, the project was rescaled and amended to be conducted virtually. We found that as a result of the virtual setting, our intervention had difficulty permeating as most communication about the intervention to the general workplace was done via email when employees were being inundated with scores of emails and virtual communications. Related to this, we also had low survey response rates – out of approximately 3,500 employees, the largest response was 139 full responses by the final survey, designating a response rate of only 3.97%. Discussions with the steering committee posited that these low responses were similarly a function of employees being overwhelmed by virtual communications and emails when working from home. Overall, it is unclear if the (lack of) quantitative effects of the intervention were a result of low sample size, the presence of the pandemic, or if the intervention truly was ineffective. As a result, it is difficult to generalize the findings of this project to non-pandemic situations and other workplaces.

It is important to acknowledge that this workplace and most employees are quite privileged. As reflected in our participant characteristics, and the data provided by HR, most employees are quite well paid and educated. As the majority of staff are engineering consultants, these employees are considered knowledge workers and have greater flexibility (in both time and place of work) built-in, when compared to workers of other industries (i.e., service industries). Furthermore, based on information provided by HR, the majority of employees in the workplace are male; however, this was not reflected in the surveys, where there was an approximate even split in sex across the survey responses. This potentially signifies that: 1) carer issues at least pique the interest of female carer-employees more than male carer-employees, leading to comparatively more responses from females, and; 2) the demographic of this workplace means that carer issues, and by extension the intervention, may not impact as frequently, or as much, as if in a female-dominated workplace.

6.3 Future Research

The findings presented here provide the foundations for workplace carer interventions going forward in a post-COVID world. We found that our education-based intervention, delivered virtually during COVID, had mixed results that were difficult to interpret beyond our immediate context. Thus, future iterations of this research project should consider piloting a similar educational intervention across different workplaces of varying sectors and sizes. Given that caregiving burden disproportionately impacts women, it would be useful to explore how an intervention may perhaps differentially impact female-dominated industries. In addition, as each employer decides whether to remain working remotely, return to in person, or to adopt a hybrid approach to work, this has repercussions on employee work-life balance as well as the helpfulness of selected interventions. Future interventions should be deliberate about the choice of virtual versus in-person delivery. Based on our results, we advocate that employers attempt an in-person delivery of the intervention where possible, and especially if employees are returning to physical offices. Where employee return to the office is mixed, with select employees remaining virtual, we would also suggest designing a similarly mixed intervention, with online and in-person components so that a maximal distribution is reached.

As a final note to policymakers and employers, we urge the positioning of societal issues, such as caregiving, within the organizational priorities of a workplace. Each of us will eventually fall into the role of a carer, either by accident or through the natural process of aging. Illnesses, accidents and deaths do not discriminate, and aging is a privilege, granted to a scarce few throughout human history. To deny care recipients the comfort of family at their most vulnerable, and families of an adequate time with their care-recipient, characterizes a callous society. The presence of carer-supportive policies and work culture benefits all current and future employees, across all levels of seniority, by protecting their ability to manage work and care.

However, irrespective of the intervention literature, and whether the research supports the business case of carer-friendly workplaces, employees *will* continue to suffer and struggle if they remain unsupported and un-prioritized. In this program of study, we did not find evidence of benefits to the organizational bottom line in a quantifiable way; however, this does not mean the intervention was not worthwhile to participants and carers. Beyond the business case, as members of society, humans have an impetus to protect and care for one another. The oft quoted adage, 'a measure of a society's worth can be best reflected in how it protects its most vulnerable[2]', reflects humanity's inherent inclination towards altruism and an ethics of care. Truthfully, a society that only operates on the presence of a business case is not one that anyone would want to invest in or live in as it denies our humanity.

[2] This quote is often erroneously attributed to Mahatma Ghandi, however the true origins are lost to time