Exploring the ongoing effects of COVID-19 and other seasonal respiratory illnesses on direct support workers and supervisors supporting individuals with intellectual and developmental disabilities in Manitoba

by

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Abstract

The study investigated the impact of COVID-19 and Seasonal Respiratory Illnesses (SRIs) on the physical and mental well-being of Direct Support Workers (DSWs) and supervisors working in group homes across Manitoba. In addition, it explored workplace challenges experienced by staff and their coping strategies.

A cross-sectional survey was administered to DSWs and supervisors supporting adults with intellectual and developmental disabilities (IDD) in group homes across Manitoba. A total of 96 individuals responded to the survey, which consisted of closed-ended and open-ended questions. Physical and mental health were measured using the SF-12v2 Health-Related Quality of Life questionnaire. Other study factors were organized according to the socio-ecological model (SEM) and were classified into individual, interpersonal, organizational, and community-level factors. Descriptive analyses were conducted to describe the study population and their mental and physical health. Bivariate analyses were conducted to identify factors that were significantly associated with the physical and mental health status of the study participants. Significant variables were entered into hierarchical multivariable regression models by SEM levels. Factors with significant independent effects on physical and mental health of DSWs and supervisors were identified. Responses to open-ended questions were also analyzed using directed content analysis to identify challenges in the provision of care during COVID-19 or other SRIs and the coping strategies used.

Results showed that the physical and mental health of study participants were significantly below the United States (U.S.) norm (Mean = 50, SD = 10). In predicting physical health, work hours change at the organizational level was the only significant independent predictor in both the COVID-19 and SRI models ($R^2 = .31$ for COVID-19; $R^2 = .30$ for SRI). For mental health, family support at the interpersonal level and role change at the organizational level emerged as significant independent predictors across both contexts ($R^2 = .59$ for COVID-19; $R^2 = .60$ for SRI).

Five themes emerged to describe the challenges the DSWs and supervisors experienced, including communication challenges, managing behavioural challenges, infection-prevention and safety concerns, resource access and staffing constraints, and implementing evolving public

health guidelines. Six types of strategies were reported to address the noted challenges, including maintaining routine and consistency, creative engagement, self-care and personal coping, accessible communication, telehealth and remote access and person-centred care.

Community organizations supporting persons with IDD should prioritize staffing stability, role clarity, transparent communication, and targeted support for supervisors during public health crises.

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Dedication

To all health care workers around the world,

For sacrificing their well-being to save the lives of others.

To persons with intellectual and developmental disabilities,

For their resilience and quiet strength that remind the world that dignity and inclusion are not privileges, but rights.

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Chapter 1: Introduction

Intellectual and developmental disabilities (IDD) are lifelong conditions that originate during the developmental period and are characterized by significant limitations in both intellectual functioning and adaptive behaviour (Schalock et al., 2019). In Canada, approximately 1.4% of the population reports having a developmental disability (Government of Canada, 2024). The existing evidence suggests that vulnerable persons with IDD are more likely than the general population or those without these disabilities to be affected by public health crises such as the coronavirus disease of 2019 (COVID-19) pandemic and other seasonal respiratory illnesses (SRIs) (Doody & Keenan, 2021a; Gleason et al., 2021a). For example, prior research demonstrates that the risk of contracting COVID-19, influenza, and SRIs is concomitant with a higher mortality rate in persons with IDD compared to persons without (Cuypers et al., 2020; Peacock et al., 2021; D. Stevens & Landes, 2020). Since the onset of COVID-19 pandemic in 2020 and other SRIs have had, and continue to have, a substantial impact not only on persons with IDD but also on those who support them in community-based care settings (Clarke, 2021; Gleason et al., 2021b; Peacock et al., 2021). This chapter reviews existing literature on the health vulnerabilities and systemic challenges faced by individuals with IDD and their care providers during public health emergencies.

The overall goal of the study was to explore the *ongoing effects of COVID-19 and SRIs on direct support workers and their supervisors who provide care to persons with intellectual and developmental disabilities in community settings across Manitoba.*

The increased vulnerability of individuals with IDD can be attributed to their underlying disabilities, both from a health disparity and a biological perspective (Friedman, 2021; Gleason et al., 2021a; Turk et al., 2020). For example, difficulties in comprehending and adapting to public health measures may lead to increased agitation and distress (P. J. C. M. Embregts et al., 2021a). These challenges not only impact the health and well-being of individuals with IDD but also extend to those who support them. The existing evidence suggests that staff working in the disability sector and those in nursing facilities had higher mortality risks due to COVID-19 compared to the general workforce (Clarke, 2021; *COVID-19's Impact on Long-Term Care | CIHI*, 2021; Musumeci & Published, 2021). For instance, the Centers for Disease Control and

Prevention (CDC) reported over 582,000 COVID-19 cases among nursing home staff, with more than 1,700 deaths by July 2021 in the U.S. (CDC, 2021). Similarly, in Canada, data from the 2020 Nursing and Residential Care Facility Survey (NRCFS) revealed that over 10% of the total COVID-19 cases (~9,500 cases), including 9 deaths, were among the staff of long-term homes and seniors' homes (Clarke, 2021). Although these long-term care and seniors' homes are distinct from community-based residential group homes for adults with IDD, data from these settings illustrate the elevated infection and mortality risks faced by staff providing hands-on care in congregate living environments. Given the limited Canadian data that report COVID-19 outcomes separately for staff in community-based group homes, these long-term care figures offer the closest available indication of the risks faced by workers in similar residential care contexts.

Direct support workers (DSWs) and nurses caring for persons with IDD are confronted by challenges in terms of communication (Jaques et al., 2018; Nijhof et al., 2024), managing clients' behaviour, and delivering person-centred support (Ndengeyingoma & Ruel, 2016). During COVID-19 pandemic, people with IDD, particularly those with severe IDD, may have difficulties understanding and following public health regulations, for example, social distancing, wearing masks, and hand washing, which considerably impacts not only their health, but also that of their caregivers (Lunsky et al., 2021a). Since many persons with IDD rely on their support workers to support their daily activities/routines, DSWs are at a relatively high risk of contracting COVID-19 (Clarke, 2021; Desroches et al., 2021). It is also essential to note DSW workers experience anxiety regarding the possibility of contracting COVID-19 and transmitting it to their friends, relatives, and colleagues (Desroches et al., 2022a).

In addition to these caregiving challenges, the public health measures introduced in response to COVID-19 placed further strain on direct support workers. In response to the pandemic, many preventive policies were implemented rapidly, often with limited preparation or resources. This created additional stressors for DSWs and long-term care staff, who were expected to enforce and adhere to social distancing, personal protective equipment (PPE) use, and infection control protocols under significant time constraints (Sheerin et al., 2023; Uršič et al., 2016). Staff often worked longer shifts because of staff shortages, illness, and redeployment left fewer workers available, while increased infection-control and cleaning procedures added to the workload. These demands, combined with constantly changing guidelines, meant that many staff provided care in isolation and under continuous pressure (Sheerin et al., 2023). Supervisors faced the added burden of managing staff shortages due to sickness leave, coordinating COVID testing within the facility, and dealing with ambiguous and multi-source policies and infection control guidelines (Alexander & Hegarty, 2000; White et al., 2021).

These combined pressures places a significant burden on support staff in disability settings (McMahon et al., 2020a). Emotional stressors such as anxiety, burnout, and loneliness are found to be common among DSWs (Clarke, 2021; Havaei, Smith, et al., 2021; Hung et al., 2022; Rosencrans et al., 2021). Compounding this, many staff reported limited access to mental health or psychosocial support services during the height of the pandemic (Benzinger et al., 2021; Kavenagh, 2021; McAllister et al., 2022; Søndenaa et al., 2015). Although pandemic research has examined impacts on people with IDD (Majnemer et al., 2021; Taggart et al., 2022), Canadian data on the well-being of support staff, particularly DSWs and their supervisors, is limited. One national study found that the mental health of adults with IDD deteriorated during COVID-19, as did their access to care services (Desroches et al., 2022b). Another Ontario-based study emphasized that improvements in DSW well-being directly enhance care quality (Rodenburg, 2022).

In addition to these individual-level outcomes, recent studies have identified pressing organizational-level issues that further impact staff well-being and retention. For example, Hall et al. (2022) reported that longstanding problems such as low wages, staffing shortages, and lack of organizational support were significantly exacerbated during the COVID-19 pandemic (Hall et al., 2022). These workforce stressors disrupted service continuity and intensified the emotional and physical strain on staff, leading to increased burnout and high turnover (Hall et al., 2022). Despite these findings, no research to date has specifically examined how pandemics and SRIs affect DSWs and supervisors responsible for providing and managing care for individuals with IDD in group homes in Manitoba. This study addresses that gap and is guided by a socio-ecological model (SEM), which facilitates an exploration of how multi-level factors, including individual, interpersonal, institutional, and community–level factors, influence the mental and physical health outcomes of DSWs and their supervisors.

Study Objectives and Research Questions

The two **specific objectives** of the study were to:

1. Examine the effects of the COVID-19 pandemic and SRIs on the mental and physical well-being of DSWs and their supervisors working in group homes providing care to individuals with IDD in the community across Manitoba.
2. Explore the challenges experienced by direct support workers and their supervisors who provided care to individuals with IDD in Manitoba during the COVID-19 pandemic and other SRI outbreaks, and identify strategies used to overcome the reported challenges.

Research questions related to the first research objective:

1.1. How have the COVID-19 pandemic and SRIs affected the mental and physical well-being of DSWs and supervisors supporting persons with IDD in group homes in Manitoba?

1.2. Which individual, interpersonal, organizational and community factors are more closely associated with the impact of the COVID-19 pandemic and SRIs on the mental and physical well-being of DSWs and their supervisors providing care to individuals with IDD in community group homes in Manitoba?

Research questions related to the second research objective:

2.1 What were the main challenges DSWs and their supervisors faced in maintaining a safe and healthy environment for persons with IDD during COVID-19 or any of the SRI pandemics?

2.2. What strategies were taken by DSWs and their supervisors to overcome the challenges faced while providing care to persons with IDD during the COVID-19 pandemic and/ or any of the SRI pandemics?

In summary, this chapter has presented the contextual background and rationale for examining the mental and physical well-being and work challenges of DSWs and their supervisors supporting adults with IDD in community group homes across Manitoba. It has also clearly articulated the research objectives and questions that guide this thesis. The following chapter will review the pertinent literature, positioning the study within the broader body of existing research and highlighting the specific knowledge gaps that this work seeks to address.

Chapter 2. Literature Review and Conceptual Framework

This chapter provides a summary of the current literature on persons with IDD, and the staff who provided care and support during the COVID-19 pandemic and/or SRIs. It is divided into seven sections, including the following: (1) Definition and prevalence of IDD, (2) health disparities experienced by persons with IDD during the COVID-19 pandemic and SRIs, (3) the impact of COVID-19 and SRIs on mental and physical well-being of DSWs and supervisors supporting persons with IDD, (4) factors associated with the mental and physical well-being of the DSWs and supervisors supporting persons with IDD, (5) challenges the DSWs and supervisors supporting persons with IDD experienced during the COVID-19 pandemic and SRIs, (6) adaptation and coping strategies of DSWs and supervisors to overcome challenges, and (7) the conceptual framework used. The chapter concludes with a summary of findings and key knowledge gaps.

2.1 Definition and Prevalence of IDD

In literature, terms such as developmental disability, intellectual disability, and learning disability are often used interchangeably to describe conditions that are characterized by limitations in intellectual, physical, and/or social functioning. From a clinical perspective, an intellectual disability is a distinct group within the broader spectrum of developmental disabilities. The American Association on Intellectual and Developmental Disabilities (AAIDD) defines **intellectual disability (ID)** as:

“A condition characterized by significant limitations in both intellectual functioning and adaptive behaviour as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18.”(American Association on Intellectual and Developmental Disabilities, 2021).

According to the US federal definition of Developmental Disabilities, section 102(8), the term **Developmental disability (DD)** is defined as,

“A severe, chronic disability of an individual that: is attributable to a mental or physical impairment or combination of mental and physical impairments; is manifested before the individual attains age 22; is likely to continue indefinitely; results in substantial functional limitations in three or more of the following areas of major life activity: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency; and reflects the individual's need for a combination and sequence of special, interdisciplinary, or generic services, individualized supports, or other forms of assistance that are of lifelong or extended duration and are individually planned and coordinated."(*APA Dictionary of Psychology*, n.d.).

There are also jurisdictional variations in the definitions of IDD across countries. For example, the conditions defined as "intellectual disabilities" are labelled as "learning disabilities" in the United Kingdom (*University of Hertfordshire Intellectual Disabilities and Health*, n.d.). There are also variations within countries. For example, in Manitoba, intellectual disability is defined by the Adults Living with an Intellectual Disability Act as "significantly impaired intellectual functioning existing concurrently with impaired adaptive behaviour and manifested before the age of 18 years, but excludes a mental disability due exclusively to a mental disorder as defined in section 1 of The Mental Health Act; (« déficience mentale ») " (Justice, n.d.). In Ontario, an intellectual disability is defined as "A person has a developmental disability for the purposes of this Act if the person has the prescribed significant limitations in cognitive functioning and adaptive functioning and those limitations, (a) originated before the person reached 18 years of age; (b) are likely to be life-long in nature; and (c) affect areas of major life activity, such as personal care, language skills, learning abilities, the capacity to live independently as an adult or any other prescribed activity."(Government of Ontario, 2008, Para. 3, n.d.).

Many individuals with an intellectual disability also experience other types of developmental disabilities. Therefore, in population health, or community-based health research, the term i**ntellectual and/or developmental disability** is commonly used to be inclusive of all disabilities that start at birth or during childhood and result in developmental delays (Kostal, 2024; Schalock et al., 2019). A recent World Health Organization (WHO) report estimated that 15% of the global population experiences significant disability (World Health Organization, 2011), of which 1-3% have IDD (J. C. Harris, 2006). Approximately one in five Canadians above the age of 15 has at least one disability that affects their everyday activities (Government of Canada, 2018). A population study performed in Manitoba used all years of administrative data (from January 1, 1979, to March 31, 2020) and estimated that 16,524 Manitoban adults had IDD (Kostal, 2024).

2.2 Health Disparities Experienced by Persons with IDD During the COVID-19 Pandemic and SRIs

Persons with intellectual and developmental disabilities experience higher rates of chronic health conditions compared to the general population, including respiratory illnesses, circulatory diseases, diabetes, and obesity (Folch-Mas et al., 2017; E. Lin et al., 2021). However, epidemiological studies consistently demonstrate that the prevalence, type, and severity of these health disparities vary substantially within the IDD population, depending on the specific diagnosis, severity of disability, co-occurring conditions, age, and living situation. For example, individuals with more severe or profound IDD, or those with multiple disabilities or living in residential care settings, exhibit a greater burden of chronic disease, multimorbidity, and poorer health outcomes compared to those with milder or only intellectual disabilities (Folch-Mas et al., 2017; Stankiewicz et al., 2018; Umucu et al., 2025). Certain conditions, such as Down syndrome, cerebral palsy, and comorbid epilepsy, are also associated with particularly high risks for specific health challenges, including premature mortality (Folch-Mas et al., 2017; Umucu et al., 2025). Also, the risk of premature death is highest among younger adults with IDD, with the disparity compared to the general population declining with age (Stankiewicz et al., 2018)

These health disparities are further compounded by systemic barriers to timely diagnosis and appropriate care, resulting in higher premature mortality rates experienced by this population compared to those without these conditions (O'Leary et al., 2018; Shooshtari et al., 2020; Stankiewicz et al., 2018). For instance, research using linked administrative data in Manitoba revealed that adults with IDD had a threefold higher risk of premature death due to respiratory illness than those without IDD (Shooshtari et al., 2020). The increased vulnerability of individuals with IDD to infectious diseases such as COVID-19 and SRIs is attributable to both biological and social factors (Friedman, 2021; Gleason et al., 2021a). Consequently, individuals with IDD faced disproportionately high risks of infection, hospitalization, and death during the pandemic (Cuypers et al., 2020; Turk et al., 2020).

Prior research shows that the vulnerabilities experienced by persons with IDD directly impact the responsibilities of their DSWs and supervisors and increase their risks for negative health outcomes faced by DSWs and supervisors (P. J. C. M. Embregts et al., 2021a; Lunsky et al., 2021a), as they are not only tasked with safeguarding the health of individuals with IDD, but also have to manage heightened emotional and physical demands in a rapidly changing environment (Donelan et al., 2023; Hall et al., 2022). Understanding the health disparities among persons with IDD is thus essential for contextualizing the increased pressures placed on the disability support workforce during public health emergencies.

2.3 Impact of COVID-19 and SRIs on DSWs and Supervisors' Mental Well-being

The US Centers for Disease Control and Prevention (CDC) defines well-being as ”the presence of positive emotions and moods, the absence of negative emotions, satisfaction with life, fulfillment, and positive functioning” (Chutiyami et al., 2022). The WHO defined mental health as “a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It has intrinsic and instrumental value and is integral to our well-being” (World Health Organization, 2022). These definitions highlight the importance of mental health and well-being in healthcare contexts, an area that has received growing attention in workforce studies, especially during and after health crises.

A 2005 nationwide survey in Canada evaluating the professional experiences and well-being of nurses revealed that approximately one out of every six nurses acknowledged that their mental health problems had an impact on their job performance (Shields, Margot & Wilkins, Kathryn, 2006). Overall health and psychological well-being of healthcare workers have been identified as significant issues following the pandemic, such as SARS-CoV, COVID-19 and influenza (Billings et al., 2021; Clarke, 2021; Montgomery et al., 2021).

These concerns are particularly pronounced in disability service settings, where providing care to individuals with IDD is widely recognized as one of the most stressful professions (Gray-Stanley & Muramatsu, 2011; Kozak et al., 2013). In a study involving over 300 direct care workers, Gray-Stanley and Muramatsu(2011) found that burnout was significantly associated with chronic workplace stress, particularly work overload, limited decision-making autonomy, and the emotional demands related to client care. They also found that the availability of workplace social support and personal coping resources, such as an internal locus of control, played a protective role in reducing burnout risk. These findings highlight the complex interplay between mental health outcomes and organizational factors in disability support settings (Gray-Stanley & Muramatsu, 2011). Similarly, Kozak et al. (2013), in a survey of 409 direct support workers across 30 residential facilities, found that nearly 40% of participants experienced high levels of personal burnout (Kozak et al., 2013). While chronic workplace stress is a known challenge in disability sector, these pressures were significantly heightened during health crises such as the SARS and COVID-19 pandemics. Studies from the SARS outbreaks in Canada, Hong Kong, and Taiwan revealed that healthcare workers at the frontline faced substantial emotional strain, often resulting in psychological morbidity (Bergeron et al., 2006; Maunder et al., 2004; McAlonan et al., 2007; Sim & Chua, 2004).

Similar trends were observed during the COVID-19 pandemic. Donelan and colleagues (2023) conducted a cross-sectional survey of DSWs working in group homes for individuals with IDD and reported increased levels of stress, burnout, loneliness and isolation (19.8%), and serious physical health issues (22.5%). These outcomes were attributed to a demanding work environment, limited organizational support, and challenging client behaviours (Donelan et al., 2023). Similarly, a provincial survey involving 868 DSWs across Ontario found that 68% of staff experienced increased stress levels at work during the COVID-19 pandemic (Bobbette et al., 2020).

In a national study, Lunsky et al. (2021) examined mental health challenges experienced by 838 DSWs during the first wave of COVID-19. They found that approximately one in four respondents reported moderate to severe emotional distress, one-third experienced clinically significant anxiety, and one in five reported symptoms of depression. Key predictors of emotional distress included workplace-related stress, fear of transmitting COVID-19, and stigma directed at workers and their families (Lunsky et al., 2021a). A systematic review by Chen et al. (2022) further synthesized the evidence on the mental health of DSWs during the pandemic, identifying consistent reports of heightened stress, anxiety, depression, emotional exhaustion, and fear of infection across multiple studies (Y. Chen et al., 2022). These findings were echoed in international research. A study by Greene et al. (2021) on frontline health and social care workers in the UK found that over 57% of respondents met the criteria for clinically significant PTSD, anxiety, or depression during the first wave of the pandemic. Specifically, 22.5% screened positive for PTSD, while nearly half reported symptoms of anxiety and depression. The study included nurses and staff working in community-based care settings such as group homes (Greene et al., 2021).

Complementing these findings, McMahon et al. (2022) conducted a national audit in Ireland assessing staff well-being in intellectual disability services. Nearly one in five participants reported moderate to severe anxiety, while one-quarter experienced symptoms of depression. Emotional exhaustion and elevated psychological strain were especially pronounced among lresidential care staff (McMahon et al., 2020a). These outcomes were more pronounced among staff working in independent living settings and those supporting individuals with complex or challenging behaviours. The findings suggest that specific service contexts may have intensified burnout and adverse mental health outcomes among staff during the pandemic (McMahon et al., 2020a). Karni-Efrati et al. (2022) conducted a quantitative study examining the relationship between care burden and mental health outcomes among formal caregivers of impaired older people during the COVID-19 pandemic. Their findings indicated that greater perceived care burden was significantly associated with higher levels of depressive symptoms and reduced resilience. Although the study focused on caregivers of older adults with impairment-related disabilities, the nature of the care provided, support with daily living, physical assistance, and emotional support for individuals with complex needs, closely mirrors the responsibilities of DSWs (Karni-Efrati et al., 2022). In a qualitative study, Fortin-Bédard et al. (2024) interviewed fifty-five health and social professionals in Quebec, including those working in disability support roles, to understand their lived experience during the COVID-19 pandemic. Participants described negative impacts on their mental well-being, including anxiety, exhaustion and stress (Fortin-Bédard et al., 2024).

While the mental health impact of the COVID-19 pandemic and SRIs has been widely documented, emerging evidence also points to the physical health impacts experienced by staff in these roles. The following section explores the physical health outcomes associated with providing care to persons with IDD during the COVID-19 pandemic and other seasonal respiratory illness outbreaks.

2.4. Impact of COVID-19 and SRIs on DSWs and Supervisors' Physical Well-being

Direct support workers have long faced physical health risks due to the physically demanding nature of their roles. Musculoskeletal disorders, including chronic back, shoulder, and joint pain, have been frequently documented in the literature (Faucett et al., 2013; Love et al., 2017). Repetitive bending, manual lifting without assistive devices, and irregular or extended work hours contributed to ongoing physical strain. Additionally, the lack of standardized ergonomic training and insufficient workplace accommodations in group home settings further increased vulnerability to work-related injuries among this workforce (Faucett et al., 2013; Love et al., 2017). Although these physical risks were present well before the pandemic, the onset of COVID-19 intensified these challenges and introduced new physical health concerns for direct support workers. In contrast to emotional burnout has received more attention in the literature, recent studies have begun to emphasize the prevalence of physical fatigue, musculoskeletal pain, and other injuries among DSWs and healthcare workers (Chand et al., 2021; Pretto et al., 2022).

For example, a national follow-up survey of DSWs in the United States reported that 50% of staff experienced physical or emotional burnout one year into the pandemic, and 43% reported sleep difficulties, figures that continued to rise over time (Hewitt, et al., 2020). This physical strain extended beyond general fatigue. Musculoskeletal pain was frequently reported, particularly in the neck, back, and shoulders. Sleep disturbance and physical exhaustion were also persistent concerns (Pretto et al., 2022). In a Dutch study, frontline care staff who worked directly with COVID-19-positive individuals reported more severe sleep disruption and fatigue than those who did not (van Roekel et al., 2021). Similar findings were observed in U.S.-based surveys of DSWs, where disrupted sleep cycles were associated with extended or unpredictable work shifts, especially in facilities under quarantine (Hewitt, et al., 2020).

In addition to fatigue and musculoskeletal strain, the mandatory and prolonged use of personal protective equipment (PPE) introduced new physical health challenges. Chand and colleagues (2021) found that 84% of frontline healthcare workers experienced some form of PPE-related discomfort, including skin abrasions, pressure sores, and respiratory discomfort (Chand et al., 2021). Australian surveys of disability workers revealed similar outcomes, with many workers reporting heat stress, headaches, and skin irritation due to continuous PPE use, particularly in the absence of sufficient breaks or replacements (Kavenagh, 2021).

2.5 Factors Influencing Staff Well-being During COVID-19 and SRIs

2.5.1 Demographic Characteristics and Workforce Risk

Even before the COVID-19 pandemic, certain demographic characteristics of DSWs had already been identified as influencing the experiences and well-being of DSWs. For instance, Stevens (2014) found that DSWs who identified as Asian or Black felt their ethnicity limited their social opportunities in the workplace and broader professional settings. These barriers were perceived to affect their overall sense of inclusion, contributing to lower reported well-being (D. Y. Stevens, 2014). In a more recent study conducted during the COVID-19 pandemic, Vinoski Thomas et al. (2023) reported that racial and ethnic disparities continued to shape the experiences of DSWs, with participants identifying feelings of marginalization, lack of support, and reduced recognition in their roles. These factors were associated with a decline in the reported quality of life and mental health of the workers (Vinoski Thomas et al., 2023).

Findings from a large cross-sectional study conducted in Massachusetts further highlight how demographic characteristics intersect with staff well-being during the COVID-19 pandemic (Donelan et al., 2023). Donelan et al. (2023) surveyed 1,468 staff working in group homes supporting individuals with IDD and/or serious mental illness. The study found that Black and Hispanic staff were significantly more likely than their White staff to report serious negative effects of the pandemic on their physical health, mental health, access to care, and working conditions. Furthermore, lower levels of education and reduced trust in public information sources were associated with decreased vaccine uptake and increased need for mental health support, particularly among staff working in group homes. These findings suggest that social and structural inequities contributed to unequal levels of risk and strain experienced by staff from diverse backgrounds (Donelan et al., 2023).

2.5.2 Organizational and Workforce-Level Stressors in Disability Support Settings

Evidence from the pre-pandemic period has consistently highlighted the role of organizational factors in shaping staff well-being in disability service settings. Finkelstein et al. (2018) examined burnout among professionals working with individuals with IDD, including DSWs and identified several workplace-related contributors. These included perceived work overload, role ambiguity, and limited opportunities for professional growth (Finkelstein et al., 2018). In a related study, Kozak et al. (2013), in a study of 409 staff working in residential IDD services in Germany, found that emotional demands, work–privacy conflict, role conflicts, job insecurity, and lack of performance feedback were significant predictors of burnout, accounting for nearly half of the variance in personal burnout scores (Kozak et al., 2013). These findings were echoed in a qualitative study by Ladner-Graham (2014), which explored work stress, meaning, and values among DSWs in the U.S. The study found that emotional exhaustion and burnout were linked to low wages, lack of recognition from their organizations, and value misalignment between staff and their institutions. Participants expressed feeling undervalued and morally conflicted when their care-oriented values were not supported by workplace policies and leadership (Ladner-Graham, 2014).

Although these organizational stressors were well-documented prior to the pandemic, the onset of COVID-19 magnified existing challenges and introduced new systemic challenges that further compromised staff well-being. These included inadequate staffing levels, lack of clear and consistent communication from management, insufficient access to PPE, and limited opportunities for rest or support (Bobbette et al., 2020; Donelan et al., 2023). In a related study, Kavanagh (2021) highlighted critical organizational gaps, noting that many DSWs lacked access to infection control training and sufficient PPE, often resorting to purchasing their protective equipment. Only 47% of those who took sick leave were paid, reflecting a broader absence of formal workforce protections (Kavenagh, 2021). This lack of support extended beyond material and financial resources, encompassing inadequate emotional, informational, and professional support from the organization, particularly from supervisors and managers. Donelan et al. (2023) found that many frontline workers in group home settings experienced rising emotional and physical exhaustion, not only due to increased workload but also as a result of perceived lack of organizational support (Donelan et al., 2023).

In addition to these systemic gaps, the quality of interpersonal relationships, particularly with supervisors and managers, played a central role in shaping staff experiences. Hall et al. (2022) conducted a qualitative study in the United States during the COVID-19 pandemic, examining how organizational shortcomings contributed to stress and turnover among DSWs and their supervisors. The study revealed that inadequate pandemic planning, inconsistent communication, and a lack of organizational support intensified emotional strain and operational disruptions

(Hall, Anderson, et al., 2024). Supervisors reported being overwhelmed by staffing shortages and increased administrative responsibilities without sufficient guidance or resources. Direct support workers, in turn, described feeling undervalued and emotionally exhausted, particularly when high staff turnover led to heavier workloads and fewer familiar colleagues. These dynamics created a self-reinforcing cycle of burnout and staff turnover (Hall, Anderson, et al., 2024).

Even in non-pandemic contexts, these supervisory dynamics remained influential. Environments with limited supervisory and collegial support have been linked to higher levels of emotional exhaustion, role conflict, and staff disengagement. These conditions contribute to elevated burnout and pose challenges for workforce stability (Ryan et al., 2021; Vassos et al., 2013). Staff who lacked adequate supervisory support and who were left to manage complex care situations independently experienced heightened emotional strain (McMahon et al., 2020a). The shift to crisis-based protocols often limited staff input in decision-making, contributing to role conflict and dissatisfaction (P. J. C. M. Embregts et al., 2021a; White et al., 2021). Similar findings were reported in Ontario, where DSWs cited inconsistent communication and the absence of emotional support as key stressors (Bobbette et al., 2020).

Moreover, organizational rigidity is often cited as a source of tension. When supervisors were perceived as unapproachable or solely focused on the enforcement of protocols, rather than staff well-being, it created a disconnect that worsened staff morale (Cimarolli, Verena & Bryant, Natasha, 2023). In contrast, positive supervisory behaviours were protective. Workers who felt their stress was acknowledged, who were regularly checked in on, and who received empathy from their supervisors reported more positive emotional outcomes (P. J. C. M. Embregts et al., 2021a). Similarly, even occasional expressions of concern from other professionals, such as physiotherapists or physicians, were described as helpful in fostering a sense of support and recognition among DSWs (P. J. C. M. Embregts et al., 2021a). Together, these findings suggest that organizational infrastructure, including leadership style, communication practices, emotional support, access to resources, and flexibility in protocols, plays a critical role in shaping the well-being and retention of DSWs, particularly under the pressures of a public health crisis.

2.6. Challenges Faced by DSWs and Supervisors in Supporting Persons with IDD during COVID-19 and SRIs

Person-centred care is a well-established, evidence-based approach in supporting individuals with IDD, which is commonly used by DSWs and nurses to guide the delivery of individualized and responsive services (Fazio et al., 2018). However, the restrictive conditions introduced during the pandemic, such as physical distancing, isolation, and service disruptions, often conflicted with this model's core principles. For instance, Thalen et al. (2023) reported that DSWs supporting older adults with IDD during the pandemic faced reduced in-person contact, disrupted routines, and limited opportunities to engage individuals in daily activities. These changes hindered staff's ability to promote autonomy, maintain emotional connections, and tailor care to individual needs, all central components of person-centred care. In response, many workers were forced to adopt standardized care routines, which conflicted with their usual efforts to support independence and individual engagement (Desroches et al., 2022b; Thalen et al., 2023). A national survey conducted in Australia during the pandemic with 350 DSWs working with individuals with IDD, autism, or cerebral palsy found that 90% were unable to physically distance due to the hands-on nature of their work, such as assisting with feeding or hygiene (Kavenagh, 2021). Although 77% had received infection control training, 69% indicated a need for further education. DSWs also faced difficulties navigating new preventive guidelines and interpreting ambiguous workplace policies (Kavenagh, 2021). Similar results were reported for DSWs in the United States of America, where staff expressed significant stress and frustration due to uncertainties surrounding the implementation of new rules and regulations (Vinoski Thomas et al., 2023).

Following the pandemic, staff shortages and turnover continued to pose significant challenges in residential and community homes providing care to persons with disabilities. A Canadian survey of staff of 4,217 residential care facilities, including disability settings from across the country reported issues such as staff shortages, increasing absenteeism, and a lack of personal protective equipment (PPE) (Clarke, 2021). A retrospective review evaluated 79 studies to identify the significant challenges long-term care homes encountered during the COVID-19 pandemic. Homes experienced significant staffing losses, with some U.S. facilities reporting that over 50% of their workforce had left within a year (A. T. Chen et al., 2020). Additional stressors included high rates of COVID-19 positive tests among staff (Ladhani et al., 2020) and complications associated with staff working across multiple sites (Van Houtven et al., 2020). An Australian mixed-methods study highlighted similar issues in disability residential settings, including a lack of infection control training, PPE shortages, high DSW mobility, and financial strain (Huska et al., 2021). Importantly, the study found a gap between public health policymakers and disability sector realities. Guidelines were often adapted from nursing home protocols, which did not reflect the distinct operational and social environment of group homes, revealing a lack of tailored government guidance and inadequate communication with frontline staff (Huska et al., 2021).

Although these issues were observed internationally, similar barriers were echoed in the Manitoba context. A 2021 provincial study surveyed 432 persons with various types of disabilities, their family members, and staff who supported them to capture the challenges and barriers they faced during COVID-19. Most challenges were linked to staffing, including low wages, multiple work sites, insufficient staff skills, and lack of support, as well as Provincial funds (Disability Matters, 2021). These factors collectively increased the workload and limited their ability to deliver consistent, high-quality care. Together, these findings highlight the multifaceted challenges faced by DSWs and supervisors during the pandemic and subsequent waves of seasonal respiratory illnesses. The evidence points to how organizational limitations, policy gaps, and structural inequities converged to disrupt care practices and strain the workforce.

2.7. Adaptation and Coping Strategies of DSWs and Supervisors During the COVID-19 Pandemic

During the COVID-19 pandemic, DSWs and supervisors used a variety of strategies to continue delivering care to individuals with IDD. These included modifying communication approaches, managing personal and work-related stress, and adapting service delivery models to meet new challenges (Hall, Anderson, et al., 2024; Hapsari et al., 2022; Hughes et al., 2023a; LoPorto & Spina, 2021; Scott & Kendall, 2023). Communication and relationship adaptations were central to maintaining effective support in residential and home care settings. Scott and Kendall (2023) examined how DSWs working in home care settings navigated barriers created by masking, distancing, and restrictions on in-person contact. Staff reported feeling disconnected from the individuals they supported because they could not express warmth or reassurance through facial cues (Scott & Kendall, 2023). To address this challenge, DSWs adopted creative communication strategies, including expressive tone of voice, body language, and written messages, to build trust and convey empathy during interactions (Scott & Kendall, 2023). These adaptations were especially important given the heightened anxiety and isolation experienced by many individuals with IDD.

Beyond communication, staff adopted a range of coping strategies to manage pandemic-related stress and uncertainty. In a national survey, LoPorto and Spina (2021) found that DSWs more commonly relied on problem-focused coping, including following public health guidelines, clarifying procedures with supervisors, and actively managing infection risk (LoPorto & Spina, 2021). These strategies contributed to a greater sense of control in high-pressure environments. In contrast, emotion-focused strategies, such as avoidance or emotional withdrawal, were less frequently reported and appeared to be less effective in reducing stress (LoPorto & Spina, 2021). Several studies also highlighted broader forms of personal resilience among DSWs during the pandemic. Hapsari et al. (2022), in a survey of 634 DSWs supporting high-risk older adults in long-term care, found that staff drew strength from emotional support networks, faith or spirituality, and a strong sense of professional identity. Although the care context differed, these strategies are highly transferable to disability services, offering insights into how staff sustained their motivation and well-being over time (Hapsari et al., 2022).

At the organizational level, disability service providers also implemented adaptive strategies to maintain operations and support their workforce. Hughes et al.(2023) reported that administrators from IDD organizations introduced virtual service options, updated safety protocols, and strengthened partnerships with community agencies (Hughes et al., 2023a). These actions were important in the context of limited direction from governing bodies. The study highlighted how some organizations leveraged collaborative leadership styles and local networks to address systemic gaps (Hughes et al., 2023b). Hall et al. (2024) provided additional insight into the emotional and operational strain experienced by DSWs and supervisors. However, despite these organizational adaptations, individual staff members continued to face significant emotional challenges. Hall et al. (2024) provided additional insight into this emotional and operational strain experienced by DSWs and supervisors. Although participants described feelings of exhaustion and invisibility, they also emphasized the importance of supportive relationships with colleagues and supervisors in buffering some of the stress (Hall, Anderson, et al., 2024).

2.8. Conceptual Framework

I employed a socio-ecological model (SEM) to explore the factors that affect the physical and mental health of DSWs and their supervisors. While the foundational principles of SEM remain consistent across applications, the specific emphasis and configuration of the model may vary depending on the research context and objectives. Some applications focus on designing and evaluating interventions, while others emphasize understanding the social determinants of health or guiding health promotion programs (Glanz et al., 2015). The original SEM was introduced by McLeroy et al. (1988) as a framework for health promotion. It underscores that health behaviours are influenced not only by individual attributes but also by interpersonal relationships, organizational structures, community dynamics, and public policies. These five levels of influence, intrapersonal (individual), interpersonal, institutional, community, and policy, illustrate the need for interventions that operate across multiple levels, recognizing that lasting improvements depend on both individual behaviour change and supportive environmental and policy contexts (McLeroy et al., 1988).

More recently, Rodenburg (2022) applied the SEM to explore how multi-level factors affect well-being in DSWs who care for persons with IDD during the COVID-19 pandemic. Using SEM as a conceptual organizing framework, they analyzed qualitative data from open-ended questionnaires and interviews, identifying distinct influences on DSW well-being at the individual, interpersonal, institutional, community, and policy levels(Rodenburg, 2022). By integrating the individual-level and environmental-level perspectives central to the SEM and drawing on both McLeroy et al.'s (1988) original conceptualization and Rodenburg's (2022) application to DSWs, the SEM provides a comprehensive conceptual framework to examine how factors across levels jointly influence the health and well-being of DSWs and their supervisors. This multi-level approach is particularly well-suited to examining the complex factors affecting the physical and mental health of DSWs and their supervisors. The socio-ecological model as the conceptual framework enables the examination of associations between a wide range of factors, spanning individual, interpersonal, institutional, community, and public policy levels, and the health and well-being of DSWs providing care to persons with IDD and their supervisors. (McLeroy et al., 1988).

The individual-level factors include individual characteristics such as age, sex, level of knowledge, and skills. The interpersonal-level factors are those related to formal and informal social networking and social support that individuals receive from, for example, work groups or relationships with family and friends. The institutional-level factors include characteristics of organizations and institutions, such as leadership teams, training, and staffing. Community-level factors include social attitudes and external support for individuals. Lastly, the public policy-level factors include policies related to regulations and resource accessibility (McLeroy et al., 1988; Rodenburg, 2022).

The SEM is widely accepted and has been frequently used in previous studies to examine how organizational and environmental factors influence individuals' well-being, both within and beyond the workplace context (Hansson et al., 2022; Kumar et al., 2011; Rodenburg, 2022; Shapira-Lishchinsky & Ben-Amram, 2020). To understand the factors influencing the mental and physical health and well-being of staff working in multidisciplinary settings, it is crucial to consider a range of personal and environmental factors affecting both DSWs and their supervisors. Compared to other frameworks, the SEM offers a more flexible structure that can be adapted to non-clinical, community-based care environments, such as those involving DSWs and their supervisors.

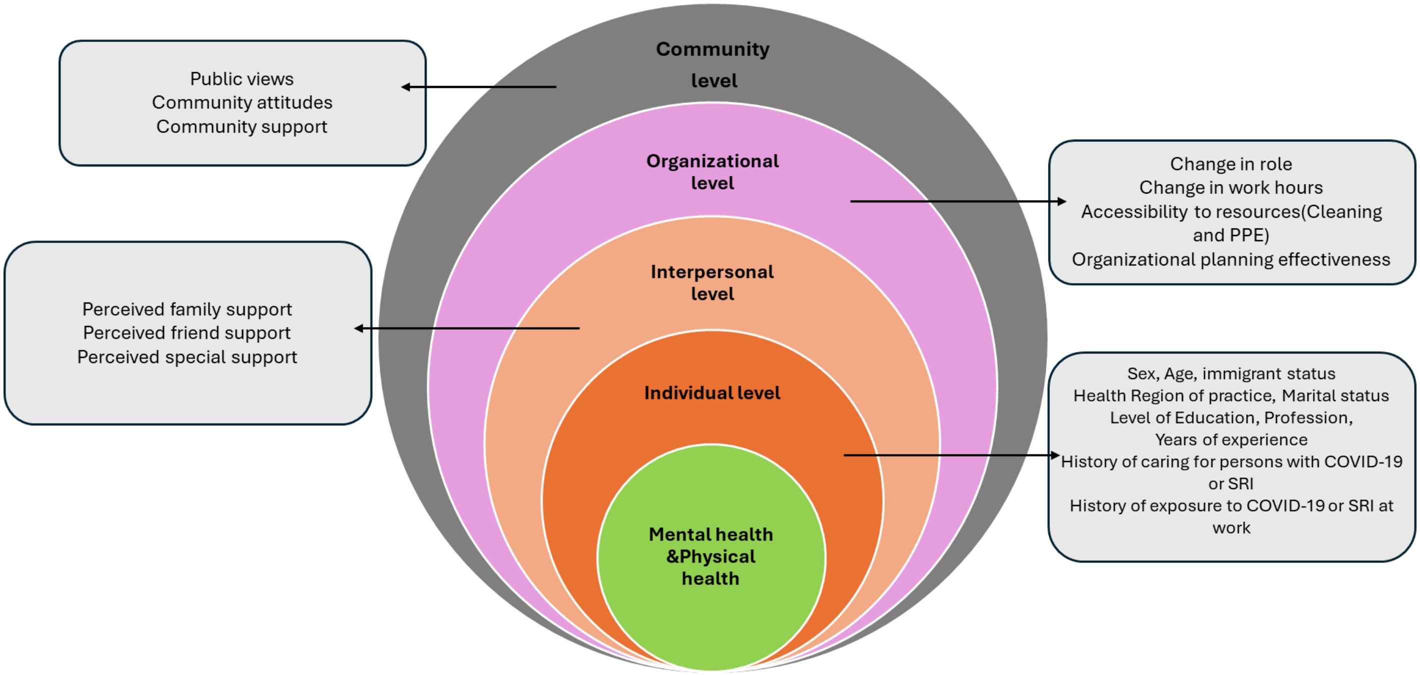
To further illustrate why SEM is appropriate for this context, several other models and conceptual frameworks are used to evaluate the effect of various factors on the performance and well-being of staff. However, many of those models, for example, Nursing Work-Life Model (NWM), are appropriate for use in studies focused on nurses and other healthcare providers providing care in clinical and hospital settings (Havaei, Ma, et al., 2021; Lake, 2002; Leiter & Spence Laschinger, 2006). In contrast, SEM is specifically suited to the present study because it was designed to examine health outcomes shaped by interactions across multiple ecological levels. The study setting is non-clinical and community-based, where DSWs and supervisors support persons with IDD who have complex, long-term conditions and, for those with severe disability, provide lifelong assistance with activities of daily living in home and community environments. Unlike acute-care nursing, where the NWM was developed, DSWs' work is characterized by sustained relationships with clients, family involvement, community integration goals, and intersections with multiple service systems, factors that extend beyond single organizational boundaries and require a framework that accounts for community-level and policy-level influences.

Accordingly, the determinants of staff well-being operate across multiple levels, from individual characteristics to interpersonal supports, organizational practices/resources, and community attitudes. Our research objectives and measures explicitly span these levels, and our analytic plan is organized by SEM levels, enabling theory-driven variable selection and interpretation. Taken together, SEM is more appropriate and informative than nursing-centred or single-level organizational models (e.g., the NWM), which were developed for clinical/hospital contexts and are less suited to community-based disability services.

The current body of literature in the disability field acknowledges the multifaceted nature of staffing experiences for DSWs. However, existing research has often focused on specific individual-level factors rather than integrating all potential elements into a comprehensive multi-level model, hindering the development of a holistic understanding of factors that enhance worker well-being(Rodenburg, 2022). The socio-ecological model addresses this limitation by providing a framework to systematically examine factors across individual, interpersonal, institutional, community, and policy levels. This approach has proven valuable in pandemic-related workforce research; for example, Hennein et al. (2021) applied SEM to a national survey of U.S. healthcare workers, mapping variables across four socio-ecological levels (individual, interpersonal, institutional, and community) and examining their associations with mental health outcomes, including depression, anxiety, PTSD, and alcohol use disorder. Their findings demonstrated that factors at all four levels significantly predicted mental health outcomes, underscoring the value of multi-level frameworks for understanding worker well-being during health crises (Hennein et al., 2021).

For my study, I applied the individual, interpersonal, institutional, and community levels of the SEM framework to guide the selection and organization of study factors, as well as the interpretation of the findings. Factors at the public policy level were not examined because the study focused on identifying strategies and methods to help and support DSWs and supervisors within disability organizations in Manitoba. Importantly, individual-level factors such as education, years in role do not operate in isolation, but are shaped by and interact with organizational and community contexts. As such, supporting individuals requires not only attention to personal characteristics but also an understanding of how broader contextual factors affect their well-being and capacity to cope with workplace stressors. This multi-level approach enables a more realistic and actionable understanding of workforce needs in disability services.

Figure 1 *Socio-ecological model (SEM) for the effect of COVID-19 and SRIs on the mental and physical well-being of DSWs and supervisors*



Note. Adopted from "Socio-ecological predictors of mental health outcomes among healthcare workers during the COVID-19 pandemic in the United States" by R. Hennein, E. J. Mew, & S. R. Lowe, PLOS ONE, 16(2), e0246602 (2021).

2.9 Summary and Knowledge Gaps

While the health effects of the COVID-19 pandemic on healthcare and long-term care workers have been examined, there remains limited research with a focus on the impact of the COVID-19 pandemic and SRIs on DSWs and supervisors working in community-based and congregate care settings. The majority of previous studies focus on hospital staff, personal support workers, and employees in long-term care, whose roles involve similar occupational risks to those experienced by DSWs, such as physically demanding care tasks, prolonged shifts, and frequent use of PPE. However, DSWs working with persons with IDD often operate in group homes, which present distinct challenges not fully addressed in studies from other care sectors.

The literature on DSWs during health crises has largely emphasized mental health outcomes, such as burnout and stress, while their physical health and overall well-being have received less attention. Studies focusing on SRIs like H1N1(Bamberg et al., 2010) or RSV (Ferrante et al., 2024a) have mostly addressed resident outcomes, including mortality and infection risk, rather than occupational impacts on staff (Ferrante et al., 2024b; Uršič et al., 2016). As a result, evidence on how SRIs affect the physical health and safety of DSWs remains sparse. Most of the existing studies examining the impact of COVID-19 and seasonal respiratory illnesses were conducted in other countries, such as the USA and Australia (A. T. Chen et al., 2020; Huska et al., 2021; Vinoski Thomas et al., 2023). The few Canadian studies that examined the impact of COVID-19 targeted the staff of long-term care facilities. The number of available reports that specifically assessed the effect of a pandemic on staff working in disability settings, such as group homes, is limited (Bobbette et al., 2020; Lunsky et al., 2021a; Rodenburg, 2022).

Furthermore, there is a lack of research on the supervisors of DSWs, despite their crucial role in implementing safety protocols, managing staffing shortages, and supporting frontline workers. This lack of evidence was also noted as a priority by leadership at St.Amant, Manitoba's largest community agency supporting people with developmental disabilities, who emphasized the importance of understanding supervisor experiences during health crises.

In summary, there is a clear gap in Canada-based research that examines the full variety of occupational health outcomes for DSWs and their supervisors during the COVID-19 pandemic and other respiratory illness outbreaks. Addressing this gap is critical to informing future workforce planning and policy development.

Chapter 3: Materials and Methods

3.1 Study Design

This study employed a cross-sectional survey to investigate the well-being of direct support workers (DSWs) and their supervisors who provide care to adults with intellectual and developmental disabilities (IDD) in group homes across Manitoba.

3.2 Study Setting

This study was conducted in the Canadian province of Manitoba, which has a population of about 1.5 million (*Manitoba Bureau of Statistics | Province of Manitoba*, 2025). Recent estimates indicate that 16, 524 of Manitoba adults (1.1%) live with IDD (Kostal, 2024). The Department of Families in Manitoba comprises several divisions with different responsibilities, programs, and services. The Community Services Delivery division within the Manitoba Department of Families supports adults with intellectual disabilities through Community Living disAbility Services (CLdS). They provide funds and support for residential services, day services, transportation, and people living at home with family, as well as clinical services and crisis intervention (Families, Province of Manitoba, n.d.). For example, CLdS provides residential care facilities, which offer various living options, including shared homes and shift-staffed/ group homes.

A Home Share arrangement can be managed by a Service Provider Agency or a Private Care Provider directly contracted by the Department of Families to provide Home Share Services. In this setup, an adult eligible for CLdS, including an adult with IDD, lives with a licensed support provider who is contracted to offer support and assistance (*Information about Home Share Services*, 2022). Shift-staffed group homes are another option which provides a safe and secure living environment that helps people with disabilities reach their full potential. Currently, approximately 95 agencies in Manitoba are eligible to collaborate with CLdS to provide services to persons with IDD and their families (Families, Province of Manitoba, n.d.). Some of these agencies manage group homes and support persons with IDD in that setting, by developing person-centred care plans and resources.

3.3 Study Population

The study target population consisted of DSWs providing care to adults with IDD in community group homes across the province of Manitoba and their supervisors. Currently, there are over 95 community organizations supporting persons with IDD and their families across the province (*Member Organizations & Map | Abilities Manitoba*, n.d.). These community organizations vary in size in terms of both the number of people they support and their staffing levels. Direct support workers and supervisors have different roles and responsibilities within organizations, and these are generally consistent across agencies in Manitoba. Training requirements for Direct Support Workers in Manitoba are not standardized through a single mandatory, province-wide training program. The minimum requirements set by the Department of Families' Residential Care Licensing include completion of Grade 10 and Emergency First Aid/CPR. Beyond these requirements, the Department of Families recommends (and offers) additional training commonly used in the sector, including Non-violent Crisis Intervention (NCI), Health Medication Administration Training, Adults Living with an Intellectual Disability Act (ALIDA) training (e.g., St.Amant's "Life in Full Colour"), and the Adult Protection Workshop (*Residential Care Licensing - Record Check and First Aid Requirements for Shift-Staffed Homes Policy*, n.d.). Abilities Manitoba organizes much of the provincial training and provides endorsed e-learning modules that are available to service providers, but are not mandatory (*Begin Your Journey Here! | Abilities Manitoba*, n.d.; *Training Opportunities | Abilities Manitoba*, n.d.). St.Amant sets a higher internal standard, requiring a high school diploma/GED, mandatory training beyond the minimum, and additional person-specific competency training when needed (e.g., diabetes-related competencies).

The total number of staff within these organizations is unknown and varies depending on size, location, and specific services provided. Due to the lack of precise data regarding the number of DSWs and supervisors within each organization, the study employed a non-probability convenience sampling method to recruit participants.

I used G*power, a widely used statistical software, to calculate the required sample size. G*Power enables precise estimations of sample sizes needed for various statistical tests, including t-tests, ANOVA, regression, non-parametric tests, correlation, and Chi-square tests. I calculated the minimum required sample size to detect significant relationships between the independent variables and outcome variables with adequate statistical power using G*Power software (Faul et al., 2009). Parameters included a hierarchical (block-wise) linear multiple regression, the number of predictors added in each block and the total predictors in the model at that step, and a medium effect size ($f^2 = 0.15$). I set $\alpha = .05$ and power 80% to balance feasibility and statistical rigour. The results indicated that a minimum sample size of about 76 was required. Ultimately, data were collected from 96 respondents, all of whom provided reliable responses to the survey questions that were included in the analysis. Previous studies have used G*Power to determine the minimum sample size required for assessing health-related quality of life, employing the SF-12v2 survey instrument, in research involving physicians during the COVID-19 pandemic(Almhdawi et al., 2022).

3.4 Recruitment Strategy and Data Collection Procedures

Upon receiving all the required approvals, study participants were recruited from St. Amant, as well as other community organizations that are members of Abilities Manitoba. Abilities Manitoba is a network of agencies that exists to foster excellence in services for people with intellectual disabilities. Abilities Manitoba serves as a coordinating body that promotes service quality, supports collaboration among member agencies, and advocates for equitable policies and sustainable funding. It also develops shared tools, training resources, and ethical standards to strengthen community-based disability services and enhance inclusion and quality of life for individuals with IDD (*Member Organizations & Map | Abilities Manitoba*, n.d.) To recruit study participants from St.Amant, I provided the administrative assistant of the Community Residential Program with a recruitment letter (

Appendix), which was shared with the staff in that program on my behalf. Additionally, I created and shared the study poster (

Appendix), which was shared with Abilities Manitoba and the Alliance of Direct Support Professionals of Manitoba (ADSPM) and St.Amant for broad distribution. The poster was published in their newsletters and posted on their social media. Both the invitation letter and the study poster included information on the study goal and objectives, data collection procedures, eligibility criteria, and contact information for the principal investigator to contact if they had any questions before they participated. They were also provided with the link to the online survey.

I administered the survey from July 1 to July 25, 2025, using the REDCap platform through the George & Fay Yee Centre for Healthcare Innovation at the University of Manitoba. It included a preamble to the study, followed by an informed consent statement. Participants were informed that by proceeding to complete the survey, they were providing consent for their participation (**Appendix C**). After completing the survey, those who wished to receive the $20 honorarium for participation in the study were directed to a separate form to provide their names and email addresses. This separation was made to maintain confidentiality and minimize the risk of linking personal information with survey responses. I recorded participants' email addresses in a master list linked to their unique participant IDs. I also offered both the survey and consent form in alternative formats (e.g., paper copies) upon request; however, no participants requested a paper version.

3.5 Data Collection Tool

The survey questionnaire included 42 closed-ended questions designed to explore DSWs' and supervisors' mental and physical well-being during the COVID-19 pandemic or SIRs. It also contained two open-ended questions to explore the challenges these workers faced during such times of crisis and the actions that they took to overcome them. The 9 questions in the first section of the survey helped to collect data on socio-demographic and work-related characteristics of the study participants. These variables were conceptualized as individual-level factors in the SEM. The second section of the survey included 13 closed-ended questions to measure the mental and physical well-being of the study participants during the COVID-19 pandemic or SRI, followed by 20 questions capturing factors at the interpersonal, institutional, and community levels of the SEM. The final section of the survey consisted of two open-ended questions to identify the challenges experienced by DSWs and supervisors as well as the strategies used by these individuals to overcome those challenges while maintaining a safe environment for persons with IDD in group homes.

Survey development followed a structured process aligned with the Socio-Ecological Model framework. First, a comprehensive literature review identified key constructs at each SEM level that theoretically influence DSW and supervisor well-being. Second, constructs were clearly defined. For example, 'organizational preparedness' was defined as staff perception of whether effective contingency plans were in place. Third, survey items were formulated to operationalize these definitions, drawing from validated instruments where appropriate or developing items where validated alternatives did not exist for the disability services context. A Program Director at St.Amant estimated the survey would take approximately 25 minutes to complete. The complete survey instrument appears in

Appendix D.

3.6 Study Measures

For the study, the physical and mental well-being of the staff (DSWs and their supervisors) were defined as dependent variables, and SEM-level factors served as independent variables. The following subsections provide detailed descriptions of the measures used in the survey.

3.6.1 Dependent Variables

3.6.1.1 Physical and Mental Health

The overall physical health and overall mental health of the study participants were the two main outcomes of interest in addressing the first research question. These variables were defined based on responses to the validated SF-12 version 2 (SF-12v2) questionnaire, a short version of the SF-36, which is a Health-Related Quality of Life (HRQoL) measurement tool widely used in both clinical and non-clinical work settings. Previous studies have used this tool to determine the mental and physical health status of staff working with persons with IDD (Kao et al., 2021; J.-D. Lin et al., 2009). One study from the US applied the SF-12v2 survey during COVID-19 by modifying the time references for questions to reflect the pandemic context (M. L. Harris et al., 2023). Following this approach and consultation with a methodologist from the Center of Healthcare Innovation of the University of Manitoba, I adjusted the timing part of the SF-12v2 questionnaire from the past 4 weeks to COVID-19 or SRIs to make it more suitable for use in my study. For example, in the original version, there is a question: “During the past 4 weeks, how much did pain interfere with your normal work?” For my study, I rephrased the question to read as, “During the COVID-19 pandemic or a recent episode of Seasonal Respiratory Illness, how much did pain interfere with your normal work?”

Based on responses to the questions on SF-12v2, two summary scores can be obtained: the physical health component score (PCS-12) and the mental health component score (MCS-12), reflecting overall physical health and overall mental health, respectively. I applied the norm-based scale, with a mean score of 50 and a standard deviation of 10, to calculate PCS-12 and MCS-12 scores (Ware et al., 1998). The possible scores for the PCS-12 and the MCS-12 items range from 0 (the worst) to 100 (the best).

The HRQoL SF-12v2 assesses eight domains. Four domains represent physical health: physical functioning (2 items), role-physical (2 items), bodily pain (1 item), and general health (1 item). The remaining four domains represent mental health: vitality (1 item), social functioning (1 item), role-emotional (2 items), and mental health (2 items) (Yadegari et al., 2019).

Each summary score is calculated by weighing and combining specific domains. For example, the Physical Component Summary (PCS) primarily incorporates domains such as physical functioning and bodily pain, while the Mental Component Summary (MCS) incorporates domains such as mental health and social functioning. These composite scores are norm-based, with a mean of 50 in the general population; scores above or below 50 indicate better or poorer physical or mental health status relative to the population average (Rohani et al., n.d.; WARE et al., 2002). The SF-12v2 uses different Likert-type scales across its domains. The General Health domain (both during COVID-19 and SRIs) is rated on a 5-point scale ranging from excellent to poor. Physical Functioning is rated on a 3-point scale from yes, limited a lot, to no, not limited at all. Role-physical, Vitality, Mental Health, and Social Functioning are each rated on a 5-point scale from all of the time to none of the time. Bodily Pain is rated on a 5-point scale from not at all to extremely (McDowell, 2006). The full instrument can typically be completed within 2–3 minutes (WARE et al., 2002).

To preserve item integrity and ensure the instrument measures the intended health constructs, the modified SF-12v2 underwent a structured validation process. Members of my thesis committee reviewed the instrument to confirm face validity, and a Program Director at St.Amant, with expertise in health and functional assessment, evaluated the tool for face and content validity, assessing each item's clarity, relevance, and coverage of the intended constructs.

Reliability Check of Context-Adapted SF-12v2 Items

Although the SF-12v2 is a well-validated instrument, a reliability check was conducted to ensure that the contextual wording modifications for the COVID-19 and SRI contexts did not introduce internal inconsistency among items.

A reliability analysis was conducted on the 12-item SF-12v2. Cronbach's alpha for the Physical Component Summary (PCS-12) was $\alpha=.86$ in the COVID-19 context and $\alpha=.85$ in the SRI context. For the Mental Component Summary (MCS-12), $\alpha = .86$ across both contexts. All coefficients exceeded the conventional threshold of $\alpha \geq .70$, indicating acceptable internal consistency and suggesting that the contextual wording modifications did not compromise item coherence **(**

Appendix **E)** (Tavakol & Dennick, 2011).

Factorial Validity of SF-12v2

The Exploratory Factor Analysis (EFA) was conducted using Principal Components Analysis (PCA), with Oblique rotation on the modified SF-12v2 items. Sampling adequacy was strong (KMO = .868), indicating the suitability of the data for factor analysis. Bartlett's test of Sphericity was significant $x^2(66)= 593.277, p < .001$, supporting the factorability of the correlation matrix. Two components were retained based on the Scree plot and prior PCS/MCS structure (eigenvalues =6.08 and 1.47), explaining 62.91% of the variance (50.65% and 12.25%) despite a marginal third eigenvalue (~1.00). The pattern matrix aligned with the expected structure: core mental-health items (calm, depressed, energy, role-emotional) loaded highly on Factor 1 (≈ .86–.94), and core physical-functioning items (moderate activities, climbing stairs, bodily pain) loaded on Factor 2 (≈ .55–.91). Several items showed small cross-loadings—General health (R) (.60/.31), two role-physical items (~.56/.42 and .53/.36), and one role-emotional item (~.37/.41); Social activities had a modest primary loading (~.46). The two components were moderately correlated (r = .45), consistent with conceptual overlap between physical and mental health (**Appendix F)**.

3.7 Independent Variables

To address the second research question, a number of independent variables were defined and classified into four levels according to the selected Socio-Ecological Model. These variables are defined in the following subsections:

3.7.1 Individual-level Variables

The individual-level variables included age, gender, marital status, highest level of education, health region of practice, residency status, position (DSW vs. supervisor), and years of experience. In addition to demographic and work-related characteristics, two occupational exposure variables were classified as individual-level factors: direct care for a person with COVID-19 or SRIs, and exposure to COVID-19 or SRIs at work. These variables were conceptualized as individual-level factors because they capture each participant's personal, direct experience of occupational exposure and risk during COVID-19 and SRIs, which vary significantly among workers within the same organization, depending on their specific role assignments and interactions with persons with IDD at group homes. Although these variables reflect occupational circumstances, they represent individual health risk factors that directly influenced the participants' physical and mental health outcomes. This approach is consistent with pandemic workforce research, which recognizes occupational exposure at the individual level as a critical personal risk factor affecting worker health outcomes. Specifically, Hennein et al. (2021) included similar work exposure measures at the individual level in their socio-ecological analysis of mental health outcomes among healthcare workers during the COVID-19 pandemic. They found that individual-level occupational factors significantly predicted psychological distress and mental health outcomes (Hennein et al., 2021). By including these exposure variables at the individual level, the analysis captures the full range of individual characteristics, experiences, and health risk factors that influenced DSW and supervisor well-being during the COVID-19 and SRIs (**Table *1***).

Table 1 *Description of Individual-Level Variables*

Variable	Type	Categories
Age	Ordinal	Younger (20–44), Mid-aged & older (≥45)
Gender	Binary	Woman = 1; Man = 2; 3 = prefer to self describe; prefer to not to say = 4
Marital status		0 = Not partnered (single, divorced, widowed) 1 = Partnered (married/common-law)
Educational level	Nominal	0 = High school or less 1 = College diploma or higher
Health region of practice	Nominal	Five regional health authorities in Manitoba
Role position	Binary	0 = Direct Support Worker (DSW) 1 = Supervisor

Years of experience	Ordinal	1 = <6; 2 = 6–10; 3 = 11–20; 4 = >20 years
Direct care for a person with COVID-19/SRIs	Binary	0 = No; 1 = Yes
Exposure to COVID-19/SRIs at work	Binary	0 = No; 1 = Yes

3.7.2 Interpersonal-level Variables

The interpersonal-level variables included perceived family support, perceived friends support, and perceived specific person support. These were measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988). The original MSPSS contains 12 items divided equally into three subscales: family, friends, and a significant other. The response format was adapted for the study from the original 7-point Likert scale (1 = very strongly disagree to 7 = very strongly agree) to a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) to reduce respondent burden and facilitate comprehension among participants. Each subscale score ranged from 4 to 20, with higher scores indicating stronger perceived support in that domain. The total MSPSS score ranged from 12 to 60 and was treated as a continuous predictor in subsequent analyses (**Appendix G**).

Reliability analysis performed and indicated high internal consistency for the overall MSPSS scale (Cronbach’s α = .878) and for each subscale: family support (α = .872), friends support (α = .861), and specific person support (α = .929). These values exceeded the commonly accepted threshold of 0.70 (Tavakol & Dennick, 2011), demonstrating that the modified MSPSS retained strong reliability in this sample. The MSPSS typically requires approximately 5–10 minutes to complete **(Appendix H**) (*Multidimensional Scale of Perceived Social Support | RehabMeasures Database*, 2015).

3.7.3 Organizational-level variables

Organizational variables included the perceived availability of cleaning supplies, personal protective equipment (PPE), and organizational planning effectiveness, change in work hours and change in role, all referring specifically to the context of COVID-19 and SRIs. Each variable was based on a specific question:

Availability of cleaning supplies: "*How would you rate the availability of disinfectant or cleaning products during the COVID-19 or SRIs*?"

Availability of PPE: "*How would you rate the availability of necessary personal protective equipment (PPE) during the COVID-19 or SRIs*?"

Organizational planning effectiveness: "*How effective was your organization's backup or emergency plan (contingency plan) for managing supply shortages (e.g., PPE, cleaning products, etc.)*?"

Responses for these three items were rated on a 5-point Likert scale (1 = poor, 5 = excellent), with higher scores indicating greater perceived organizational preparedness. These were treated as ordinal variables.

The change in role/responsibilities variable was assessed with the question:

"*To what extent have your role/responsibilities changed due to COVID-19 or SRIs*?" Responses ranged from 1 = not at all to 5 = extensively, treated as an ordinal variable. The change in work hours variable was measured with the question: "*Have your working hours changed due to COVID-19 or SRIs*?" Responses were coded as -1 = decreased, 0 = no change, and 1 = increased, treated as an ordinal variable.

Resource availability variables, perceived availability of PPE and cleaning supplies, were conceptualized as organizational resources that reduce both infection risk and psychological distress among DSWs and supervisors. Organizational planning effectiveness was operationalized as staff perception of contingency plans, reflecting organizational leadership and infrastructure. Changes in work hours and role responsibilities were operationalized as occupational disruptions resulting from organizational staffing decisions during the crisis. These variables were developed based on pandemic preparedness literature (Brito Fernandes et al., 2021) and adapted from Hennein et al. (2021), which similarly examined occupational changes as organizational-level factors affecting worker outcomes during COVID-19 (Hennein et al., 2021).

3.7.4 Community-level variables

Community-level variables included perceived community attitudes toward disability, public views toward disability, and community support. I developed questions based on qualitative studies performed by Rodenburg (Rodenburg, 2022), and Hennein (Hennein et al., 2021) on the impact of COVID-19 on direct support workers and healthcare workers, respectively. Community attitudes toward disability services were conceptualized as staff's perception of whether disability services work is viewed as valued and respected, or stigmatized by the broader community. Public views toward disability services as a career were operationalized as staff's perception of whether the general public views disability services as a respected profession.

I operationalized these constructs by asking the following questions: *"To what extent have you noticed any attitudes or behaviours directed toward you related to your work in disability services, whether positive or challenging?" "How often do you feel the general public perceives a career in disability services less positively?"* The 5-point Likert ranged from (1=Never to 5=Always). The higher scores indicated more negative perceptions.

The available community support variable was measured using this single question: *"How would you rate the availability of community resources to support disability services?"* The five Likert points used to score community support variables range from (1=poor to 5=Excellent). The higher score indicates a more positive perception of community support, which contrasts with the coding for community attitudes and public views, where higher scores reflect more negative perceptions. Community support was operationalized as staff's assessment of whether community resources and support systems are available to support disability services. This variable is grounded in both pandemic workforce research and disability services literature. Hennein et al. (2021) demonstrated that community resource availability significantly predicted healthcare worker mental health during COVID-19 (Hennein et al., 2021). In disability services specifically, Rodenburg (2022) found that inadequate community support contributed to DSW burnout (Rodenburg, 2022). One Australian study in disability residential organizations during the COVID-19 second wave documented that organizations with limited community support networks experienced greater operational challenges, including staffing shortages, resource constraints, and difficulty implementing protective measures. These organizational challenges directly impact staff through reduced staffing support, inadequate protective resources, and compromised safety protocols, all factors that strain the physical and mental well-being of DSWs and supervisors (Huska et al., 2021).

All variables are treated as ordinal.

3.8 Open-ended Questions

To address Objective 2, two open-ended questions were asked of DSWs and supervisors to describe the challenges they encountered while providing care to persons with IDD during COVID-19 and SRIs, and the actions they took to overcome them. Participants were asked: *“What challenges did you face while supporting persons with IDD during the COVID-19 pandemic or any of the SRIs?”* and *“What strategies did you use to overcome the challenges?”*

3.9 Data Cleaning

Because the survey was distributed through a public link, a multi-step data-cleaning procedure was applied to enhance data quality and minimize fraudulent or low-quality responses. First, to reduce the likelihood of fraudulent or low-quality submissions in a public survey link, several safeguards were incorporated during survey development in REDCap. A human-verification step (CAPTCHA; “I am not a robot”) was enabled. A real-time fraud flag was implemented on the honorarium form using a hidden calculated field for survey duration. A record was flagged when any of the following held: total main-survey time < 10 minutes, a mismatch between the two year-of-birth entries. When triggered, the survey displayed a “Flagged for possible fraudulent activity” notice and revealed a required notes field asking respondents who believed the flag was inaccurate to provide a brief explanation for subsequent manual verification; otherwise, respondents proceeded directly to the honorarium item. All flagged cases were captured in an audit log and adjudicated during data cleaning. In addition, I implemented a simple consistency check by repeating the year-of-birth item (mismatches triggered a flag) and collected the respondent’s workplace 3-digit postal code to support later geographic-eligibility review(Manitoba Forward Sortation Area [FSA], which represents the first three characters of a postal code used to identify broad geographic regions within the province).

Beyond these in-survey safeguards, additional cleaning steps were applied after data export. REDCap generated a syntax file that can be used to import survey data into Statistical Package for the Social Sciences version 29.0(SPSS)for analysis (*IBM SPSS Statistics 29 Documentation*, 2023). Survey data were exported from REDCap to an Excel sheet for cleaning before importing to SPSS. First, the start and end times automatically captured via REDCap smart variables were used to calculate survey completion duration. Entries with implausible durations—less than 10 minutes or greater than 90 minutes, were excluded. Second, responses submitted in rapid waves or at higher regular intervals (for instance, numerous back-to-back submissions within a short time window) were removed to eliminate automated or duplicate entries. Third, geographic eligibility was enforced by excluding records whose postal-code prefix did not correspond to Manitoba (i.e., did not begin with "R3J," "R2J," "R3K," etc.), ensuring that only in-province responses were retained. Fourth, responses with substantial item nonresponse—defined as < 60% of required fields completed—were excluded to ensure adequate engagement (Griffin et al., 2022). Fifth, exact duplicate responses to open-ended questions were identified and eliminated.

Data quality checks were conducted in two rounds: an initial cleaning pass in which screening criteria were applied, and cases were logged for potential exclusion, followed by a verification pass in which the same checks were re-run, edge cases were reviewed, and all inclusion/exclusion decisions were confirmed. Of 170 submitted surveys, 74 were excluded through sequential screening, resulting in a final analytic sample of 96. The final analytic sample consisted of 96 individuals with validated survey responses.

Table 2 *Data Cleaning Stages and Case Exclusion*

Steps	Operational definition	N removed	N remaining
0	All records submitted after the survey closed	0	170
1	Completion time < 10 minutes	20	150
2	Completion time > 90 minutes	8	142
3	Back-to-back or regular-interval submissions suggesting automation	20	122
4	FSA not Manitoba (postal code prefix not MB)	6	116
5	< 60% of required fields completed	10	106
6	Exact duplicate text across records	5	101
7	Flag triggered (e.g., YOB mismatch)	5	96
Final	Validated responses retained	—	96

3.10 Data Analysis

3.10.1 Quantitative Data Analysis

Descriptive analyses were conducted to describe the demographic and work-related characteristics of the study population. More specifically, we ran and summarized frequency distributions (n, %) using the following variables: gender, role (direct support worker/supervisor), marital status, education, workplace health region, and residency status.

To protect confidentiality, response categories with fewer than five participants were suppressed and not presented. Next, items were recoded and weighted following the SF-12v2 manual to create 0–100 domain scores and to compute the Physical Component Summary score (PCS-12) and Mental Component Summary score (MCS-12) using the norm-based scoring algorithm (T-scores; mean = 50, SD =10). All scoring was performed separately for COVID-19 and SRI contexts. As a sensitivity check for item nonresponse, multiple imputation (MI) was conducted, and PCS-12/ MCS-12 T-scores recomputed; the conclusion paralleled the complete-case analysis, so the analytic sample used complete cases for SF-12V2 items (listwise deletion; N = 83), and subsequent analyses proceeded with this complete-case sample. PCS-12 and MCS-12 were summarized descriptively by role (DSW vs. supervisors); given the non-probability, convenience sample, no hypothesis tests are planned for role differences in the primary report. Before inferential tests, score distributions were examined using histograms and normal Q–Q plots. Approximate normality supported treating the mean scores as continuous variables in bivariate and multivariable analyses. Organizational and community-level factors were retained as individual predictors rather than combined into composite scales.

Bivariate relationships between predictors (across the four SEM levels) and outcomes (PCS-12, MCS-12 in COVID-19 and SRI contexts) were examined. Pearson correlation was used for continuous predictors and Spearman's rho for ordinal predictors. Independent-samples t-tests assessed binary predictors, and one-way ANOVA was used for nominal predictors with more than two categories. After the bivariate screen, four hierarchical multivariable regression models were fit for PCS-12 and MCS-12 under both COVID-19 and SRI contexts, structured according to the SEM model. Age and gender were forced into Block I based on a priori relevance as potential confounders in occupational health. Subsequent blocks (individual, interpersonal, organizational, community) were entered sequentially. Predictors were entered in blocks following both the SEM model and the results of preliminary bivariate analyses. Before running the regressions, the assumptions of linear regression were examined. Scatterplots and residual plots indicated that the assumptions of linearity and homoscedasticity were met. The standardized residuals were approximately normally distributed, as observed from histograms and normal probability plots. Multicollinearity diagnostics (tolerance and VIF values) were within acceptable ranges.

Statistical significance was set at two-tailed p < .05. All quantitative analyses were conducted using IBM SPSS Statistics, version 29 (*IBM SPSS Statistics 29 Documentation*, 2023).

3.10.2 Qualitative Data Analysis

The third and fourth research questions were to identify the challenges experienced by DSWs and supervisors, and actions that were taken to overcome them. The data from two open-ended questions were exported to an Excel sheet for coding. Each response was determined as a separate unit of analysis. I used a directed qualitative content analysis, anchored to two a priori categories, “challenges” and “strategies”, with inductive development of subthemes within each category (Hsieh & Shannon, 2005). Next, I quantified code frequencies to describe the prevalence of subthemes (e.g., mentions of “PPE shortage”). Finally, I organized subthemes under the two categories, and illustrative verbatim quotes were selected to contextualize and interpret key findings.

3.11 Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Board of the University of Manitoba (HREB), HS26756 (H2024:376). Since St.Amant has a Research Access Review Committee to review and approve researchers' studies before assisting with recruitment from the population it serves, I received approval from the St.Amant Research Access Review Committee. There were three ethical considerations for conducting an online survey: participating in the survey was voluntary, the completed survey was anonymous, and the participants' email addresses were kept separate from their responses and stored on an encrypted, password-protected storage platform. As outlined in the survey’s structure and recruitment strategy, these safeguards were fully implemented to ensure ethical conduct throughout the study.

Chapter 4: Results

4.1 Description of the Study Participants

The final analytic sample comprised 96 participants. Most of the participants were younger than 45 years of age (78.1%) and were self-identified as men (53.1 %). The majority worked with the Winnipeg Regional Health Authority (58.3 %) and were Canadian-born citizens (63.5 %). Over three-quarters (74%) were married or in a common-law relationship and held a college or university degree (84.4%). Most of the study participants were direct support workers (61.5%), while 35.4 % worked as supervisors. Nearly half of the study participants (46.9 %) reported working 6–10 years in their current position. Almost all of the study participants (95.8 %) had cared for a person with COVID-19 or SRIs, and 82.3 % reported workplace exposure to such cases. Missing responses were rare, fewer than 5% for any demographic variable (**Table *3***).

Table 3 *Sociodemographic and Work-related Characteristics of Study Participants*

Variables	Frequency	Percent (%)
Age group		
Younger (20–44)	75	78.0
Mid-aged & older (≥45)	21	21.9
Gender		
Woman	45	46.9
Man	51	53.1
Health region of practice		
WRHA	56	58.3
Interlake–Eastern	13	13.5
Southern Health–Santé Sud	5	5.2
Prairie Mountain Health	12	12.5
Northern Health Region	6	6.3
Residency status		
Canadian-born citizen	61	63.5
Naturalized citizen	19	19.8
Permanent resident	8	8.3
Temporary visa holder	7	7.3
Marital status		
Married/common-law	71	74.0
Single	22	22.9
Education level		
High-school diploma	6	6.3

Continued Table 2

Variables	Frequency	Percent (%)
College or University degree	81	84.4
Professional position		
Direct support worker	59	61.5
Supervisor	34	35.4
Years in current position		
< 6 years	29	30.2
6–10 years	45	46.9
11–20 years	15	15.6
> 20 years	7	7.3
Cared for a person with COVID-19/SRI		
Yes	92	95.8
Exposed at work to COVID/SRI		
Yes	79	82.3
No	17	17.7

Note. Naturalized citizen: persons who were not Canadian citizens at birth but acquired citizenship under the provisions of Canadian law (Government of Canada, 2011). Categories with fewer than five participants are not reported. Percentages may not total 100 due to rounding.

The following section addresses research question one: "How have the COVID-19 pandemic and SRIs affected the mental and physical well-being of DSWs and supervisors supporting persons with IDD in group homes in Manitoba?"

4.2 Health-Related Quality of Life Descriptive Analysis

The analysis presented in this section addresses the first research question related to the first research objective to examine the effects of the COVID-19 pandemic and SRIs on the mental and physical well-being of DSWs and their supervisors working in group homes providing care to individuals with IDD in the community across Manitoba.

Question 1: How have the COVID-19 pandemic and SRIs affected the mental and physical well-being of DSWs and supervisors supporting persons with IDD in group homes in Manitoba?

Following the psychometric evaluation of the SF-12v2, scores on the Physical Component Summary (PCS) and Mental Component Summary (MCS) were calculated for (WARE et al., 2002) the complete-case SF-12 sample (n = 83) and were compared separately for the COVID-19 and SRI context. Mean substitution was not used because SF-12 component scores are computed from a weighted combination of all items; simple averaging would distort the scoring weights and is inconsistent with the validated method. Descriptive statistics appear in **Table *4*** and show that both components were below the normative mean in each context, with MCS virtually identical across COVID-19 and SRI.

Table 4 *Descriptive Statistics for SF-12v2 T-scores (Complete Cases)*

Outcome	M (SD)	95% CI	Min–Max
PCS (COVID-19)	41.3 (6.5)	39.9, 42.7	25.0–58.4
MCS (COVID-19)	39.7 (11.9)	37.1, 42.3	17.9–65.0
PCS (SRI)	41.0 (6.5)	39.6, 42.5	25.0–59.8
MCS (SRI)	39.7 (11.9)	37.1, 42.3	17.9–65.0

Note. Complete case analysis (N = 83). PCS=Physical component scale. MCS=Mental component scale.

To benchmark these results against the U.S. norm of 50, one-sample t-tests were conducted for each context. All descriptives refer to the combined sample of DSWs and supervisors (n=83). Across both contexts, PCS and MCS were significantly lower than the norm. PCS mean was 41.37 (*SD* = 6.5), which was lower than the norm by −8.63 points (95% *CI* [−10.0, −7.2]), and

MCS mean was 39.7 (*SD* = 11.9) and was lower by −10.22 points (95% *CI* [−12.8, −7.6]). In the SRI context, results were similar, PCS mean of 41.09 (*SD* = 6.5) was lower by −8.91 points (95% *CI* [−10.3, −7.4]), and MCS mean was 39.7 (*SD* = 11.9), which was lower by −10.26 points (95% *CI* [−12.8, −7.6]). All tests were significant at *p* < .001. Overall, both physical and mental health for DSWs and supervisors were substantially below normative expectations across contexts, with the largest differences observed for physical health (**Table 5).**

Table 5 *One-Sample t-Tests vs U.S. Norm (50) (Complete Cases)*

Variable	t*(82)*	Mean (SD)	Mean difference (Mean − 50)	95% CI (Mean−50)	*p*
PCS(COVID-19)	–12.05	41.3 (6.5)	–8.6	–10.0, –7.2	< .001
MCS(COVID-19)	–7.79	39.7 (11.9)	–10.2	–12.8, –7.6	< .001
PCS(SRI)	–12.35	41.0 (6.5)	–8.9	–10.3, –7.4	< .001
MCS(SRI)	–7.81	39.74(11.9)	–10.2	–12.8,–7.6	< .001

Note. One-sample t tests benchmark each T-score against the U.S. norm (test value = 50), two-tailed, α = .05. 'Mean−50' is the difference from the U.S. norm; negative values indicate scores below the norm. Confidence intervals are for the mean difference. (N = 83).

Descriptive summaries by role (DSWs vs. supervisors) were compiled; however, no between-group statistical tests were conducted or reported for these groups in this research. This approach was taken because the study used non-probability (convenience) sampling and did not purposefully recruit or stratify the sample to ensure sufficient or representative numbers of DSWs and supervisors for valid statistical comparison between these groups. In SF-12v2, higher T-scores indicate better health, and lower T-scores indicate worse health (PCS = physical; MCS = mental). Of the 83 participants who completed SF-12, 52 were self-identified as direct support workers and 28 were self-identified as supervisors. Three study participants did not indicate their role and were not included in the role-stratified descriptives. Under COVID-19, the PCS means were similar for DSW (*M* = 41.6, *SD* = 6.9, 95% *CI* [39.6, 43.5]) and supervisors (*M* = 41.4, *SD* = 6.0, 95% *CI* [39.0, 43.7]). The observed range was wider for DSWs (25.0–58.4) than for supervisors (34.1–55.8). In contrast, MCS was higher among DSWs (*M* = 43.4, *SD* = 12.6, 95% *CI* [39.9, 47.0]) than supervisors (*M* = 33.3, *SD* = 7.8, 95% *CI* [30.2, 36.3]).

A similar descriptive pattern was observed under SRI. PCS means were similar across roles, with direct support workers, *M* = 41.4 (*SD* = 6.8, 95% *CI* [39.5, 43.3]) and supervisors, *M* = 40.8 (*SD* = 6.2, 95% *CI* [38.4, 43.2]). The observed range was wider for DSWs (25.0–59.8) than for supervisors (30.0–55.3). By contrast, MCS was higher among direct support workers (*M* = 43.4, *SD* = 12.6, 95% *CI* [39.9, 46.9]) than among supervisors (*M* = 33.2, *SD* = 7.8, 95% *CI* [30.2, 36.2]) (**Table *6***).

Table 6 *Descriptive Statistics for PCS and MCS by Role*

		COVID-19			SRI		
Variable	Role	Mean(SD)	95% CI	Min-Max	Mean(SD)	95% CI	Min-Max
PCS	DSW	41.6 (6.9)	39.6, 43.5	25.0–58.4	41.4 (6.8)	39.5, 43.3	25.0–59.8
	Supervisor	41.4(6.0)	39.0, 43.7	34.1–55.8	40.8 (6.2)	38.4, 43.2	30.0–55.3
MCS	DSW	43.5(12.6)	39.9, 47.0	18.5–65.0	43.5 (12.6)	39.9, 46.9	18.5–65.0
	Supervisor	33.3 (7.8)	30.2, 36.3	17.9–49.5	33.2 (7.8)	30.2, 36.2	17.9–49.3

Note. T-scores are norm-based (U.S. Mean = 50, SD = 10); higher scores indicate better health. DSW N= 52. Supervisor N=28. PCS=Physical Component Score. MCS=Mental Component Score.

4.3 Associations Between Socio-Ecological Model Factors and Physical and Mental Health

The second question related to the first study objective was: “Which individual, interpersonal, organizational and community factors are more closely associated with the impact of the COVID-19 pandemic and SRIs on the mental and physical well-being of DSWs and their supervisors providing care to individuals with IDD in community group homes in Manitoba?” To address this question, bivariate analyses were conducted to examine how factors across the SEM model (individual, interpersonal, organizational, and community-levels) were associated with the physical (PCS) and mental (MCS) health of DSWs and supervisors during the COVID-19 and SRI contexts. The appropriate statistical test was conducted based on the type of predictor variable. Spearman’s rho correlations were used for ordinal variables. Independent samples t-tests were applied to binary categorical variables. Pearson correlations were used for continuous predictors. Finally, one-way ANOVA was used for predictors with more than two categories. The results are presented in the following sections according to the SEM levels.

4.3.1 Individual-Level Factors

Individual-level factors that were examined included age and years in position, gender, marital status, role position, level of education, caring for a person with COVID-19/SRI, COVID-19/SRI exposure at work, residency and health region of practice. Different statistical tests were applied depending on the variable type. The following subsections present the results for each individual-level variable (**Table** *7*).

Table 7 *Summary of Individual-Level Variables and Statistical Tests*

Statistical Test	Variable
Spearman’s rho correlation	Age Year in position
Independent-samples t-test	Gender Marital Status Role position (DSW vs. Supervisor) Level of education Caring for a person with COVID/SRI COVID/SRI exposure at work
One-way ANOVA	Residency status Health region of practice

Note. The choice of tests was based on measurement type and group comparisons: t-tests for binary variables, ANOVA for variables with more than two groups, and Spearman’s rho for ordinal/continuous predictors.

Spearman's rho correlations were used to examine whether age and year in position are significantly associated with the mental health and physical health of study participants. In the COVID-19 context, age was not significantly associated with either physical health [$r(81) = .12$, $p = .276$] or mental health [$r(81) = -.10$, $p = .371$]. Years in position were also not significantly associated with physical health, [$r(81) = -.19$, $p = .091$], but had a significant negative association with mental health [$r(81) = -.36$, $p < .001$].

The same overall pattern was found when we examined the association of individual-level factors and PCS and MCS in the SRI context (**Table *8***), with a stronger negative association between years in position and mental health, compared to COVID-19.

Table 8 *Individual level (age and year in position), and PCS and MCS in SRIs*

		PCS (SRI)		MCS(SRI)	
Predictor	N	*ρ*	*p*	*ρ*	*p*
Age	83	.114	.303	–.111	.319
Years in position	83	–.180	.110	–.367 **	< .001

Note. Coefficients are Spearman's rho. $p < .05$*, $p < .01$**.

Independent-samples t-tests were conducted to examine differences in PCS and MCS scores by gender, marital status, role position, level of education, caring for a person with COVID-19, and COVID-19 exposure at work during the COVID-19 pandemic. Gender and marital status were not significantly associated with PCS or MCS scores (all *p*s > .05) (**Table *9***). Role position was not associated with PCS, $t(78) = 0.13$, $p = .897$, $d = 0.03$, but supervisors reported significantly lower MCS scores (M =33.3, $SD = 7.8$) than DSWs, $t(76.25) = 4.45$, $p < .001$, $d = 0.91$. Education was not significantly related to PCS, $t(81) = 0.19$, $p = .848$, $d = 0.06$, but participants with non-college education reported lower MCS scores (M =33.0, $SD = 10.1$) than those with college education, $t(81) = -2.14$, $p = .035$, $d = -0.67$.

Participants who did not care for a person with COVID-19 reported higher PCS scores ($M = 48.2$, $SD = 5.4$) compared to those who did ($M = 41.0$, $SD = 6.4$), $t(81) = 2.20$, $p = .031$, $d = 1.13$;

however, this finding should be interpreted with caution due to the very small number of participants in the 'No' group (n < 5). Finally, participants not exposed to COVID-19 at work reported significantly higher PCS scores (*M* =44.9, *SD* = 4.4) compared to those exposed (*M* = 40.5, *SD* = 6.7), *t*(81) = 2.43, *p* = .017, *d* = 0.69, as well as they reported higher MCS scores, *t*(81) = 2.79, *p* = .007, *d* = 0.80, compared to those who were exposed. For the complete correlation matrix, see **Appendix I**.

Overall, in the SRI context, the pattern of findings was broadly consistent with those observed in the COVID-19 context, with role position and education emerging as significant predictors of mental health, while most other factors were not associated with either physical or mental health. Specifically, gender and marital status were not significantly associated with PCS or MCS scores (all *p*s > .05), mirroring the non-significant results observed in the COVID-19 analyses. Role position was again unrelated to PCS, *t*(78) = 0.42, *p* = .679, *d* = 0.09, but supervisors reported significantly lower MCS scores (*M* = 33.24, *SD* = 7.83) compared to DSWs (*M* = 43.46, *SD* = 12.62), *t*(76.33) = 3.90, *p* < .001, *d* = 0.90. This finding replicates the COVID-19 pattern, indicating consistently poorer mental health among supervisors.

Similarly, education was not significantly related to PCS, *t*(81) = 0.30, *p* = .769, *d* = 0.06, but participants with non-college education reported significantly lower MCS scores (*M* = 35.5, *SD* = 9.7) than those with college education (*M* = 43.4, *SD* = 12.0), *t*(81) = −2.17, *p* = .033, *d* = −0.67. This result parallels the COVID-19 findings, where education also differentiated participants' mental health. In contrast, none of the predictors were significantly associated with PCS scores in the SRI context, whereas in the COVID-19 analyses, work exposure to COVID-19 and caring for a person with COVID-19 were linked to lower physical health. Taken together, these results suggest that the impact of SRIs on DSWs' and supervisors' health was concentrated in the mental health domain, with supervisors and those with lower education consistently reporting poorer outcomes across both the COVID-19 pandemic and SRI contexts (**Table *10***). For the complete correlation matrix, see **Appendix J**.

Table 9 *Differences in PCS and MCS by Individual-Level Predictors During COVID-19*

			PCS				MCS			
Variables	Group	N	M(SD)	*t*(df)	*p*	*d*	M(SD)	*t*(df)	*p*	*d*
Gender	Man	47	41.9(6.4)	0.94(81)	.348	0.21	41.1(12.5)	1.24(81)	.220	0.27
	Woman	36	40.5(6.6)				37.9(11.0)			
Role position	DSW	52	41.6(6.9)	0.13(78)	.897	0.03	43.4(12.6)	4.45(76.25)†	<.001	0.91
	Supervisor	28	41.4(6.0)				33.3(7.8)			
Marital status	Single	19	41.5(3.3)	0.16(66.3)†	.875	0.03	42.7(12.9)	1.23(81)	.223	0.32
	Married/Common-law	64	41.3(7.2)				38.9(11.6)			
Education	Non-college	12	41.7(7.4)	0.19(81)	.848	0.06	33.0(10.1)	−2.14(81)	.035	−0.67
	+College	71	41.3(6.4)				40.9(11.9)			
Cared for a person with COVID-19	No	<5	48.2(5.38)	2.20(81)	.031	1.13	40.0(12.2)	−2.86(14.51)†	.012	−0.44
	Yes	79	41.0(6.4)				34.7(2.4)			
COVID-19 exposure at work	No	15	44.9(4.4)	2.43(81)	.017	0.69	47.2(10.8)	2.79(81)	.007	0.80
	Yes	68	40.5(6.7)				38.1(11.6)			

Note. Welch’s t is reported where indicated (†) when Levene’s test for equality of variances was significant (p < .05).

Table 10 *Differences in PCS and MCS Scores by Individual-Level Predictors During SRIs*

Variables	Group		PCS				MCS			
		N	M(SD)	*t*(df)	*p*	*d*	M (SD)	*t*(df)	*p*	*d*
Gender	Man	47	42.0(6.4)	1.44(81)	.152	0.32	41.5 (11.9)	1.23(81)	.219	0.27
	Woman	36	40.0(6.8)				39.8 (11.4)			
Role Position	DSW	52	41.4(6.8)	0.42(78)	.679	0.10	43.4(12.6)	4.46(76.32)†	<.001	0.91
	Supervisor	28	40.8(6.2)				33.2(7.8)			
Marital Status	Single	19	40.9(3.6)	−0.17(60.7)†	.867	−0.03	42.6(12.9)	1.20(81)	.233	0.31
	Married/common-law	64	41.1(7.2)				38.8(11.6)			
Education	≤Non-college	12	41.6(7.4)	0.30(81)	.769	0.09	32.9(10.0)	−2.17(81)	.033	−0.68
	+College	71	41.0(6.4)				40.8(11.9)			
Cared for a person with SRI	No	<5	47.8(5.7)	2.16(81)	.033	1.11	34.7(2.4)	−2.83(14.2)†	.013	-0.44
	Yes	79	40.7(6.4)				39.9(12.2)			
SRI exposure at work	No	15	44.4(4.7)	2.22(81)	.029	0.63	47.2(10.8)	2.80(81)	.006	0.80
	Yes	68	40.3(6.7)				38.0(11.6)			

Note. Welch’s t is reported where indicated (†) when Levene’s test for equality of variances was significant (p < .05).

One-way ANOVAs were conducted for individual-level categorical predictors with more than two groups, residency status and health region of practice. For the COVID-19 context residency status was not significantly associated with PCS, *F*(3, 78) = 1.57, *p* = .204, but it was significantly associated with MCS, *F*(3, 78) = 2.82, *p* = .044. Post hoc Scheffé tests, however, did not identify any significant pairwise group differences, suggesting that while variation exists across residency categories, no single group drove the effect. Health region of practice was not significantly associated with PCS, *F*(3, 71) = 1.08, *p* = .364, or MCS, *F*(3, 71) = 2.33, *p* = .082 (**Table 11**).

Table 11 *Differences in PCS and MCS Scores by Residency and Region in the COVID-19*

Group	N	M(SD)	PCS		MCS	
			F(df)	*p*	*F(df)*	*p*
Residency						
Canadian-born	54	40.2(6.6)	1.57 (3, 78)	.204	2.82(3,78)	.044
Naturalized	14	43.2(7.2)				
Permanent Resident	8	43.7(4.4)				
Temporary	6	43.5(5.2)				
Health region of practice						
WRHA	48	42.3(6.3)	1.08 (3, 71)	.364	2.33 (3, 71)	.082
Interlake-Eastern	12	39.7(6.7)				
Prairie Mountain	9	38.6(6.7)				
Northern	6	41.8(8.7)				

Note. Health regions of practice categories with observations less than 5 were excluded.

For the SRI context, residency status was again not significantly associated with PCS, but a significant effect was found for MCS. Similar to the COVID-19 context, Scheffé post hoc comparisons did not reveal any significant pairwise difference. Health region of practice was not significantly associated with PCS or MCS (**Table *12***).

Table 12 *Differences in PCS and MCS Scores by Residency and Region in the SRI*

Group	N	M(SD)	PCS		MCS	
			F(df)	*p*	*F(df)*	*p*
Residency						
Canadian-born	54	37.8(11.2)	2.10(3, 78)	.107	2.83(3,78)	.044
Naturalized	14	39.3(12.5)				
Permanent Resident	8	49.9(10.3)				
Temporary	6	10.3(10.3)				
Health region of practice						
WRHA	48	38.2(11.9)	1.49 (3, 71)	.225	2.25 (3, 71)	.090
Interlake-Eastern	12	46.7(15.3)				
Prairie Mountain	9	35.7(7.2)				
Northern	6	53.3(3.2)				

Note. Health regions of practice categories with < 5 were excluded

4.3.2 Interpersonal-Level

Interpersonal-level factors included perceived family support, perceived friends' support, and perceived support from a significant other, measured using the three subscales of the Multidimensional Scale of Perceived Social Support (MSPSS). Pearson correlations were conducted to examine the associations between PCS and MCS scores and these interpersonal-level predictors. In the COVID-19 context, perceived family support was significantly positively correlated with mental health, $r(82) = .53$, $p < .001$, indicating that higher family support was associated with better MCS scores. Family support was not significantly related to physical health, *r*(83) = –.03, *p* = .776. Friend support showed no significant association with PCS, *r*(83) = –.05, *p* = .632, or with MCS, *r*(82) = .18, *p* = .100. Similarly, support from a significant other was not significantly related to PCS, *r*(83) = –.01, *p* = .912, or MCS, *r*(82) = .13, *p* = .259 (**Table *13***).

In the SRI context, a very similar pattern was observed. Family support was again significantly positively correlated with mental health, *r*(82) = .53, *p* < .001, but not with physical health, *r*(83) = .03, *p* = .765. Friend support was not significantly associated with PCS, *r*(83) = –.04, *p* = .723, or with MCS, *r*(82) = .19, *p* = .094. Support from a significant other was also not significantly related to PCS, *r*(83) = .02, *p* = .860, or MCS, *r*(82) = .13, *p* = .244 (**Table *14***). Together, these results demonstrate a consistent finding across both contexts: family support was strongly associated with better mental health, whereas support from friends or a significant other was not significantly related to either physical or mental health. No interpersonal predictors showed a meaningful association with PCS scores in either context.

Table 13 *Interpersonal Factors and Study Participants' PCS and MCS in the COVID-19*

Variable	N	PCS		MCS	
		r	*p*	*r*	*p*
MSPSS Family	83	–.032	.776	.526	< .001
MSPSS Friends	82	–.054	.632	.183	.100
MSPSS Significant Other	83	–.012	.912	.125	.259

Note. Pearson's r (two-tailed). Ns are pairwise valid for each outcome predictor correlation. MSPSS = Multidimensional Scale of Perceived Social Support. Correlation is significant at the 0.01 level (2-tailed).

Table 14 *Interpersonal Factors and Study Participants' PCS and MCS in the SRI*

Variable	N	PCS		MCS	
		r	*p*	*r*	*p*
MSPSS Family	83	.033	.765	.529	< .001
MSPSS Friends	82	–.040	.723	.186	.094
MSPSS Significant Other	83	.020	.860	.129	.244

4.3.3 Organizational-level Factors

Organizational factors, including access to cleaning supplies, access to PPE, organizational backup planning, change in work hours and change in roles. Spearman's rho correlations were used to examine the relationship between organizational predictors and mental and physical health in the study sample. In the COVID-19 context, at the organizational-level, access to cleaning supplies was significantly positively associated with physical and mental health, rs (78) = .41, $p < .001$, and rs (78) = .26, $p = .019$, respectively. Similarly, access to PPE was positively associated with physical health, rs (80) = .29, $p = .010$, and with mental health, rs (80) = .24, $p = .030$. Organizational effective planning was positively and significantly correlated with physical health, rs (81) = .38, $p < .001$, and significantly associated with mental health, rs (81) = .28, $p = .011$. Work hours change showed a significant negative correlation with physical health, rs (79) = −.37, $p < .001$, and a significant negative correlation with mental health, rs (79) = −.26, $p = .020$. Similarly, role change was negatively correlated with physical health, rs (80) = −.33, $p = .002$, and strongly negatively correlated with MCS, rs (80) = −.61, $p < .001$ (**Table *15***).

Table 15 *Organizational Factors and Study Participants' PCS and MCS in COVID-19*

		PCS (COVID-19)		MCS(COVID-19)	
Predictor	N	*ρ*	*p*	*ρ*	*p*
Access to cleaning supplies	80	.41**	< .001	.26*	.019
Access to PPE	82	.28*	.010	.24*	.030
Planning effectiveness	83	.38**	< .001	.27*	.011
Work hours change	81	–.36**	< .001	–.25*	.020
Role change	82	–.33**	.002	–.60**	< .001

Note. N reflects pairwise deletion; the N shown applies to both PCS and MCS within a row. **p* < .05, ***p* < .01.

In the SRI context, access to cleaning supplies was significantly associated with both physical health, *rs* (78) = .40, *p* = <.001, and mental health of the study participants, *rs* (78) =.26, *p* = .017; this relationship was weaker in the COVID-19 analyses. The change in work hours was also statistically associated with both physical health and mental health; however, the associations were weaker than in the COVID-19 context (**Table *16***)

Table 16 *Organizational Factors and Study Participants' PCS and MCS in SRIs.*

		PCS (SRI)		MCS (SRI)	
Predictor	N	ρ	p	ρ	p
Access to cleaning supplies	80	.40**	< .001	.26 *	.017
Access to PPE	82	.26*	.015	.24*	.027
Planning effectiveness	83	.37**	< .001	.28**	.009
Work hours change	81	–.31**	.004	–.25*	.024
Role change	82	–.29**	.008	–.59**	< .001

Note. N reflects pairwise deletion; the N shown applies to both PCS and MCS within a row. *p < .05, **p < .01.

4.3.4 Community-Level Factors

The community-level factors include community attitude toward working in disability setting, public views toward disability, and community support. In the COVID-19 context, community attitudes were negatively associated with physical health, r_s (81) = −.35, p < .001, and mental health, r_s (81) = −.34, p = .001. Community public view was also negatively associated with physical health, r_s (80) = −.32, p = .004, and with mental health, r_s (80) = −.41, p < .001. Finally, perceived community support was positively correlated with physical health, r (81) = .37, p < .001, and strongly positively associated with mental health, r_s (81) = .55, p < .001 (**Table *17***). In the SRI context, more negative community attitudes were associated with poorer physical health, r_s (81) = −.38, p < .001, and poorer mental health, r_s (81) = −.35, p = .001. Community public view was likewise negatively associated with physical health, r_s (80) = −.27, p = .015, and mental health, r_s (80) = −.40, p < .001. Perceived community support was positively related to physical health, r_s (81) = .28, p = .011, and strongly associated with mental health, r_s (81) = .55, p < .001(**Table *18***).

Table 17 *Community Factors and Study Participants' PCS and MCS in COVID-19*

		PCS (COVID-19)		MCS(COVID-19)	
Predictor	N	*ρ*	*p*	*ρ*	*p*
Community attitudes	83	–.35**	< .001	−.35**	.001
Community public view	82	–.31**	.004	–.41**	< .001
Perceived community support	83	.36**	< .001	.55**	< .001

Note. N reflects pairwise deletion and applies to both PCS and MCS within a row.

*p < .05, **p < .01.

Table 18 *Community Factors and Study Participants' PCS and MCS in SRIs*

		PCS (SRI)		MCS(SRI)	
Predictor	N	*ρ*	*p*	*ρ*	*p*
Community attitudes	83	–.37**	< .001	–.35**	<.001
Community public view	82	–.26*	.015	–.40**	< .001
Perceived community support	83	.27*	.011	.55**	< .001

Note. N reflects pairwise deletion and applies to both PCS and MCS within a row.

p < .05*, *p* < .01**.

4.4 Independent Predictors of Physical and Mental Health of DSWs and Supervisors

To identify significant predictors of physical and mental health in COVID-19 and SRI, Hierarchical Regression Analyses were conducted. Variables were entered in blocks according to the results of bivariate analyses and the SEM model. The completed variables included in the Hierarchical regression are presented in **Table *19.***

Table 19 *Predictors of Physical and Mental Health of the Study Participants in the COVID-19 and SRI by SEM Level*

SEM Level	COVID-19 PCS	COVID-19 MCS	SRI PCS	SRI MCS
Individual	Care for a person with COVID-19 Exposure at work	Years in position, Role, Education	None	Years in position, Role position, Education
Interpersonal	None	Family support	None	Family support
Organizational	Cleaning supplies accessibility, PPE accessibility, Planning effectiveness, Work hours change, Role change	Cleaning supplies accessibility, PPE accessibility, Planning effectiveness, Work hours change, Role change	Cleaning supplies accessibility, PPE accessibility, Planning effectiveness, Work hours change, Role change	Cleaning supplies accessibility, PPE accessibility, Planning effectiveness, Work hours change, Role change
Community	Community attitudes, Public view, Perceived community support	Community attitudes, Public view, Perceived community support	Community attitudes, Public view, Perceived community support	Community attitudes, Public view, Perceived community support

4.4.1 Physical Health in COVID-19

Hierarchical regression analyses were conducted to examine predictors of physical health (PCS-12) among DSWs and supervisors during the COVID-19 pandemic (N =70). Variables were entered in blocks according to the SEM model and results of bivariate analyses: covariates (gender, age) in Model I, individual-level factors in Model II, organizational-level factors in

Model III, and community-level factors in Model IV. Model III (organizational-level block) was the most predictive, producing the largest and only statistically significant increase in explained variance ($\Delta R^2 = .14$, F-change$(5, 60) = 2.40$, $p = .047$). This finding underscores the central role of workplace and organizational factors in physical health outcomes during the pandemic. In contrast, Model IV (community-level predictors) did not significantly improve model fit ($\Delta R^2 = .03$, F-change $= 0.87$, $p = .463$), suggesting that community-level factors did not add meaningful explanatory power beyond organizational variables. The final model was statistically significant ($R^2 = .31$, $F(12, 57) = 2.15$, $p = .027$), explaining 31% of the variance in PCS-12 scores (**Table *20***).

Table 20 *Summary of Hierarchical Regression Models Predicting PCS-12 (COVID-19)*

Model	Predictors Added	R^2	ΔR^2	*F-change*	*p(F-change)*
I	Gender, Age	.04	.04	1.35	.265
II	Individual-Level	.14	.09	3.67	.031*
III	Organizational-Level	.28	.14	2.40	.047*
IV	Community-Level	.31	.03	.870	.463
Final Model: $R^2 = .31$, $F(12, 57) = 2.15$, $p = .027$					

Note. R^2 = coefficient of determination; ΔR^2 = change in R^2 when a new block of predictors is added. Interpersonal-level (MSPSS) was excluded due to not being significant in bivariate correlation. *$p < .05$.

In the final model, change in work hours was the only significant predictor of physical health. Specifically, participants who reported a change in their work hours had significantly lower PCS-12 scores ($B = -2.34$, $\beta = -.27$, $p = .045$), indicating that disruptions to work schedules were associated with poorer physical health. All other predictors, including demographic covariates, individual-level factors (education, exposure to COVID-19), additional organizational factors (PPE availability, planning effectiveness), and community-level variables (community attitudes, public perceptions), were not statistically significant (*p*s > .05) (**Table *21***).

Table 21 *Hierarchical Regression Predicting Physical Health (PCS-12) in the COVID-19*

Variable	*B*	*SE B*	*β*				
Step1				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	–.88	1.61	–.065	.03	.03	1.35	.265
Age	2.99	1.91	.18				
Step 2(Individual-level)				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	–0.62	1.56	–.04	.13	.09	3.68	.031*
Age	5.7	3.83	.18				
Care for a person with COVID	5.7	3.8	.18				
Exposure to COVID-19	3.6	2.12	.21				
Step 3(Organizational-level)				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	–.32	1.5	–.02	.281	.144	2.40	.047*

Continue Table 20

Variable	*B*	*SE B*	*β*				
Age	2.4	1.8	0.1				
Care for a person with COVID	4.3	3.7	0.1				
Exposure to COVID-19	0.8	2.1	0.04				
Access to cleaning supplies	1.6	1.8	0.29				
Access to PPE	–0.6	1.0	–1.03				
Planning effectiveness	0.3	0.9	.06				
Work hours change	–2.4	1.1	–.27*				
Role change	–.01	.65	–.004				
Step 4(Community-level)				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	–.49	1.56	–.03	.312	.031	.87	.463
Age	2.86	1.90	.17				
Care for a person with COVID	4.66	3.72	.14				

Continue Table 20

Variable	*B*	*SE B*	*β*
Exposure to COVID-19	.97	2.18	.05
Access to cleaning supplies	1.63	1.09	.29
Access to PPE	–.87	1.04	–.14
Planning effectiveness	.08	1.01	.01
Work hours change	–2.34	1.14	–.27*
Role change	.79	.83	.16
Community attitudes	–.54	.93	.08
Public view	–.91	1.07	–0.14
Perceived community support	.55	.77	.10

Note. N= 73. *B* = unstandardized coefficient; *SE B* = standard error; *β* = standardized coefficient. * $p < .05$

4.4.2 Mental Health in COVID-19

Hierarchical regression analyses were conducted to examine predictors of mental health (MCS-12) among DSWs and supervisors during the COVID-19 pandemic (N =67). Predictors were entered in blocks, guided by the SEM framework and results of bivariate analyses: covariates (gender, age) in Model I, individual-level factors in Model II, interpersonal-level factors (family support) in Model III, organizational-level factors in Model IV, and community-level factors in Model V. Both the interpersonal-level (Model III) and organizational-level Model IV contributed to significantly predict mental health (Model III: $\Delta R^2 = .10$, F-change = 10.31, $p = .002$; Model IV: $\Delta R^2 = .14$, F-change = 3.60, $p = .007$). Model III (family support) showed the single strongest statistical improvement, while Model IV (organizational factors) explained the largest additional portion of variance. Community-level factors (Model V) did not significantly contribute to the prediction ($\Delta R^2 = .03$, F-change = 1.34, $p = .272$), suggesting external attitudes and support did not independently shape worker mental health outcomes in the pandemic context. The final model was highly significant ($R^2 = .59$, $F(14, 52) = 5.43$, $p < .001$), explaining 59% of the variance in MCS-12 scores (**Table *22***).

Table 22 *Summary of Hierarchical Regression Models Predicting MCS-12 (COVID-19)*

Model	Predictors Added	*R²*	*ΔR²*	*F-change*	*p(F-change)*
I	Gender, Age	.12	.12	4.75	.012*
II	Individual-Level	.32	.19	5.69	.002**
III	Interpersonal-Level	.42	.10	10.30	.002**
IV	Organizational-Level	.56	.14	3.60	.007**
V	Community-Level	.59	.03	1.34	.272

Final Model: $R^2 = .59$, $F(14, 52) = 5.43$, $p < .001$

Note. R^2 = coefficient of determination; ΔR^2 = change in R^2 when a new block of predictors was entered. * $p < .05$, ** $p < .01$.

In the final model, family support and role change were the only significant predictors of mental health. Specifically, participants who reported greater family support had significantly higher MCS-12 scores ($B = 6.19$, $\beta = .24$, $p < .05$), indicating that stronger family support was associated with better mental health. In contrast, participants who experienced a change in their job role reported lower MCS-12 scores ($B = -4.67$, $\beta = -.48$, $p < .001$), suggesting that disruptions to work roles were associated with poorer mental health. All other predictors, including demographic covariates, individual-level factors (education, years in position), additional organizational factors (work hour changes, PPE availability, planning effectiveness, cleaning supplies), and community-level variables (community attitudes, public perceptions, and support), were not statistically significant (*p*s > .05) (**Table *23***).

Table 23 *Hierarchical Regression Predicting Mental Health (MCS-12) in the COVID-19*

Variable	*B*	*SE B*	*β*				
Step 1				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	−6.89	3.07	−.26*	.12	.12	4.75	.012
Age	−7.25	3.55	−.23*				
Step 2(Individual-level)				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	−0.37	3.24	−.01	.32	.19	5.68	.002
Age	−3.84	3.75	−.12				
Years in position	−3.32	1.90	−.22				
Role position (Supervisor=1)	−8.911	3.00	−.34**				
Education (College+=1)	6.00	4.10	.17				

Continue Table 22

Variable	*B*	*SE B*	*β*				
Step 3(Interpersonal-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	−1.25	3.06	−.04	.419	.100	10.306	.002
Age	−4.42	3.50	−.145				
Years in position	−2.255	1.80	−.15				
Role position (Supervisor=1)	−7.04	2.85	−.27*				
Education (College+=1)	4.38	3.85	.12				
Family Support (MSPSS)	7.10	2.35	.35**				
Step 4(Organizational-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	.29	2.85	.01	.56	.14	3.60	<.001
Age	−5.33	3.37	−.17				
Years in position	−1.62	1.80	−.11				
Role position	−4.27	2.72	−.16				

Continue Table 22

Variable	*B*	*SE B*	*β*	R²	ΔR²	F- change	*p*
Education	2.46	3.66	.07				
Family Support(MSPSS)	3.93	1.58	.28*				
Access to cleaning supplies	−2.29	1.73	−.21				
Access to PPE	.81	1.62	.07				
Planning effectiveness	1.33	1.55	.13				
Work hours change	2.04	1.76	.12				
Role change	−4.27	1.09	−.44***				
Step 5(Community-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	2.86	3.00	.09	.59	.03	1.34	.272
Age	−6.29	3.38	−.20				
Years in position	−1.76	3.06	−.04				
Role position	−2.98	2.80	−.11				

Continue Table 22

Variable	*B*	*SE B*	*β*
Education	2.45	3.66	.06
Family support (MSPSS)	6.19	2.48	.24*
Access to cleaning supplies	−2.29	1.73	−.21
Access to PPE	.88	1.65	.08
Planning effectiveness	1.96	1.78	.08
Work hours change	1.34	1.78	.08
Role change	−4.67	1.33	−.48***
Community attitudes	.29	1.58	.024
Public view	2.38	1.77	.19
Perceived community support	2.30	1.28	.20

*p < .05, **p < .01, ***p < .001*

4.4.3 Physical Health in SRI

Hierarchical regression analyses examined predictors of physical health (PCS-SRI), with variables entered in blocks reflecting the SEM model (N =70). The organizational-level block produced the largest and only statistically significant predicted physical health in the SRI context ($\Delta R^2 = .22$, F-change$(5, 62) = 3.68$, $p = .006$), underscoring the importance of workplace factors during SRI outbreaks. After inclusion of these factors, neither demographic nor community-level variables contributed significant additional predictor power ($\Delta R^2 = .03$, F-change $= 0.85$, $p = .473$). The final model explained 30% of the variance in PCS-SRI scores ($R^2 = .30$, $F(10, 59) = 2.51$, $p = .014$) (**Table *24***).

Table 24 *Summary of Hierarchical Regression Models Predicting PCS-12 (SRI)*

Model	Predictors Added	R^2	ΔR^2	*F-change*	p
I	Gender, Age	.05	.05	1.82	.170
II	Organizational predictors	.27	.22	3.67	.006**
III	Community predictors	.30	.03	0.85	.473
Final Model: $R^2 = .30$, F(10, 59) = 2.51, $p < .05$					

Note. *p < .05 , **p < .01.

In the final model, organizational role change was the only significant predictor of physical health. Specifically, participants who reported a change in their organizational role had significantly lower PCS-SRI scores ($B = -2.31$, $\beta = -.28$, $p = .041$), indicating that a change in work hours was associated with poorer physical health during SRI outbreaks. All other predictors, including demographic covariates, additional organizational factors (role changes, access to PPE, planning effectiveness, cleaning supplies), and community-level variables (community attitudes, public perceptions, and support), were not statistically significant (ps > .05) (**Table *25***).

Table 25 *Hierarchical Regression Predicting Physical Health (PCS-12) in the SRI*

Variable	*B*	*SE B*	*β*	R²	ΔR²	F- change	*p*
Step 1							
Gender (Woman=1)	–1.72	1.60	–.12	.22	.05	1.82	.17
Age	3.03	1.90	.19				
Step 2				R²	ΔR²	F- change	*p*
Gender (Woman=1)	–1.21	1.50	–.09	.26	.21	1.82	.006
Age	2.58	1.78	.16				
Access to cleaning supplies	1.73	1.05	.31				
Access to PPE	–.91	1.01	–.15				
Planning effectiveness	.84	.95	.16				
Work hours change	–2.45	1.08	–.28*				

Continued Table 24

Variable	*B*	*SE B*	*β*				
Role change	.21	.64	.04				
Step 3(Community-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	–1.62	1.55	–.12	.29	.03	.84	.473
Age	2.95	1.80	.18				
Access to cleaning supplies	1.77	1.05	.322				
Access to PPE	–1.10	1.02	–.18				
Planning effectiveness	.58	1.00	.11				
Work hours change	–2.30	1.10	–.26*				
Role change	.82	.82	.16				
Community attitudes	–1.03	.92	–.15				
Public view	–.62	1.05	–.09				
Perceived community support	.15	.76	.03				

*p < .05

4.4.4 Mental Health in SRI

Hierarchical regression analyses were conducted to examine predictors of mental health (MCS-12) among disability support workers and supervisors during SRI outbreaks (N = 67). Predictors were entered into blocks reflecting the SEM model. Model III (family support) and Model IV (organizational predictors) both significantly predicted mental ((Model III: $\Delta R^2 = .10$, F-change = 10.51, $p = .002$; Model IV: $\Delta R^2 = .14$, F-change = 3.60, $p = .007$), underscoring the importance of interpersonal and organizational factors for staff mental health during SRI outbreaks. Community-level predictors in Model V did not significantly contribute to prediction ($\Delta R^2 = .03$, F-change = 1.38, $p = .259$). The final model explained 60% of the variance in MCS-12 scores ($R^2 = .60$, $F(14, 52) = 5.50$, $p < .001$) (**Table *26***).

In the final model, family support and organizational role change were the only significant predictors of mental health. Specifically, participants with greater family support had higher MCS-12 scores ($B = 4.20$, $\beta = .30$, $p = .013$), while change in organizational role remained a significant predictor of MCS-12 ($B = -4.71$, $\beta = -.49$, $p < .001$); all other predictors were non-significant (ps > .05) (**Table *27***).

Table 26 *Summary of Hierarchical Regression Models Predicting MCS-12 (SRI)*

Model	Predictors Added	R^2	ΔR^2	*F-change*	*p*
I	Gender, Age	.13	.13	4.81	.011*
II	Role position, Education, Years in job	.32	.19	5.68	.002**
III	Family support (MSPSS)	.42	.10	10.51	.002**
IV	Organizational predictors	.56	.14	3.60	.007
V	Community predictors	.60	.03	1.38	.259
Final Model: $R^2 = .60$, $F(14, 52) = 5.50$, $p < .001$					

Note. R^2 = coefficient of determination; ΔR^2 = change in R^2 when a new block of predictors was entered. * $p < .05$, ** $p < .01$.

Table 27 *Hierarchical Regression Predicting Mental Health (MCS-12) in the SRI*

Variable	*B*	*SE B*	*β*				
Step 1				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	−6.58	3.07	−.26	.13	.13	4.80	.011
Age	−7.32	3.55	−.24*				
Step 2(Individual-level)				R^2	ΔR^2	F- change	*p*
Gender (Woman=1)	−.38	3.24	−.01	.32	.19	5.68	.002
Age	−3.91	3.75	−.12				
Years in position	−3.30	1.90	−.22				
Role position (Supervisor=1)	−8.90	3.00	−.34**				
Education (College+=1)	6.12	4.10	.17				

Continue Table 26

Variable	*B*	*SE B*	*β*				
Step 3(Interpersonal-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	1.25	3.06	−.04	.420	.100	10.51	.002
Age	−4.50	3.50	−.148				
Years in position	−2.20	1.80	−.15				
Role position (Supervisor=1)	−7.05	2.85	−.27*				
Education (College+=1)	4.48	3.85	.12				
Family Support (MSPSS)	5.05	1.55	.36**				
Step 4(Organizational-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	.29	2.85	.01	.60	.14	3.60	<.007
Age	−5.40	3.36	−.17				
Years in position	−1.57	1.70	−.10				
Role position	−4.30	2.72	−.16				

Continue Table 26

Variable	*B*	*SE B*	*β*	R²	ΔR²	F- change	*p*
Education	2.46	3.66	.07				
Family Support(MSPSS)	3.93	1.58	.28*				
Access to cleaning supplies	−2.29	1.73	−.21				
Access to PPE	.81	1.62	.07				
Planning effectiveness	1.33	1.55	.13				
Work hours change	2.04	1.76	.12				
Role change	−4.27	1.09	−.44***				
Step 5(Community-level)				R²	ΔR²	F- change	*p*
Gender (Woman=1)	.20	2.85	.008	.59	.03	1.38	.259
Age	−6.36	3.38	−.20				
Years in position	−.57	1.75	−.03				
Role position	−2.98	2.80	−.11				

Continue Table 26

Variable	*B*	*SE B*	*β*
Education	2.60	3.65	.07
Family support (MSPSS)	4.20	1.64	.30*
Access to cleaning supplies	−2.34	1.73	−.22
Access to PPE	1.09	1.62	.09
Planning effectiveness	.91	1.65	.09
Work hours change	1.37	1.78	.08
Role change	−4.71	1.33	−.49***
Community attitudes	.13	1.52	.011
Public view	2.58	1.77	.21
Perceived community support	2.00	1.28	.20

*p < .05, **p < .01, ***p < .001*

Significant predictors that remained in the final hierarchical regression models for physical (PCS) and mental (MCS) health across both the COVID-19 and SRI contexts were limited to the interpersonal and organizational levels of the SEM. At the organizational level, work-hours change consistently showed a negative standardized coefficient (*β*) in both PCS models (COVID-19 and SRI), indicating that changes in working hours were associated with lower physical health scores. Likewise, role change demonstrated a strong negative effect in both MCS models, suggesting that alterations in job responsibilities were linked to poorer mental health.

At the interpersonal level, family support was a positive and significant predictor of MCS in both contexts, reflecting that participants reporting stronger family support experienced better mental health outcomes. No significant predictors emerged at the individual or community levels in any model. Together, these results indicate that predictors related to organizational stability and social support were the most influential in explaining variance in staff physical and mental health, whereas demographic and community factors contributed minimally once higher-level variables were controlled **(Table *28*)**.

Table 28 *Summary of Significant Predictors Across SEM Model*

Context & Outcome	SEM level	Significant Predictor	Effect Direction
PCS (COVID-19)	Organizational	Work-hours change	Negative
MCS (COVID-19)	Interpersonal	Family support	Positive
	Organizational	Role change	Negative
PCS (SRI)	Organizational	Work-hours change	Negative
MCS (SRI)	Interpersonal	Family support	Positive
	Organizational	Role change	Negative

Note. Direction refers to the sign of the standardized regression coefficient (β) in the final model.

4.5 Qualitative data analysis

A total of 92 individuals responded to the two open-ended questions on the survey. Responses to two open-ended questions described the main challenges faced by DSWs and supervisors and the strategies they used to address them during COVID-19 and/or SRI periods. I conducted a qualitative content analysis of these responses, using a directed approach guided by my research questions (Hsieh & Shannon, 2005). Responses were first organized into two overarching categories, challenges and strategies, comprising five challenge subthemes and six strategy subthemes. Several low-frequency strategy subthemes were retained because of their practical relevance and actionable implications for service delivery and staff practice.

4.5.1 Reported Challenges

Across the 92 completed responses to open-ended questions, five challenge subthemes were identified. Communication challenges were the most common types of challenges reported (n = 33, 36%), followed by managing behavioural challenges (n = 30, 32 %), infection-prevention and safety concerns (n = 20, 28%), resource access and staffing constraints, (n = 16, 17%), and implementation of the evolving public health guidelines (n = 15, 16%). Multiple subthemes could be assigned to each response (**Table *29***).

Theme 1. Communication Challenges

Communication difficulties were the most frequently reported challenges by DSWs and supervisors. Respondents described challenges in explaining and ensuring understanding of COVID-19 prevention measures such as physical distancing, mask use, and replacing in-person visits with virtual contacts. Many noted that individuals with IDD struggled to grasp the purpose of rapidly changing rules, leading to confusion and anxiety, which led to challenges for staff. As one participant stated, "*It was challenging to provide accessible and understandable information about the virus, prevention measures, and policy changes to individuals with varying cognitive abilities*." Staff also emphasized that PPE use created additional communication barriers, particularly for individuals who relied on facial expressions, lip-reading, or other nonverbal cues. Several respondents noted that limited expressive communication among some clients made it difficult to identify health concerns or early symptoms. One DSW reported, "*It made it hard to track health changes- due to COVID-19- in IDD patients who can't clearly say 'I feel feverish'* *or 'my chest hurts*." These responses highlight the dual challenges of conveying complex health information in an accessible way and recognizing changes in well-being when communication abilities were limited.

Theme 2. Managing Behavioural Challenges

Managing behavioural and emotional responses was another major challenge reported by staff. Respondents described how restricted activities, program closures such as day programs or some recreation activities, and loss of community outings led to frustration, confusion, and increased anxiety among individuals with IDD. The sudden interruption of daily routines and entertainment options caused distress for those who relied on consistent structure to feel secure. For example, one respondent reported, "*A major challenge was supporting the emotional and behavioural well-being of individuals with IDD. Many struggled with increased anxiety and confusion due to isolation, changes in routine, and reduced access to community engagement and specialized services*." Staff also noted that PPE use added to individuals' fear and uncertainty, when masks and face shields made it difficult to recognize familiar staff or read facial cues. As one respondent described, "*Wearing masks frightened some of the individuals I support. The emotional toll was considerable. They were often anxious and confused, requiring me to remain strong for them, even as I dealt with my own stress and worries.*" Collectively, these accounts illustrate the compounded behavioural and emotional challenges experienced by individuals with IDD and the additional emotional strain this placed on their support.

Theme 3. Infection-Prevention & Safety Concerns

Concerns about infection risk and safety were widely reported by DSWs and supervisors. Staff described ongoing anxiety about potential exposure and transmission to the people they support, co-workers, and their own families. They reported that because most care they provided to persons required close physical contact, maintaining distance was often impossible. For example, one DSW shared, "*I have to come to work regardless of the spread, and at the same time, think of my family to protect them. I have to choose daily to go to work, knowing that each time I step out of my house and come back to my home, I may be helping to spread the disease. The thought was chilling and challenging*." Respondents also highlighted difficulties ensuring safety for individuals who struggled to navigate or follow preventive rules. For example, one respondent who was a DSW reported, "*Ensuring everyone's safety proved difficult, as many of the individuals struggled to grasp the reasons behind the rules and changes. Being physically close to assist them also put me at risk, which was frightening*." Supervisors described an ongoing need for active risk management during community outings, including route planning to avoid crowded areas, monitoring mask tolerance, and reinforcing hand hygiene, all while balancing infection control with residents' autonomy and participation. One supervisor reported, "*Supervising individuals during community outings required extra vigilance. Ensuring safety without restricting freedom was a constant balance.*"

Theme 4. Resource Access And Staffing Constraints

Staffing shortages were a persistent challenge. Respondents described regular absenteeism and last-minute shift changes that led to longer shifts, expanded responsibilities, and physical fatigue, exacerbated by enhanced cleaning and sanitizing while in PPE. Supervisors reported difficulty maintaining adequate resources, including both staff and supplies. Several noted that individuals with IDD became anxious when familiar staff were unavailable, which complicated daily care. For example, one supervisor reported, "*Staffing shortages, increased workloads, and reduced access to respite created operational strain, often requiring support workers to take on additional roles or extended shifts. This led to heightened stress and an increased risk of burnout.*" As another example, a DSW reported, "*It was tough when routines changed because many people I support rely on consistency; we had fewer staff, so we worked longer hours and felt really tired*."

Access to preventive equipment (e.g., masks/PPE), training, and mental-health supports was also a recurring concern. Supervisors described the ongoing burden of coordinating staffing and supplies under changing policies, while frontline staff highlighted the personal toll of high-demand schedules. For example, one DSW noted, "*Resource limitations like inadequate training, mental health support, and supplies, alongside concerns about personal safety, family responsibilities, and demanding work schedules.*" Another DSW reported, "*I have limited time to eat (I sometimes miss my meals), limited time to rest, and swollen feet and eyes*."

Theme 5. Implementing Evolving Public-Health Guidelines

Respondents reported difficulty keeping pace with frequent changes to public health preventive guidelines and translating them into daily routines in group homes. Staff noted that rapid updates confused residents and that some guidance did not fit residential care realities, for example, the need for close contact during personal care and the use of shared spaces, making consistent implementation hard to sustain. For example, one respondent reported, "*I ended up confusing people with the changing rules—one day masks were needed; next, new testing was required—and they couldn't keep up.*" Another respondent reported, "*Helping individuals understand and follow public-health guidelines such as mask-wearing, hand hygiene, and physical distancing was challenging when the rules kept changing.*"

Table 29 *Challenges Subthemes Operational Definition and Codes*

Subtheme	Operational definition	Codes
Communication challenges	Difficulty explaining and ensuring understanding of prevention rules and service changes; PPE obscuring facial cues/lip-reading; limited expressive communication hindering symptom reporting.	"hard to explain/understand," "PPE blocks lip-reading," "limited symptom reporting"
Managing behavioural challenges	Heightened anxiety, confusion, or distress linked to isolation, loss of routines/outings, fear of PPE; escalations requiring extra support.	"increased anxiety" "fear of masks," "distress with routine loss"
Infection-prevention & safety concerns	Worry about exposure/transmission to clients, coworkers, and family; close-contact care limits distancing; balancing safety with autonomy during outings.	"can't distance in hands-on care"; "risk to family"; "infection control in community."
Resource access & staffing constraints	Short staffing, unexpected shift changes, open shifts; fatigue from extended hours and extra work for cleaning, limited PPE/training/mental-health supports.	"fewer staff", "longer hours", "PPE/supply gaps", "missed meals/rest."

Continued Table 28

Implementing evolving public-health guidelines	Difficulty translating frequently changing guidance into group-home routines (shared spaces, close personal care) and helping residents keep up.	“rules keep changing,” “guidance not tailored to shared spaces/close care”

Notes. Percentages are n ÷ 92. Multiple subthemes could be coded per response.

4.5.2 Reported Strategies

Across the two open-ended questions, six strategy subthemes were identified: Maintaining routine and consistency (n = 22, 24%), creative engagement (n = 22, 24%), self-care/personal coping (n = 21, 22%), accessible communication (n = 17, 18%), telehealth/virtual connection (n = 12, 13%), and person-centred care (n = 11, 12%). In addition, several less-frequently cited strategies (<5%) were reported, including teamwork, advocacy, and education/reminders about health rules, which are not included in Table 2 for brevity. Multiple subthemes could be assigned to each response (**Table *30***).

Theme 1. Maintaining Routine and Consistency

Maintaining routine emerged as one of the most frequently reported strategies by DSWs and supervisors. During periods of rapid change, such as the introduction of new infection-control protocols and preventive interventions, staff emphasized the importance of preserving familiar daily structures to minimize confusion and maintain a sense of stability for individuals with IDD. Several respondents described efforts to keep daily activities consistent despite modified schedules or safety requirements. For example, one supervisor shared, “*I used clear, simple communication, kept routines as normal as possible, and found safe ways to stay connected—like video calls or outdoor visits.*” Similarly, one DSW reported, “*Emotionally, I made it a priority to maintain a calm, consistent presence and support routines that promoted security and comfort.*” These responses highlight some of the staff's efforts to sustain predictability in daily care and communication during periods of ongoing change.

Theme 2. Creative Engagement

Creative engagement was the second most frequently reported strategy for sustaining participation and enjoyment when usual activities were restricted. Respondents described organizing safe, low-risk outings and introducing novel, small-scale activities within the home. For example, one staff member noted, "*Tried to go to the parks or van rides for a change*." Several respondents emphasized using encouragement to keep participation high: "*I focused on positive reinforcement, celebrating small victories to encourage clients while maintaining necessary rules."* A supervisor reported: "*Reimagining seasonal events as 'mini-celebrations, small groups decorating a shared tree, exchanging handmade cards, and having special themed meals*." A DSW also reported creating an outdoor option: "*I set up a small garden area where they could spend time outside safely. It became a peaceful place for them to relax and connect with nature*." These responses describe staff introducing creative, safety-compatible activities to keep individuals with IDD engaged during ongoing service changes.

Theme 3. Person-Centred Care

Person-centred care was commonly reported as an effective care plan during the COVID-19 pandemic. Respondents reported tailoring support to individual needs, strengths, and preferences. For example, one staff member explained, "*Since I know most of the patients, I try to figure out what they like to do best; this allows me to introduce it when their mood changes*." Another staff reported, "*I avoided one-size-fits-all methods and adapted support based on each person's needs, strengths, and preferences.*" They explained that although they applied the person-centred care beyond crises, the pandemic highlighted the necessity of this model of care.

Theme 4: Telehealth and Remote Access

Telehealth was frequently described as an alternative channel for maintaining service access when in-person options were limited or closed, or when persons with IDD lived in rural areas. Respondents reported assisting with scheduling and rescheduling virtual appointments, preparing devices and private spaces, and being present during consultations to provide support. For example, one DSW noted, "*I helped reschedule telehealth visits and supported the client during virtual consultations*." A supervisor described expanding remote options during SRI periods for rural clients: "*Use telemedicine technology to carry out online diagnosis and treatment as well* *as provide guidance and cooperate with local community clinics to establish a regular mobile clinic mechanism.*" Overall, they outlined practical steps taken to integrate telehealth within existing care plans.

Theme 5. Accessible Communication

Respondents described using accessible communication to reduce confusion and teach preventive routines. Reported strategies included visual supports, simple and repetitive wording, and modelling with gradual desensitization. For example, one DSW noted, "*I practiced wearing a mask by modelling it myself and using playful approaches like decorating masks together*." Staff also described using salient visual cues to reinforce daily guidance: "*We made a 'rule-of-the-day' board with a big, colourful icon (mask = smiley with mask; test = a happy lab symbol) and repeated it in simple songs.*" Collectively, they used visual and plain-language methods to support understanding of changing safety practices.

Theme 6: Self-Care And Personal Coping

Participants also reported establishing personal well-being routines and drawing on social support to sustain their work. Reported strategies included setting regular self-care schedules (e.g., exercise, mindfulness, hobbies), protecting rest and setting boundaries, and taking brief recovery breaks during shifts. For example, one participant noted, "*For difficulties with self-care, we establish a routine that includes activities that promote well-being, such as exercise, mindfulness, or hobbies*." Another respondent reported, "*Recognizing the risks of burnout, I turned to self-care strategies—mindfulness, adequate rest, and boundary setting—as well as emotional support from my personal network.*" Staff also emphasized leaning on peers and family: "*I relied heavily on my coworkers and family, as having someone to talk made a significant difference. I also made it a point to take short breaks whenever possible, even if it was just a few moments to breathe or reset, to avoid burnout*."

Other Reported Strategies

A smaller set of responses referenced additional approaches, including teamwork and peer support. For example, one supervisor mentioned, "*Collaboration with multidisciplinary teams, working with healthcare professionals, support staff, and family members to ensure* *comprehensive care."* Some supervisors practiced advocacy to seek resources and support, liaising with agencies to secure basic needs: "*Advocate for them(person with IDD and DSWs) and make sure the government provides their basic needs.*" Education and reminders were recognized as helpful strategies. For example, one supervisor reported: "*Support staff were to continue with reminders and education around the pandemic.*"

Table 30 *Strategy Subthemes, Operational Definition and Codes*

Subtheme	Operational definition	Inclusion Codes example
Maintaining routine & consistency	Preserve familiar schedules/care plans; calm, consistent staff presence; simple explanations to keep predictability while rules are changed.	"kept routines as normal as possible"; "calm, consistent presence"; "used clear words/pictures.".
Creative engagement	Safe small-scale, outdoor and indoor activities to sustain participation when usual options were restricted.	"outdoor arrangement", "parks or van rides"; "mini-celebrations"; "virtual fun"
Person-centred care	Tailor to individual needs/strengths/preferences; offer choices; introduce preferred activities when mood shifts.	"what they like", "when mood changes", " preference", "choice"
Telehealth and Remote Access	Maintain access to services via phone/video; schedule/reschedule; prepare devices/private space; support during visits; rural access.	"Telemedicine", "remote access", "virtual services", "video call", "virtual diagnosis"
Accessible Communication	Visual schedules, social stories, plain/repetitive language, modelling and gradual desensitization	"visual schedules/social stories"; "rule-of-the-day board"; "mask desensitization by modelling/decorating masks."

Continued Table 29

Self-care and Personal Coping	Staff well-being routines (exercise, mindfulness, hobbies), boundaries/rest, brief reset breaks; peer/family support.	"breaks to reset"; "mindfulness & rest"; "relied on coworkers/family."

Note. Percentages = n ÷ 92; multiple subthemes could be coded per response. Low-frequency strategies (<5%) are summarized in text.

4.6 Summary of Qualitative Results

The qualitative content analysis of 92 open-ended survey responses identified five distinct challenges and six adaptive strategies employed by DSWs and supervisors during COVID-19 and service restrictions. Communication challenges emerged as the most frequently reported barrier (36%), followed by managing behavioural responses to isolation and routine disruption (32%), infection-prevention and safety concerns (28%), resource and staffing constraints (17%), and difficulty implementing evolving public-health guidelines (16%). In response, participants employed multiple adaptive strategies, with maintaining routine and consistency and creative engagement being the most common approaches (each 24%), followed by self-care and personal coping (22%), accessible communication methods (18%), telehealth and remote service access (13%), and person-centred care tailoring (12%). These findings demonstrate that DSWs and supervisors faced substantial operational and emotional challenges during the pandemic; they developed evidence-informed, person-centred strategies focused on maintaining stability, supporting emotional well-being, and preserving meaningful engagement for individuals with IDD despite unprecedented service disruptions.

4.7 Summary of Results

The purpose of this study was to examine the effects of the COVID-19 pandemic and SRIs on the mental and physical health of DSWs and supervisors working in community-based group homes providing care to individuals with IDD across Manitoba. In addition, the study explored the challenges experienced and the strategies they have taken to overcome challenges during COVID-19 and SRI. Mental and physical health were examined through SF-12 v2, a validated

Health-Related Quality of Life questionnaire, and results revealed that across both COVID-19 and SRI contexts, average physical health and mental health scores (PCS and MCS) for Manitoba DSWs and supervisors were below the U.S. norm. Notably, mental health scores were consistently lower than physical health scores in both contexts.

Further insights emerged from bivariate analysis using the SEM framework, which revealed several significant associations. At the individual level, longer tenure in a position was negatively associated with mental health, both in the COVID-19 and SRIs. Role position also mattered; supervisors consistently reported poorer mental health. Moreover, the level of education was associated with mental health; the non-college group had lower mental health. Caring for a person with COVID-19 and being personally exposed to the virus were associated with poorer physical and mental health during the pandemic. In the SRI context, education and role position remained significantly associated with mental health. Also, residency status had a relationship with mental health in both COVID-19 and SRI. At the interpersonal level, family support was positively associated with mental health in both contexts. However, no significant associations were found between interpersonal support (from family, friends, or significant others) and physical health. At the organizational level, access to cleaning supplies, PPE, and effective planning were positively associated with both physical and mental health during the COVID-19 period. In contrast, changes in work hours were negatively associated with physical health and showed a weaker negative association with mental health. Role changes were also linked to poorer physical health and were strongly negatively associated with mental health. In the SRI context, access to cleaning supplies and backup planning remained positively associated with health outcomes, though slightly weaker than during COVID-19. Also, the negative associations between work hours and role changes and physical and mental health persisted but were less pronounced.

Finally, at the community level, community support was positively associated with both physical health and mental health. In contrast, negative community attitude and negative community public view were negatively associated with both mental and physical health. This pattern was similar in both contexts. Additionally, hierarchical regression models confirmed these findings. Work hours change at the organizational level remained a significant negative predictor of physical health in both COVID-19 and SRI contexts. In final models predicting mental health, family support at the interpersonal level emerged as a significant positive predictor, while role change at the organizational level was consistently found to have the strongest significant negative effect on DSWs and supervisors' mental health.

Qualitative findings provided important information regarding challenges experienced by the staff of community organizations supporting individuals with IDD in community homes. Communication challenges emerged as the most frequently cited issue. Staff reported difficulties in explaining evolving prevention measures to individuals with IDD, particularly when compounded by PPE that obscured facial expressions and non-verbal cues. Limited expressive communication among clients made symptom detection more difficult, increasing stress for both staff and residents. In addition to communication challenges, staff reported substantial behavioural and emotional challenges among individuals with IDD. Routine disruptions, program closures, and social isolation contributed to heightened anxiety and confusion. These findings echoed the quantitative associations between role and schedule changes and poorer mental and physical health.

Moreover, concerns about infection risk and personal safety were widespread. Staff described anxiety related to close-contact care, difficulties enforcing safety protocols, and the burden of managing infection risk without compromising resident autonomy. Staff reported resource shortages and extended shifts and described high workloads, physical exhaustion, and inadequate mental health supports. These qualitative insights reinforced the statistical finding that increased work hours negatively affected health outcomes. Furthermore, the challenge of implementing frequently changing public health guidelines introduced role changes again, reflecting the quantitative result that role change was a key negative predictor of mental health.

Despite these challenges, qualitative data also highlighted adaptive strategies used by staff. The most frequently reported approaches included maintaining routine and consistency and engaging individuals in creative activities to reduce anxiety. Staff emphasized the importance of predictable schedules and meaningful, low-risk engagement during periods of change. Other effective strategies included person-centred care, the use of telehealth to maintain service access, and accessible communication methods such as visual aids and simplified language. Finally, staff adopted self-care and personal coping strategies, such as mindfulness, quick rest for recharge in shift, and social support, to manage their own emotional well-being.

Chapter 5: Discussion

This chapter summarizes the study objectives, describes data collection methods and participant characteristics, and discusses quantitative and qualitative findings related to the physical and mental health of DSWs and supervisors in Manitoba group homes during the COVID-19 pandemic and SRI outbreaks. The section begins with an overview of the study's aims and participant demographics. The main quantitative and qualitative results are then presented and discussed, then the staff-reported challenges and adaptation strategies will be discussed. The chapter concludes by outlining study limitations, directions for future research, study significance, and key considerations for knowledge translation.

This cross-sectional study was conducted to address the existing knowledge gap regarding the well-being of support staff, particularly DSWs and their supervisors, providing care during the COVID-19 pandemic and/or other SRI outbreaks in Manitoba. The two main objectives of the study were to: (1) examine the effects of the COVID-19 pandemic and SRIs on the mental and physical well-being of DSWs and their supervisors working in group homes providing care to individuals with IDD in the community across Manitoba. (2) explore the challenges experienced by direct support workers and their supervisors who provided care to individuals with IDD in Manitoba during the COVID-19 pandemic and other SRI outbreaks, and identify strategies used to overcome the reported challenges.

Participants were DSWs and supervisors who supported adults with IDD in group homes across Manitoba. Recruitment was conducted through organizations including St. Amant, Abilities Manitoba, and the Alliance of Direct Support Professionals of Manitoba. A total of 96 participants completed the survey between July 1 and July 25, 2025. As the survey was broadly disseminated within these organizations and their networks, the total number of staff who received the invitation is unknown; therefore, the response rate could not be calculated. The sample included a range of demographic and work role characteristics. Most participants identified as DSWs (approximately 61%) and the remainder as supervisors (about 35%). The majority were under 45 years of age, just over half identified as male, and nearly three-quarters were married or in a common-law relationship.

5.1 Physical and Mental Health of the Study Participants

The present study found that both physical and mental health scores were significantly below the U.S. population norm, suggesting that DSWs and supervisors experienced notable physical and mental strain during both the COVID-19 pandemic and/or other SRI outbreaks. Physical health component scores (PCS) were approximately 8-9 points below the norm, while mental health component scores (MCS) were approximately 10 points below the norm. These findings align with prior studies reporting elevated burnout, fatigue, and musculoskeletal problems among staff in disability-service settings during the COVID-19 and SARS pandemic (Donelan et al., 2023; Fortin-Bédard et al., 2024; Kavenagh, 2021). The magnitude of these health deficits underscores the substantial toll that pandemic-related demands placed on DSWs and supervisors. These findings are consistent with national evidence: Lunsky et al. reported that the majority of DSWs experienced significant mental health challenges, including emotional distress, during the COVID-19 pandemic (Lunsky et al., 2021a).While they indicated that more experience in the role positively impacted mental health, our findings suggest the opposite pattern: greater tenure in the role was associated with poorer mental health. Differences in findings may reflect that ‘experience’ is defined differently across studies; years in the current role likely indicate cumulative exposure to heavy workloads, repeated outbreaks, and sustained organizational pressures, which can disproportionately impact long-tenured staff.

The current findings reveal a particularly concerning pattern in which supervisors reported significantly worse mental health than DSWs. Descriptively, supervisors' mean MCS scores (33.3) were approximately 10 points lower than DSWs' scores (43.5). This disparity remained evident across both COVID-19 and SRI contexts, suggesting persistent vulnerability among those in supervisory positions. However, these comparisons should be interpreted cautiously, as they were not adjusted for potential confounding demographic factors such as age, years in role, or education level, which may differ systematically between DSWs and supervisors. The heightened mental health burden among supervisors may reflect the dual and often conflicting responsibilities inherent to their role.

Supervisors in disability residential services appear to occupy a challenging position between organizational leadership and frontline care delivery, requiring them to simultaneously support staff while ensuring compliance with rapidly evolving mandates. Evidence from other sectors supports the idea that supervisory and middle-management positions carry distinct mental health risks. In a large study of rural Chinese healthcare workers, Zhang et al. (2023) found that staff in higher-level positions reported greater burnout than general staff, which the authors linked to the dual pressures of realizing organizational strategies while managing unit-level operations and staff needs. Although conducted in a different health-system context, this pattern is consistent with the elevated mental health burden observed among supervisors in the current study (Zhang et al., 2023). Beyond the crises, in disability services, supervisors face additional challenges, including administrative burdens, funding limitations, staff turnover, and time pressure that impede their ability to provide meaningful leadership support. For example, Fajardo-Castro et al. (2025), in a systematic review of front-line leadership in organizations for persons with IDD, describe frontline managers as occupying a pivotal intermediary role, responsible for translating organizational missions and policies into day-to-day practice, providing practice leadership to direct support staff, and overseeing administrative tasks. Their review indicates that leadership quality at this level is closely linked to staff stress, motivation, and job satisfaction, and identifies multiple obstacles that can impede effective leadership. During COVID-19, these pre-existing demands were likely compounded by outbreak-related responsibilities (Fajardo-Castro et al., 2025). White et al. (2021) documented similar patterns among nursing home supervisors during COVID-19, who absorbed substantial operational demands such as managing quarantine protocols, coordinating testing and vaccination, and interpreting frequently changing public health guidelines. The 10-point difference in mental health scores between supervisors and DSWs in the current study suggests that these organizational and interpersonal demands took a considerable toll.

The broader intellectual disability literature also underscores the heightened pressures surrounding the care of people with IDD and their supporters during the pandemic. Doody and Keenan (2021) noted that supervisors in Irish intellectual disability services often lack adequate training and support to navigate competing priorities between regulatory compliance and person-centred care, potentially exacerbating stress (Doody & Keenan, 2021b). These combined pressures may account for why supervisors in the present study experienced mental health outcomes well below population norms and substantially below those of the DSWs they supervise.

The physical health findings, although showing smaller differences between roles, still indicate that physical strain was widespread among our study participants. Physical health scores below population norms are consistent with documented increases in musculoskeletal pain, sleep disturbance, and fatigue among disability support workers during the pandemic (Hewitt, et al., 2020; Pretto et al., 2022; van Roekel et al., 2021). Extended shifts to cover staffing shortages, prolonged use of PPE, and the physically demanding nature of providing hands-on care to individuals with complex needs all contributed to this burden (Chand et al., 2021; Kavenagh, 2021). Notably, the similarity of physical health scores across COVID-19 and SRI contexts suggests that these physical demands persisted beyond the acute pandemic phase, reflecting ongoing workforce challenges in the disability services sector. The particularly pronounced mental health challenges faced by supervisors warrant targeted attention in workforce support initiatives and policy planning. The persistence of health deficits across both COVID-19 and SRI periods further suggests that systemic factors, rather than transient crisis-related stressors alone, contribute to the poor well-being of this workforce.

5.2 Factors associated with Physical and Mental Health of the Study Participants

This study employed the SEM model, as modified by McLeroy et al. (1988), to structure the analysis of health influences at the individual, interpersonal, organizational, community, and policy levels. To ensure the framework addressed the specific realities of disability support work, the SEM was also guided by Rodenburg’s (2022) application, which focused on direct support staff in group home settings in Ontario. Drawing on both public health theory and disability sector research allowed for a comprehensive assessment of the distinct conditions shaping physical and mental health for DSWs and supervisors during the COVID-19 and SRI periods in Manitoba group homes. The policy level of the SEM was not included in this study, as the focus was on factors and strategies that could be addressed directly within organizations and communities. This allowed for practical recommendations tailored to the specific context of DSWs and supervisors, without requiring broader legislative or system-wide reforms.

At the individual level, a lower educational level was associated with poorer mental health in bivariate analyses, consistent with findings from U.S. disability support worker research where less-educated staff reported higher psychological distress during COVID-19, potentially reflecting fewer opportunities to acquire pandemic-specific knowledge or coping strategies

(Donelan et al., 2023). However, education did not remain significant in the hierarchical models. This attenuation suggests that agency-led training and clear procedural guidance may buffer educational disparities and balance access to critical information (Hall et al., 2022), a finding that underscores the protective potential of workplace learning supports.

Longer time in role correlated with poorer mental health in unadjusted analyses, mirroring Couderc et al. (2023), who found that DSWs supporting adults with autism spectrum disorder (ASD) and IDD in residential settings experienced high levels of emotional exhaustion and burnout risk, particularly those facing chronic stress from complex client needs without specialized ASD training (Couderc et al., 2023). A pattern that may reflect the broadening scope of responsibilities and the accumulated emotional burden that comes with tenure. However, tenure did not independently predict outcomes once organizational demands were added to the model, indicating that it is the evolving nature of those duties, captured by role change and work-hour instability, that drives distress rather than years on the job alone.

Prior research has documented a relationship between age and mental health during health crises (Lunsky et al., 2021a), yet in our sample, age had no meaningful association with either mental or physical health. This deviation suggests that demographic factors such as age may be less salient than workplace conditions in determining staff health outcomes. Consistent with other studies of COVID-19 frontline staff, DSWs and supervisors who cared for persons with IDD infected by COVID-19 reported significantly worse physical and mental health(Bobbette et al., 2020; McMahon et al., 2020b). Open-ended responses reinforced the quantitative findings; participants frequently described fear of contracting COVID-19 at work and worries about transmitting the virus to family members. In contrast, exposure to SRI, though described in open-ended responses, was not associated with health outcomes in either the bivariate or multivariate analyses. Our finding differs from evidence gathered during the SARS outbreak, when worries about contagion and family transmission drove mental health impacts (Bergeron et al., 2006).

Residency status emerged as another individual-level factor associated with mental health in unadjusted analyses, though it showed no relationship with physical health. Notably, vulnerability appeared distributed across groups rather than concentrated in any single category. Approximately 61% of participants were Canadian-born, with naturalized citizens, permanent residents, and temporary residents collectively comprising the remaining 35% of the sample.

This finding contrasts somewhat with U.S. research documenting disproportionate pandemic-related mental health impacts among Black and Hispanic disability support workers (Donelan et al., 2023), suggesting that patterns of inequity may differ across national contexts. However, the current study was not designed to capture the intersecting influences of race, ethnicity, and immigration status. Future research incorporating larger samples and measures of language proficiency, years in Canada, and credential recognition, that is, whether foreign degrees and professional licenses are accepted as equivalent in Canada, will be essential to identify which subgroups face heightened vulnerability and what forms of organizational and community support are most protective.

On the interpersonal level, only family support emerged as an independent predictor of mental health, underscoring its unique role in buffering stress for DSWs and supervisors. Greater family support corresponded to higher MCS scores in this study. Family support's protective effect aligns with findings in home-based community care delivery, where work-family support has been shown to mitigate burnout and depressive symptoms by providing emotional validation and practical assistance outside the workplace (Yang et al., 2023). In disability-service settings specifically, family involvement has been recommended to alleviate caregiver burden during health crises (Bobbette et al., 2020). The critical protective role of family support observed in this study may be partially explained by barriers to accessing formal mental health supports. A recent study among IDD service workers in Ontario. Carter et al. (2025) found that 45% of DSPs and supervisors experienced barriers to accessing professional mental health services, with cost (70.6%), lack of time (47.9%), and long wait times (47.5%) being the most commonly cited obstacles (Carter et al., 2025).

At the organizational level, access to cleaning supplies and PPE initially predicted both better physical and mental health, underscoring their role in reducing fear of infection and its psychological toll. Staff who reported reliable supplies of PPE and cleaning materials tended to report higher physical and mental health, mirroring evidence from past outbreaks that adequate protective resources alleviate stress and safeguard well-being (Bergeron et al., 2006; Kavenagh, 2021; Koh et al., 2005). Equally important was the impact of increased workload from implementing new infection-control tasks. Participants described how wearing PPE, conducting frequent sanitation rounds, and enforcing preventive protocols added substantial time demands and heightened anxiety about infecting residents or family members. This aligns with qualitative studies in disability services, where DSWs identified expanded duties as a key source of physical exhaustion and emotional strain (Fortin-Bédard et al., 2024; Hall et al., 2022). Despite these bivariate associations, PPE access and cleaning supplies did not remain significant in the final hierarchical models, whereas changes in work hours and role responsibilities did. This suggests that it is not merely the presence of protective resources but the stability of schedules and clarity of roles that ultimately shape health outcomes. High rates of staff absenteeism, driven by COVID-19 exposure or illness, led some facilities to report retention as low as 50%, exacerbating overtime demands and role ambiguity (A. T. Chen et al., 2020; Ladhani et al., 2020). Such staffing shortages likely underlie why work-hour change was the sole predictor of physical health ($\beta = -.27$) and role change the strongest predictor of mental health ($\beta = -.48$ to $-.49$) in our fully adjusted models. This pattern highlights that, in addition to ensuring adequate supplies, organizations must attend to the rhythms of work, minimizing unpredictable shift changes and supporting staff through clear, consistent role definitions, to mitigate the adverse health effects of pandemic-related operational disruptions.

At the community level, three factors showed significant bivariate associations with both physical and mental health includes community attitudes toward working in disability services, negative public views toward DSWs, and perceived community support. More negative community attitudes correlated with poorer physical health and poorer mental health across both COVID-19 and SRI contexts. Similarly, negative public views predicted worse physical and mental health. Conversely, perceived community support was positively associated with better physical health and mental health in both contexts. Despite these strong bivariate associations, none of the community-level factors remained significant in the fully adjusted models. The absence of community factors as independent predictors may reflect how organizational responses mediate external stressors. Agencies that effectively buffer staff from community stigma, through advocacy, clear communication, and supportive leadership, may mitigate the psychological impact of negative public attitudes (Hall, Lahti Anderson, et al., 2024). Additionally, community-level factors may have lacked predictive power because the community mental health infrastructure is insufficient(Carter et al., 2025). Participants described feeling undervalued and unsupported even as they shouldered expanded responsibilities during COVID-

19, a pattern documented across disability services where DSWs felt "overworked and underpaid" yet received minimal public recognition (Hall et al., 2022). Unlike hospital-based healthcare workers who were publicly celebrated as pandemic heroes, DSWs and their supervisors often remained invisible in public health messaging and policy responses (Bobbette et al., 2020; P. Embregts et al., 2020).

Results of the hierarchical multivariable regression analyses revealed that only a small number of factors remained significant independent predictors of health outcomes when controlling for other variables at all socio-ecological model levels. This finding is important because it highlights which factors continued to predict physical health after accounting for other influences entered as blocks in the regression model. Specifically, change in work hours was the only significant predictor of physical health in both the COVID-19 ($\beta = -.27, p = .045$) and SRI ($\beta = -.28, p < .05$) models. Staff reporting greater changes in work hours experienced significantly worse physical health, even after controlling for individual characteristics, interpersonal support, other organizational variables, and community factors. Notably, the inclusion of organizational-level variables in the regression explained the largest amount of additional variance in physical health ($\Delta R^2 = .14$ for COVID-19, $\Delta R^2 = .22$ for SRI), indicating that workplace-related factors had the strongest predictive power in the model. Organizational variables included access to cleaning supplies, access to PPE, planning effectiveness, changes in work hours, and changes in job role. These findings underscore the critical importance of organizational stability and resources in supporting the physical health of DSWs and supervisors during public health crises.

For mental health, two factors emerged as significant independent predictors across both contexts. Family support had a significant positive independent effect on mental health ($\beta = .24$, $p = .016$ for COVID-19; $\beta = .30, p = .013$ for SRI), indicating that stronger family support networks were associated with better mental health outcomes after controlling for the effects of other factors. In contrast, role change was found as the strongest negative factor for workers' mental health in both COVID-19 and SRI contexts ($\beta = –.48, p < .001$ for COVID-19; $\beta = –.49$, $p < .001$ for SRI), suggesting that changes in job responsibilities had profound negative effects on the mental well-being of DSWs and supervisors. Similar to physical health, the organizational-level factors helped to explain the largest amount of additional variance in mental health models ($\Delta R^2 = .14$, $p = .007$ for both contexts), again highlighting the strongest predictive power in the model. These patterns reveal a critical insight that while many individual-level factors (such as education, years in role, and exposure status) and community-level factors (such as community attitudes and perceived support) showed significant bivariate associations with health outcomes, they did not remain significant in the multivariable models. This suggests that their influence operates primarily through or alongside organizational and interpersonal factors. The following sections examine how these findings compare to the broader disability services literature and explore the mechanisms underlying these observed patterns.

5.3 Challenges Experienced by Direct Support Workers and Their Supervisors, and Strategies Used to Overcome Them

The second objective of the study was to explore the challenges experienced by direct support workers and their supervisors who provided care to individuals with IDD in Manitoba during the COVID-19 pandemic and other SRI outbreaks, and identify strategies used to overcome the reported challenges. To address this objective, responses to the open-ended questions were analyzed to better understand how the key quantitative predictors, such as role changes and work-hour instability, were experienced in practice. Communication barriers emerged as the most pervasive challenge described by participants in their qualitative responses.

More than one-third of respondents described ongoing difficulty explaining prevention protocols to individuals with varying cognitive abilities, a challenge combined when PPE obscured facial expressions and hindered lip-reading. This finding aligns with international evidence where Australian group-home staff reported that masks created "complex" and "contradictory" information environments, requiring them to develop photo dictionaries and sign-language resources to maintain accessibility (Anderson et al., 2023). Similar challenges were documented in Canada, where masks became barriers for individuals who relied on facial expressions and lip-reading, creating anxiety for both staff and residents who struggled to understand whether they were being addressed (Majnemer et al., 2021). These communication barriers were not simply operational inconveniences but sources of ongoing stress as residents became anxious and confused by disrupted routines (Doody et al., 2024; P. J. C. M. Embregts et al., 2021b).

Infection prevention concerns encompassed daily work, extending the quantitative finding that COVID-19 exposure correlated with poorer health outcomes in bivariate analyses but not in SRI. Staff described persistent anxiety during hands-on care tasks that required close physical contact, worries that extended beyond the workplace to fears of transmitting the virus to their own families. This created what one participant described as "chilling and challenging" tensions between professional duty and family protection, particularly for those living with vulnerable family members. The psychological burden of this dual responsibility, protecting both clients and families, mirrors patterns observed in hospital-based healthcare settings, where fear of family transmission contributed to moral distress and burnout (Hewitt, et al., 2020; Pretto et al., 2022). Frequent absenteeism drove last-minute schedule changes and extended shifts, creating cumulative fatigue that staff described as unsustainable. Supervisors reported particular difficulty maintaining adequate coverage, a challenge heightened when residents became anxious in the absence of familiar staff.

This chain of disruptions affected both workforce stability and quality of care, reinforcing evidence that an organization's effective backup plan to manage staffing pressures is a critical factor of both staff and resident well-being (Hall et al., 2022). Implementing evolving public health guidelines presented an ongoing challenge that helps explain why organizational factors mediate community-level influences in our models. Rapid policy changes confused residents, and preventive guidelines often failed to account for the close personal care needs and shared living spaces characteristic of group homes. Staff struggled to balance infection control with maintaining dignity and autonomy for residents (Majnemer et al., 2021).

Despite these substantial challenges, staff employed a range of adaptive strategies that both mirror and extend the protective factors identified quantitatively. Communication adaptations emerged as the most frequently reported strategy, with staff developing visual aids, transparent masks, simplified language, and personalized schedules to bridge PPE barriers and maintain connection with residents. These adaptive strategies, described by Anderson et al. (2023) as essential adaptations in Australian group homes, reflect the creativity of DSWs and supervisors. The spontaneous development of photo dictionaries and communication boards demonstrates how DSWs drew on a deep understanding of person-centred care plans to maintain accessibility under crisis conditions (Anderson et al., 2023; P. J. C. M. Embregts et al., 2021b). Family support, which emerged as the only significant interpersonal predictor in hierarchical models, was cited as a critical coping resource in qualitative responses. Participants credited family members with providing emotional grounding, practical assistance, and perspective during periods of acute stress, underscoring the importance of work-life balance supports for disability service workers. This finding aligns with broader evidence that social and family support facilitate pandemic-related coping and help mitigate burnout among healthcare workers (Bobbette et al., 2020). Peer support and informal check-ins among coworkers were described as vital for maintaining morale and sharing problem-solving strategies. Staff valued brief conversations with colleagues to reduce their stress and improve their mental health. Organizational supports such as clear protocols, timely information sharing, and access to mental health resources were identified as protective from open-ended responses, reinforcing the quantitative finding that organizational factors mediate the impact of external stressors on staff health. This aligns with evidence that the organization's effective plan, adequate staffing, workload management, and effective leadership are fundamental to sustaining workforce mental health during prolonged crises (*Public Health Ontario*, 2021). Moreover, personal coping strategies, including mindfulness practices, physical activity, and deliberate boundaries between work and home life, helped staff sustain resilience amidst ongoing uncertainty.

5.4 Study Strengths and Limitations

This study has several important strengths that contribute novel insights to the disability workforce literature. The inclusion of both structured survey items and open-ended questions allowed for statistical identification of predictors alongside contextualized understanding of how those factors manifested in daily practice, enriching the interpretation of quantitative findings. The application of the SEM model provided a comprehensive framework for examining influences across multiple levels simultaneously, moving beyond individual-focused approaches to capture organizational, interpersonal, and community contexts. Critically, this is among the first studies to examine IDD workforce health using a multi-level SEM framework during both COVID-19 and SRI periods, providing comparative data on the effects of health crises in this population. The comparison enabled assessment of whether findings were pandemic-specific or reflected broader patterns of health crisis response in disability services. The use of a validated health measure (SF-12v2) with established normative comparisons allowed us to determine that health scores were substantially below population expectations.

The study addressed multiple gaps in existing literature. First, it included DSWs and supervisors, a critical advancement given that most research has focused exclusively on DSWs while overlooking the distinct challenges facing supervisory staff. Second, the Manitoba-wide recruitment strategy captured perspectives from diverse health regions, enhancing representativeness within the provincial context. Third, the timing of data collection (post-acute pandemic phase) allowed participants to reflect on both immediate COVID-19 impacts and the transition to endemic respiratory illness management, providing insights into sustained rather than merely acute effects. Fourth, the hierarchical regression approach explicitly tested which factors retained significance after controlling for other SEM levels factors, moving beyond simple bivariate associations to identify independent predictors.

This study has some limitations that warrant consideration when interpreting the findings. First, the cross-sectional design captured only a snapshot in time, limiting the ability to establish causal relationships between predictors and health outcomes or to track changes in health status over time. It remains uncertain whether workplace stressors led to declines in health or whether workers already experiencing health problems perceived their work environments more negatively. Second, recall bias may have affected participants' ability to accurately remember experiences during the seasonal respiratory illness period, particularly when contrasting them with more salient COVID-19 experiences, potentially introducing memory distortion into retrospective assessments. Third, the use of convenience sampling limits generalizability, as response rates could not be calculated, and sample representativeness relative to the broader Manitoba IDD workforce could not be assessed. Finally, although a priori power analysis indicated the sample size of 96 participants was adequate to detect medium effect sizes ($f^2 = 0.15$) in the primary hierarchical regression analyses, it was insufficient to detect small effect sizes. Additionally, the relatively small number of supervisors (n = 34) limited confidence in descriptive comparisons between roles.

5.5 Future Research Directions

Future research could build upon the current findings in several ways. First, at the organizational level, future studies could incorporate objective organizational characteristics such as agency size, funding models, staffing ratios, and turnover rates alongside workers' subjective reports. Multilevel models that account for workers within agencies would clarify how organizational capacity and resources affect the relationship between workplace stressors and health outcomes. Second, at the individual level, future research would benefit from more comprehensive demographic measures, including race, ethnicity, linguistic background, immigration experiences and staff training. Given the diversity of the disability services workforce, examining how these factors intersect with workplace experiences would provide valuable insights into potential health disparities and inform more equitable support strategies. Third, future research could extend the socio-ecological framework used in this thesis by explicitly incorporating a policy level. Although the current study did not directly model policy-level variables, the findings highlight several policy levers, including improving access to mental health supports, adapting public-health guidelines to the realities of group homes, and developing effective backup staffing plans to address chronic staff shortages, all of which require coordinated provincial and federal planning. Future studies could operationalize policy-level factors, such as emergency wage enhancements, paid sick-leave provisions, and funded mental health services, and examine their associations with DSW and supervisor health outcomes. Understanding how provincial and federal policy responses during COVID-19 and subsequent respiratory illness seasons shape workforce health would inform crisis-preparedness planning and strengthen the evidence base for policy supports that protect essential disability service workers during future health emergencies. Fourth, future research should examine team functioning, communication patterns, relational climate, and trust between DSWs, supervisors, and coworkers to better understand how interpersonal dynamics shape health and stress responses. Finally, future research should integrate objective indicators of community infrastructure (e.g., service availability, rural access, transportation barriers) to understand how local resource environments shape worker well-being.

5.6 Implications of the Study Findings

The findings from this study have practical implications for disability service organizations, policymakers, and mental health service providers. The following recommendations are organized by stakeholder group and grounded in the key finding that organizational factors, particularly work hour changes and role changes, were the strongest predictors of physical and mental health outcomes.

5.6.1 Organizational Practices

1. Staffing Stability During Health Crises

The finding that work hour changes predicted worse physical health across both COVID-19 and SRI contexts points to the need for better staffing planning during health crises. Organizations should develop backup staffing plans before crises occur rather than reacting to shortages as they happen. This includes creating backup staffing pools with trained workers who can step in when regular staff are sick or need time off. Float staff systems ("Manitoba Travel Nursing," n.d.), where some workers are cross-trained to work in multiple homes, can reduce the need for last-minute schedule changes. Organizations should also set clear limits on mandatory overtime to prevent cumulative exhaustion, also provide advance notice whenever schedule changes are necessary. Staffing stability protects not only worker health but also quality of care, as residents benefit from familiar, non-exhausted DSWs.

2. Clear Roles and Responsibilities

Organizations should provide clear written role definitions for each position and update them regularly to reflect evolving responsibilities and organizational changes. These practices directly benefit direct support workers by reducing uncertainty and stress, increasing preparedness and job satisfaction, and preventing overload and burnout. Clarity around role changes, especially during crises, helps staff understand expectations, receive appropriate training, and identify which tasks can be paused, all of which contribute to better staff wellbeing, lower turnover, and improved quality of care. Additionally, the advance notice to staff when roles need to change, and offer adequate training before assigning new responsibilities. During crises, when some role flexibility may be necessary, organizations should communicate clearly about what changes are temporary versus permanent and why changes are needed. Regular check-ins with staff about role clarity and workload can help identify problems before they escalate. When roles must expand during crises, organizations should consider which responsibilities can be reduced or paused to avoid overwhelming workers with competing demands.

3. Communication Protocols

Transparent communication from leadership helps reduce uncertainty and stress during health crises. Organizations should establish clear protocols for how information will be shared with staff, including regular updates about changing public health guidelines, infection status in the group homes, and available supports. Communication should be two-way, with opportunities for staff to ask questions and share concerns. Qualitative responses revealed that rapidly changing guidelines created confusion for both staff and residents. Organizations that involve frontline workers in decision-making about how to implement new policies in ways that fit group home realities may reduce implementation stress and improve agreement.

4. Support for Supervisors

Supervisors in this study reported substantially worse mental health than direct support workers, yet they often receive the same generic supports offered to all staff. Organizations should recognize that supervisors face unique stresses, including balancing administrative duties with staff support while often covering direct care shifts themselves, and need targeted resources. This could include dedicated counselling services for supervisors, peer support groups specifically for those in supervisory roles, and training on managing competing demands during crises.

5. Communication Accessibility

More than one-third of participants described communication barriers created by PPE, particularly masks that obscured facial expressions needed by individuals with IDD. Organizations should include communication accessibility in their emergency preparedness plans rather than addressing it reactively during outbreaks. This includes identifying each resident's primary communication methods and developing backup strategies for when those methods are disrupted. Organizations should invest in communication tools such as transparent masks or face shields and provide ongoing training in alternative communication methods. Staff described developing visual aids, simplified language, and personalized schedules to maintain communication during COVID-19 or SRI. Organizations can build on these creative solutions by formalizing them into training programs and resource kits. Training should emphasize how to maintain person-centred care and dignity when infection control measures limit usual communication approaches.

5.6.2 Policy and Funding Recommendations

Provincial and federal governments should provide dedicated funding for mental health programs specifically designed for disability service workers. This could include subsidized counselling services, rapid-access mental health supports, or mobile services that come to group homes to reduce time barriers for shift workers. Emergency preparedness planning at provincial and federal levels should explicitly include group home workers. This means ensuring they receive priority access to protective equipment, testing, and vaccination alongside hospital-based healthcare workers. Public health guidance should be tailored to group home settings rather than assuming that hospital-focused recommendations apply to all healthcare environments.

5.7 Conclusions

This was the first study in Manitoba examining the effects of COVID-19 and SRI on the physical and mental health of DSWs and supervisors supporting adults with IDD in group home settings. This study provided insight into the health challenges faced by this essential workforce during health crises. It was found that both physical and mental health were significantly lower among study participants compared to population norms, and that organizational factors, particularly changes in work hours and job roles, were the strongest predictors of health outcomes. Family support emerged as an important protective factor for mental health. Descriptive findings revealed that supervisors reported notably poorer mental health than direct support workers, highlighting the need for targeted support for those in leadership roles. In addition, findings from this thesis demonstrated the need for more effective policies and programs to support the mental and physical health of disability service workers. Although this study did not assess policy-level factors, the results demonstrate the need to prioritize workforce stability in disability services. These findings can guide resource allocation decisions for DSWs and supervisors and inform crisis preparedness planning at provincial and federal levels. Protecting the health of disability service workers is essential not only for their own well-being but also for maintaining high-quality, person-centred care for individuals with intellectual and developmental disabilities.

5.8 Knowledge Translation

I will share my findings with DSWs and supervisors by presenting them at established workshops led by senior leaders of Abilities Manitoba, such as the “Getting Rights, Right! Direct Support Professionals” and sessions centred on the “Leading Practice Guidelines” for high-quality services for Manitobans with intellectual disabilities. These workshops are designed for DSWs and all staff working in community homes and supporting individuals with IDD. My goal is to contribute to their ongoing learning in evidence-based practice. Additionally, I will prepare a user-friendly, plain-language summary of my study findings to be featured on the St.Amant research website. Because this study was recognized as addressing a critical knowledge gap by the Director at St.Amant, I will present the findings at a targeted meeting with organizational leadership and frontline supervisors. This presentation will specifically emphasize the importance of organizational supports to proactively protect staff well-being and resilience in group home settings during public health emergencies. At the academic level, I will present a poster at the Manitoba Students Health Research Forum (MSHRF), highlighting key findings and attend conferences such as the Beyond Limits Canadian Conference for Diversity & Accessibility to engage with researchers, practitioners, families, and persons with IDD themselves. To maximize reach and accessibility, I will develop an infographic summarizing key findings and issue a press release to disseminate results beyond traditional academic channels. Finally, I plan to submit at least one manuscript to a peer-reviewed journal relevant to the field, such as the *Journal of Policy and Practice in Intellectual Disabilities*.

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Appendix A

Recruitment Letter

Dear __________________,

I am a graduate student in the Community Health Sciences Master's program at the University of Manitoba.

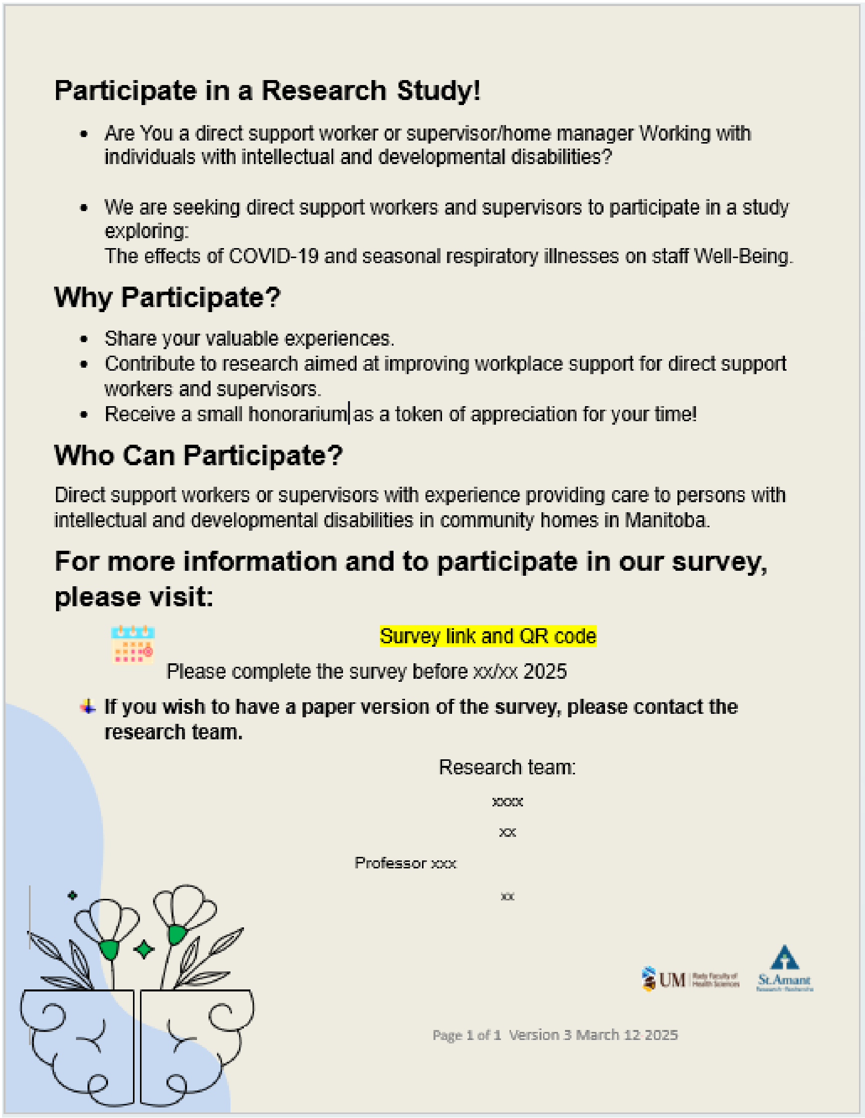
For my thesis, under the supervision of my advisor, I am aiming to gain a better understanding of the effects of the COVID-19 pandemic and other seasonal respiratory illnesses on the mental and physical well-being of direct support workers and supervisors supporting individuals with intellectual and developmental disabilities in Manitoba. To accomplish this, I am looking to survey direct support workers, supervisors, or home managers supporting adults with intellectual and developmental disabilities in community homes in Manitoba.

To assist with the recruitment for this research study, please share the attached **one-page study information sheet** with the staff in your organization. The attached document provides more detailed information about the study and contains the link to the survey. By clicking on the link, interested individuals will be provided with detailed information on the survey, the content of the survey, and instructions for completing the survey. They will provide informed consent for their participation by completing the survey. Both survey and informed consent will be available in paper versions upon request.

This research has been approved by the University of Manitoba Health Research Ethics Board and the St.Amant Research Access Review Committee.

Thank you very much for your time.

Appendix B



Participate in a Research Study!

- Are You a direct support worker or supervisor/home manager Working with individuals with intellectual and developmental disabilities?

- We are seeking direct support workers and supervisors to participate in a study exploring:
  The effects of COVID-19 and seasonal respiratory illnesses on staff Well-Being.

Why Participate?

- Share your valuable experiences.
- Contribute to research aimed at improving workplace support for direct support workers and supervisors.
- Receive a small honorarium as a token of appreciation for your time!

Who Can Participate?

Direct support workers or supervisors with experience providing care to persons with intellectual and developmental disabilities in community homes in Manitoba.

For more information and to participate in our survey, please visit:

Survey link and QR code

Please complete the survey before xx/xx 2025

If you wish to have a paper version of the survey, please contact the research team.

Research team:

xxxx

xx

Professor xxx

xx

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Appendix C

Consent Form

Please read the following information carefully before deciding to participate in this survey.

Title of Study: Exploring the ongoing effects of COVID-19 and other seasonal respiratory illnesses (SRIs) on direct support workers and supervisors supporting individuals with intellectual and developmental disabilities in Manitoba.

Thank you for accessing our online survey. It should take about 40 minutes to complete. Your participation in this online survey is completely voluntary, and you are free to skip any questions you do not wish to answer.

Who we are:

My name is xxx, and I am a Master's student in the Community Health Sciences program at the University of Manitoba, under the supervision of Professor Shahin Shooshtari.

Purpose of study: The goal of the survey is to better understand how the COVID-19 pandemic and other seasonal respiratory illnesses have impacted direct support workers and supervisors who support people with intellectual and developmental disabilities in community group homes. We are interested in learning about the impact of workplace conditions, family and community support, and resources available to you.

You are being invited to take part in this study because you work as a direct support worker or a supervisor who provides important services to individuals with intellectual and developmental disabilities in a community setting in Manitoba.

Your feedback will be collected through an online survey, which will include questions about:

Demographic information

- Health and well-being during the COVID-19 pandemic or seasonal respiratory illnesses such as influenza.
- Support that you received from family, friends, and other individuals during the COVID-19 pandemic or seasonal respiratory illnesses and any changes in your lifestyle.

- Your work experiences during the COVID-19 pandemic or seasonal respiratory illnesses such as influenza.
- Community perspective and access to services and resources
- Challenges experienced and the steps you took to overcome those challenges during COVID-19 or seasonal respiratory illnesses such as influenza.

This survey is done through the REDCap platform, which collects and stores data in Canada.

Confidentiality: The survey collects demographic information such as birth year, gender, health region, residency status, and years of experience and profession. However, the completed responses will not be linked to the participants' email addresses and will not be identifiable.

Risks and Discomforts: There are no known risks for participating in this study other than the time commitment involved.

You can click on the "Save & Return Later" button at the bottom of the survey at any point. Clicking the 'Save & Return Later" button displays a validation code you need when you decide to continue the survey. If you lose or do not know your validation code, the study researcher can retrieve it for you.

You will be recognized for your dedicated time with a small honorarium. We collect your name and email address for future communications regarding the honorarium or to assist you if you lose the survey validation code and need us to recover it. If you do not wish to receive the honorarium, you may skip this section and proceed directly to the survey without providing your name or email address.

Therefore, your responses will remain anonymous and cannot be linked to your identity. Also, please note that once you submit your response, you will not be able to withdraw it, as we cannot link the survey responses back to you.

Dissemination

The results of this research will be shared in aggregated and anonymized form through the study's final report, scientific journal articles, and other accessible and user-friendly research summaries posted on St.Amant Research Centre webpage. In addition, presentations will be made to the staff and management of St.Amant, and other community organizations to enhance the health crisis response, such as COVID-19 preparedness. All project presentations, reports, or publications will exclude identifying information. This data may be shared with other researchers in the future to assist in addressing research questions in this area.

Your participation is important to us and will help us better understand COVID-19 and seasonal respiratory illnesses' effects on the physical and mental health of direct support workers and supervisors who work in group homes in community settings.

If you have questions about the study, please contact the research team through the University of Manitoba.

This study has been approved by the University of Manitoba Health Research Ethics Board and St.Amant Research Access Review Committee. By continuing and completing the online survey, you consent to participate in the study.

Sincerely

Department of Community Health Sciences, University of Manitoba

By proceeding with this survey, you are confirming that you have read the study information and agree to participate in the research.

You understand that your participation is voluntary and that you may stop the survey at any time. You will have the option to provide your contact information separately to receive a $20 honorarium. Participant's signature.

Appendix D

Survey

Mental and physical health of DSWs and supervisors

Thank you for your interest in this survey, which is being conducted to collect data for my graduate thesis entitled "Exploring the ongoing effects of COVID-19 and other seasonal respiratory illnesses (SRIs) on direct support workers and supervisors supporting individuals with intellectual and developmental disabilities (IDDs) in Manitoba."

The goal of the survey is to enhance the current understanding of how the COVID-19 pandemic and other SRIs impacted direct support workers and supervisors supporting individuals with IDDs in community group homes, given their workplace conditions, family and community support, and resources available.

The survey questionnaire has six sections:

- Section 1: Demographic, which includes 11 questions to gather data on demographic characteristics of the study population.
- Section 2: SF-12 questionnaire, which includes seven questions about the respondents' health and well-being during either the COVID-19 pandemic or recent seasonal respiratory illnesses (SRI) period, when respiratory illnesses such as influenza are common.
- Section 3: Multidimensional Scale of Perceived Social Support (MSPSS), which includes 12 questions and asks respondents about the support from your family, friends, and other special persons that you received during the COVID-19 pandemic or a recent SRIs period, and changes in your lifestyle.
- Section 4: Work changes during the COVID-19 pandemic or SRIs period, which consists of five questions.
- Section 5: Community Perspective and Resource Accessibility, which includes four questions.
- Section 6: Challenges experienced and the steps you took to overcome those challenges during COVID-19 or a recent SRIs period, which includes two open-ended questions.

Terms and abbreviations in the survey:

- Intellectual and Developmental Disabilities (IDD) are health conditions that impact cognitive, physical, or developmental functions, often requiring specialized assistance.
- Direct Support Worker (DSW): Staff who assist individuals with IDD in their daily activities, promoting independence and well-being.
- Supervisor: Staff responsible for overseeing community homes, managing staff, and monitoring staff performance.
- Seasonal Respiratory Illnesses (SRIs): Respiratory illnesses that occur during certain times of the year, such as flu, colds, which spread easily and require additional precautions in caregiving settings to protect direct support workers and persons with IDD. A SRIs period is usually between October and March of each year.

Section 1: Demographic Information

1. What is your gender?

○ Woman

○ Man

○ Prefer to self-describe

○ Prefer not to say

If you selected "Prefer to self-describe," please describe your gender:

2. What is your birth year?

3. In which health region do you work?

○ Winnipeg Regional Health Authority (WRHA)

○ Interlake-Eastern

○ Southern Health-Santé Sud

○ Prairie Mountain Health

○ Northern Health Region

○ I don't know

4. What is your residency status?

○ Canadian-Born Citizen

○ Naturalized Canadian Citizen (became a citizen after immigration to Canada)

○ Permanent Resident (not a citizen yet)

○ Temporary Visa Holder (e.g., international student, work permit holder)

○ Refugee

5. What are the first 3 digits of the postal code for your workplace?

____

6. What is your marital status?

○ Married/Common-law

○ Widowed

○ Separated

○ Single

○ Divorced

7. What is your highest level of education?

○ High school diploma (completed or not)

○ Non-college or non-university degree

○ College or university degree

○ Other

If Other, please specify: __________________

8. What is your profession?

○ Direct support worker

○ Supervisor/home manager

9. How many years of experience do you have in your field?

○ < 6 years

○ 6-10 years

○ 11-20 years

○ > 20 years

10. Have you had any experience caring for persons with IDD who had COVID-19 or other Seasonal Respiratory Illnesses (SRIs)?

○ Yes

○ No

○ I do not know

11. Have you had any history of exposure to COVID-19 or Seasonal Respiratory Illnesses (SRIs) at work?

○ Yes

○ No

○ I do not know

Section 2: Mental Health and Physical Health

The next part of this survey asks about your health and well-being.

Please answer the following questions based on your health during either:

The COVID-19 pandemic, or During the most recent times when seasonal respiratory illnesses (SRIs), such as the flu and colds, have been common, depending on which period is most relevant to your experience.

12-a. Thinking back to the COVID-19 pandemic period, how would you rate your overall health during that time?

○ Excellent

○ Very good

○ Good

○ Fair

○ Poor

12-b. Thinking back to the most recent respiratory illness season, how would you rate your overall health during that time?

○ Excellent

○ Very good

○ Good

○ Fair

○ Poor

13. Did your health during the COVID-19 pandemic or SRIs period limit you in the following activities?

13-a. Moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.

○ Yes, limited a lot

○ Yes, limited a little

○ No, not limited at all

13-b. Did your health limit you in climbing several flights of stairs?

○ Yes, limited a lot in climbing several flights of stairs

○ Yes, limited a little in climbing several flights of stairs

○ No, not limited at all in climbing several flights of stairs

14. During the COVID-19 pandemic or SRIs period, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

14-a. How much of the time did physical health problems cause you to accomplish less than you would like?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

14-b. How much of the time were you limited in the kind of work or other activities you could do because of physical health?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

15. During the COVID-19 pandemic, or SRIs period, how much of the time have you had the following problem with your work or other regular daily activities as a result of any emotional problem (such as feeling depressed or anxious)?

15-a. Accomplished less than you would like?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

15-b. Were you less careful than usual in your work or other activities?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

16. During the COVID-19 pandemic or SRIs period, how much pain has interfered with your normal work, including both work outside the home and housework?

○ Not at all

○ A little bit

○ Moderately

○ Quite a bit

○ Extremely

17. These questions are about how you feel and how things have been with you during the COVID-19 pandemic, or SRIs period. For each question, please give the one answer that comes closest to your feelings. How much of the time during the pandemic or SRI:

17-a. Have you felt calm and peaceful?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

17-b. Have you felt downhearted and depressed?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

17-c. Have you felt you have a lot of energy?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

18. During the COVID-19 pandemic, or SRIs period, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

○ All of the time

○ Most of the time

○ Some of the time

○ A little of the time

○ None of the time

Section 3: Perceived Social Support

Please reflect on the COVID-19 pandemic or a recent period of seasonal respiratory illnesses (SRIs) when answering the following questions.

19. My family really tries to help me

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

20. I get the emotional help and support I need from my family

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

21. My family is willing to help me make decisions

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

22. I can talk about my problems with my family

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

23. My friends really try to help me

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

24. I can count on my friends when things go wrong

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

25. I have friends with whom I can share my joys and sorrows

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

26. I can talk about my problems with my friends

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

27. There is a special person who is around when I am in need

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

28. There is a special person with whom I can share joys and sorrows

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

29. I have a special person who is a real source of comfort to me

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

30. There is a special person in my life who cares about my feeling

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

Section 4: Work Changes

Thinking back to the COVID-19 pandemic period, or the most recent respiratory illness season you experienced:

31. To what extent have your roles/responsibilities changed?

○ Not at all

○ Slightly

○ Moderately

○ Very much

○ Extensively

32. Have your working hours changed?

○ Increased hours

○ Decreased hours

○ No changes

33. Rate the availability of disinfectants

○ Excellent

○ Very Good

○ Good

○ Fair

○ Poor

34. Rate the availability of Personal Protective Equipment (PPE)

○ Excellent

○ Very Good

○ Good

○ Fair

○ Poor

35. How effective was your organization's backup or emergency plan (contingency plan) for managing supply shortages (e.g., PPE, cleaning products, etc.)?

○ Excellent

○ Very Good

○ Good

○ Fair

○ Poor

Section 5: Community Perspectives

Thinking back to the COVID-19 pandemic period, or the most recent respiratory illness season you experienced:

36. Have you noticed any attitudes or behaviors directed toward you related to your work in disability services?

○ Never

○ Rarely

○ Sometimes

○ Often

○ Always

37. How often do you feel the public perceives disability services less positively?

○ Never

○ Rarely

○ Sometimes

○ Often

○ Always

38. Rate the availability of community resources to support disability services

○ Excellent

○ Very Good

○ Good

○ Fair

○ Poor

39. What is your birth year?

____

Section 6: Challenges and Strategies During COVID-19 or Seasonal Respiratory Illnesses

40. What challenges did you face while supporting persons with intellectual and developmental disabilities?

41. What strategies did you use to overcome the challenges?

Appendix E

Table 31 *Internal Consistency (Cronbach's alpha)of SF-12v2 Subscales*

Subscale	N (valid cases)	Cronbach's α
PCS-12(COVID-19)	92	.856
PCS-12 (SRI)	92	.850
MCS-12(COVID-19&SRI)	86	.856

Appendix F

Table 32 *Results From a Factor Analysis of the SF-12v2 Questionnaire*

SF-12v2 item	Factor Loading	
	F1(PCS)	F2(MCS)
Peaceful/Calm	**.93**	—
downhearted and depressed	**.87**	—
Energy (R)	**.86**	—
Accomplish less/ role emotional(R)	**.85**	—
Less careful (R)	.36	.41
Social activities	.45	—
General health	.59	.31
Accomplish less (R)	.55	.41
limited in the kind of work or other activities (R)	.53	.36
Moderate activities	—	**.91**
Climbing stairs	—	**.87**
Bodily pain interferes	—	**.55**

Note. N = 96. Extraction method was principal component analysis with an oblique (Oblimin, Kaiser normalization) rotation. Loadings ≥ .30 are shown; loadings < .30 are suppressed and shown as "—". Reverse-scored items are denoted with (R). Only the COVID-19 general health item was included to avoid duplication.

Appendix G

Table 33 *MSPSS Subscale Questions*

Subscale	Items
Family	1. My family really tries to help me 2. I get the emotional help and support I need from my family 3. I can talk about my problems with my family 4. My family is willing to help me make decisions
Friends	1. My friends really try to help me 2. I can count on my friends when things go wrong 3. I have friends with whom I can share my joys and sorrows 4. I can talk about my problems with my friends
Significant Other	1. There is a special person who is around when I am in need 2. There is a special person with whom I can share joys and sorrows 3. I have a special person who is a real source of comfort to me 4. There is a special person in my life who cares about my feelings

Appendix H

Table 34 *Internal Consistency (Cronbach's alpha)of MSPSS*

MSPSS Subscale	N (valid cases)	Cronbach's α
Family	93	.872
Friends	91	.861
Significant others	94	.929

Note. MSPSS: Multidimensional Scale of Perceived Social Support

Appendix I

Table 35 *Correlation matrix (PCS &MCS in COVID-19 context)*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1-PCS (COVID-19)	–											
2-MCS(COVID-19)	.204	–										
3-Age	.121	−.099	–									
4-Years in position	−.187	−.364**	.438**	–								
5-Access to cleaning supplies	.410**	.262*	−.024	.−255*	–							
6-Access to PPE	.285*	.240*	.173	−.109	.712**	–						
7-Planning effectiveness	.383**	.278*	.060	−.161	.698**	.668**	–					
8-Work hours change	−.369**	−.258*	−.083	.180	−.213*	−.315**	.366**	–				

9-Role change	−.332**	−.606**	–.138	.152	−.322** .	−.309**	−.305**	.363**	–			
10-Community attitudes	−.350**	−.342**	–.119	.101	−.322**	−.344**	−.423**	.305**	.536**	–		
11-Community public view	−.315**	−.412**	–.072	.086	−.213*	−.235*	−.243*	.277**	.624**	.540**	–	
12-Perceived community support	.368**	.551**	–.028	−.284**	.352**	.285**	.407**	−.197	−.489**	−.284**	−.551**	–
N	83	83	96	96	91	93	96	92	94	95	94	96

Note. Values are Spearman’s rho (ρ), two-tailed; significance coded as * p < .05, ** p < .01, *** p < .001. N indicates variable-level valid cases; pairwise deletion used.

Appendix J

Table 36 *Correlation matrix (PCS &MCS in SRI context)*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1-SF-12PCS(SRI)	_											
2-SF-12MCS(SRI)	.188	_										
3-Age	.114	–.111	_									
4-Years in position	-.180	–.367**	.438**	_								
5-Access to cleaning supplies	.407**	.266**	–.024	–.255	_							
6-Access to PPE	.268*	.244*	.173	–.109	.712**	_						
7-Planning effectiveness	.373**	.286**	.060	–.161	.698**	.668**	_					
8-Work hours change	–.316**	–.250*	–.083	.180	–.213*	–.315**	.366**	_				

9-Role change	−.292**	−.598**	−.138	.152	−.322**	−.309**	−.305**	.363**	_			
10-Community attitudes	−.375**	−.351**	−.119	.101	−.322**	−.344**	−.423**	.305**	.536**	_		
11-Community public view	−.269*	−.402**	−.072	.086	−.213*	−.235*	−.243*	.277**	.624**	.540**	_	
12-Community support	.279	.545**	−.028	−.284**	.352**	.285**	.407**	-.197	−.489**	−.284	−.551**	_
N	83	83	96	96	91	93	96	92	94	95	94	96

Note. Values are Spearman’s rho (ρ), two-tailed; significance coded as * p < .05, ** p < .01, *** p < .001. N indicates variable-level valid cases; pairwise deletion was used.