

The Impact of Pandemic Management Strategies on Staff Mental Health, Work Behaviours, and Resident Care in One Long-Term Care Facility in British Columbia: A Mixed Method Study



RESEARCH

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ABSTRACT

Context: To slow the spread of COVID-19 within the Canadian long-term residential care (LTRC) sector, a series of pandemic management strategies were introduced, including restricted visitation and single site employment. These strategies were enacted to prevent and control infection, resulting in unknown impact on direct care staff and staff capacity to deliver quality care or service.

Objective: To explore staff reports of outcomes associated with LTRC pandemic management strategies, particularly their impact on LTRC staff mental health, work behaviours and quality of care or service provision.

Method: This was a case study using mixed methods including a longitudinal survey and interviews with staff from one LTRC site in British Columbia. Survey data from 68 staff who participated in both survey times were analyzed using regressions with relative weight analysis. Semi-structured interviews were conducted with 26 LTRC staff and analyzed using content analysis.

Findings: Survey data demonstrated that staff perceived the sick time policy and staffing levels as the most inadequate pandemic management strategies. Survey data also showed the visitation policy, the sick time policy and the single site employment policy were most significantly associated with negative outcomes to staff mental health, work behaviours and quality of care or service delivery. Qualitative data suggested connections between these policies and inadequate staffing levels and heavy workloads.

Limitations: The study design along with the low response rate and the small sample size limits the generalizability of the findings to other settings.

Implications: The development and implementation of pandemic management strategies must be informed by and give consideration to working conditions of LTRC staff including long standing systemic issues such as staffing shortages and heavy workloads.

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1. BACKGROUND

Nearly one in five Canadians 80 years or older live in long-term residential care (LTRC) homes (Hsu et al., 2020) where their likelihood of COVID-19 mortality has been 13 times higher than their community dwelling counterparts (Fisman et al., 2020). Compared to other member countries in the Organization for Economic Cooperation and Development (OECD), the prevalence of COVID-19 mortalities among LTRC residents in Canada has been two-fold higher, accounting for 81% of COVID-19 mortalities in the country (Canadian Institute for Health Information, 2020). The impact of COVID-19 on LTRC homes has been disproportionate across Canadian jurisdictions, with British Columbia (BC) having one of the strongest and promptest COVID-19 responses in early waves of the pandemic nationally (Hsu et al., 2020; Just & Variath, 2021; Liu et al., 2020). To stop the spread of the virus in the LTRC sector, a number of pandemic management strategies were introduced to ensure the health and safety of residents and staff (Just & Variath, 2021). Some pandemic management strategies were mandated by the provincial government and others were used at the discretion of the LTRC homes (Just & Variath, 2021). Although pandemic management strategies have been effective in controlling and reducing the spread of COVID-19 in the LTRC sector, less is known about their unintended consequences on the health and wellbeing of staff and residents. The purpose of this study was to examine the association between pandemic management strategies and changes in LTRC staff outcomes with respect to mental health, work behaviours and quality of care or service delivery. Given the COVID-19 tragedies in the Canadian LTRC sector, this research is both timely and relevant.

1.1 A SCOPING REVIEW

A series of pandemic management strategies issued by the Public Health Agency of Canada were reviewed and adopted by varying degrees in Canada's LTRC homes (British Columbia Centre for Disease Control [BCCDC], 2020; Just & Variath, 2021; Havaei et al., 2020; Rios et al., 2020). In March 2020 in BC, all social visitors, including families, were prohibited from entering LTRC homes (except in extenuating circumstances such as residents requiring palliative care), and strict COVID-19 screening procedures were implemented at care home entry points. Staffing plans were redesigned to meet the accelerated needs of residents due to absence of families and the shifting demands of the pandemic. Measures to ensure appropriate infection prevention and control became mandatory, including personal protective equipment (PPE) for all staff and visitors. Although the sick time policy remained unchanged, compensated leave became more flexible during the pandemic through the implementation of a COVID-19-specific leave policy. As

opposed to the sick time policy that was intended for physically ill or injured part-time or full-time employees (symptomatic staff), the COVID-19 leave policy granted all asymptomatic staff including those in casual positions, with paid leave when their presence at work posed a risk to spreading the virus to residents and co-workers (e.g., no symptoms but exposed to COVID-19). Staff were also restricted to working at only one LTRC home, as these were considered 'high risk sites.' Training opportunities were offered to prepare staff and residents to deal with new infection prevention and control requirements and the absence of family. Plans were developed for the identification and management of ill residents and/or workers, and communication channels were put in place within and between the care team and families.

With the exception of the sick time policy, all other pandemic management strategies were newly implemented in response to the COVID-19 pandemic. While some strategies such as entry point screening, visitation procedures, single site employment, the COVID-19 leave and PPE use were mandated by the provincial government (policy), other strategies such as staffing plans, training, and communication were used at the discretion of the care homes (Just & Variath, 2021). A recent comparative study of pandemic management strategies found BC's response to the pandemic management in LTRC homes was prompter than that of other Canadian jurisdictions (Just & Variath, 2021).

Some of the pandemic management strategies have been a source of significant controversy. A target of constant public scrutiny has been visitor restriction linked to negative resident, family, and staff outcomes (Chu, Donato-Woodger & Dainton, 2020; Ickert et al., 2020; Tupper, Ward & Parmar, 2020; O'Caomh et al., 2020). Tupper and colleagues (2020), for example, found that the visitor restriction policy was significantly associated with resident isolation and loneliness and mental and physical health deterioration. Another well-publicized and researched issue has been PPE access in LTRC homes. Lack of PPEs (masks, gloves, gowns, disinfectant) in LTRC homes was significantly associated with negative staff and patient outcomes, including increased risk of COVID-19 infections and adverse mental health outcomes (Abbasi, 2020; Comas-Herrera et al., 2020; Smith et al., 2021).

As opposed to visitation and infection control and prevention policies, less well known in the public domain were negative outcomes from the single site employment policy, which created significant staffing challenges for LTRC homes during the pandemic (Havaei et al., 2020a; Duan et al., 2020; Jones et al., 2021). In BC, LTRC homes typically employ notable numbers of unregulated staff, such as care aides on a casual basis. The single site employment policy required staff to choose one LTRC site for employment during the pandemic, significantly disrupting staffing plans across sites. Jones and colleagues

(2021) found the proportion of LTRC staff with multi-site employment (i.e., employment at more than one LTRC home) declined from 43% to 13% during the pandemic in Ontario, Canada. In western Canada, a similar proportion of LTRC care aides (39%) were reported to have multi-site employment pre-pandemic; dropping to zero during the pandemic (Duan et al., 2020). The single site employment policy exacerbated pre-pandemic staffing shortages, particularly since BC LTRC homes do not use agency nurses or other agency staff. Some research has linked pandemic-related staffing inadequacies to poor outcomes for staff, residents and families (Havaei et al., 2021a; Harrington et al., 2020), such as increased rates of COVID-19 infection among residents. Because of staffing challenges, implementation of other policies, such as paid sick time policy, have been difficult to achieve (Gohar et al., 2020a; Gohar, Lariviere & Nowrouzi-Kia, 2020b).

The purpose of this study was to address a current gap in evidence by identifying which pandemic management strategies most influenced changes in staff mental health, work behaviours and quality of care or service delivery from the perspectives of LTRC staff. The main research question was: 'What staff-reported pandemic management strategies were most strongly associated with changes in staff-reported (a) mental health (b) work behaviours and (c) the quality of care or service provision during the pandemic?'

2. MATERIALS AND METHODS

2.1 DATA COLLECTION AND SAMPLE

A case study of an urban publicly funded LTRC home in Vancouver, BC was conducted using mixed methods consisting of a longitudinal staff survey and staff interviews. The partner LTRC home has 215 residents with varying acuity and dependency needs. Most residents are older (average age = 85) females (~60%), living with some type of cognitive impairment (~80%) and an average length of stay of three years. These residents are under the care of approximately 480 staff and companions. Companions are unlicensed personal support workers hired directly by families and/or residents and managed by a family-funded coordinator. During the pandemic, companions were allowed to enter the care home, and thus were included in the study.

Survey data were collected from care home staff during two timepoints: between September 1 and October 9, 2020 (Time 1), and between January 15 and February 9, 2021 (Time 2). These two survey timepoints were selected to track changes in staff outcomes (i.e., mental health, workload, quality of care or service delivery) from early implementation of pandemic management strategies to approximately four months after their implementation.

For both timepoints, staff and companions received an email invitation asking them to complete an electronic survey. Participants were fully informed of the voluntary nature of their participation and the confidentiality of their responses. Participation was encouraged through social media, promotional videos, and raffle draws to win VISA gift cards. A total of 130 and 97 participants respectively completed Times 1 and 2 surveys, yielding response rates of 28% and 20% respectively. Surveys were linked between Times 1 and 2 through anonymous identifiers assigned by the survey platform. Based on the identifiers, there were 81 unique respondents, with 68 of those respondents having completed both surveys and included in this study. **Table 1** shows the sample demographics.

Staff interviews were conducted between October and December 2020 to compare more detailed accounts of staff adjustment to pandemic management strategies with survey data from two points in time. To recruit staff for interviews, an email invitation was sent to the leadership team asking them to invite a purposeful sample of eligible participants to contact the principal investigator. Purposive sampling was used to maximize diversity across participants' characteristics such as designation, role, and years of experience. Our inclusion criteria consisted of all care home staff actively working during the time of the study. Other strategies that promoted the study included posters, social media posts, and staff meetings. While the total number of staff invited to participate in interviews is unclear, 26 staff members participated in separate, one-hour virtual and semi-structured interviews after providing informed consent. All interviews were audio recorded, transcribed verbatim and de-identified for further analysis. Ethics approval was obtained through harmonized review by the university and the partner care home's ethics review boards (H20-01912).

2.2 MEASURES

The quantitative survey consisted of a series of validated scales and researcher-developed questions that were reviewed and content-validated by the study steering committee which included representatives from leadership, staff, resident, and family partners. Although validated scales were used in this study, psychometric properties were re-examined among the study sample, providing direct validity evidence from the study context. For all multi-item scales, exploratory factor analyses with varimax rotation showed a unidimensional factor structure among the study sample in both Times 1 and 2 (as evidence for scale validity) and Cronbach's alpha showed acceptable internal consistency (as evidence for scale reliability) (**Table 2**). The qualitative interview guide included four questions which were reviewed and refined by subject matter experts in the steering committee.

| CHARACTERISTIC | MEAN (SD) | N | % |
|----------------------------------------------------|---------------|----|-------|
| Age (years) | 43.34 (12.19) | - | - |
| Gender | | | |
| Female | - | 60 | 88.24 |
| Male | - | 8 | 11.76 |
| Highest Education | | | |
| Certificate | - | 10 | 14.71 |
| Diploma | - | 21 | 30.88 |
| Undergraduate Degree | - | 18 | 26.47 |
| Graduate Degree | - | 16 | 23.53 |
| Other | - | 3 | 4.41 |
| Experience in Current Role (years) | 6.40 (6.56) | - | - |
| Employment status | | | |
| Full-time | - | 47 | 69.12 |
| Part-time | - | 18 | 26.47 |
| Casual | - | 3 | 4.41 |
| Professional Designation | | | |
| Nursing – Care Aid | - | 12 | 17.65 |
| Nursing – LPN | - | 9 | 13.24 |
| Nursing – RN | - | 6 | 8.82 |
| Allied Health | - | 5 | 7.35 |
| Companion | - | 3 | 4.41 |
| Food Services | - | 2 | 2.94 |
| Housekeeping and Laundry | - | 1 | 1.47 |
| Human Resources | - | 8 | 11.76 |
| Leadership/Management | - | 9 | 13.24 |
| Recreation | - | 8 | 11.76 |
| Other | - | 5 | 7.35 |
| Role | | | |
| Direct resident care | - | 38 | 55.88 |
| Leadership or management | - | 11 | 16.18 |
| Support/Ancillary Staff | - | 15 | 22.06 |
| Other | - | 4 | 5.88 |
| Medical Conditions with Increased Risk of COVID-19 | | | |
| No | - | 56 | 82.35 |
| Yes | - | 12 | 12.65 |
| Household with Increased Risk of COVID-19 | | | |
| No | - | 49 | 72.06 |
| Yes | - | 19 | 27.94 |
| Self-identify with a minority group | | | |
| No | - | 40 | 58.82 |
| Yes | - | 28 | 41.18 |

Table 1 Descriptive statistics of the study sample (n = 68).

2.2.1 SURVEY OUTCOME VARIABLES

Mental health outcomes included PTSD, anxiety, depression, and burnout and were operationalized using four screening scales including the validated Posttraumatic Stress Symptoms-14 (PTSS-14) instrument (Twigg et al., 2008), Generalized Anxiety Disorder-7 (GAD-7) instrument (Spitzer et al., 2006), Patient Health Questionnaire-9 (PHQ-9) (Kroenke, Spitzer & Williams, 2001) and the Maslach Burnout Inventory – Human

Services Survey (MBI-HSS) (Maslach, Jackson & Leiter, 1996). For each of the first three scales, sum scores were obtained. Participants’ responses to the MBI-HSS subscales were tallied to obtain emotional exhaustion, depersonalization, and personal accomplishment scores. Higher scores indicate greater levels of adverse mental health outcomes for all mental health scales except for personal accomplishment.

Work behaviours were conceptualized as employees’

| | MEAN | SD | MIN, MAX | VARIANCE EXPLAINED | FACTOR LOADINGS RANGE | α | T STATISTICS | P | COHEN'S D |
|------------------------------------------------|-------|-------|---------------|--------------------|-----------------------|-----|--------------|--------|-----------|
| PTSD Time 1 | 30.38 | 17.38 | 14, 89 | 58% | .54, .87 | .94 | | | |
| PTSD Time 2 | 29.78 | 16.66 | 14, 83 | 56% | .60, .85 | .94 | -0.49 | .63 | -.07 |
| Residualized change score | 0 | 13.40 | -29.23, 37.42 | | | | | | |
| Anxiety Time 1 | 4.98 | 5.08 | 0, 21 | 69% | .70, .92 | .94 | | | |
| Anxiety Time 2 | 4.22 | 4.73 | 0, 20 | 68% | .68, .91 | .94 | -1.18 | .24 | -.15 |
| Residualized change score | 0 | 3.97 | -8.76, 11.76 | | | | | | |
| Depression Time 1 | 4.67 | 5.90 | 0, 25 | 58% | .63, .84 | .92 | | | |
| Depression Time 2 | 4.44 | 5.46 | 0, 23 | 56% | .47, .89 | .92 | -0.44 | .66 | -.06 |
| Residualized change score | 0 | 4.61 | -13.56, 18.40 | | | | | | |
| Burnout EE Time 1 | 18.04 | 11.60 | 1, 51 | 60% | .59, .92 | .93 | | | |
| Burnout EE Time 2 | 15.89 | 10.73 | 2, 44 | 58% | .40, .88 | .91 | -2.14 | .04* | -.30 |
| Residualized change score | 0 | 8.21 | -20.79, 19.77 | | | | | | |
| Burnout PA Time 1 | 36.19 | 7.87 | 7, 48 | 28% | .32, .74 | .75 | | | |
| Burnout PA Time 2 | 34.67 | 8.29 | 12, 48 | 26% | .20, .65 | .72 | -1.43 | .16 | -.21 |
| Residualized change score | 0 | 7.35 | -19.16, 17.55 | | | | | | |
| Burnout DP Time 1 Time 1 | 4.14 | 4.38 | 0, 19 | 35% | .27, .82 | .72 | | | |
| Burnout DP Time 2 | 3.49 | 3.91 | 0, 18 | 45% | .45, .95 | .78 | -0.95 | .35 | -.14 |
| Residualized change score | 0 | 3.50 | -7.34, 14.57 | | | | | | |
| Overall JS Time 1 | 6.77 | 1.63 | 2, 9 | 46% | .43, .91 | .67 | | | |
| Overall JS Time 2 | 6.63 | 1.91 | 1, 9 | 40% | .57, .70 | .67 | -1.26 | .21 | -.16 |
| Residualized change score | 0 | 1.45 | -4.05, 2.95 | | | | | | |
| Presenteeism Time 1 | 0.78 | 1.22 | 0, 4 | - | - | - | | | |
| Presenteeism Time 2 | 0.96 | 1.26 | 0, 4 | - | - | - | -0.93 | .36 | .12 |
| Residualized change score | 0 | 1.11 | -2.53, 3.42 | - | - | - | | | |
| Absenteeism Time 1 | 0.62 | 0.83 | 0, 4 | - | - | - | | | |
| Absenteeism Time 2 | 1.04 | 1.09 | 0, 4 | - | - | - | 3.12 | .003** | .39 |
| Residualized change score | 0 | 0.99 | -1.84, 3.29 | - | - | - | | | |
| Overtime Ask Time 1 | 1.70 | 1.88 | 0, 5 | - | - | - | | | |
| Overtime Ask Time 2 | 1.79 | 1.76 | 0, 5 | - | - | - | 0.26 | .80 | .03 |
| Residualized change score | 0 | 1.60 | -2.69, 3.87 | - | - | - | | | |
| Care/service delivery quality Time 1 | 12.47 | 2.19 | 7, 15 | 58% | .51, .89 | .83 | | | |
| Care/service delivery quality Time 2 | 12.21 | 2.15 | 8, 15 | 50% | .50, .86 | .78 | -1.17 | .25 | -.15 |
| Residualized change score | 0 | 1.94 | -4.86, 4.69 | | | | | | |
| Visitation policy Time 1 | 3.35 | 0.83 | 1, 4 | - | - | - | | | |
| Visitation policy Time 2 | 3.35 | 0.62 | 2, 4 | - | - | - | 0.00 | 1.00 | .00 |
| COVID-19 screening Time 1 | 3.26 | 1.00 | 0, 4 | - | - | - | | | |
| COVID-19 screening Time 2 | 3.52 | 0.56 | 2, 4 | - | - | - | 2.12 | .04* | .26 |
| Staffing levels Time 1 | 2.73 | 1.07 | 0, 4 | - | - | - | | | |
| Staffing levels Time 2 | 2.72 | 0.93 | 0, 4 | - | - | - | -0.34 | .73 | -.04 |
| Cleaning supplies Time 1 | 3.50 | 0.69 | 2, 4 | - | - | - | | | |
| Cleaning supplies Time 2 | 3.50 | 0.59 | 2, 4 | - | - | - | 0.16 | 0.87 | .02 |
| Sick time policy Time 1 | 2.48 | 1.10 | 0, 4 | - | - | - | | | |
| Sick time policy Time 2 | 2.44 | 1.22 | 0, 4 | - | - | - | -0.36 | 0.72 | -.04 |
| Single site policy Time 1 | 3.44 | 0.89 | 0, 4 | - | - | - | | | |
| Single site policy Time 2 | 3.32 | 0.89 | 0, 4 | - | - | - | -1.37 | 0.18 | -.17 |
| Infection prevention training for staff Time 1 | 3.31 | 0.79 | 1, 4 | - | - | - | | | |
| Infection prevention training for staff Time 2 | 3.31 | 0.75 | 0, 4 | - | - | - | -0.15 | 0.88 | -.01 |

(Contd.)

| | MEAN | SD | MIN, MAX | VARIANCE EXPLAINED | FACTOR LOADINGS RANGE | α | T STATISTICS | P | COHEN'S D |
|----------------------------------------------------|------|------|----------|--------------------|-----------------------|---|--------------|---------|-----------|
| Technology training for staff Time 1 | 3.07 | 0.95 | 1, 4 | - | - | - | | | |
| Technology training for staff Time 2 | 3.10 | 0.80 | 0, 4 | - | - | - | 0.74 | 0.46 | .09 |
| COVID-19 symptom recognition Time 1 | 3.10 | 0.96 | 0, 4 | - | - | - | | | |
| COVID-19 symptom recognition Time 2 | 3.20 | 0.73 | 1, 4 | - | - | - | 1.07 | 0.29 | .13 |
| Leadership communication with staff Time 1 | 3.00 | 0.98 | 0, 4 | - | - | - | | | |
| Leadership communication with staff Time 2 | 3.05 | 0.91 | 1, 4 | - | - | - | 0.40 | 0.69 | .05 |
| Infection prevention training for residents Time 1 | 2.87 | 1.15 | 0, 4 | - | - | - | | | |
| Infection prevention training for residents Time 2 | 2.94 | 0.85 | 1, 4 | - | - | - | 0.27 | 0.79 | .03 |
| Leadership communication with residents Time 1 | 3.23 | 0.78 | 2, 4 | - | - | - | | | |
| Leadership communication with residents Time 2 | 3.02 | 0.95 | 0, 4 | - | - | - | -1.74 | 0.09 | -.22 |
| Staff's ability to follow protocols Time 1 | 3.58 | 0.61 | 1, 4 | - | - | - | | | |
| Staff's ability to follow protocols Time 2 | 3.78 | 0.42 | 3, 4 | - | - | - | 3.37 | 0.001** | .41 |
| Frequency of COVID-19 policy change Time 1 | 2.98 | 1.78 | 1, 7 | - | - | - | | | |
| Frequency of COVID-19 policy change Time 2 | 2.74 | 1.88 | 0, 7 | - | - | - | -0.79 | 0.43 | -.10 |

Table 2 Descriptive statistics, psychometric evidence and paired sample t test statistics for outcome variables (n = 68).

Note: PTSD, post-traumatic stress disorder; EE, emotional exhaustion; DP, depersonalization; PA, personal accomplishment. Descriptive statistics include the mean, standard deviation (SD), and the range of each variable (Min, Max). Psychometric evidence includes the variance explained by each factor, factor loadings range, and the Cronbach's alphas. Paired sample t test statistics include the t-value, p-value (* p < .05, ** p < .01, *** p < .001) and the corresponding effect size Cohen's d of the comparison between the two time points for each variable.

attitudes and behaviours in relation to their work. Work behaviours included job satisfaction, presenteeism, and absenteeism, which were operationalized using a series of Likert survey questions. These questions were used in the multi-country RN4CAST study which focused on evaluating the impact of nursing workplace conditions on nurse and patient outcomes using validated measures (Sermeus et al., 2011). Job satisfaction was measured with three questions asking respondents about their overall level of satisfaction with their job (very dissatisfied 0 to very satisfied 3), the likelihood of leaving the position over the next year (very unlikely 0 to very likely 3, reverse coded) and the likelihood of recommending their workplace to colleagues if they were looking for work (definitely no 0 to definitely yes 3) (Sermeus et al., 2011). Participant responses to these questions were summed to obtain a composite outcome variable for job satisfaction with higher scores indicating higher job satisfaction. Presenteeism and absenteeism were measured by a single item that asked about the frequency of coming to work despite feeling ill and the frequency of calling in sick during the pandemic (never 0 to all the time 4). Work behaviours were also measured

by a single item that asked how frequently staff have been requested to work overtime since the start of the pandemic in March 2020 (never 0 to nine or more times 5). We anticipate more frequent overtime requests would result in greater levels of overtime behaviours.

Quality of resident care and service delivery was measured by a series of questions that asked staff to rate the quality and safety of their care and service provisions to residents. These questions were from the validated RN4CAST survey and asked participants to rate the quality of overall care or services delivered to residents, the quality of care or services that they individually provide, the overall grade on resident safety (failing 0 to excellent 4) and the likelihood of recommending the care home to friends and family if they needed care (definitely no 0 to definitely yes 3) (Sermeus et al., 2011). Responses to these questions were tallied with higher scores indicating better quality and safety of resident care or service delivery.

2.2.2 Survey Key Independent Variables: Pandemic Management Strategies

Adequacy of pandemic management strategies adopted in the LTRC sector in March 2020 were rated by respondents.

Twelve of these items focused on staff perceptions about specific pandemic management strategies (e.g., visitor policies, entrance screening) with a five-point response scale ranging from completely inadequate (0) to completely adequate (4). **Figure 1** provides an overview of key specific pandemic management strategies and their definitions. The remaining two items asked about the overall quality of these changes including staff’s ability to follow new safety protocols (not been able to 0 to able all the time 4) and the perceived frequency of protocol changes (never 0 to multiple times a day 7). These items are shown in **Table 3** and were adapted from the BCCDC infection prevention and control guidelines for LTRC in consultation with subject matter experts including interviews with the executive leadership team (BCCDC, 2020; Blinded for review).

2.2.3 Survey Control Variables

Demographic information was surveyed using a series of researcher-developed questions based on our previous research with healthcare workers. Questions queried work-related characteristics such as professional designation, current role, years of experience in role, professional designation, and employment status. There were also questions about personal characteristics including age, self-identified gender, highest education completed, self-identification with minority group, and pre-existing health conditions in self or someone in the household.

2.2.4 Interview Questions

Staff interviews explored participants’ perspectives on changes to care or service delivery due to COVID-19 and pandemic management strategies. The questions were: a) ‘how have your care or service delivery practices changed during the pandemic?’ b) ‘How have these changes impacted you and your colleagues?’ c) ‘How have these changes influenced your quality of care or service delivery?’

2.3 DATA ANALYSIS

Survey data were analyzed using preliminary analytical methods, paired samples t-tests, and hierarchical multiple regression. Preliminary data analyses (e.g., descriptive statistics, exploratory factor analyses, reliability analyses) were conducted, using the psych and stats packages in R, to ensure data accuracy, statistical assumptions and psychometric properties were appropriate. Paired samples t-tests were conducted using the jmv R package, to explore differences in the key study variables between the two timepoints. Hierarchical multiple regression was conducted in R using the stats and lmtest package, with the following strategy: To capture potential changes across timepoints, residualized change scores were first created for each of the outcome variables and were regressed on demographic variables to create a set of baseline models. These baseline models were then compared to models where the pandemic management strategies were entered, to test for significant model

| Pandemic management strategies | Definition |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mandated strategies | |
| Visitation policy | Guidelines for essential and social visits at LTRC homes during COVID-19. |
| COVID-19 screening | Screening all LTRC visitors and staff for COVID-19 symptoms prior to entry. |
| Infection prevention and control supplies (e.g., cleaning supplies, personal protective equipment) | Infection prevention and control supplies used to prevent the spread of COVID-19. |
| Sick time policy | Compensated sick time for physical illness and injury offered to full-time and part-time employees before and during COVID-19. |
| Single site employment policy | A policy prohibiting staff from employment at more than one LTRC home during the pandemic. |
| COVID-19 symptom recognition | Proactive monitoring of LTRC staff and residents for signs and symptoms of COVID-19. |
| Implemented at care homes’ discretion | |
| Staffing plans | New staffing plans introduced to deal with actual or potential increases in resident demands during COVID-19 and to manage the implementation of pandemic management strategies such as strict visitation and the single site employment policy. |
| Training | Training opportunities offered to residents and staff to deal with new demands of the pandemic such as managing virtual visits and mandatory use of personal protective equipment. |
| Leadership communication | New communication plans put in place to share important information and updates with LTRC staff, residents, and families during COVID-19. |

Figure 1 Key specific pandemic management strategies and their definitions.

| | PTSD | | | EE | | | DP | | |
|---------------------------------------------|---------|------------------------|--------------------------|--------|------------------------|--------------------------|-------|------------------------|--------------------------|
| | B | 95% CI | RRW | B | 95% CI | RRW | B | 95% CI | RRW |
| Visitation policy | -3.85 | -15.20, 7.50 | 10.29 | -0.64 | -9.13, 7.85 | 7.79 | -1.12 | -3.53, 1.29 | 12.08 |
| COVID-19 screening | -12.30* | -21.67, -2.92 | 0.76 | -1.52 | -9.57, 6.53 | 1.86 | -0.08 | -2.17, 2.02 | 1.66 |
| Staffing levels | 6.13 | -0.21, 12.47 | 5.09 | 0.97 | -4.26, 6.20 | 7.20 | -0.87 | -3.35, 1.61 | 23.91 |
| Cleaning supplies | 2.49 | -5.63, 10.60 | 1.18 | -3.43 | -9.72, 2.86 | 1.92 | 0.16 | -1.85, 2.16 | 0.97 |
| Sick time policy | -8.58* | -15.12, -2.05 | 25.27 | -1.84 | -6.85, 3.16 | 5.95 | -1.37 | -4.16, 1.43 | 21.13 |
| Single site employment policy | 4.07 | -1.75, 9.90 | 3.48 | 2.73 | -1.32, 6.78 | 2.53 | -0.45 | -2.25, 1.35 | 11.02 |
| Infection prevention training for staff | 7.79 | -1.37, 16.96 | 4.76 | -1.22 | -9.98, 7.54 | 6.41 | -0.50 | -3.63, 2.63 | 9.89 |
| Technology training | 0.61 | -6.19, 7.42 | 3.29 | 0.58 | -4.69, 5.84 | 2.50 | -0.60 | -3.63, 2.43 | 4.35 |
| COVID-19 symptom recognition | 6.20 | -2.01, 14.41 | 4.57 | 2.91 | -4.64, 10.45 | 3.03 | 0.68 | -2.69, 4.06 | 2.17 |
| Leadership communication with staff | -10.19* | -19.00, -1.38 | 16.84 | -1.20 | -7.07, 4.68 | 6.69 | 1.16 | -1.78, 4.10 | 4.95 |
| Infection prevention training for residents | -6.93 | -15.39, 1.53 | 10.50 | 1.25 | -6.34, 8.83 | 4.23 | -0.85 | -4.33, 2.62 | 3.31 |
| Leadership communication with residents | 8.95* | 2.00, 15.90 | 5.21 | -0.73 | -5.77, 4.31 | 12.32 | 0.91 | -1.64, 3.45 | 3.44 |
| Staff's ability to follow protocols | -3.65 | -14.93, 7.63 | 8.32 | -9.55* | -17.66, -1.44 | 18.62 | 0.29 | -1.40, 1.98 | 0.72 |
| Frequency of COVID-19 policy change | -0.68 | -2.80, 1.44 | 0.46 | -1.72 | -3.48, 0.05 | 18.96 | 0.71 | -1.02, 2.45 | 0.39 |
| | | R ² = 68.5% | Δ R ² = 40.5% | | R ² = 65.3% | Δ R ² = 34.0% | | R ² = 62.0% | Δ R ² = 29.1% |

| | JOB SATISFACTION | | | ABSENTEEISM | | | CARE/SERVICE QUALITY | | |
|---------------------------------------------|------------------|------------------------|--------------------------|-------------|------------------------|--------------------------|----------------------|------------------------|--------------------------|
| | B | 95% CI | RRW | B | 95% CI | RRW | B | 95% CI | RRW |
| Visitation policy | 0.10 | -0.80, 1.01 | 9.08 | -0.15 | -0.90, 0.60 | 13.03 | -1.09 | -2.67, 0.50 | 5.05 |
| COVID-19 screening | 0.04 | -0.66, 0.74 | 2.31 | -0.13 | -0.71, 0.44 | 3.58 | -0.78 | -2.06, 0.51 | 5.64 |
| Staffing levels | -0.11 | -0.88, 0.66 | 2.51 | -0.02 | -0.42, 0.38 | 11.24 | 0.20 | -0.71, 1.12 | 1.94 |
| Cleaning supplies | -0.21 | -0.87, 0.45 | 1.41 | -0.70 | -1.24, -0.15 | 23.31 | 0.49 | -0.71, 1.68 | 3.06 |
| Sick time policy | -0.35 | -1.38, 0.68 | 6.84 | -0.05 | -0.43, 0.34 | 6.37 | -0.71 | -1.54, 0.12 | 3.57 |
| Single site employment policy | -0.33 | -0.98, 0.31 | 1.80 | 0.07 | -0.30, 0.44 | 4.07 | 0.36 | -0.43, 1.15 | 16.22 |
| Infection prevention training for staff | 0.68 | -0.26, 1.62 | 24.08 | 0.10 | -0.51, 0.71 | 3.36 | 1.10 | -0.24, 2.43 | 9.01 |
| Technology training | -0.12 | -0.85, 0.61 | 4.47 | -0.23 | -0.69, 0.22 | 7.05 | -0.13 | -1.11, 0.85 | 3.04 |
| COVID-19 symptom recognition | -0.47 | -1.29, 0.36 | 3.52 | 0.66 | 0.10, 1.23 | 7.06 | -0.26 | -1.38, 0.85 | 2.83 |
| Leadership communication with staff | 0.87 | -0.14, 1.87 | 18.57 | -0.54 | -1.07, -0.01 | 6.94 | 0.93 | -0.26, 2.13 | 9.78 |
| Infection prevention training for residents | 0.26 | -0.69, 1.21 | 4.27 | -0.33 | -0.90, 0.25 | 2.73 | 0.74 | -0.45, 1.93 | 14.34 |
| Leadership communication with residents | -0.17 | -1.06, 0.73 | 9.46 | 0.66 | 0.18, 1.13 | 3.49 | 0.36 | -0.65, 1.37 | 8.89 |
| Staff's ability to follow protocols | -0.19 | -0.82, 0.44 | 3.94 | -0.72 | -1.47, 0.03 | 4.85 | 0.54 | -1.06, 2.14 | 5.47 |
| Frequency of COVID-19 policy change | 0.16 | -0.40, 0.71 | 7.74 | -0.10 | -0.23, 0.04 | 2.91 | 0.11 | -0.18, 0.41 | 11.16 |
| Variance explained | | R ² = 46.2% | Δ R ² = 32.6% | | R ² = 67.9% | Δ R ² = 46.3% | | R ² = 64.0% | Δ R ² = 46.4% |

Table 3 The association between pandemic management strategies and staff outcomes including mental health, work behaviours and quality of care/service provision using hierarchical regression analyses (n = 68).

Note: The model is adjusted for demographics including age, gender, education, years of experience, employment status, professional designation, role, pre-existing health conditions in self or members of the household and minority status. R² represents the change in variance explained by pandemic management strategies over and above control variables. PTSD, post-traumatic stress disorder; EE, emotional exhaustion; DP, depersonalization; RRW, re-scaled relative weights. * p < .05, ** p < .01, *** p < .001.

improvements. Finally, models where the addition of pandemic management strategies significantly improved model fit above baseline were interpreted. To rank order pandemic management strategies in terms of their strength of association with changes in outcomes, relative weights analysis (RWA) was performed on pandemic management strategies. RWA is particularly appropriate

when independent variables are highly correlated as was the case in our study (Tonidandel & LeBreton, 2011). RWA decomposes the total variance explained by a regression model, i.e., R-Squared (R²), into weights that accurately reflect the proportional contribution of each independent variable. The re-scaled relative weights (RRW) reported in this study reflect the percentage of the explained

variance each strategy accounted for (Tonidandel & LeBreton, 2015).

Interview data were analyzed using content analysis based on the approach of Graneheim and Lundman (2004). To gain an understanding of the data, two members of the research team (FH and IA) read and re-read the transcribed interviews independently. Texts from the transcripts were deductively coded according to pandemic management impact on (a) mental health, (b) work behaviours and quality of care or service delivery. To establish credibility, the qualitative researchers on the team used memoing and in-depth quotes. Demographics of the sample population and description of the LTRC setting aid in transferability, and dependability of data were maintained by following a strict research protocol among experienced researchers.

3. RESULTS

3.1. SURVEY

Table 1 presents the demographics of the survey respondents. An overwhelming majority of the respondents were female with either full-time or part-time employment status. Nearly half of the participants had a university degree and identified their role as direct care providers. On average respondents were 43 years old with nearly six years of experience in their current role. Nurses (including Registered Nurses [RNs], Licensed Practical Nurses [LPNs], and care aides) made up the largest proportion of respondents (40%). Most participants either had a medical condition that increased their risk of COVID-19 or lived with someone with an increased risk of COVID-19. Nearly 41% of the

participants self-identified as a part of a minority group.

A descriptive comparison of the study sample and a recent provincial study of 6500 LTRC staff from 356 care homes in BC showed some similarities and differences in the available sample demographics (Office of the Seniors Advocate British Columbia, 2021). Similar to our study sample, the provincial sample consisted of mostly female (89%; study sample = 88%), full-time employees (57%; study sample= 69%) who did not self identify with a minority group (64%; study sample =58%). While most participants in both studies were care aides and nurses, there was a smaller proportion of care aides in our study (18%) compared to the provincial sample (40%). Slightly over 20% of both study samples consisted of RNs and LPNs.

Table 2 presents the descriptive statistics including residualized change scores as well as paired sample t-test statistics for the key study variables. Among outcome variables, compared to Time 1 ($M = 18.04, SD = 11.60$), staff reported lower emotional exhaustion scores in Time 2 ($M = 15.89, SD = 10.73$); $t(51) = -2.14, p = .04$. Furthermore, staff reported calling in sick more frequently in Time 2 ($M = 1.04, SD = 1.09$) than Time 1 ($M = .62, SD = .83$); $t(63) = 3.12, p = .003$. None of the other outcome variables were statistically different across the two time points.

Among specific pandemic management strategies, staff perceived the sick time policy (Time 1 49% and Time 2 46%) and staffing levels (Time 1 38% and Time 2 36%) as the most inadequate strategies across both survey times (**Figure 2**). Among general strategies, 26% and 24% of staff reported the frequency of COVID-19 policy changes as few times a week or more frequently at Times 1 and 2 respectively. While 2% of the respondents

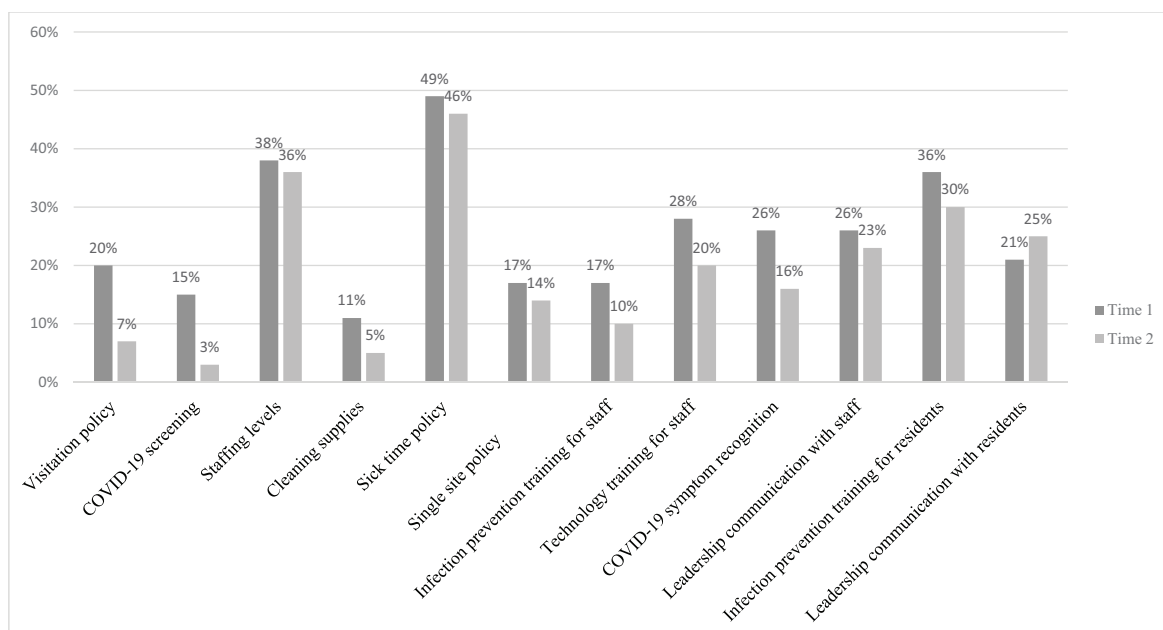


Figure 2 The proportion of staff that rated specific pandemic management strategies as completely inadequate to somewhat adequate.

Note: The rating for adequacy was, “completely inadequate”, “barely adequate”, “somewhat adequate”, “mostly adequate”, and “completely adequate”.

indicated that they were unable or rarely able to follow protocols at Time 1, none of the participants selected these options at Time 2.

Almost all pandemic management strategies were rated more adequately at Time 2 compared to Time 1, although this change was statistically significant only for COVID-19 screening (Time 1: $M = 3.26$, $SD = 1.00$ Time 2: $M = 3.52$, $SD = .56$) $t(63) = 2.12$, $p = .04$ and staff's ability to follow protocols (Time 1: $M = 3.58$, $SD = .61$ Time 2: $M = 3.78$, $SD = .42$) $t(65) = 3.37$, $p = .001$ (Table 2). More staff rated leadership communication with residents as inadequate in Time 2 compared to Time 1, but this difference was not statistically significant.

Table 3 demonstrates the hierarchical regression results for pandemic management strategies associated with staff mental health, work behaviours and quality of care or service provision. The regression models for PTSD, emotional exhaustion, depersonalization, job satisfaction, absenteeism and quality of care or service delivery demonstrated statistically significant improvements after the addition of pandemic management strategies over and above the effect of control variables. In other words, the addition of pandemic management strategies did not result in a statistically significant improvement in regression models pertinent to anxiety, depression, and personal accomplishment.

The addition of the pandemic management strategies to the model resulted in explaining an additional 41% of the variance in the change of staff PTSD scores, 34% in emotional exhaustion scores and 29% in depersonalization scores. The most important strategies associated with PTSD were respectively the sick time policy, leadership communication with staff, infection prevention training for residents, and the visitation policy, which, in total, accounted for 63% of the explained variance (RRW = 25.27, 16.84, 10.50, and 10.29, respectively). The frequency of COVID-19 policy changes, staff ability to follow COVID-19 protocols, leadership communication with residents, and the visitation policy were respectively the most strongly associated strategies with emotional exhaustion, which, in total, accounted for 58% of the explained variance (RRW = 18.96, 18.62, 12.32, and 7.79, respectively). Depersonalization scores were most strongly associated with access to staffing levels, the sick time policy, the visitation policy and the single site employment policy respectively, which, in total, accounted for 68% of the explained variance (RRW = 23.91, 21.13, 12.08, and 11.02, respectively). When staff perceived these strategies as more adequate, they were more likely to report lower PTSD, emotional exhaustion, and depersonalization scores. An exception was the frequency of COVID-19 policy changes where more frequent changes in COVID-19 policies were associated with lower emotional exhaustion scores ($= -1.72$).

The addition of the pandemic management strategies explained an additional 33% of the variance in changes in job satisfaction scores and 46% in staff absenteeism scores. The most important strategies associated with job satisfaction were respectively infection prevention training for staff, leadership communication with staff and residents, and the visitation policy, which, in total, accounted for 61% of the explained variance (RRW = 24.08, 18.57, 9.46, and 9.08, respectively). Access to cleaning supplies, the visitation policy, staffing levels, and COVID-19 symptom recognition most importantly associated with absenteeism, which, in total, accounted for 55% of the explained variance (RRW = 23.31, 13.03, 11.24, and 7.06, respectively). When staff perceived these pandemic management strategies as more adequate, they were more likely to report higher job satisfaction scores and lower absenteeism scores. Exceptions include leadership communication with residents and COVID-19 symptom recognition; when leadership communication with residents was perceived as more adequate, staff were more likely to report lower job satisfaction scores ($= -0.17$). When COVID-19 symptom recognition was perceived as more adequate, staff were more likely to report higher absenteeism scores ($= 0.66$).

Finally, the addition of the pandemic management strategies explained an additional 46% of the variance in changes in quality and safe care or service delivery scores. Pandemic management strategies that most strongly associated with quality and safety of care or service delivery were the single site employment policy, infection prevention training for residents, the frequency of COVID-19 policy changes and leadership communication with staff, which, in total, accounted for 52% of the explained variance (RRW = 16.22, 14.34, 11.16, and 9.78, respectively). When these policies were perceived as more adequate, staff were more likely to report higher quality and safe care or service provision. Table 4 provides an overview of the findings in relation to the four most important predictors of staff outcomes ranked in their order of importance.

3.2. INTERVIEWS

A total of 26 staff members were interviewed. They were direct care RNs ($n = 2$, 7.4%), LPNs ($n = 2$, 7.4%), care aides ($n = 8$, 29.6%), allied health personnel ($n = 6$, 22.2%), managers ($n = 7$, 25.9%), and support workers ($n = 2$, 7.4%). Most participants were female ($n = 25$, 96.3%) with one to 25 years of working experience at the care home.

Overall, all pandemic management strategies were perceived as having an impact on staff mental health, their work behaviours and their ability to deliver quality care or service. Those with greatest impact were the strict visitation policy, staffing levels, the single site employment policy, the sick time policy and leadership communication with staff.

| | PTSD | EE | DP | JOB SATISFACTION | ABSENTEEISM | CARE/SERVICE QUALITY |
|---|---------------------------------------------|-----------------------------------------|-------------------------------|-----------------------------------------|---------------------------------------------------|---------------------------------------------|
| 1 | Sick time policy | Frequency of COVID-19 policy change | Staffing levels | Infection prevention training | Cleaning supplies | Single site employment policy |
| 2 | Leadership communication with staff | Staff's ability to follow protocols | Sick time policy | Leadership communication with staff | Visitation policy | Infection prevention training for residents |
| 3 | Infection prevention training for residents | Leadership communication with residents | Visitation policy | Leadership communication with residents | Staffing levels | Frequency of COVID-19 policy change |
| 4 | Visitation policy | Visitation policy | Single site employment policy | Visitation policy | COVID-19 symptom recognition; technology training | Leadership communication with staff |

Table 4 The four most important predictors of staff mental health, work behaviours and quality of care/service delivery ranked in the order of importance.

Visitation

After the visitation policy was implemented and families and visitors were prevented from entering the care home, staff reported a sense of secondary trauma from witnessing isolated and lonely residents. One staff member stated ‘I feel lonely, and some of the residents feel that way too’ (LPN1). Staff also perceived the virtual (e.g., video calling) or distanced (e.g., window visits) interactions between residents and family members as emotionally distressing. Another staff member noted: ‘This afternoon I was looking out the window when waiting for our meeting and I overheard a daughter crying and telling her mother “I love you Mom I love you Mom” and it broke my heart because she was at the window and the resident was inside. She was outside, and I was watching them by the window; I was in tears’ (LPN2).

Staff’s ability to effectively deliver quality care or service was compromised by the inflexible nature of the visitation policy. Keeping families and visitors away from the care home resulted in increased workload for staff. In addition to meeting residents’ needs that were previously met by families and visitors, staff were also expected to address the worsening mental health of residents. One care aide noted ‘I think [the policy] has impacted the staff... I can see a lot of the residents being more isolated, being more restless, being more demanding and bored.’ Another care provider described ‘[the policy] was hard for the staff to adjust to because a lot of times families would help with the care. So, staff had to step up and provide more care because we didn’t have the support from families or other sources [after the policy was implemented]’ (RN1).

Single Site Employment

Staff reported that this policy had a negative impact on their mental health and well-being. Staff described the policy as anxiety-provoking because it required unexpected adjustments to their personal and professional lives. One support worker stated ‘Now we had to figure out who worked at what job; you have to

stop working at your job. Then I felt really bad as well because these people are losing their income, and there was a lot of high emotions going on when this whole thing did first kind of come about... I think the care from my perspective did unfortunately drop just a little bit because we are being stretched in multiple different ways to try to make everything succeed’ (Support Worker1). The policy also contributed to inadequate staffing levels which in turn resulted in reduced quality of care or service. One care aide noted ‘They [staff] were asked to pick one [job]. Some of them they, picked their other jobs. So, we’re always short... You have to take your time and give the best care that you can if the residents need more of this. But now I cannot give that because I’m pressed for time’ (Care Aide1).

To overcome the staffing shortages imposed on the care home due to the single site employment policy, staff were asked to work overtime, which meant additional challenges in meeting resident needs. One support worker described ‘There were challenges, especially when the order for [single] site came in. Of course, because we don’t have enough staff to cover when somebody gets sick and because we barely had enough staff that was left with us. Most of the time we were covering it with overtime’ (Support Worker1). Another support worker described being asked to work overtime ‘almost every day’ and described how this negatively affected staff mental health: ‘Because almost every day we have overtime; almost every day we are short; so, they [staff] are really starting to feel the tiredness and burnout’ (Support Worker2).

Sick Time

The sick time policy also contributed to negative reports for staff mental health, work behaviours and capacity to provide quality care or service. Staffing shortages and the added demands of the pandemic (e.g., additional psychosocial care of residents, donning and doffing PPEs, coordinating virtual visits) hindered adopting a flexible approach to the sick time policy that met the needs

of the staff particularly in the context of rising mental health symptoms. To deal with the mental health impacts of the pandemic, staff reported taking sick time for mental health concerns instead of physical health concerns. One care aide reported *'I've been that person to call in sick when I'm not really sick. That's mostly because of burnout'* (Care Aide4). The sick time policy was only intended to be used for physical illness, and the COVID-19 leave policy was meant to protect residents (and staff) from asymptomatic employees with potential or confirmed exposure to COVID-19. Neither policy recognized sick leave for mental health reasons as a valid reason for compensated leave, resulting in mistrust between the leadership team and staff. To discourage sick time requests, the leadership team pointed out staff obligations to their co-workers and residents. One care aide stated: *'[the leadership team] told us that now if you call in sick, we are not going to call for overtime and we're not going to call for staff to fill in. Instead, we're going to pull someone out from a unit and we're going to stick them in that unit. I can just imagine it being more stressful than it already is because obviously you're short one care aide because this care aide had to go to the other side to help'* (Care Aide5).

Leadership Communication

Finally, there were mixed feelings about the impact of leadership communication with staff on their mental health, work behaviours and care or service delivery. While some staff noted a general lack of awareness on behalf of the leadership team about the specifics of their resident care delivery, others described the leadership team as always present and appreciative of their contribution to care and service delivery. One care aide stated *'they appreciate you; they recognize you. They're always saying thank you to you and that makes me feel good. It makes me feel like I need to go to work'* (Care Aide2). One LPN reported *'the management was here on the weekend to support the staff and told them not to be scared. So, it's released the pressure because the management was going to do whatever they have to do'* (LPN4). Those who were unhappy with the leadership communication reported job dissatisfaction. Although staff huddles and weekly email communication were identified as the key modes of information exchange between the leadership team and staff, some staff reported their desire for more frequent face to face communication as one care aide stated: *'I kind of blame management for making decisions without considering how we feel; because we are there most of the time, [but] they are never there. Sometimes I guess management doesn't see what we do behind closed doors; we want the management to talk and listen to the care aids more often'* (Care Aide7).

4. DISCUSSION

To our knowledge, this is the first Canadian study providing staff perspectives of LTRC pandemic management strategies. Mixed methods were used to better understand how these strategies influence staff mental health, work behaviours and quality of care or service delivery.

The most notable impact on staff mental health and work behaviours was the strict visitation policy, which uncovered the importance of family and visitors for maintenance of resident care routines associated with residents' physical and mental health. Staff inability to maintain residents' specific daily care regimens created secondary trauma for staff, as evidenced through the qualitative results of the interviews. Staff were vicariously traumatized by witnessing families who were kept apart due to this policy. This aligns with what has been shown in other studies as well (Yardley & Rolph, 2020; as cited in Tupper, Ward & Parmar, 2020). Tupper and colleagues (2020, p. 336) noted staff also experience *'vicarious trauma from bearing witness to patient/resident loneliness and distress from isolation, having to take on additional "familial" roles or navigating any responses from patients and family members who deem the restrictions unjust.'* In addition to vicarious trauma, staff described how they had increased workloads from lack of in-person family caregiving support (e.g., feeding, bathing, comforting). Pre-COVID research in LTRC has demonstrated how families play an integral role in meeting their loved ones' daily needs. In many respects, LTRC homes may depend on family members as part of the staffing complement—an unpaid one (Baumbusch & Phinney, 2014). Several COVID-19 international studies linked similar visitation policies to increased workload for LTRC staff, job dissatisfaction, burnout, and poor mental health in the United Kingdom, Denmark, Italy, and the United States (Leontjevas et al., 2020; Riello et al., 2020; White et al., 2021; Low et al., 2021).

Along with the visitation policy, the sick time policy was most strongly associated with PTSD and burnout. The World Health Organization [WHO] emphasizes *'there is no health without mental health'* (WHO, 2018), yet the COVID-19 leave and the sick time policies did not include acknowledgement of increasing mental health needs of LTRC staff as a result of the pandemic (Gohar et al., 2020a; Gohar et al., 2020b). The qualitative findings suggest that an inflexible approach to granting sick time and compensated leave was a stress-provoking experience for staff during a highly infectious pandemic and contributed to the deterioration of their mental health. This is especially concerning given the emerging research evidence that showed the largest increase in the prevalence of nurse anxiety and depression during the

pandemic has occurred in the LTRC sector (Havaei et al., 2021b). More concerning is that casual workers make up a notable proportion of LTRC staff and these workers do not have access to any form of compensated sick time. Both our qualitative and quantitative results have shown that staff identify the sick time policy as the most inadequate pandemic management strategy. This finding is consistent with recent calls for more effective sick time practices and policies for all Canadian workers, particularly those with high-risk occupations, such as LTRC workers during the pandemic (Macdonell, 2021). A recent provincial study conducted by the Office of Seniors Advocate in BC (2021) found LTRC homes that provided fewer days of paid sick time were more likely to experience a larger infection outbreak, and subsequently has recommended revising the policy to increase paid sick time for all LTRC staff.

Previous research evidence has linked heavy workloads and inadequate staffing levels to poor nurse and patient outcomes in acute care settings (Lake et al., 2019; MacPhee, Dahinten & Havaei, 2017). Our findings align with acute care findings. Staffing levels were identified in this study as the second most inadequately rated pandemic management strategy in LTRC and demonstrated a relatively strong association with staff absenteeism—compounding staff shortages. Similar to previous research, we believe that long standing staffing shortages in the LTRC sector were further exacerbated during COVID-19 and hindered a flexible approach to the sick time policy during COVID-19 (McGilton et al., 2020; Gohar et al., 2020a; Gohar, Lariviere & Nowrouzi-Kia, 2020b).

Another highly ranked pandemic management strategy was the single site employment policy. This policy was among the most strongly associated strategies with staff burnout and quality of care or service delivery. In the interviews staff discussed the impact of staffing shortages due to this policy. Other Covid-19 research has documented sudden, sharp declines in staffing levels due to this policy (Duan et al., 2020). Our data have shown how inadequate staffing levels attributed to the single site employment policy were managed through overtime, which in itself is a well-known predictor of poor nurse and patient outcomes across the healthcare spectrum (Bae & Fabry, 2014).

Leadership communication was strongly associated with staff mental health, work behaviours and quality of care or service delivery. The quantitative and qualitative results showed how timely leadership communication of important information was associated with decreased PTSD, increased job satisfaction, and perceived improvements to quality of care or service delivery. This study finding is consistent with previous research that identified effective communication as a necessary component of crisis leadership or leadership during pandemics (Forster, Patlas & Lexa, 2020).

In addition to these primary results, we had a few unexpected findings. While adequate leadership

communication with staff was related to increased job satisfaction, adequate leadership communication with residents was associated with greater levels of job dissatisfaction. In LTRC facilities, up to 90% of residents typically have cognitive impairment (Estabrooks et al., 2020; Estabrooks & Keefe, 2020). More communications therefore, may decrease jobsatisfaction if communications add to resident confusion. Another unexpected finding was that more adequate COVID-19 symptom recognition was associated with higher reports of staff absenteeism. It is possible that COVID-19 symptom recognition may be an anxiety-provoking experience contributing to staff's higher reports of absenteeism, although this cannot be confirmed in our data. Finally, we found that more frequent COVID-19 policy changes were associated with lower staff emotional exhaustion. We speculate that this finding speaks to positive effects of continuous, transparent provincial and leadership efforts to refine and enhance pandemic management strategies in the LTRC sector (British Columbia Ministry of Health, 2020). An example is the initial visitation policy that transitioned from restrictions on all non-essential visits during early phases to a less restrictive, flexible visitation policy (e.g., distanced visits) after LTRC residents received vaccinations (British Columbia Government, 2021). Similarly, the improved adequacy of pandemic management strategies over time speaks to the possibility that staff came to have better trust in the greater levels of preparation and planning by the province, health authorities and LTRC homes after the initial wave of COVID-19.

In sum, while the visitation policy was consistently among the most strongly associated strategies with staff mental health and work behaviours, this policy interacted with other pandemic management strategies such as the single site employment and the sick time policies. Our data suggest that the visitation and the single site employment policies reinforced heavy workloads and exacerbated staffing challenges, which subsequently hindered flexible approaches to sick time requests. The inflexibility created undue stress and anxiety among LTRC staff, reinforcing a vicious cycle of staffing shortages, heavy workloads, poor mental health and sub-optimal quality of care or service delivery through the first two waves of the COVID-19 pandemic.

4.1. LIMITATIONS

The findings of this study must be interpreted considering its strengths and limitations. While this was the only Canadian study using mixed methods to examine the unintended consequences of pandemic management strategies on staff and their care or service delivery, the case study design along with the low response rate and small sample size limit the external validity of the survey findings. Finally, while study outcomes were measured using well-validated scales, pandemic management strategies were operationalized through researcher

developed questions that were only content-validated by subject-matter experts. Future research should examine the psychometric properties of these questions more extensively followed by adopting more sophisticated research designs with larger and more representative samples.

4.2. IMPLICATIONS

The findings of this study have two important implications for policy and practice. First, findings indicate that decision-makers must monitor and improve pandemic management strategies in the LTRC sector to reflect real-time needs and best-available evidence. Pandemic management strategies may have unintended consequences (e.g., visitation policy restricting family members increased staff workload) and must be monitored to prevent further harm to LTRC staff, residents and families. To accomplish this, special recognition must be given to understanding and addressing LTRC-specific factors that facilitate or hinder the implementation of pandemic management strategies (Browne et al., 2021). Among these factors, we recommend a collaborative approach that actively seeks to integrate the voices and experiences of LTRC leaders, staff, residents, and families into policies and decisions. Collaboration is essential not only for effective implementation of the strategies, but also for communication during implementation (Browne et al., 2021; Towers et al., 2020). Without collaborative efforts, policies and management practices are likely to have unintended negative consequences. Furthermore, improving the state of the pandemic management strategies must be informed by high-quality data that are accessible and standardized across sites. In BC, some of this data is already publicly available (e.g., from the Provincial Senior's Advocate Office), but one-time annual reporting is inadequate. More frequent reporting enables more accurate estimations of the pandemic's impact on LTRC staff, residents and families.

Second, mental health support for LTRC staff must go beyond the conventional interventions, such as the Employee and Family Assistance program. Pandemic research showed LTRC nurses had the greatest rise in the prevalence of anxiety and depression during the pandemic compared to their peers in acute care and community care sectors (Havaei et al., 2021b). Our study has shown that this may be due to the significant unintended consequences of pandemic management strategies in LTRC that exacerbated negative mental health outcomes for staff. Addressing mental health issues on an individual level, such as by implementing resilience training or coping mechanism training, ignores the larger systemic workplace problems such as staffing shortages, which significantly contribute to poor mental health (Montgomery et al., 2019). A plethora of research evidence from the acute care sector has repeatedly shown the importance of workplace conditions for staff mental

health and patient outcomes (Lake et al., 2019; Havaei et al., 2021a). It is also essential that sick time policies in LTRC recognize mental health issues as a valid use of sick days, as care providers' mental health is inextricably linked to their physical health and the health of the care recipients (Leiter & Laschinger, 2006; WHO, 2018). Flexible policies that acknowledge mental health as a legitimate reason for requesting sick time will allow staff to work towards preventing major burnout or other serious mental health disorders, which increase staff intention to leave and affect quality of resident care (Dall'Ora et al., 2020).

5. CONCLUSION

This study has found that understanding and addressing the nuances of a pandemic management strategy in terms of its impact on LTRC staff requires a careful examination of other parallel strategies and their interactions all within the unique context of the LTRC sector. We found the visitation, single site employment, and sick time policies influenced and were influenced by heavy workloads and staffing challenges. To break this cycle, LTRC working conditions including long standing systemic issues such as staffing shortages and heavy workloads must be improved through multi-level collaborative efforts.


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COMPETING INTERESTS

The authors have no competing interests to declare.

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