Planning Shelter Service Spaces and Structures for Resilience: A Spatial Analysis of Women’s Shelters During COVID-19

Isobel McLean, HBAAS, M.Arch. Student 1 | C. Nadine Wathen, PhD 2

Objective: Globally, domestic violence against women increased in severity over the course of the COVID-19 pandemic. Shelters supporting women experiencing temporary homelessness due to violence had to make major changes in service delivery to accommodate pandemic protocols, including how many families could stay in shelter, where they were allowed to reside, and how they were, and were not, able to interact with shelter staff and the outside world. The present study used a novel approach to spatial analysis to understand how pandemic protocols affected shelter space use.

Method: Floor plans and written pandemic protocols were submitted by 15 women’s shelters in Ontario, Canada. Each pandemic protocol was analyzed and mapped onto its respective floor plans to determine how much space was lost under different modes of operation: normal (pre-pandemic), physical distancing (using pandemic protocols), and quarantine (using pandemic protocols during an outbreak). Three types of shelter space were analyzed to understand what types of spaces shelters were losing: Primary (bedrooms, bathrooms, and laundry areas), Secondary (community areas and staff offices), and Tertiary (hallways and storage).

Findings: All 15 shelters lost space, with an average of 27% of net area lost overall (range 7%-56%). Within the three types of space, 18% of Primary, 48% of Secondary, and <1% of Tertiary space was lost. Key factors influencing space loss were the type of protocol used and the existing layout of the shelter space. Conclusions: Recommendations for shelter space planning in the context of rapidly evolving public health requirements are provided.

Keywords
Domestic violence; women’s shelters; COVID-19 pandemic; space analysis; built environment; architecture
Introduction

The disease (COVID-19) caused by the novel SARS-CoV-2 coronavirus, was declared a pandemic in March, 2020 and brought a “horrifying global surge in domestic violence” (United Nations, 2020, para 1). Being safe at home was not, and is not, possible for everyone. Women and children living in violence are especially at risk under ‘shelter-in-place’ directives; as stresses mount, and with many pathways to help blocked (e.g., services closed or reduced, referrals unavailable), violence can escalate (World Health Organization [WHO], 2020; Peterman et al., 2020). The growth in the severity of domestic violence during the pandemic put additional pressure on the delivery of services that protect women and children, forcing them to adapt swiftly to complex alterations in their spaces, protocols, and workforce. Amidst an increased need to provide safety, violence against women (VAW) organizations1 have had to prove that their services are essential, while negotiating funding threats, especially reduced donations as many communities experienced pandemic-induced income stresses. These issues emerged early in the pandemic in Ontario and across Canada (Jaffray & Allen, 2020; Women’s Shelters Canada 2020), and globally (Peterman & O’Donnell, 2020); however, given jurisdictional differences, the specific nature and impact of these changes varied.

Thus, VAW organizations in Ontario and elsewhere were severely challenged in finding a balance between protecting women and their children from potentially life-threatening violence and accounting for COVID-19 related health risks to women, their children, staff, and volunteers. They were actively implementing new protocols for physical distancing and quarantine, knowing the toll taken on clients and staff in the context of their compassion-centric, high-touch work.

The impacts of the sudden changes precipitated by COVID-19 are not yet fully known; the current analysis therefore addresses an urgent gap in our understanding of pandemic-related effects on women’s shelters, and on services for people experiencing homelessness more broadly, not only for the current pandemic, but for future crises that may impact these sectors. This article will begin by discussing VAW as a concurrent, pre-existing ‘pandemic’, and the stress added by COVID-19 to the VAW sector to frame the need to understand how spatial planning emerged as a key strategy for mitigating the impact of pandemic protocols on VAW service response.

Pandemics within Pandemics

A prevalent discourse that emerged early in the COVID-19 pandemic was the idea of domestic violence (DV) as a “shadow pandemic” – a major public health problem that existed well before the SARS-CoV-2 coronavirus that was exacerbated by pandemic-induced stresses. Global rates and impacts of DV, defined as “behaviour within an intimate relationship that causes or has the potential to cause physical, sexual, or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse, and controlling behaviours” (WHO, 2010, p. 11), remain stubbornly high. Over a third of women report lifetime abuse (WHO, 2013), and a woman in Canada is killed by her current or former partner every six days (Canadian Femicide Observatory for Justice & Accountability, n.d.).

In the pre-COVID-19 context, Canadian VAW organizations providing short-term, emergency residential services, i.e., “women’s shelters,” were struggling to deal with ageing infrastructure, with the average women’s shelter in Canada being approximately 45 years old (Maki, 2019). Of the 281 shelters surveyed by the national advocacy organization between 2017 and 2018, Women’s Shelter Canada (WSC), regarding the state of Canadian women’s shelters and transition houses, it was found that “[t]he vast majority (80%) of VAW shelters are in need of some form of repairs and renovations, with almost half (46%) unable to afford them” (Maki, 2019, p.16). In addition to their ageing buildings, the persistently high rates of DV against women and commensurate demand for

---

1 Violence against women (VAW) is a broader term including different types of violence experienced by women and girls in multiple contexts. Many VAW organizations in Ontario provide a range of services. The present analysis is focused on residential shelter services for women, and their children, experiencing violence from a spouse or partner, therefore, we use the term “domestic violence” (DV) in this analysis.2 While men also experience domestic violence, the prevalence and impacts on women are greater (WHO, 2013); service responses, including the residential shelter services that are the focus of this paper, are generally geared to the needs of women and their children.

2 | International Journal on Homelessness: https://ijoh.ca
shelter beds meant that many shelters were operating at or over capacity, especially in urban centres (Maki, 2019). The primary barrier to space allocation in women’s shelters, as with other forms of services for those experiencing homelessness, has been and remains an acute lack of affordable housing and supportive pathways from emergency shelter to safe and permanent accommodation (Maki, 2020).

Emerging Impacts of the COVID-19 Pandemic

The existing condition of DV shelters before COVID-19 meant that many organizations were ill-prepared for the large shifts imposed by the pandemic itself, and the related government responses. These ranged from service delivery changes (from in-person to phone or text, for example) (Jaffrey & Allen, 2020; Women’s Shelters Canada, 2020) to public health mandates requiring reductions in room occupancy, including limiting bathroom use to one woman or family, and physical distancing measures within the shelter (Ontario Ministry of Health, 2020). Since most shelters are built, and funded (Harris et al., 2014), to house as many people as possible within their limited space, these forced reductions in space use severely impacted capacity at a time when need was growing (Peterman et al., 2020; Women’s Shelters Canada, 2020). In the WSC survey (2020), 71% of shelters reported having to reduce their capacity to serve women to comply with the new public health guidelines. This included shutting down bedrooms (and thus beds) due to the lack of bathrooms and limiting the access to communal spaces (Women’s Shelters Canada, 2020).

The literature concerning the built environment in the DV sector is limited, and, other than the overview in the recent Women’s Shelters Canada report (2020), almost non-existent in the context of shelter operation under COVID-19. Rutledge (2015, 2017) discusses women’s perspectives on shelter use, noting that designs should incorporate aspects that encourage feelings of safety such as good lighting, outdoor space that is not visible from the street, and the separation of residential and public areas. A focus should be on creating a sense of community by using flexible seating that can be rearranged by women, having group rooms for different activities, and offering communal dining and kitchen seating. However, we found no previous literature that examines how shelter space itself (or lack of it) affects service provision or the extent to which Rutledge’s recommendations are considered in shelter design given the often-limited funding they are provided (Maki, 2019). Our primary research question, therefore, was: how do COVID-19-specific public health mandates affect the availability and configuration of the physical space of women’s shelters?

Method

To understand the impact of COVID-19 public health-mandated protocols on shelter service, we used a novel approach to spatial analysis among a sample of women’s shelters in Ontario, Canada. This study, part of a larger project examining a range of impacts of the COVID-19 pandemic on VAW services, was conducted in partnership with the Executive Directors of five VAW services: Anova in London, Ontario; Women’s Rural Resource Centre in Strathroy, Ontario; Women’s Interval Home in Sarnia, Ontario; Optimist Place in Strathroy, Ontario; Faye Peterson House in Thunder Bay, Ontario.

Setting

Ontario is one of Canada’s 13 provinces and territories, with 39% of the country’s total population (14.7 million people; Government of Canada, 2020), and has the largest Indigenous population in the country (Government of Ontario, 2018). Of its 49 census divisions, the six that make up the Greater Toronto and Hamilton Area (GTHA) account for 52% of Ontario’s population (Government of Canada, 2020). Aside from this large concentration of the population around the GTHA, Ontario has smaller urban regions as well as rural and remote areas (Subedi et al., 2020). While rural regions have low population density, they are closer to urban centres than their remote counterparts, which can be several hours away from any other population centre (Subedi et al., 2020). Remote regions, which serve many Indigenous communities (Government of Ontario, 2018), are found mainly in Northern Ontario, while rural and urban areas are mostly found in South Central, Southwestern, and Eastern Ontario (Subedi et al., 2020).
The province has approximately 160 emergency women’s shelters, with some also providing second-stage or transition housing, and some additionally mandated to provide broader gender-based violence services. Previous research has examined the broad range of services provided by Ontario’s shelters, including residential services, outreach counselling, services for men experiencing or perpetrating violence, individual and system advocacy and education, and service/system navigation (Burnett et al., 2016; Wathen et al., 2015). The present analysis focused on residential services, i.e., shelters as physical spaces where people live and receive care.

Sample and Recruitment

VAW services from across Ontario were contacted through a sector Listserv via targeted emails sent by one of the project’s partner Executive Directors. The VAW services with access to this list included small, medium, and large shelters in urban, rural, and remote areas of the province. In total, an initial and two reminder emails were sent, including a document with project details and the specific request to provide shelter floor plans in any form; if precise plans were unavailable, pictures of the shelter’s fire escape plan were recommended. We also requested their current written pandemic protocol(s) describing the operation of the shelter under COVID-19 guidelines.

Procedures

The data, i.e., floor plans and protocols, were collected between May and August of 2020. For the Ontario Ministry of Health’s COVID-19 Guidance: Congregate Living for Vulnerable Populations (2020) was used as the default protocol for analysis of space impacts. In total, 15 floor plans from 13 VAW services (two organizations had two shelter sites) were submitted from across Northern (n = 2), South Central (n = 1), Southwest (n = 6), GTHA (n = 3), and Eastern Ontario (n = 1) including shelters of all sizes from urban, rural, and remote communities. These floor plans ranged from schematic hand-drawn sketches to professional construction drawings. Because of the range of submission types, all of the floor plans were redrawn in Computer Aided Design (CAD) software by the project’s architectural expert, who was the primary analyst for this study. If no scale was provided on the original drawings, door openings were used as a reference point and scaled to the construction standard of three feet. Table 1 describes the key features of each shelter.

Concurrently, we analyzed the written pandemic protocols for any mention of procedures related to space use by highlighting key terms related to room closures, changes in room functions, visual cues to enforce physical distancing, changes in room access for women/families and/or staff, and occupancy limits. Using language from the protocols, three broad classifications of operation were defined: normal operation (before COVID-19 protocols were enforced), physical distancing (operation under new COVID-19 pandemic protocols), and quarantine (operation once a suspected or confirmed case of COVID-19 was in the shelter). These were used to explore the changes to space under each scenario.

We then mapped spatial changes described in each shelter’s pandemic protocol onto their respective floor plans to determine how much space was lost under each mode of operation. To determine the space lost, the net area (exclusive of walls and vertical circulation) of the limited access spaces was divided by the total net area of the shelter to create a percentage of space lost for each stage of operation. During normal operation, limited access spaces included mechanical and electrical rooms. During the two stages of COVID-19 operation (physical distancing; quarantine), limited access spaces included bedrooms, offices, kitchens, dining rooms, and other community areas. A percentage was used instead of a firm square-footage because of the variability of type of floor plan submitted; square-footage was not always precise due to the schematic nature of some of the submitted drawings.

To not only understand how much, but also what kinds of, spaces were lost to the new pandemic protocols, three categories of shelter space were created with the input of the partner shelter Executive Directors, who confirmed that

---

3 https://211ontario.ca/211-topics/abuse-assault/shelter-for-abused-women/
they were useful ways to group rooms by function. These categories were Primary Spaces (bedrooms, bathrooms, washrooms, and laundry rooms), Secondary Spaces (community rooms like kitchens, dining and living rooms, as well as staff offices and counselling rooms), and Tertiary Spaces (circulation/hallways and storage). The percentage of space loss was once again calculated for normal operation, physical distancing, and quarantine scenarios, this time breaking them down further to analyze how much of each of the three spatial types were lost at each stage.

Sheets that included drawings and the percentage breakdown of space loss were then created using illustration and layout software and sent to each shelter to confirm the accuracy of the information. In some cases, shelters had made spatial changes since the original submission of the protocols; these were used to update their sheets and provide a more accurate view of their current space.

Once the analysis of all 15 shelter floor plans was complete, the average net area lost due to COVID-19 protocols was calculated from the percentages of each overall space lost due to COVID-19 protocols was calculated from the percentages of each overall space loss total from each individual shelter, including overall space loss, and Primary, Secondary, and Tertiary Space losses. Finally, to assess whether shelter location size or layout contributed to space loss, we separately examined these factors by grouping shelters with similar attributes together and using the above process in sub-group analyses.

Table 1
Description of Included Shelter Spaces

| ID# | Storey | Bed | Bath | Bed/Bath Layout                                                                 | Loc. | Community Size |
|-----|--------|-----|------|--------------------------------------------------------------------------------|------|----------------|
| 1   | 1      | 9   | 9    | multi-unit with shared commons                                                 | SW   | ~400 000       |
| 2   | 3      | 13  | 9    | mix of 2:1 bed: bath ratio with bathroom entrance through bedrooms, and dorm-style | SW   | ~400 000       |
| 3   | 2      | 11  | 7    | 2:1 bed: bath ratio with bathroom entrance off the hall                         | SW   | ~100 000       |
| 4   | 2      | 11  | 10   | mainly 1 bathroom per bedroom, and one bathroom shared between 2 units          | GTHA | ~600 000       |
| 5   | 4      | 14  | 12   | mainly 1 bathroom per bedroom, and 2 bathrooms shared between two units         | GTHA | ~600 000       |
| 6   | 2      | 12  | 7    | dorm-style                                                                      | SC   | ~450 000       |
| 7   | 3      | 5   | 2    | dorm-style                                                                      | SC   | ~450 000       |
| 8   | 3      | 9   | 5    | dorm-style                                                                      | SW   | ~70 000        |
| 9   | 3      | 7   | 4    | dorm-style                                                                      | SW   | ~30 000        |
| 10  | 2      | 7   | 3    | dorm-style                                                                      | SW   | ~20 000        |
| 11  | 1      | 8   | 4    | 2:1 bed: bath ratio with shared vestibule                                      | N    | ~110 000       |
| 12  | 4      | 6   | 2    | dorm-style                                                                      | GTHA | ~2.9 million   |


13 3 6 2 dorm-style N ~3,000

14 3 11 5 mix of 2:1 bed: bath ratio with bathroom entrance off the hall, and dorm-style E ~20,000

15 3 16 7 mix of 2:1 bed: bath ratio with bathroom entrance off the hall, dorm-style, and 1:1 bedroom to bathroom ratio SW ~400,000

Notes: SW = Southwestern Ontario, SC = South Central Ontario, E = Eastern Ontario, N = Northern Ontario; GTHA = Greater Hamilton & Toronto Area; 15 of these organizations served all women and their children while one primarily served Indigenous women and their children.

Results

The overall average space loss across the 15 participating shelters was 27% (Figure 1), with a range of 7%-56% of total net area lost. Average space loss was also calculated for each spatial type, with shelters losing on average 18% of Primary Space, 48% of Secondary Space, and <1% of Tertiary Space (Figure 2).

The averages calculated for the spatial types provided a more in-depth view of the cause of the losses than that of the overall net area loss. The main cause of Primary Space loss was the physical layout of the shelters, specifically the spatial relationships between bedrooms and bathrooms. Among the 15 floor plans analyzed, there were several kinds of bedroom-to-bathroom relationships, including: 1:1 bedroom-to-bathroom; 2:1 bedroom-to-bathroom with the bathroom entrance off of the hallway; 2:1 bedroom-to-bathroom with the bathroom entrance from within the bedrooms (also sometimes called ‘Jack and Jill’ style); 2:1 bedroom-to-bathroom with bed and bathroom entrances enclosed within a shared vestibule; dorm-style (having multiple bedrooms share a single bathroom with an entrance off the hall); and multi-unit, with a shared common area where several bedrooms were entered through a common area off of the hallway. Because most public health guidance highly recommended reducing the number of women/families to one per bathroom, the number of bedrooms available during the COVID-19 period was limited to the number of bathrooms existing within the shelter.

In contrast to the physical limitations that caused much of the Primary Space loss, Secondary Space loss was primarily due to the type of pandemic protocol adopted by the shelter at the onset of the COVID-19 period. Analysis of the pandemic protocols indicated that while most shelters adopted a “one-step” protocol (n=10), similar to that of the Ministry of Health’s guidance where all community areas are closed as soon as a pandemic is called, others chose a “multi-step” protocol (n=3) (the other two shelter floor plans were analyzed using the Ontario Ministry of Health’s COVID 19 Guidance: Congregate Living for Vulnerable Populations, 2020 because they did not provide a written pandemic protocol).

The “multi-step” protocols included a series of “if, then” statements geared towards making more context-specific decisions for their shelter service, for example opting to wait until there were suspected or confirmed cases within the shelter to shut down community areas (Figure 3).

This “multi-step” approach meant that during physical distancing much of the shelter’s community spaces remained open, leading to less space loss at that stage; it was only at the quarantine stage that these shelters lost a large percentage of their space. Of the 13 VAW services that participated in this study, only one reported a case in shelter; this case did not result in any community spread.

In terms of our sub-group analysis, neither geographic location nor size of shelter had an impact on the amount of net area lost due to COVID-19 protocols. The type of protocol adopted – “one-step” or “multi-step” – was also independent of geographic location and size.
Figure 1
*Example Floor Plan Analysis of a Shelter*

| Normal Operation | Physical Distancing | Quarantine |
|------------------|---------------------|------------|
| ![Normal Operation](image1) | ![Physical Distancing](image2) | ![Quarantine](image3) |

- Limited Access
- Increased Cleaning
- Quarantined Area

Figure 2
*Example Floor Plan Analysis Primary, Secondary, and Tertiary Space Loss*

| Normal Operation | COVID-19 Space Loss |
|------------------|---------------------|
| ![Normal Operation](image4) | ![COVID-19 Space Loss](image5) |

- Limited Access
- Primary Space
- Secondary Space
- Tertiary Space

Figure 3
*Example Floor Plan Analysis of a Shelter Using a “Multi-Step” Protocol*

| Normal Operation | Physical Distancing | Quarantine |
|------------------|---------------------|------------|
| ![Normal Operation](image6) | ![Physical Distancing](image7) | ![Quarantine](image8) |

- Limited Access
- Increased Cleaning
- Quarantined Area

Discussion

All 15 of the shelters participating in this study experienced some degree of space loss due to COVID-19 protocols, with an average loss of over a quarter of their shelter space (27%). This space loss was, in part, due to how they approached their protocols during the pandemic, with most shelters taking a “one-step” approach modelled after the Ontario Ministry of Health’s guidelines (2020), though some opted to take a more context-specific, “multi-step” approach.

While the analysis showed that the difference in overall space loss at the quarantine stage was
not significantly different depending on which protocol type a shelter used, the “multi-step” approach allowed shelters to keep their community spaces – living rooms, kitchens, dining rooms, playrooms, outdoor spaces – open during the initial physical distancing stage. It was not until a suspected or confirmed case of COVID-19 was inside the shelter, moving them to the quarantine stage and increased precautions, that the shelters using the “multi-step” protocol lost large portions of their space. Going forward, this context-specific approach to pandemic protocols is recommended; it is more tailored to fit the needs of the organization and maximizes useable space at a time when service needs are increasing (Peterman et al., 2020; Women’s Shelters Canada, 2020).

In addition to the space loss caused by the type of protocol implemented, the ability to house women and children was almost entirely linked to the number of bathrooms that already existed within the shelter and how they were laid out with respect to bedrooms. Because of the public health guidelines requiring limiting one woman or family to each bathroom (Ontario Ministry of Health, 2020), the existing physical relationships between bedrooms and bathrooms were crucial in determining how many bedrooms could remain open under each shelter’s pandemic protocol. In shelters where the ratio of bedrooms-to-bathrooms was closer to 1:1, more bedrooms could remain open. In shelters that had existing dorm-style layouts, more bedrooms had to be closed. Due to the major impact that the number of bathrooms within the shelter had on their ability to provide services under pandemic conditions, we make the following primary recommendations arising from this research for space flexibility now, and in the future. First, prioritize maximizing the number of bathrooms with access from the hallway when renovating or building new shelter spaces – nearing the 1:1 bedroom-to-bathroom ratio will maintain the most flexibility under pandemic conditions. Second, prioritize at least one unit with its own bathroom, preferably with the entrance from inside the bedroom, to be used as an isolation suite if it is not possible to have a 1:1 bedroom-to-bathroom ratio because of spatial or budgetary constraints. Third, use a 2:1 bedroom-to-bathroom ratio with a shared bathroom entrance through the bedrooms if budgetary or spatial constraints are present. This layout reduces the number of people going through the hallway in the event of a lockdown and the now-vacant adjoining bedroom could be used to allow women with children more space during isolation. Lastly, prioritize the creation of an outdoor space, such as a patio, that requires little or no access through the interior shelter space and provides a place for physically distanced counselling, as weather allows.

A less permanent spatial intervention includes allowing women and their children to use bedrooms and offices, left vacant by pandemic protocols requiring that staff work remotely, as extra bedrooms, playrooms, and/or study spaces for remote learning (limiting one woman/family to each newly available space). Understandably not all shelters will be able to implement the recommendations geared towards new builds or renovations in the near future, or due to funding restrictions, but these strategies provide feasible short-term solutions to immediate needs.

Our recommendations are consistent with the previous research by Rutledge (2017), who suggests that design can encourage feelings of empowerment when women are allowed to make decisions about how and when they use space. By providing more space, whether vacant bedrooms or offices, especially during lockdown scenarios when communal spaces are so limited, women can decide how best to use them for their current situations. Rutledge (2017) also found that providing women in shelter with more bathrooms similarly reinforces feelings of empowerment and independence by removing unnecessary rules and schedules that come with having to share space and work around other people’s plans. Thus, not only would our recommendations give service providers more flexibility during similar crises, they would also support a better overall shelter experience for women and children during normal operation.

It is also important to consider space design in the context of trauma- and violence-informed principles, including to: 1) understand trauma and violence, and its impacts on peoples’ lives and behaviours; 2) create emotionally, culturally and physically safe environments for service users and providers; 3) foster opportunities for choice, collaboration, and connection; and 4) provide strengths-based and capacity-building ways to support service users (Ponic et al., 2016; Wathen & Varcoe, 2019). Tools like those developed by Pable and Ellis (n.d.) for the homelessness sector that address trauma-informed design, i.e., designing
space that addresses the impacts of trauma and reinforces ideas of “physical, psychological, and emotional safety” (p.4) while creating room for people to regain a sense of control and empowerment, must be adapted to include attention to the more structural forms of violence, including poverty, racism, sexism and other forms of stigma and discrimination operating in the lives of those using shelters, whether among women experiencing violence, or in the context of our broader intersecting crises of homelessness.

Finally, our findings align with those of Women’s Shelters Canada’s (2020) on the impacts of COVID-19 on women’s shelters and transition houses, which reported that 71% of the responding shelters had to reduce their capacity to house women and their families due to the new public health mandates. They found that many shelters and transition houses had to reduce this capacity by more than 50%, consistent with the overall net space loss range we found. The recommendations from our analysis also answer the call made by WSC to “seriously look at alternative shelter options” (2020, p.7) as VAW organizations start to recover and rebuild from the COVID-19 pandemic and its impacts.

**Limitations & Future Research**

Though the consistency in redrawing and scaling of floor plans allowed us to minimize the possible scaling differences between shelters, the percentages calculated for each individual shelter could only be as accurate as the floor plans that were submitted. The use of percentages in this study, instead of actual square-footage, also served to mitigate the possible inaccuracies in the submitted floor plans by providing a ratio of overall space loss due to the pandemic protocols. While we feel that the diversity of spaces analysed (Table 1) gave us a good cross-section of Ontario’s women’s shelters, additional exemplars might have provided more nuanced and specific recommendations. Ideally, we will continue to add to our database of floor plans and protocols, including from other types of shelters for people experiencing homelessness, to evolve the analysis and recommendations.

Due to the ever-changing nature of the COVID-19 guidance being provided by multiple government and public health agencies to the participating organizations (and the VAW sector more broadly), the pandemic protocols used for the present analysis provided a snapshot of requirements at the time they were submitted and could not reflect the entirety of an individual shelter’s spatial changes across time. In order to account for this, the individually analysed floor plans were shared with participating shelters at multiple points in the study to give participants the opportunity to provide any feedback that might improve the accuracy of the analysis. Although this study does not include the perspectives of women using shelters, data from the broader project on this subject with these voices included will be reported elsewhere. Analysis of evolved protocols, including shelters’ “recovery plans” from COVID-19 restrictions, will provide additional insight into how the sector moves forward.

More research is urgently required on the topic of providing emergency and longer-term temporary shelter, and the built environment of these spaces, specifically concerning the impacts that design can have on service provision from both the perspectives of the providers and service users. Future studies should examine how shelter protocols changed over the duration of the pandemic, specifically looking at how local public health and government guidelines influenced how shelters reacted to COVID-19. These analyses should also describe how COVID-19 itself (e.g., outbreaks) impacted physical shelter spaces, including what aspects of shelters remained the same and whether new infection control guidelines influenced decision-making specific to renovations and/or new building design. Finally, examination of these impacts on equity-deserving groups, who may face additional marginalization of various kinds, is required.

**Policy & Practice Implications**

Consistent with the partnered, integrated knowledge mobilization approach employed in this study (Kothari & Wathen, 2013; 2017), we used our findings to create a Best Practices Handbook (McLean and Wathen, 2020) for decision-makers within the sector. Like the individual sheets created for the participating VAW organizations, the Handbook was sent to partner Executive Directors at multiple steps in the process to verify that the analysis and recommendations were comprehensible and useful; the goal of the
document being to both conceptualize the challenges faced in their shelter spaces and provide possible pathways for adapting their spaces to the stressors of COVID-19, and future crises, in both the short- and long-term. The Handbook describes the different types of protocols mandated by public health and other authorities, and how they impact shelter space loss, relationships between bedroom and bathroom layouts and their impact on room closures, and finally, a series of recommendations gathered through the analyzed floor plans and conversations with Executive Directors for immediate workarounds, renovations, and new builds.

These findings also highlight the need for more flexible and sustained funding. Currently, in Canada, federal dollars allocated to shelters are primarily for “bricks and mortar” or for specific initiatives (e.g., human trafficking), while operational funding is a provincial/territorial responsibility, allocated by the number of official beds in a shelter site, which don’t always align with the number of women/families in shelter; i.e., when a shelter is over-capacity, it has more people than funded beds, meaning that many are served that are not reflected in funding allocations (Harris et al., 2014; Wathen et al., 2015). The lack of budget line flexibility means that operating funds cannot, for example, be allocated to renovation projects. Examination and easing of these restrictions would be an important step to redressing the types of impacts that COVID-19 protocols had on shelter service availability and provision.

Conclusion

This study provides important data to help understand the impact of the COVID-19 pandemic on VAW shelter spaces, and thus their ability to provide services. The pandemic brought a significant reduction in shelters’ ability to house women and saw closures of many of their communal spaces during a time when both the severity and amount of DV is on the rise. While this study looked at how existing shelters reacted to new public health guidelines, it also starts to unpack what VAW services might look like in a post-COVID-19 world, where they are more prepared to respond to acute system shocks without massive impact to their service. Although this study focuses on the VAW service sector and its response to the COVID-19 pandemic, the results are also useful to understand how other congregate settings, especially those stressed by limited funding, older or rented/donated spaces, and service groups facing various kinds of trauma, violence, and marginalization, can be analyzed and improved upon to build-in system and service-level resilience for future crises.

Acknowledgements

This project was a community-university research partnership. We sincerely thank our violence against women (VAW) service partners in Ontario, Canada: Anova in London, Women’s Rural Resource Centre in Strathroy, Optimism Place in Stratford; Women’s Interval Home of Sarnia-Lambton, and Faye Peterson House in Thunder Bay. We also thank the 15 women’s shelters across Ontario who sent their floor plans and pandemic protocols for the present analysis. In addition to this manuscript’s authors, the VAW Services in a Pandemic Research Team (Wathen, PI) included: Drs. Eugenia Canas, Marilyn Ford-Gilboe, Jen MacGregor, Tara Mantler, Susan Rodger, and Vicki Smye, and PhD students Jill Veenendaal and Caitlin Burd. The study was funded by a Western University Catalyst Grant: Surviving Pandemics, and knowledge mobilization activities were funded by a Social Sciences and Humanities Research Council of Canada (SSHRC) Connection Grant. Wathen is funded by a SSHRC Canada Research Chair in Mobilizing Knowledge on Gender-Based Violence. For more information about the VAW Services in a Pandemic project, visit: https://gtvincubator.uwo.ca/vawservicespandemic/.

References

Burnett, C., Ford-Gilboe, M., Berman, H., Ward-Griffin, C., Wathen, C.N. (2016). The day to day reality of delivering shelter services to women in the context of system and policy demands. Journal of Social Service Research, 42(4):1-17.
http://dx.doi.org/10.1080/01488376.2016.1153562.
Canadian Femicide Observatory for Justice & Accountability (n.d.). Trends and patterns in femicide. https://www.femicideincanada.ca/about/trends

Government of Canada, S. C. (2021, January 14). Population estimates, July 1, by census division, 2016 boundaries. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710013901

Government of Canada, S. C. (2020, December 17). Population estimates, quarterly. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901

Jaffray, B., Allen, M. (2020). The COVID-19 pandemic and its impacts on Canadian victim services. Catalogue no. 45280001. Statistics Canada, Ottawa. https://www150.statcan.gc.ca/n1/en/pub/45-28-0001/2020001/article/00065-eng.pdf?st=_VwrK_5C

Harris, R.M., Wathen, C.N., Lynch, R. (2014). Assessing performance in shelters for abused women: Can ‘caring citizenship’ be measured in ‘value for money’ accountability regimes? International Journal of Public Administration, 37, 737–746. https://doi.org/10.1080/01900692.2014.903273

Kothari, A., Wathen, C.N. (2013). A critical second look at integrated knowledge translation. Health Policy, 109, 189-191. http://dx.doi.org/10.1016/j.healthpol.2012.11.004.

Kothari, A., Wathen, C.N. (2017). Integrated knowledge translation: Digging deeper, moving forward. Journal of Epidemiology and Community Health, 71, 619–623. doi:10.1136/jech-2016-208490.

Maki, K. (2019). More than a bed: A national profile of VAW shelters and transition houses. Ottawa, ON: Women’s Shelters Canada. http://endvaw.wpengine.com/wp-content/uploads/2019/04/More-Than-a-Bed-Final-Report.pdf

Maki, K. (2020). Breaking the cycle of abuse and closing the housing gap: Second stage shelters in Canada. Ottawa, ON: Women’s Shelters Canada. https://endvaw.wpengine.com/wp-content/uploads/2020/09/Second-Stage-Shelters-Full-Report.pdf

McLean, I., Wathen, C.N. and the VAW Services in a Pandemic Research Team. (2020). Shelter spaces and pandemic response: A best practices handbook for flexible space planning. Western University, London ON. https://gtvincubator.uwo.ca/vawservices/pandemic/

Ontario Ministry of Health. (2020). COVID-19 guidance: Congregate living for vulnerable populations. Ontario Ministry of Health. http://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/2019_congregate_living_guidance.pdf

Ontario Ministry of Indigenous Relations and Reconciliation. (2018). In the spirit of reconciliation: The Ministry of Indigenous Relations and Reconciliation’s First 10 Years. 42. Government of Ontario. https://files.ontario.ca/books/in_spirit_of_reconciliation_pdf_0.pdf

Pable, P. J., & Ellis, A. (n.d.). Trauma-informed design: Definitions and strategies for architectural implementation. 25. http://designresourcesforhomelessness.org/wp-content/uploads/2015/11/TID_Report_opt.pdf

Peterman, A., O’Donnell, M. (2020). COVID-19 and violence against women and children: A third research round up for the 16 days of activism. CGD Note. Washington, DC: Centre for Global Development. https://www.cgdev.org/publication/covid-19-and-violence-against-women-and-children-third-research-round-16-days-activism

Peterman A., Potts A., O’Donnell M., Thompson K., Shah N., Oertelt-Prigione S., and van Gelder N. (2020). Pandemics and Violence Against Women and Children. CGD Working Paper 528. Washington, DC: Center for Global Development. https://www.cgdev.org/publication/pandemics-and-violence-against-women-and-children

Ponic, P., Varcoe, C., & Smutylo, T. (2016). Trauma- (and violence-) informed approaches to supporting victims of violence: Policy and practice

11 | International Journal on Homelessness: https://ijoh.ca
considerations. *Victims of Crime Research Digest,*(9). Retrieved June 4, 2020, from https://www.justice.gc.ca/eng/rp-pr/cj-jp/victim/rd9-rr9/p2.html

Rutledge, K. (2015). Rules, restrictions and resident empowerment in domestic violence shelter design: An exploration and response. Florida State University Libraries. https://diginole.lib.fsu.edu/islandora/object/fsu%3A253132

Rutledge, K. (2017). Victims of domestic violence experiencing homelessness: Their perceptions and needs influencing architectural support. http://designresourcesforhomelessness.org/wp-content/uploads/2015/11/FINAL1-VDV_8_2017.pdf

Subedi, R., Roshanafshar, S., & Greenberg, T. L. (2020). Developing meaningful categories for distinguishing levels of remoteness in Canada. Statistics Canada. https://epe.lac-bac.gc.ca/100/201/301/weekly_acquisitions_list-ef/2020/20-33/publications.gc.ca/collections/collection_2020/statcan/11-633-x/11-633-x2020002-eng.pdf

United Nations. (2020, April 5). *UN chief calls for domestic violence 'ceasefire' amid 'horrifying global surge.'* UN News. https://news.un.org/en/story/2020/04/1061052

Wathen, C.N., Harris, R.M., Ford-Gilboe, M., Hansen, M. for the Ontario Shelter Research Project. (2015). What counts? A mixed-methods study to inform evaluation of shelters for abused women. Violence Against Women, 21(1), 125-46. https://doi.org/10.1177/1077801214564077

Wathen, C.N., Varcoe, C. (2019). *Trauma- & Violence-Informed Care: Prioritizing Safety for Survivors of Gender-Based Violence.* London, Canada. https://gtvincubator.uwo.ca/wp-content/uploads/sites/22/2020/05/TVIC_Backgrounder_Fall2019r.pdf

Women’s Shelters Canada. (2020). *Shelter Voices 2020.* http://endvaw.ca/wp-content/uploads/2020/11/Shelter-Voices-2020-2.pdf

World Health Organization. (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and nonpartner sexual violence.* Geneva: WHO. https://www.who.int/publications/i/item/9789241564625

World Health Organization/London School of Hygiene and Tropical Medicine. (2010). *Preventing intimate partner and sexual violence against women: taking action and generating evidence.* Geneva: WHO. https://www.who.int/violence_injury_prevention/publications/violence/9789241564007_eng.pdf

World Health Organization (2020). *COVID-19 and violence against women: What the health sector/system can do.* Geneva. https://www.who.int/reproductivehealth/publications/vaw-covid-19/en/