What is the place of the Library Space in health care? A literature review and survey of health care library experiences during the COVID-19 pandemic

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Over the last 25 years, health library collections and working practices have shifted in response to an increasingly digital world. As a result, there is a need to examine the continuing role of physical library space in health care environments. There is also a need to consider changes made in response to the COVID-19 pandemic when health librarians found themselves providing essential information services from home, disconnected from physical libraries, at a time when health professionals urgently needed reliable and high-quality information. This study examined the impact of the pandemic and recent evidence about library space in health care settings. We explored the role of physical libraries in health care settings as we emerge from the pandemic into a new normal.

Introduction

The trend towards digital content has markedly changed health libraries. When the COVID-19 pandemic was declared in 2020, the digital trend had already transformed library services. However, for some health libraries this trend is only moderately reflected in their physical library space. Whether this lack of change is due to a nostalgia for print, a lack of appetite for change, or an absence of funding for renovations, it is important to understand the role of physical library space in our modern information ecosystem and how it can best serve its patrons.

Physical library spaces have always been about much more than print collections. Where the move towards digital made this evident, the COVID-19 health pandemic made it crystal clear. Restricted access to print material with library teams working from home during the pandemic underlined the necessity of access to online resources. This highlights the continuing function of libraries as supportive, flexible spaces where collaboration, social gathering, education, and digital access are at the fore, rather than providing greatly reduced print collections.

Looking beyond libraries, the global experience of COVID-19 is transforming how people live, work, learn, and engage with technology.[1,2] In spite of, or perhaps because of, the increasing amount of time spent at home, "people will need places where they can come together, connect, build relationships, and develop their careers."[3] Libraries have generally emerged from the crisis in a stronger position as

providers of public spaces that bring people together while also contributing to a culture of learning and knowledge sharing.

The aim of this study was to examine existing evidence on the role of library space in health care environments and to identify the impact of COVID-19 on this role via a survey of health librarians in Australia and internationally.

Literature Review

Methodology

We conducted a literature review of current research about physical health library spaces. We searched Medline, Embase, Emcare, and Proquest Nursing & Allied Health for relevant peer-reviewed studies published between January 2015 and January 2021 using keywords and medical subject headings related to libraries, library design, facility design, interior design, physical library space, and library trends. A grey literature search of business publications and news media was also included. We checked reference lists of select articles and hand searching was undertaken in key library journals.

Our exclusion criteria included studies of non-health libraries or multi-disciplinary academic libraries, studies published earlier than 2015 due to significant recent change in libraries (other than two studies identified in reference checking), and studies about library services that did not specifically reflect on physical space. In total, 124 articles were identified and reviewed. After screening, 30 articles were identified as relevant to the research question.

Literature themes

Existing evidence on physical library space exposed six key themes: preceding decades of transition; declining print; changing library skills; reducing footprints and funding challenges; technology and zones that enable collaboration, education, social gathering; and, wellbeing and quiet work.

Some studies described cumulative change in libraries over more than four decades[4] that laid the groundwork for the strategies used to manage the impact of the COVID-19 pandemic.[5,6,7,8] Summarising this phenomenon, Murgatroyd concluded that "(i)n many ways we had anticipated this long before it become a matter of necessity. Our large collections of journals and clinical texts are digital. Our systems for access and management of our collections are cloud based. We have had in place for a number of years digital communication channels … we have long ago enabled remote access."[9] However, even with ubiquitous electronic access, physical space has remained important[10] because of, "the many other place centered activities and services the library can support."[11] For example, physical library space provides a

comfortable place to meet colleagues, have a quiet moment alone, and to access library training or librarians' expertise.[12]

This evidence confirmed what librarians already know, that the most influential change to health library spaces has resulted from digitisation[13,14,15] and reduced print collections.[16,17,18,19,20,21,22,23] While some print resources remain, most commonly due to lack of electronic availability[24,25] or user preferences,[26] an exponential uptake of digital resources has facilitated a transition from collection-oriented libraries[27] to spaces that are more reflective of "a community's vision of itself," [28] affirming the value of physical library space well beyond simply storing the library's print collection.[29]

Just as collections are now available beyond library walls, librarians no longer limit themselves to available resources or work only within the library space.[30] Future-ready librarians work in reconfigured staff spaces[31] and provide services in a range of formats, including online webinars and embedded service models.[32] Librarians with development expertise,[33] "creative, technologically savvy, knowledgeable about evidence-based medicine, problem-solvers, and expert multitaskers,"[34] have adapted with their libraries. With the onset of the COVID-19 crisis, librarians were already equipped with the skills to adapt quickly and effectively, particularly in health care settings where librarians found themselves delivering in-demand services as essential health care workers[35] while facing restrictions, lockdowns, and other challenges.[36]

Facilitating the use of information technologies is widely associated with library space. Libraries introduce new digital tools and technology-based content, with librarians on hand to support their use.[37,38] In fact, many patrons now visit library spaces only to use technology, such that electrical outlets are in high demand for a range of devices.[39,40,41] The need for technology has grown so much that Nelson concluded, "new technology is probably the most important issue in planning future space."[42]

While technology use has grown, libraries have battled decreasing physical footprints.[43] Shrinking space has resulted not only from smaller print collections, but largely due to the cost of physical space.[44,45] Cost and the availability of funding can be insurmountable barriers for libraries who want to maintain or update their remaining space. Prentice writes, "as physical and monetary resources grow scarcer, the determination of practical library space utilization is an ongoing challenge faced by many institutions."[46] Looking towards the future, it will be important for librarians to convince decision-makers whose view of libraries may be outdated,[47] that the growth of digital content is an opportunity to repurpose rather than reduce library space.[48]

Within libraries, research indicates that health professionals seek and use zones for collaboration, education, social gathering, wellbeing, and quiet study, with unlimited hours of access [49,50] and natural light.[51,52,53] Spaces for collaboration and social gathering are closely related, but must be well planned to function alongside quiet individual study space,[54,55] which remains essential.[56] Despite the challenges of pairing collaborative and independent work spaces, a number of studies identified the importance of collaborative areas for group learning,[57,58] innovation, and creativity [59] - so much so that the creation of collaborative zones has been the main focus of revisions to library spaces in the past decade.[60,61]

Collaboration spaces in modern libraries support both education activities and social gathering. Education activities include training in information literacy and evidence-based practice,[62] tying services to curricular frameworks and accreditation standards.[63] The evolution of group learning[64] and learning commons[65,66] has seen libraries evolve into a more social environment where patrons gather for interaction,[67,68] supported by nearby or co-located cafes.[69] Research by Hillman linked social space with wellbeing, where "students often indicate their desire to be near others studying," even when studying independently, especially when libraries "add café and stress-relief services."[70] In hospitals, physical space provides an important respite from the stresses of frontline health care[71] and a comfortable place for health workers to relax when taking a much-needed break.[72]

Studies focusing on library spaces as important quiet zones describe these spaces as supporting wellbeing as well as simply a place for independent study and research. Quiet zones provide a place to conduct research, reflect, study, or simply work with fewer distractions,[73] with the latter being of particular value to frontline health professionals.[74] Quiet space that creates an environment conducive to concentration[75,76] where serious work can be accomplished[77] was identified as the most popular zone in health libraries by Steigerwalt, Eldermire and Prentice.[78,79,80] This zone needs to be protected from noisy collaborative areas,[81] with McCaffery noting that "the importance of quiet space to users should not be underestimated … international data indicates that quiet space for individual work is becoming increasingly important to library users."[82]

Overall, these themes are pervaded by an overwhelming need for flexibility in health library spaces to support their demonstrated uses, functions and activities. Design can support flexible use of space by creating open areas and adaptable learning spaces[83] with a variety of options for seating and technology that can be moved for repurposing as needed.[84,85] However, design alone is not enough. Library staff who manage the space also need to be adaptable, well-practised at change,[86] and responsive to patrons' influence on library environments that evolve with needs,[87] to ensure the continuing satisfaction of library users.[88]

COVID-19 health library survey

Methodology

In September 2020, we surveyed health librarians to identify the impact of the pandemic on physical library spaces, and clarify how library spaces in health care settings were used during COVID-19. Librarians were asked to describe their expectations for long-term adjustments to physical library space, library responses to the COVID-19 crisis, and whether the pandemic motivated a new wave of change for the sector.

The survey was designed in a Google form and comprised 16 multiple choice and two free response questions. Survey questions asked about adjustments to physical space during COVID-19, infection prevention measures, operations, crisis management, and potential lasting change. Health librarians were targeted by circulating the survey to health library email lists in Australia and internationally. One reminder was sent before the survey closed and 137 responses were received over eight weeks of data collection.

Distribution of responses

Responses were received largely from the special library sector, encompassing specialised libraries that provide information services in a specific area. More than 70% of responses were from health care librarians (i.e., in hospital and health organisations), with academic librarians being the next most common respondent (28%). Nearly half of all responses (48%) were from Australia.

Table 1 : Distribution of responses

Library sector		**Geographic location**	
Type	**N**	**Region**	**N**
Special – health care	97	Australia	65
Special – corporate/govt.	10	UK & Europe	33
Academic health libraries	30	USA & Canada	38
		Singapore	1

Table 1: Library sectors and geographic locations of respondents

Adjustments to physical library spaces

Building security increased in most libraries (78%) during the pandemic, which is not unexpected given that most participants worked in clinical environments where patients with COVID-19 were treated. In spite of this, a significant proportion (69%) continued to allow patron access to physical libraries during the pandemic, either as normal or with some limitations. The remaining 31% of libraries were not accessible to patrons as part of pandemic restrictions.

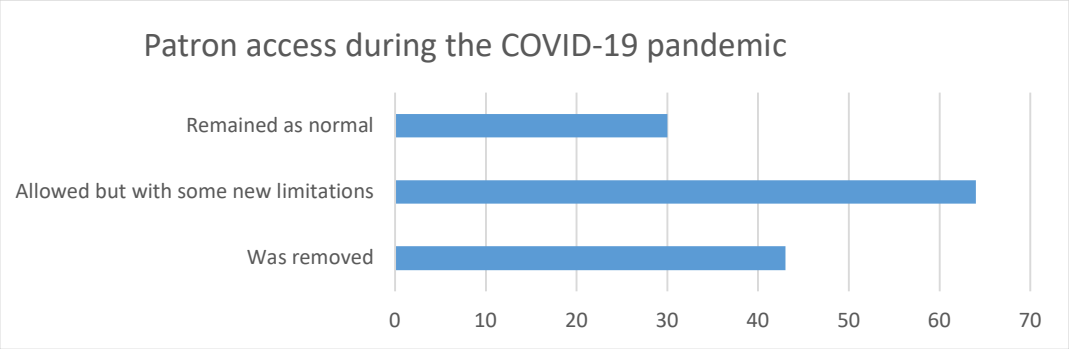

Chart 1: Patron access to library space during the COVID-19 pandemic

For more than half of participating libraries, staff continued to work on-site throughout the pandemic. Around one in five (21%) librarians continued to work on site at pre-pandemic levels, while one third continued with reduced rosters. A small number of libraries (9) were un-staffed because employees were furloughed or mobilised to other areas of their organisation. In the remaining 41% of libraries, staff provided services while working from home.

Library spaces were not widely re-purposed during pandemic lockdowns, with only 12% repurposed entirely for use by another work group. More than half remained entirely as libraries while a further 21% remained as libraries with some re-purposing of sections. A small number of libraries were closed (9%) and one respondent reported that they did not have a physical space during or prior to COVID-19.

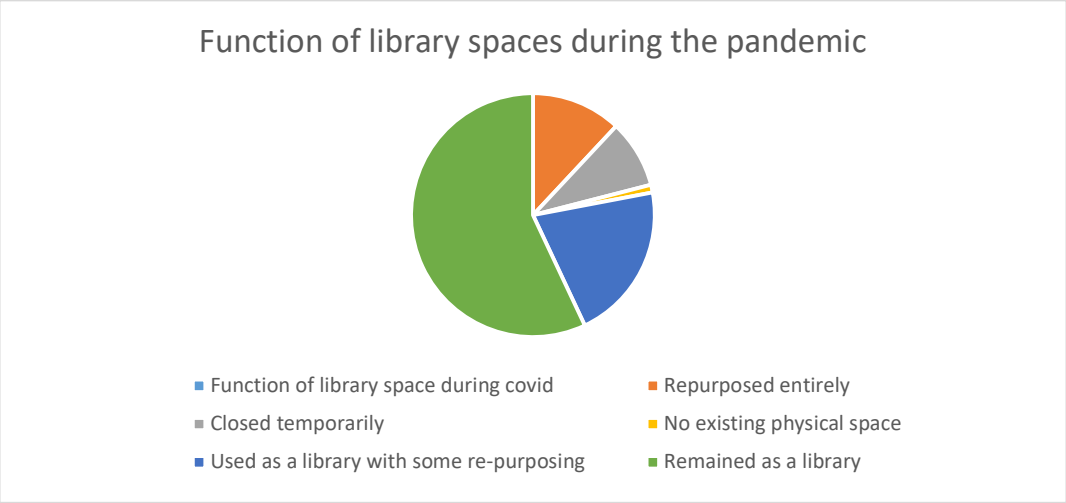

Chart 2: Function of library spaces during the pandemic

Infection prevention measures

Limiting patron numbers, re-arranging furniture, and reducing the number of seats, were the main methods used to implement social distancing in library spaces. Less frequently, computers and meeting areas were closed.

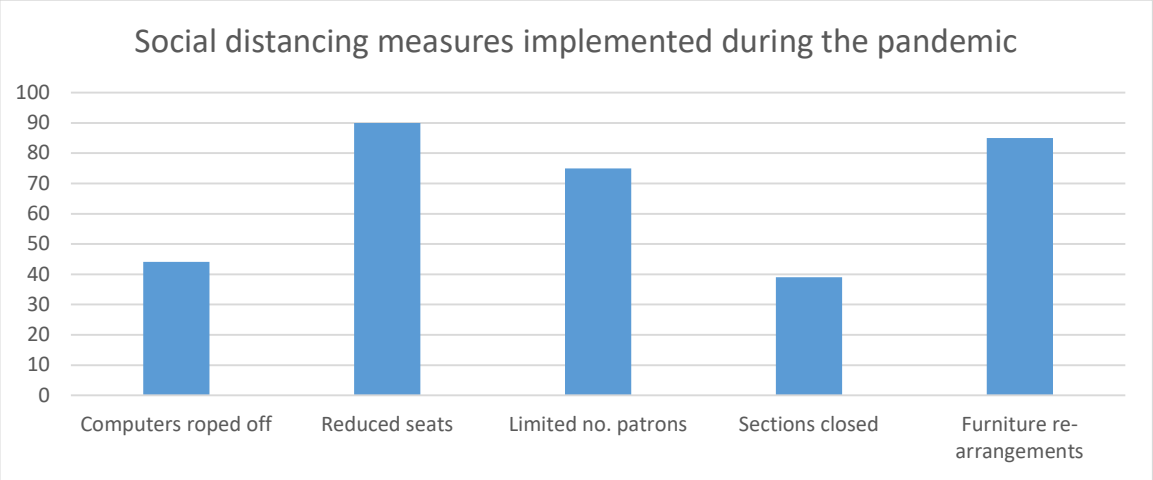

Chart 3: Social distancing measures implemented during the pandemic

Sanitisation was a high priority during the pandemic with 87% of libraries installing hand sanitising stations. A high proportion also increased cleaning schedules (65%) and ensured that patron computers and devices were wiped down between uses (62%). Workstations and study carrels were slightly less likely to be wiped down between uses (56%). Only 46% of libraries reported sanitising returned loans, with this low figure likely to correspond to restricted access to print collections. 65% of libraries who continued to circulate print materials quarantined book returns before processing.

Library Services

The pandemic led to restricted print loans, in-person enquiry desks, and training. However, there was increased provision of online training, recorded webinars, virtual referencing, and the creation of additional 'how to' resources. Click and collect services, website chat, and new library guides, also increased, but to a lesser extent (as shown in chart 4).

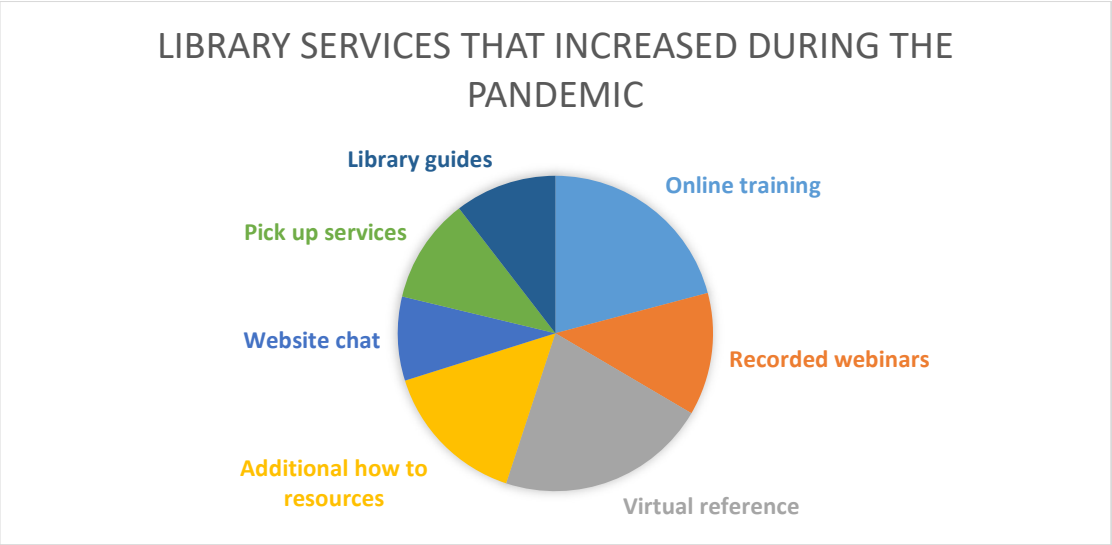

Chart 4: Library services that increased during the pandemic

Services in most urgent demand were literature searches (82%), research assistance (62%), and quick reference questions (34%). Curated information such as COVID-19 library guides and bulletins were also urgently needed (26%) along with access to physical space (57%).

Crisis response

The introduction of PPE equipment and additional cleaning supplies was implemented in around half of libraries (56%) and was the most common response to the crisis. Staff supports were increased in 45% of libraries, including health and safety, guidance on using newly introduced online tools, employee assistance programs (wellbeing support), and flexible rosters. As shown in chart 5, libraries also assisted with non-library work in other departments, supplied essential information on COVID-19, provided stress relief to patrons, and built new partnerships with their organisations.

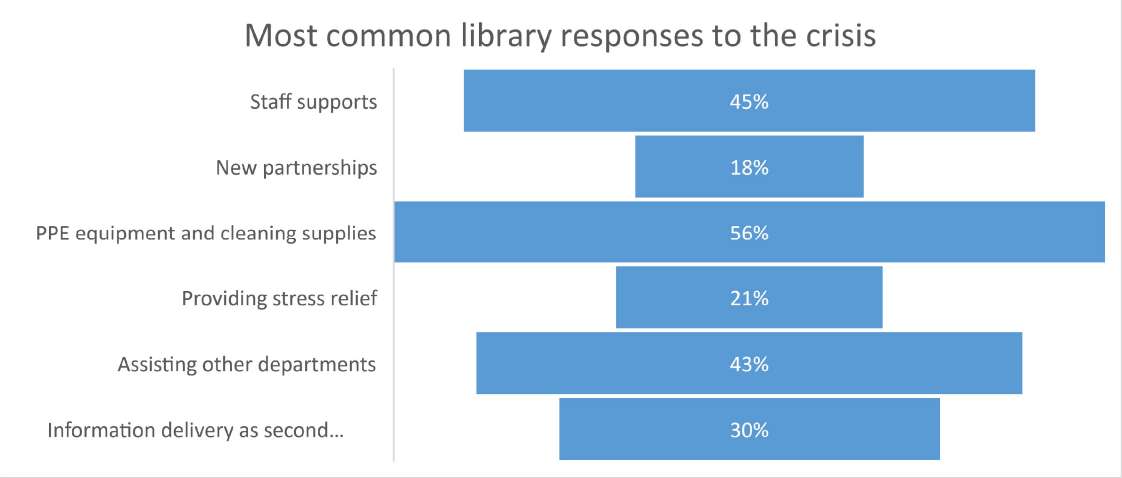

Chart 5: Most common library responses to the crisis

Libraries also fast-tracked projects in response to the crisis. These included social media communications, virtual reference systems, SpringShare LibGuides, use of online collaboration tools, click and collect and scan on demand services, online training, and website chat with a librarian.

Lasting change

When asked about changes arising from COVID-19 that might become permanent, less than one quarter of respondents predicted reductions of library space. More than half predicted virtual reference would be permanent, along with online training, working from home arrangements, and infection prevention measures.

Table 2 lists expected changes alongside the most popular priorities for libraries coming out of the pandemic. The implementation of new digital tools, apps, and technology platforms was the most commonly identified priority, with keeping up-to-date (current awareness) also ranked highly. Many libraries will expand their

teaching programs and shore up business continuity plans, while only a small proportion (12%) expected to return to business as usual.

Predicted changes	**%**	**Next priorities**	**%**
Virtual reference and training	66%	New tools, apps and platforms	53%
Staff not always present	64%	Current awareness	49%
Infection prevention measures	64%	Expanding teaching programs	44%
Social distancing	43%	Business continuity planning	38%
Cloud based team work	33%	Data Science initiatives	25%
Reductions in space	24%	No new priorities, business as usual	12%
Repurposed libraries	15%		

Table 2: Changes and priorities

When asked about the skills librarians need to develop to support post-pandemic change and priorities, three in four identified agile ways of working (77%), and skills for online meetings and training (74%). Relationship building (53%) and creating original content (42%) were also popular responses. Skills flagged as important and their relative frequency are shown in Chart 6.

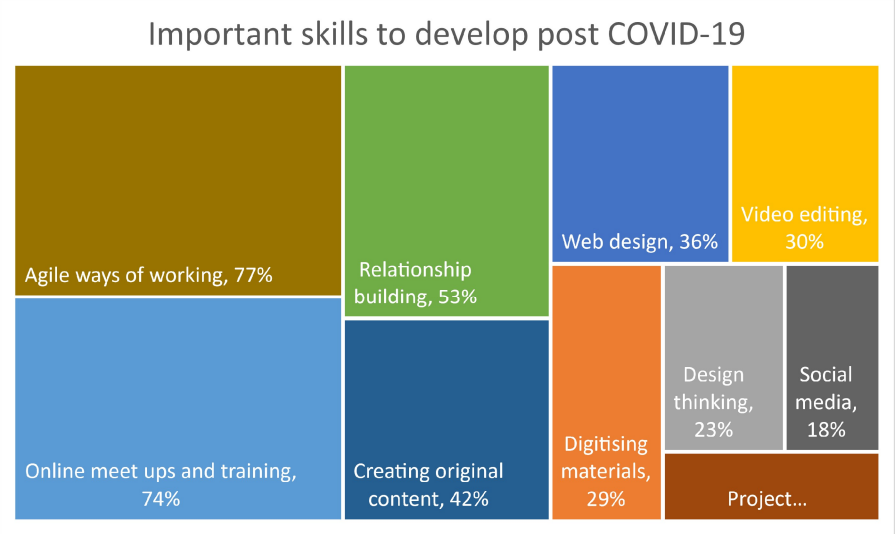

Chart 6: Important skills to develop post COVID-19

Open comments

Librarians' free response comments highlighted that physical library spaces were in demand during the pandemic: "the library was in high demand as students and faculty with children at home sought out a quiet place … we've found that patrons care very little for our remaining print materials, but they crave a space where they can work and study in peace and quiet."

Another common theme was quick adaptation in response to change. Libraries drew on their "previous flexibility and adaptability" because they are "always anticipating and creating new things." Moreover, respondents reflected on the pandemic "as an opportunity" and a moment "rich with opportunities to fundamentally improve how we connect with patrons and bring the service to them." Another respondent remarked, "professionally I love COVID-19 since it dared us to try out things without knowing how it would go. I hope we can keep up this way of working."

Discussion

This study provides a summary of peer reviewed literature on the use and function of physical library space in specialised health libraries. Our results show that physical library space has a range of uses in health care environments and its necessity is greatest when it provides zones that support technology, collaboration, social gathering, education, wellbeing, and quiet work.

Although management of collections continues to be a core activity in health libraries, no studies focused on the function of physical space to store print collections, while several studies noted the decreasing importance of print materials. This points not only to the general adoption of digital information, but also to a shift away from managing print materials to the current focus in libraries on access and discovery systems that underpin quick and easy access to any resource, from anywhere.

Analysis of survey responses showed that there were changes in access to, and use of, physical spaces during the pandemic in response to local restrictions. These measures included sanitising practices, re-arrangement of zones for social distancing, and limiting patron numbers or density, alongside additional staff supports and an increase in online services for training, reference, research support, guidance, and communication.

We did not find a significant negative effect on library services as a result of the restriction measures. In contrast, many libraries saw COVID-19 as a catalyst for change and responded by moving technology-based initiatives forward. Libraries capitalised on previous change and prioritised what they could do with technology to best support patrons in the new working environment. Additionally, most library spaces continued to function as libraries with varying staff presence and continued access for patrons.

The themes of adaptability and openness to change identified in survey responses mirrored those identified in the literature review, where evidence demonstrated that current use of library space is based on multi-purpose zones that support education and social infrastructure. The risk of library space reductions was highlighted in both the literature review and survey responses with anticipated post-pandemic changes.

To mitigate this risk, health librarians should take a flexible approach to arrangement of their physical spaces, allowing mobile layouts and changeable zones. It is important that every inch of space should be justified by meaning and practical use.

The results of the survey, with around half of responses from Australian libraries and half from international organisations, alongside our review of the international literature, can be generalised to all countries that apply library services in health care, although each country has different health care and education systems.

Future research

Based on the principle that form should follow function, additional research is needed to clarify the architectural and interior requirements that will best support working patterns and library functions post-COVID-19.

Conclusion

While the function of library space has evolved over time, the need remains. The literature review and survey we conducted demonstrated an enduring requirement for physical library space in health care environments. Our findings support a call for health services to take into account the importance of library space for health professionals' knowledge, development, education and wellbeing.

While the COVID-19 pandemic has been a worldwide disaster, its role in advancing a technological shift toward online service provision presents an opportunity for lasting change in physical library spaces. We are living in a moment rich with possibilities with the potential to improve how libraries reach their patrons, deliver information services, and interact with organisational partners. The opportunity of this moment is best summed up by a librarian who responded to our survey, as well as the words of one of the world's great writers who also resides in a country among the worst hit by the pandemic:

There are opportunities everywhere. Lament some losses, but there are some amazing new adventures too. ~ Library survey respondent

"... we can walk through lightly,
with little luggage,
ready to imagine another world.
And ready to fight for it."
- Arundhati Roy, 'The pandemic is a portal'

Acknowledgements

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