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Research Article

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How American Academic Medical/Health Sciences Libraries Responded to the COVID-19 Health Crisis: An Observational Study

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Abstract: The novel coronavirus disease (COVID-19) has caused a pandemic and global health crisis. Although normal operation and services in many libraries have been greatly disrupted, academic libraries in the United States were reportedly responding to challenges by pivoting to new ways to meet the users’ needs. This observational study was designed to investigate the status, services, and resources disclosed via websites of academic medical/health sciences libraries (MHSLs) in the United States and document how they adapted and continued to provide support to help fight the health crisis and the resulting “infodemic” through various means. A complete list of members was obtained from the website of the Association of Academic Health Sciences Libraries (AAHSL). The U.S.-based AAHSL member institutions were included in this study. Each American academic MHSL website and its associated webpages were browsed; web contents were categorized and analyzed based on four research questions proposed by this study. A descriptive analysis was conducted to summarize all findings. A total of 157 AAHSL member institutions were included in the study. These libraries spread all over the United States, and 90% of them announced closures of library buildings and facilities. A significant number of MHSLs quickly adapted to the evolving situation and transitioned their services and instruction to the online environment. The COVID-19 information sources adopted by MHSLs included the following ranked by frequency from high to low: The U.S. government agencies such as Centers for Disease Control and Prevention and National Library of Medicine, the World Health Organization, publishing communities, professional journals, organizations, local institutions, government agencies, and news channels. In addition, MHSLs undertook a series of actions to support academic communities and local healthcare professionals including resource curation, clinical care support, education, and outreach to the public. Through library guides, MHSLs provided comprehensive and customized search queries to help researchers locate the latest and relevant publications to COVID-19, curated multiple data resources and data exploration, and visualization tools, and selected the latest biomedical and health evidence in a wide range of topics. Other featured resources and services were associated with ethical issues (i.e., racism and prejudice), educational and entertainment information (e.g., virtual tours of parks), and personal experience documentation. This observational study is the most recent investigation and documentation on the status, services, and resources of the academic MHSLs in the United States during the initial U.S. outbreak of the COVID-19 pandemic. Although the current health crisis is taking a heavy toll on libraries nationwide, MHSLs are still managing to play a vital role in supporting the academic communities, healthcare facilities, and the general public and fighting against the pandemic and the resulting information crisis.

Keywords: COVID-19 pandemic, health crisis, academic health sciences library, United States, outreach, information curation

1 Introduction

The novel coronavirus that causes pneumonia and quickly spreads from person to person was first reported in Wuhan, China in December 2019 (WHO, 2020a). Since then, the outbreak of coronavirus disease (abbreviated “COVID-19”) has affected many other countries in the world in less than four months. Due to the alarming levels of spread and
severity, the World Health Organization (WHO) declared “a Public Health Emergency of International Concern” on January 30 and then characterized COVID-19 as a pandemic on March 11, 2020 (WHO, 2020b). By April 24, 2020, all 50 states in the United States reported community spread of COVID-19 with a total of 895,766 cases and 50,439 deaths (CDC, 2020).

A public health crisis is also an information crisis (Xie et al., 2020). Lack of relevant and credible information, misinformation, disinformation, or even information overload all add to the great challenge for healthcare professionals, public health leaders, governments, policymakers, and the general public to make timely and informed decisions to combat the crisis. Therefore, WHO (2020c) proclaimed that “we’re not just fighting an epidemic; we are fighting an infodemic.”

Although due to the COVID-19 pandemic, many libraries have either closed their buildings or restricted physical access to library facilities, they are actively responding to the challenge of “infodemic” by continuously working remotely and providing access and integration of reliable information. For example, librarians contribute in real-time to research and response efforts to improve researchers’ understanding of COVID-19 (Morlas, 2020; Brenna, 2020), provide up-to-date clinical evidence to healthcare providers (Gerber, 2020), and educate the public with facts (Ewen, 2020). However, there is a lack of information related to what libraries are doing, particularly, by pivoting to new ways of offering services (Heckel, 2020).

The investigation and documentation on library practices during disasters can empower libraries to learn from the special efforts of their peers, accumulate experience and evidence, and effectively help to prepare their readiness for the next crisis. Beginning March 11, 2020, library researchers launched a nation-wide online survey (Hinchliffe & Wolff-Eisenberge, 2020) to investigate how academic libraries are responding to the COVID-19 pandemic. A national look at the operational changes in the U.S. academic libraries and their affiliated institutions was briefly sketched by the responses from more than 800 academic libraries. However, it is still unknown what specific COVID-19 related information services and resources that go beyond the changes at the operational level are being offered by academic libraries, especially by the academic medical/health sciences libraries (MHSLS). Therefore, this observational study aims to systematically survey all the U.S.-based MHSLS, which are member institutions of the Association of Academic Health Sciences Libraries (AAHSL) for the following research questions (RQ):

1. What are the characteristics of the academic MHSLS in the United States in terms of geolocation, the current status of library buildings and reference services, and reputable information sources related to the COVID-19 pandemic?
2. What COVID-19 information and resources have been curated as part of library guides being offered by MHSLS in the United States?
3. What are some featured or special resources and services being provided by MHSLS in the United States?
4. How is the website usability of MHSLS in the United States in terms of providing COVID-19 information and resources since many had to transition their services online?

Answers to these RQs are essential to improve sustainability and flexibility and increase awareness of MHSLS’ services and practices, as well as disaster preparation.

2 Methods

The observational study method was utilized to investigate websites of American academic MHSLS and collect existing, unobtrusive, and objective indications of their efforts directed at combating the COVID-19 infodemic. A descriptive analysis was conducted to summarize all findings from this investigation.

A complete member list was obtained from the AAHSL website on March 5, 2020, which offered information regarding each member institution, including library name, name of the library affiliated academic institution, library director/primary contact (name, phone number, and address), and library website URL.

Only the U.S.-based AAHSL member institutions were included in this study; associations or medical schools were excluded. From March 5 to April 24, 2020, each of the included AAHSL member websites was visited, webpages were browsed, and associated contents were categorized and analyzed to address the RQs. Regarding RQ1, this study collected and aggregated data including geographic locations of MHSLS, the current status of library buildings and reference services, and the frequency of adopted information sources. For RQ2, if the AAHSL member institution had a COVID-19 library-guide, contents were categorized and analyzed. For RQ3, if the AAHSL member institution curated a special information resource or created a special service to help combat the health crisis or associated infodemic, data were recorded and summarized. For RQ4, the usability
of included AAHSL websites was measured by the time of last update (Day, 2019), the number of clicks that it takes a user to access COVID-19 related library notices and guides (Kortum & Acemyan, 2016), and accessibility of the websites (Kaur, 2018; W3C, 2018) in terms of media types and provision of library guides in multiple languages.

3 Results

Among a total of 180 AAHSL member institutions, 157 were academic MHSLS based in the United States. The following member institutions were excluded: 4 medical professional associations (e.g., Association of American Medical Colleges, American Dental Association), 15 health sciences or hospital libraries in countries other than the United States, and 4 medical schools.

3.1 Characteristics of the Included AAHSL Member Institutions

3.1.1 Geographic Location

A total of 157 AAHSL members dispersed across 48 states in the United States. New York, California, and Texas had at least 12 AAHSL members in each state, whereas Colorado, Iowa, Idaho, North Dakota, and New Mexico only had 1 AAHSL member each. Figure 1 shows the extent to which states have reported cases of COVID-19 and the associated distribution of AAHSL members.

3.1.2 Library Closure vs. Virtual Library Services

At the time of this study, 90% of the MHSLS announced closures of their buildings on their websites. Approximately 5% of the MHSLS provided limited access to library buildings and physical facilities for permitted students and campus personnel, and 5% of the MHSLS did not disclose their building or facility status on their websites.

To address services or operational changes due to the COVID-19 pandemic, the majority of MHSLS (88%) posted messages or notices on their websites to inform students, faculty, and staff regarding how to remotely access library resources and services, and return materials; due dates and fines policy changes (e.g., extended due dates); interlibrary loan options; procedures for checking out laptops and other hardware for remote learning; and virtual workshop and instruction session announcements. About 55% of the MHSLS websites clearly stated that they moved all in-person services to virtual services and maintained their regular working hours. The Tufts University Hirsh Health Sciences Library and the Mary Couts Burnett Library at Texas Christian University extended their virtual library services to weekends.

3.1.3 Credible Information Sources

The COVID-19 information curated by MHSLS was mainly from four types of venues (Figure 2). (1) 54% of the MHSLS cited information and data from the U.S. government agencies including the National Health Institute (NIH), National Library of Medicine (NLM), Centers for Disease
Control and Prevention (CDC), National Institute of Allergy and Infectious Disease (NIAID), Food and Drug Administration (FDA), National Science Foundation (NSF), the White House, Federal Emergency Management Agency (FEMA), Centers for Medicare & Medicaid Services (CMS), and Environmental Protection Agency (EPA).

(2) 47% of the MHSL websites linked to free resources which were made available to combat the pandemic by a growing number of publishing communities including database vendors (e.g., Elsevier COVID-19 information center, EBSCO and ProQuest COVID-19 resources, Wiley Online Library, Sage publishing, and Wolters Kluwer) and professional journals and organizations including JAMA, the New England Journal of Medicine, BMJ, Lancet, American Medical Association, and American Nursing Association, etc. (3) 36% of the MHSLs provided information originated from the WHO. (4) 30% of the MHSLs provided clinical evidence and health information they collected from their health affairs institutes or healthcare centers, local government agencies, and news channels.

3.2 Library Guides for COVID-19

Half of the MHSLs in the study created specific library guides for COVID-19. An analysis of the content of these library guides revealed the following patterns:

3.2.1 COVID-19 Research Publication Search

About 40 library guides listed COVID-19 search queries to facilitate researchers’ ability to retrieve publications from PubMed and other databases (e.g., Embase, clinicaltrials.gov, and disaster lit). In addition, they provided search strategies to preprint publications in biomedical and health sciences, including medRxiv and BioRxiv. Depending on the specific needs of the research community that MHSLs serve, some (e.g., University of Michigan Taubman Health Sciences Library, Health Sciences Library at the University of North Carolina at Chapel Hill (UNC), Lyman Maynard Stowe Library at University of Connecticut, Ohio State University Health Sciences Library, and Eskind Biomedical Library at Vanderbilt University) offered highly customized search queries for a range of special topics related to COVID-19 to support their affiliated medical or health sciences institutions, such as critical care/ICU, emergency medicine/diagnosis, epidemiology/transmission, antiviral therapy and drug therapies, specific patient populations (e.g., cancer patients, children, pregnant women, and persons aged older than 65), etc. Besides search strategies, Australia library and Information Association COVID-19 Live literature searches and the Zotero library created by the Cushing/Whitney Medical Library at Yale University were cited, recommended, and linked by multiple library guides.

3.2.2 Data, Data Exploration, and Data Visualization

In addition to search queries, MHSLs also curated reputable COVID-19 data resources and data tools which are used to explore and visualize data. Highly recommended research publication data sources by the library guides included LitCovid and CORD-19. Developed by NIH/NLM, LitCovid is an open-source literature hub tracking up-to-date international research publications on COVID-19 (Chen, Allot, & Lu, 2020). The COVID-19 Open Research Dataset (abbreviated “CORD-19”) (Semantic Scholar team, 2020) is a free resource of over 52,000 scholarly articles about COVID-19 and the coronavirus family of viruses, which was freely available for use by the global research community. About 30 library guides provided direct links to these two most comprehensive publication collections of COVID-19 and its virus family as well as an automatic publication...
analysis tool using the most advanced NLP algorithms – “COVID-19 Primer” (2020).

To provide access to real-time infection cases and statistics in the United States and other countries in the world, 75% of the library guides either integrated with or linked to the dashboard developed by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University; 27% of the library guides linked to the Coronavirus (COVID-19) map of the WHO. Other integrated or linked maps and data visualizations included the COVID-19 infection map developed by the University of Washington, the Coronavirus outbreak map by the New York Times, and Tableau Coronavirus daily global tracker. Finally, over 57% of the library guides provided the COVID-19 related data and statistics generated by local institutions and governments.

Besides publication data and COVID-19 cases, about 10% of the library guides collected a series of genomic and clinical trial datasets by linking to GenBank, nextstrain.org, clintrials.gov, EU clinical trials register, and ISRCTN Registry, etc.

### 3.2.3 Health Literacy

At least three MHSLS (Table 1) provided guidance on evaluating information and fact-checking. In addition, a few library guides (i.e., University of Massachusetts Lamar Soutter Library and the Augustus C. Long Health Science Library at Columbia University) linked to the COVID-19 Health Literacy Project (2020), which offers patient fact sheets in more than 30 languages through collaboration with Harvard Health Publishing. Another unique information source was found via the Robert M. Bird Health Science Library at the University of Texas MD Anderson Cancer Center, which provided access to the full text of an illustrated children’s book about Coronavirus (Jenner, Wilson, & Roberts, 2020).

### 3.2.4 Resources by Topics

MHSLS librarians selected the latest biomedical and health science resources and evidence on a wide range of topics trying to improve people’s understanding of COVID-19. These topics varied from clinical treatment (e.g., emergency medicine, drug, vaccine, and ventilator), guidelines/best practices for healthcare professionals, epidemiology, consumer health, special populations (children, pregnant women, and people older than 65 years), ethics and law, telemedicine, mental health, to personal protective equipment (PPE) and 3-D printing.

Particularly, around 10% of the library guides provided summary or evidence synthesis resources. The frequently linked ones included Oxford COVID-19 Evidence Service developed by the Centre for Evidence-based Medicine, rapid guidelines and evidence summaries by the UK National Institute for Health and Care Excellent, Cochrane Coronavirus special collections, COVID-19 Resource Center (ECRI), and DynaMed COVID-19, as well as the clinical summaries produced by the local health affairs institutions such as the best practice reports written by students at Seton Hall University School of Medicine and available at its HSL website.

| Library name | Unique resources curated | Similar resources curated across three MHSLS |
|--------------|--------------------------|--------------------------------------------|
| University of Washington (UW) Health Sciences Library | • Coronavirus Rumor Control (FEMA website)  
• Sifting Through the Coronavirus Pandemic (website)  
• Surviving the Coronavirus Infodemic: resources (UW website)  
• UW Center for an Informed Public (UW website) | • WHO “Myth Busters” (website)  
• Snopes.com Coronavirus (website)  
• FactCheck.org (website)  
• Coronavirus Misinformation Tracking Center (website) |
| Central Michigan University Libraries | • NewsGuard Coronavirus Misinformation Tracking Center (website)  
• U.S. CDC article (web document) | |
| William H. Welch Medical Library at Johns Hopkins University | • WHO Mask use (web document)  
• TruthOrFiction.com (website) | |

| Library name | Unique resources curated | Similar resources curated across three MHSLS |
|--------------|--------------------------|--------------------------------------------|
| Central Michigan University Libraries | • NewsGuard Coronavirus Misinformation Tracking Center (website)  
• U.S. CDC article (web document) | |
| William H. Welch Medical Library at Johns Hopkins University | • WHO Mask use (web document)  
• TruthOrFiction.com (website) | |
3.3 Featured Resources and Services

3.3.1 Racism and Prejudice

Hardin Library for the Health Sciences at the University of Iowa collected racism and prejudice reports from the U.S. news media (e.g., Vox, CNN, NPR, and Time) and a CDC resource on reducing stigma. Both the University of Michigan Health Sciences Library (UMHSL) and the University of Nevada Health Sciences Library (UVHSL) created dedicated library guides about racism, xenophobia, and minority communities around Coronavirus. The UMHSL gathered research articles from academia and nonprofit organizations demonstrating the alarming fact that Asian and black Americans are facing racism, discrimination, and more health and economic challenges due to COVID-19. The UVHSL not only cited CDC guidance on fighting stigma but also supplied researchers with search terms and keywords about racism and xenophobia related to the COVID-19 pandemic.

3.3.2 Educational and Entertainment Resources

To help people observe social distancing and stay-at-home guidelines, four MHSLS (i.e., the library at Massachusetts College of Pharmacy and Health Sciences, Upstate Medical University HSL, Spencer S. Eccles Health Sciences Library at the University of Utah, and Stanford Health Library) compiled a list of virtual tours to museums, operas, aquariums, zoos, national parks; gathered educational programs, digital books, online storytelling, games, cooking recipes, TV shows; and promoted tele-yoga classes to the general public.

3.3.3 Personal Experience Documentation

Three MHSLS (Seton Hall University HSL, Mary Couts Burnett Library at Texas Christian University, and Michigan State University Libraries) put out a call for personal narratives, stories, photos, or videos regarding individual’s experience during the COVID-19 pandemic contributing to their institutions’ digital archives.

3.3.4 Usability of websites

Due to the rapidly evolving and fluid situation caused by the health crisis, 52% of the MHSL websites included the time of their last updates, and 43% of the latest updates occurred in early or mid-April 2020 when this observational study was being conducted. However, close to half (48%) of the MHSL websites did not provide the time when their websites or webpages were edited.

For the majority (90%) of MHSL homepages, it only takes a user 1 click to get access to the respective COVID-19 library guide, whereas 10% of library guides were hidden; meaning, it could take 3 or more clicks for a user to locate a COVID-19 resource guide. About half of MHSLS created dedicated webpages delineating the library service or operational changes due to the pandemic, and all these webpages take a user <2 clicks to locate.

In addition to texts, 66% of the library guides integrated various media types into information delivery including infographics, images, videos, webinar recordings, maps, social media threads, and data visualizations. Multiple MHSLS provided partial library-guide contents in both English and Spanish (e.g., the University of Arizona HSL and UNHSL) or linked to deaf and hard-of-hearing resources to support patient education (e.g., Emory University Woodruff Health Sciences Center Library).

4 Discussion

The COVID-19 pandemic has greatly disrupted the normal operation and services of the majority of MHSLS in 48 U.S. states which are AAHSL member institutions. To protect the safety of staff and users, these MHSLS either completely closed their buildings and facilities or provided very limited access to facilities for permitted students and campus personnel. This study found that the states which have more MHSLS also had more widespread COVID-19 cases, highlighting the urgent and critical call of MHSLS to support the mitigation of the health crisis. Despite the formidable challenge, regardless of size and geolocation, a significant number of MHSLS quickly adapted to the evolving situation using existing institutional technology infrastructure and transitioned their services and instruction online. Overall, this study observed the same trend regarding how MHSLS are handling the current emergency as it was reported in a recent library journal (Gerber, 2020), which shows MHSL librarians are continuing their embedded and integrated roles to serve their health affairs communities virtually by leveraging electronic resources and digital tools.

In addition, findings from this study confirmed many actions that academic MHSLS are taking and were reported by a group of academic library leaders (NLM, 2020). These actions include curating resources, supporting clinical care, providing education, and outreach to the public.
First, MHSLs fully applied the expertise in curating authoritative information and resources to help combat the health crisis. More than half of the investigated MHSLs provided COVID-19 related facts and statistics released from the U.S. government agencies, among which CDC was their top source for information. These MHSLs also catalyzed NLM efforts in building open-access COVID-19 datasets by linking to full-text COVID-19 publications, a repository of genomic data sets, and clinical trial sources that NLM curated. Further, almost half of the MHSLs unanimously linked to the free resources which were made available by several publishing communities, professional journals, and organizations in response to the pandemic. The WHO’s COVID-19 resources were also frequently cited by about one-third of the MHSL websites including news, situation reports, and the COVID-19 world map. Many MHSLs also extensively collected clinical or public health resources produced by local institutions that the MHSLs are affiliated with, local government agencies (e.g., Department of Health and Human Services), and local news channels. Overall, MHSLs’ effort and practice in information-curation stressed the essential role of the federal and local governments as well as WHO in health policymaking, data and resource provision, and strategic investment in abating the public health crisis. Second, MHSLs directly supported clinical care. About 40 library guides provided comprehensive and highly customized search strategies for evidence-based information on various COVID-19 related topics. In addition, about 10% of MHSLs provided summary or evidence synthesis resources to inform clinical treatment of COVID-19 patients, specialty care areas, and best practices for public safety. At least nine MHSLs in this study responded to the severe shortage of PPE by providing special resources on how to make PPE using 3-D printing capacity in library-based “maker-space” for local hospitals and healthcare facilities.

Third, MHSLs provided education on health literacy. In addition to print materials, 66% of the MHSL websites integrated multimedia content (e.g., images, videos, maps, and data visualization) into COVID-19 information delivery. To assist patrons to combat fake news, misinformation, and disinformation, at least three library guides provided instructional resources for evaluating information and fact-checking. Given the rapidly changing situation, the latest national and local news, as well as social media posts from reputable sources, became the easiest information type for users to quickly catch up. The coronavirus outbreak special report from the New York Times and the New York Times’ outbreak map were frequently cited by, linked, or integrated to several MHSL websites.

Fourth, MHSLs outreached to the public. Close to 40% of MHSLs curated information for the patient and consumer health came from reliable sources (e.g., MedlinePlus, CDC, and NIH), with some of these resources provided in multiple languages. Particularly, to alert the arising concern of racism, four MHSLs collected racism and prejudice reports and facts from the U.S. news media and research articles, and one of them even empowered researchers with search strategies related to racism and xenophobia. To document personal experience amid the COVID-19 pandemic, three MHSLs are publicly soliciting personal narratives, stories, photos, and videos on their websites for their institutions’ digital archives. To help the general public observe stay-at-home orders and social distancing, some MHSLs compiled lists of educational programs, digital books, online storytelling, and virtual tour links to interesting places.

This study found that the MHSLs were making significant efforts to engage and support the health affairs of communities and the general public. Most provided direct links on their websites for users to access their COVID-19 specific services and resources. However, a small number of the websites had poor usability and unfortunately, their COVID-19 resources were unintentionally hidden. More alarming is the fact that 48% of the MHSL websites did not provide the time when their webpages were last updated. Given the rapidly evolving situation amid the pandemic, credibility of information resources could be discounted without a last-updated-date provided.

Overall, this study provided a glimpse into how the United States is battling the COVID-19 pandemic. (1) Both public and private efforts were poured into providing free research resources to fight the emergent crisis, such as NLM’s PMC Text Mining Collections for coronavirus and CORD-19 hosted by the Allen Institute for AI as well as openly accessible resources made available by publishing communities. (2) U.S. Federal Government resources and policies greatly influenced how people are dealing with the current health emergency from research, clinical care, to everyday life. In addition, timely and informed decisions of policymakers at the local, national, and international levels are pivotal during this unprecedented time. Therefore, credible information and information transparency are crucial in suppressing misinformation and disinformation. (3) As the global health guardian, the WHO has been playing an important role in communicating and fighting this global public health crisis. Its information, resources, and recommendations have been widely taken into considerations by U.S. health officials and research institutions. Therefore, this study will not only be of interest to MHSL leaders,
administrators, and librarians but also to government leaders, public health officials, and the general public in terms of what we have been mobilized to do, how we are doing it, and what is important for us to survive and end the crisis.

There are a few limitations to this study. First, data were collected only from the websites. For library services including research, instruction, and activities in which individual librarians engaged that were not immediately disclosed or provided on the main website, those were automatically excluded from the analysis. In addition, a few MHSLS restricted their COVID-19 related service, notices, and resources to users of their affiliated institutions only, which the public does not have access to. Therefore, the findings of this study reflect only partial actions that the academic MHSLS are undertaking and can be observed publicly. Second, several AAHSL member institutions, particularly the ones in Canada were excluded from this study. During the time of this investigation, the United States had the highest number of confirmed cases of COVID-19 and the highest number of deaths (WHO, 2020d). Since the COVID-19 information services and resources depend on the severity level of the pandemic, healthcare infrastructure, national health strategies, governmental input, and local policies (Austen, 2020), AAHSL members in other countries were excluded so that the U.S. effort, responses, and lessons can be highlighted. Third, to investigate the usability of MHSL websites, ideally, we should have conducted formal usability experiments. However, given the challenge and safety concerns of involving human subjects in human–computer interaction research amid the COVID-19 pandemic, the large number of MHSLS included in this study (i.e., 157), and time constraint, we decided to adopt usability heuristics and metrics that do not need to involve users, such as the amount of effort to perform tasks (i.e., number of clicks) and accessibility assessment, which are even more important than ever when all the library services are moved online. Finally, this study only focused on the status, services, and resources from March to late April in 2020, which could quickly change in the coming months given the evolving situation.

5 Conclusion

This observational study is the most recent investigation and documentation on the status, services, resources, and roles of the academic MHSLS in the United States during the COVID-19 pandemic. Although the COVID-19 health crisis is taking a heavy toll on libraries nationwide, the study found that academic MHSLS are playing a vital role in curating resources, supporting clinical care, providing education, and outreach to the public. The infodemic that we are experiencing has further illustrated the need for MHSLS to utilize their expertise in information curation and evaluation to partner with information experts and health entities to help design, develop, and improve evidence-quality grading systems for online health information (Cuan-Baltazar et al., 2020). In addition, MHSLS are at the front line together with health care professionals, public health leaders, and policymakers to combat the information crisis resulted from the COVID-19 pandemic. As is evidenced through this analysis, creating a web site with strong usability design in mind, incorporating seamless access to associated guides, providing updated dates for when information is modified, and being flexible and agile to transform in-person services to the online environment are critical if we are to effectively support those with whom we work. We believe that MHSLS will come out of this crisis stronger and more resilient by continuing to evolve, partnering with communities it serves, and “developing new solutions to meet the information challenges” (NLM, 2020).

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