Research Article

Access to Library Information Resources by University Students During Covid-19 Pandemic in Africa: a Systematic Literature Review

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Abstract
The study examined access to library information resources by university students during the outbreak of the COVID-19 pandemic in 2020. Specifically, the study sought to identify the measures adopted by academic libraries to ensure the smooth deliveryof library information resources to patrons, particularly students, identifytechnological tools that libraries employed to facilitate access to library information resources,also, the study investigated the challenges faced by students in accessing library information resources.

Asystematic literature reviewapproach following PRISMA guidelines was employed to investigate the findings of the relevant literature on the subject. The keyword search strategy was employed to search for relevant literature from four scholarly databases:Scopus, Emerald, Research4life, and Google Scholar. The relevant 23 studies were included, fulfilling the set inclusion criteria.The findings were presented in a tabular form to provide a summary of each article and facilitate easy analysis and synthesis of results.

The findings of this study revealed that the majority of the reviewed studies indicate that, during the COVID-19 pandemic,many academic libraries in Africa adopted different approaches to facilitate access to library information resources by university students,including expanding access to electronic resources off-campus,virtual reference services, circulation, and lending services.Academic libraries in Africa use various digital technological tools like social media, library websites, email, and video conferencing to support access to library services and information resources. Moreover, the study revealed that limited access to internet services and ICT devices, inadequate electronic library collection,and inadequate digital and information literacy were the major challenges faced by many university students in accessing library resources during the pandemic. This study recommends investment in ICT infrastructures and expanding electronic resource collections, vital resources in the digital era.

Keywords: SAccess, Library Information Resources, Academic Library, University Students, Covid-19 Pandemic, Africa

1. Introduction

Academic libraries areconsidered the hub of knowledge and innovationat the forefrontofcollecting and disseminating print and electronic resources [1]. Library professionals are responsible for disseminating, organizing, and makingit accessible to users [2]. However, getting access to these library information resources is not always smooth as it needs some procedures and protocols set by both the publishers and hosting institutions, and this becomes evident when some systems are put to the test, like during the COVID-19 pandemic. For example, the outbreak of COVID-19 posed challenges to academics, researchers, and university students when they tried to access physical library information resources,they faced serious health protection measures, including lockdowns and closure of universities in many countries.

Despite the distraction brought by COVID-19 that forced learners to change their learning environment,library userscould still expect their library to support access to library services and

resources to meet scholarly information needs [3-5]. In the digital era, patrons expect the library to operate its services by providing access to services and resources using digital communication technologies [6]. Information and Technology prove the possibility of operating a library without the wall in the sense that library services can be offered beyond the walls of the library building. Given this, academic libraries with well-established technological infrastructure can operatedigital library services by providing students with access to online resources and services regardless of the prevailing situation. However, academic libraries with unreliable technological infrastructure were forced to close their services during the COVID-19 pandemic [7-9]. When the technologies used in libraries are not adequate to support access to library information resources, access to library resources and services will fail [10-15].

Prior studies describe how the transition from traditional to online delivery of information services has affected academic libraries, especially in developed countries and African countries in particular [16-20]. In many African countries, information and communication infrastructures are not well established [21]. Also, academic libraries in Africa have faced several social, economic, and technological challenges before the COVID-19 pandemic, limiting the utilization of digital technologies to enhance access to library information resources and services [22]. The current COVID-19 pandemic serves as a wake-up call to academic libraries in Africa to assess the way they can handle access to library resources by users, including students, to decide about the services and resources that should be maintained and decide how library services and resources could best be delivered to during the time when physical librariesare inaccessible. Therefore, information on access to library resources provides useful insight into how academic librarians can restructure their services to support university students' access to library information resources during the closure of physical library services. On the other hand, this information will influence future research and policymakers' decisions to support university students' access to library information resources during the pandemic or any other future emergency.

1.1 Purpose of the Study
The study sought to provide an understanding of university students' access to library information resources during the outbreak of the COVID-19 pandemic in Africa. Specifically, the study focuses on what types of services were adopted by academic libraries to facilitate the accessibility of library information resources by university students following the sudden closure of university campuses because of the COVID-19 pandemic. The study also aims to determinedigital technological tools used by academic libraries to facilitate the accessibility of library information resources and the challenges university students encounter amid the global pandemic. The findings of this study provide insight into academic libraries in Africa as regards how to offer library services in a time of pandemic or emergency where students cannot pay physical visits to the library buildings as well as the tools and

technologies to be harnessed in facilitating student's access to library information resources and the challenge to overcome.

1.2 Research Questions
1. What types of library services are being offered by academic libraries to students during the outbreak of the COVID-19 pandemic?
2. What digital technological toolsare beingused by academic libraries to facilitatestudent's access to library information resources during the COVID-19 pandemic?
3. What are the challenges being faced by university students in accessing library information resources duringthe COVID-19 pandemic?

1.3 Research Methodology
This study employed a systematic literature review methodology to examine university students' access to library resources during the COVID-19 pandemic. A systematic literature review involves a systematic, transparent, and reproducible synthesis of research findings from different empirical findings on a given topic [23]. The reason for the choice of systematic literature review methodology is that it provides baseline information based on the accumulation of findings from a range of empirical studies that contribute to knowledge development and theory on a given topic [24]. It uncovers new areas for further research [25]. According to Ayeni et al. a systematic literature review helps to combine previous studies that discussed and researched a particular topic and met specific inclusion criteria. Based on this fact, a systematic literature review in the current study provides an overview of how university students in Africa accessed library information resources during the COVID-19 pandemic and contributes to further research on the topic [26].

1.4 Search Strategy
Before data analysis, the researchers conducted a thorough literature search on four databases (Scopus, Emerald, Research4life, and Google Scholar) to identify relevant studies. The literature search was first conducted on August 16, 2022, and updated on December 7, 2022, to account for the latest articles. The key parameters during the literature search were the custom range of 2020 through 2022 and sorted by relevance. This custom range was used to cover current research related to the era of the COVID-19 pandemic. The researchers used five main keywords, "university students," "academic library," "library information resources," "COVID-19 pandemic" and "Africa" to construct search queries to identify the relevant studies covering the objectives of the study. During the search, the researchers used the Boolean operator "AND" to narrow the search query and "OR" to expand the search query.

The details of the search process in each database are as follows;
i. Researchersrana search query in the Scopus database using TITLE-ABS-KEY and then applied the following filters (year of publication 2020-2022; source type-journal; document type-article; Language-English). This search resulted in 89 results.
ii. In the Emerald database, researchers just put the search query

in a search box and applied the following limiter (search by relevancy, year of publication 2020-2022; source type-journal; document type-article; Language-English). This search resulted in 652 results.

iii. In Research4life, researchers put the search query in the search box and then refined the search by (The publication year 2020-2022; Scholarly peer-reviewedjournal article; field of study-library and information science and language –English). The search resulted in 8 results.

iv. In Google Scholar, researchers put the search query in the box and then applied the following filter (Custom range 2020-2022; sort by relevance, peer-reviewed article; language- English. This search resulted in 784 results. The Overall results from all four databases were 1,533 records.

1.5 Inclusion and Exclusion Criteria

The study focused onuniversity students' access to library information resources during the COVID-19 pandemic era in Africa. The inclusion criteria were;

• Only articles published in peer-reviewed journals. The peer-reviewed journal articles were considered to maintain standards and enhance the quality of the work because they undergo a quality check mechanism that helps strengthen the credibility of scholarly publications.

• Research articles published from 2020 to 2022 on access to library information resources by university students in Africa. Considering that COVID-19 began in December 2019, it is possible that immediately after 2019, research on this subject began.

• Research article published in English because English is the primary research language in the field of Library and Information Science.

• Studies covering more than one aspect ofuniversity students'

access to library information resources during the COVID-19 pandemic in Africa.

The exclusion criteria were based on studies not published in peer-reviewed journals, not published in the English language, and not discussed access to library information by university students in the COVID-19 pandemic era, as well as studies covering only one aspect of this study.

1.6 Selection of Studies

A systematic review of relevant literature was conducted following the Preferred Reporting Items for the Systematic Review and Meta-analysis (PRISMA) by [27]. The PRISMA aims to help authors improve systematic review and meta-analysis reporting. It provides a checklist that guides the researchers in identifying relevant material, screening, eligibility, and including studies for literature review synthesis. The PRISMA assumes that the quality of the systematic review and meta-analysis depends on the scope and quality of the included studies [28]. The PRISMA protocol for systematic review and meta-analysis has four stages: identification, screening, eligibility, and inclusion. In the first stage, 1533 articles were identified from the four databases. In the second stage, the articles' titles and abstracts were screened using the first stage of inclusion and exclusion criteria. The potential articles in the study were identified and saved in Mendeley Library, where duplicates were removed. In the third stage, the full text of identified articles was screened for eligibility using the second stage of eligibility criteria. Acritical evaluation of the full text of the selected articles was performed to check whether they meet the study's objective. The final stage presents 23 articles for systematic review and analysis.
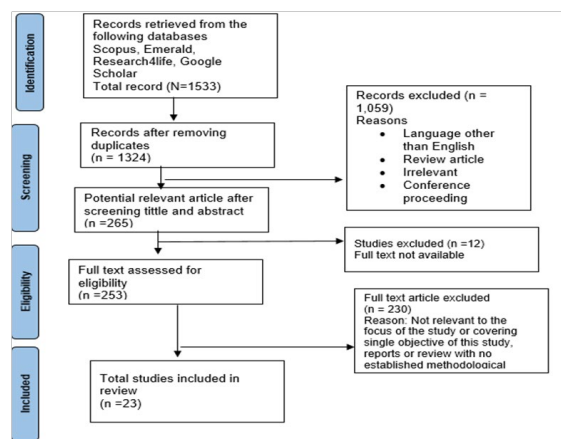

Figure 1: Four-Phase Flow Diagram of the Selection Procedure of Included Studies

1.7 Data Extraction: A tabular approach was used to summarize each eligible study. Data extraction (see Table 1), which includes authors' names, the methods used, types of servicesoffered by academic libraries during COVID-19, digital technological tools implemented, and the challenges faced by students in accessing library resources, was used to extract data summary from 23 reviewed articles.

2. Results and Interpretation

This section presents the summary of data extracted from 23 reviewed articles based on the study's specific objectives. The section synthesizes themes identified based on each specific objective and research question.

2.1 Objective 1: Types of Services Offered by Academic Libraries to Support Students Access to Library Information Resources During Covid-19 Pandemic

Table 2 presents different types of services thatacademic libraries in Africa offered to facilitate students' access to library resources during the closure of higher learning institutions following the outbreak of the COVID-19 pandemic.

Types of service provided	Frequency	Percent
Remote access to library resources	20	87
Virtual reference services	18	78
Circulation and lending services	8	35
Online user education programs	8	35
Research support services	5	22

Table 2: Types of Services Provided by Academic Libraries During the Covid-19 Pandemic

These results show that the majority (87%) of academic library services were offered through remote access to library resources. In other words, remote access was preferred, possibly due to the closure of universities and some precautions related to lockdown and social distancing. Apart from that, a significant percent (78%) of academic libraries applied virtual reference services to offer library services to users. Other services offered by academic libraries during the pandemic include circulation and lending services, online use education programs, and research support services.

2.2 Digital Technological Tools Used by Academic Libraries to Facilitate Access to Library Information Resources by University Students During the Outbreak of Covid-19

During COVID-19, academic libraries applied digital technological tools to optimize remote access to library information resources and services while maintaining social distance. Academic libraries used numerous toolsto support university students' access to library information resources during the COVID-19 lockdown. Table 3 presents the findings on the digital technological tool used by academic libraries in supporting library information resources during COVID-19.

Digital technological tools used to facilitate access to library information resources during COVID-19 pandemic	Frequency	Percentage
Social media	14	61
Library website	13	57
Ask a librarian and live chat	8	35
Email	7	30
Library OPAC	5	22
Remotexand EZProxy	3	13
Video conferencing	3	13

Table 3: Digital Technological Tools Used by Academic Libraries to Facilitate Access to Library Information Resources During the Covid-19 Pandemic

These results show that most (61%) of academic libraries used social media to support university students accessing library information resources. As such, academic libraries mainly use social media as it allows a mode of communication without being physically attached. Besides, a significant percentage (57%) of academic libraries prefer using library websites to support university students' access to library information resources. Other electronic tools that do not necessarily require physical presence in the library to access library information resources were applied, such as Ask a Librarian and live chat, email, library OPAC, Remotex and EZProxy, and video conferencing.

2.3 Challenges Faced in Accessing Library Information Resources During Covid-19 Pandemic

Providing services to university students during COVID-19 faced myriad challenges. Table 4 presents various challenges university students face in accessing library information resources during COVID-19.

Challenges	Frequency	Percentage
Limited access to internet services	19	82.6
Inadequate library e-resources collection	10	43.5
Inadequate digital and information literacy skills among students	9	39
Limited off-campus access to library e-resources	5	22
Lack of knowledge on library resources which can be accessed remotely	4	17
Limited interaction between librarians and students	4	17

Table 4: Challenges University Students Face in Accessing Library Information Resources During Covid-19.

These results show that the majority (82.6%) of reviewed studies indicate that limited access to internet service is the major challenge faced by students in accessing remote library resources during COVID-19. Apart from that, ten (10) out of twenty-three (23) reviews indicated that inadequate library e-resources collection was another challenge faced by university students in accessing library resources during the pandemic. This has been influenced by inadequate funds among African academic libraries to subscribe to more e-resources to meet students' increasing demand for e-resources. Also, inadequate digital and information literacy skills among students and limited off-campus access to library electronic resources hindered students' remote access to library resources during the COVID-19 pandemic. Lack of knowledge of library resources that can be accessed remotely and limited interaction between librarians and patrons due to social distance and lockdown were mentioned in four out of 23 reviewed studies.

3. Discussion

The study sought to examine university students' access to library information resources during the outbreak of the COVID-19 pandemic in Africa. Specifically, the study identified types of services offered by academic libraries to support university students' access to library information resources, identified digital technological tools employed by academic libraries, and the challenges faced in accessing library information resources during the COVID-19 pandemic.

The findings of the study revealed that during an emergency that requires temporary closure of university campuses, adjustment of physical library services to virtual library services and other innovative services is inevitable for academic libraries in Africa to facilitate off-campus electronic access to library resources to ensure students' continuity of access to library information resources. On this, remote access to library information resources such as newspapers, e-books, e-journals, past examination papers, institution repositories, online public catalogs, streaming media, research guides, online databases, library electronic resources, and other educational contents through various digital technological tools are pivotal during an emergency time like the case of COVID-19 [29]. On the other hand, the provision of virtual library services by academic libraries during emergency times like the COVID-19 pandemic is virtual. There has been a significant increase in the use of online reference services to sustain interaction with patrons and answer patrons' queries, to support remote access to library information resources to create awareness and promote library resources, and services in a digital environment [30,31].

Some libraries introduced online interlibrary loans and document delivery to support remote access to library resources, especially for students who could not access online information resources [32]. Other libraries extend the book loan period and waive fines to allow students to stay with books and other information resources during the lockdown period and avoid the accumulation of fines during the lockdown period [33]. In exceptional ways, Curbside book pick up was another new service offered by some academic libraries in South Africa to facilitate access to print library resources for students who were not able to utilize digital facilities to access library resources during the lockdown [34]. To return borrowed library information resources, some libraries use book drop boxes whereby students can return borrowed books and other library materials without physical contact with librarians.

On the part of the tool used to facilitate access to library information resources during the COVID-19 pandemic, the outbreak of the COVID-19 pandemic triggered a keen interest among academic libraries in Africa to adapt digital technology tools to reach users during the closure of physical library services. Digital technological tools have allowed students to access electronic library resources anywhere at any time following the temporal closure of library buildings. In this regard, Chisita et al. point out that the closure of libraries and lockdown create a physical barrier between librarians and patrons, resulting in increased demand for digital technology tools to facilitate access to library services and resources to avoid total closure and suspension of services. These tools include social media, library website, and email, ask a librarian live chat, videoconferencing, and other software like Remotex and EZProxy. Using digital technology tools also helped bridge the distance between library staff and patrons during lockdown. The findings of this study revealed that many academic libraries in Africa used social media tools like (Facebook, Twitter, WhatsApp, YouTube, Mayspace, Telegram and Blogs) to offer different library services and provide links to library e-resources. Virtual reference services were provided through several digital tools like social media, Libguide, chat facilities on the website, phone numbers, and email For instance, the University of Lesotho library provided reference services through chat facilities, while subject-specific queries were

answered by subject librarians. On the other hand, different web conferencing tools such as Zoom, WebEx, BigBlueButton, Google Meet, Microsoft Team, instructional video guides on the library websites, and social media have been used by academic libraries to facilitate the delivery of online user education programs during lockdown. To support this, Abubakar (2021) asserts that social media implementations and daily usage have increasingly become common among librarians around the globe during the COVID-19 pandemic. On the other hand,Ifijeh and Yusuf (2020) emphasize that university libraries could leverage social media to promote reference services during the COVID-19 pandemic.

Despite the initiatives made by academic libraries to provide support on access to library resources during the closure of the library following the outbreak of COVID-19, students in Africa faced several challenges that limited smooth access to information resources offered by academic libraries through various digital platforms. Studies have indicated that limited access to internet serviceand ICT devices is the major challenge that hindered students' access to remote online information resources during the COVID-19 pandemic. It was established that some university students in many African countries had challenges in having access to reliable internet services and computer facilities to support online access to library information resources during the lockdown. Nwosu (2021) asserts that access to the Internet and other digital facilities for many university students in African countries is made available on their host university campuses. However, limited access to physical library buildings presents a challenge for students to purchase their gadgets, such as laptops and computers, to access the online library information resources and other digital services. Due to financial constraints,many students could not meet the cost of purchasing a computer or laptop and meet data costs. Furthermore, the study's findings identified that inadequate library e-resources and limited off-campus access to electronic library information resources hindered students' access to library information resources during the pandemic. As such, not all academic libraries in Africa managed to offer remote access to library resources during the COVID-19 pandemic due to continuous budget cuts and poor technological infrastructure to support off-campus access. Inadequate funding further deters technological tools from accessing library information resources and library collections. High electronic resources subscription costs resulted inthe limited library collection, especially e-resources. discloses that one of the challengesthat contributed to the limited digital collection atthe University of Eswatini wasthe lack of finance for e-resources subscriptions. Additionally, university students' inadequate digital and information literacy skills, lack of knowledge of the available library resources that can be accessed remotely, and limited interaction with librarians contributed to difficulties encountered by university students in accessing library information resources during the COVID-19 pandemic.

3.1 Implications of the Study
3.1.1 Implication for Practice
This systematic literature review provides insight intouniversity students' access to library information resources during the COVID-19 pandemic in Africa. The study has revealed that, like in other parts of the world, academic libraries in Africa have taken initiatives to facilitate remote access to library information resources and services through digital platforms to ensure that university students are not denied access to scholarly information resources needed to support their learning in a changing digital learning environment following the closure of university campuses due to COVID-19 pandemic. Despite the initiatives taken by academic libraries to support students' access to library information resources, actions need to be taken by library management and parent institutions management in Africa to improve ICT infrastructures, expand library electronic resource collections, and impart digital literacy skills to both library professionals and students. Otherwise, access to library information resources will still be problematic in many academic libraries in Africa during emergencies and even in the future.

3.2 Implication For Policy
This study provides useful insights to organizational policymakers and academic library directors in Africa in developing emergency and disaster preparedness plans, which will guide academic libraries inproviding access to library information resources and services to university students during the COVID-19 pandemic and other emergencies or disasters in the future.

3.3 Limitations and Recommendations for Further Study
The limitationsof this study included the selection of databases, language, search strategies, and quality assessment of the selected studies. Four scholarly databases (Scopus, Emerald, Research4life, and Google Scholar) were selected to extract data for this study. Also,this study did not include the gray literature, such as conference papers, proceedings, dissertations, reports, discussions, etc. Therefore, it is possible that some potential records and studies published in other databases might be missed. Furthermore, selected keywords were used to construct search queries. It is possible that some records were not included due to missing keywords or the limitations of a search query.

This systematic review recommendsthat further studies should be conducted to assess university students' access to library information resources and services in a specific country,accounting for geographical locations and language. This will help provide a good understanding of the current status regarding university students' access to library information resources and services during healthemergencies like the COVID-19 pandemic. Also,another study should focus on the post-pandemic experience of different categories of libraries regarding the provision of services to users.

4. Conclusion and Recommendation
This systematic literature review analyzeduniversity students' access to library information resources during the outbreak of the COVID-19 pandemic in Africa. Specifically, the study sought to identify the measures adopted by academic libraries to ensure the smooth delivery of library information resources to patrons, particularly students, and identify technological tools that libraries employ to facilitate access to library information resources. Also,

the study investigates the challenges students face in accessing library information resources. Theoutbreak of the COVID-19 pandemic has challenged traditional library services worldwide. To stay relevant, academic libraries in Africa must expand library services through digital technology platforms to ensure that library information resources are accessible to students despite the closure of physical library services. Some innovative services are required to be adopted bylibraries in Africa to offer off-campus access to library information resources during the closure of physical library services while promoting the use of electronic resources more than before. On the other hand, academic libraries should emphasize providing digital and information literacy training to students to impart the required skills to navigate through the changing online information landscape brought about by the COVID-19 pandemic. Moreover, academic libraries should be well equipped to deal with emergencies by investing in ICT infrastructure and expanding electronic resource collection to continue supporting students' access to library information during emergency times, as in the case of the COVID-19 pandemic. The government should also bridge the digital divide gap by supporting students' access to internet services and other digital facilities to connect and access electronic information resources at home.

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