

Assessing the Availability of Information Sources and Services During the COVID-19 Pandemic in University Libraries in Nigeria

Saturday U. Omeluzor^{1*}, Vera N. Okonoko² and Njideka Nwawih Charlotte Ojukwu³

¹University Library, Federal University of Petroleum Resources Effurun, Delta State- 330 003, Nigeria

²University Library, University of Delta, Agbor, Delta State- 321 001, Nigeria

³Department of Library and Information Science, Federal University Lokoja, Kogi State- 260 001, Nigeria

*E-mail: omeluzor.Saturday@fupre.edu.ng

ABSTRACT

The emergence of COVID-19 pandemic hampered the availability of information sources and services in most academic institutions around the world. Making information available during major crisis reveals the long-standing position of the library in helping its patrons. This post COVID-19 study that took place between February 2020 and January 2021 investigated the availability of information sources and services during the COVID-19 pandemic in university libraries in Nigeria. Using a descriptive design, the study used 240 students who were purposely selected from 30 universities including federal, state and private universities in South-South geographical zone of Nigeria as sample. The study revealed that information sources such as: e-books, print journals, e-journals and electronic databases and services such as: Circulation, interlibrary loan, remote access, SDI, online reference services among others were available to the patrons in university libraries in Nigeria during the COVID-19 pandemic. The findings showed that the inhibiting factors against the availability of information sources and service in university libraries were poor telecommunication network, closure of some library sections, lack of preparation, unavailability of library policy on pandemic/disaster management and poor coordination among others. The study recommended some areas for improvement to ensure the availability of information sources and services to the library patrons during major crisis.

Keywords: Information availability; Information sources; Information services; COVID-19 pandemic; University library; Nigeria

1. INTRODUCTION

Coronavirus, also known as 'COVID-19' pandemic presented a lot of challenges in all segment of the nation, including the educational sector, which affected the availability of information sources and services at the university libraries all over the world. The emergence of COVID-19 pandemic poses some serious health issues and raised a lot of concern on how to make information available to the library users because it alters the usual face-to-face delivery of information services to the library patrons. The availability of information resources allows their presence in the library for instant use by patrons¹. Similarly, the availability of information resources has been identified as the means of providing all the necessary information sources and services that are needed by the library patrons². Thus, availability of information sources such as: books, journals, magazines, newspapers and services which include: circulation services, reprographic services, inter-library services, selective dissemination of information (SDI), current awareness services (CAS) and reference services among others are critical for the library patrons to access relevant and current information at the university library. Consequently,

availability of information sources and services is one of the cardinal mandates of the university library, but it was hindered by the spread of COVID-19 pandemic in Nigeria. COVID-19 pandemic has a lot of negative effects on both the university library and its users. The pandemic restrained physical contact, reduced the opening hours of the library, limited the number of patrons to the library, truncated some ongoing researches and the use of some information sources and services³⁻⁶. However, not much has been done to investigate the availability of information sources and services at the university libraries in Nigeria during the COVID-19 pandemic. Hence, this current study provides some useful data and evidence on the topic for decision making in a crisis situation such as COVID-19 pandemic.

2. BACKGROUND

Over the years, many countries of the world have witnessed the spread of contagious diseases such as: Ebola, flu, chicken pox, Laser fever among others. In the late 2019, the world experienced another dreaded disease known as COVID-19. On March 11, 2020, the World Health Organisation (WHO) recognised COVID-19 as a 'pandemic' with an increasing number of 124,101 established cases around the world⁷. The first case of

COVID-19 pandemic in Nigeria was reported on 27 February, 2020⁸. COVID-19 pandemic is highly infectious and can be transmitted from person to person through respiratory droplet that is produced by an infected person through sneezing, coughing or talking⁹.

Prior to the upsurge of COVID-19 disease in Nigeria, the university libraries were opened to registered library patrons without any form of restriction. The advent of COVID-19 led to fractional opening of some important sectors of Nigeria's economy including the university library after the Federal Government of Nigeria declared COVID-19 pandemic an 'emergency' on 30 March 2020³. The university library was partially closed during the spread of COVID-19 pandemic. The scenario made most of the libraries to offer skeletal information services to their patrons^{3,5}. The partial closure and restriction of movement of people into the library affected the availability of information sources and services at the university library. The action by the Nigerian Government to partially close and restrict movement of people into public places and facilities such as the university library was to restrain the spread of COVID-19 pandemic. This study therefore investigates the availability of information sources and services at the university libraries in Nigeria during the COVID-19 pandemic period from February 2020 to January 2021. The research is guided by four research questions:

- (a). What were the available information services to the library patrons during the COVID-19 pandemic in university library in Nigeria?
- (b). What were the available information sources at the university library during the COVID-19 pandemic?
- (c). What were the information sources used most by library patrons during the COVID-19 pandemic in Nigeria?
- (d). What were the challenges of using information sources and services during the COVID-19 pandemic in university library in Nigeria?

3. LITERATURE REVIEW

3.1 Availability of Information Sources and Services

One of the primary responsibilities of the university library is to make information sources and services available and accessible to its patrons. The university libraries all over the world were not hesitant to activate some of the strategic methods in order to fulfill the mandate during the COVID-19 pandemic. For example, at the NimbeAdedipe Library of Federal University of Agriculture, Abeokuta, Nigeria; after shutting down all college libraries, it started its electronic resources portal which was available remotely for patrons⁵. The emergence of COVID-19 was a chance for university library to re-evaluate its amenities, resources, approaches and services in order to respond to the 'new normal' and to make sure that information sources and services are available to satisfy the information needs of library patrons³. In crisis situation such as disaster, pandemic or war, the university

library has a duty to make information available to the library patrons to mitigate the negative effects of such crisis because unavailability of library information sources and services would be a serious problem that may render academic activities useless⁶.

During the COVID-19 pandemic, a number of university libraries around the world responded by making information sources and services available to its patrons. For example, the Qatar National Library (QNL) on 11 March 2020 decided to close all library activities with human interference and started 'digital transformation' making information and services available remotely through the digital library. The QNL further increased access to the library collections via their library website to showcase existing online services including: LibAnswer, LibChat, social media platforms, e-mail support and digitised collections among others¹⁰.

In Japan, prior to COVID-19 pandemic, e-books were not commonly used. But the effect of the pandemic on academic library increased the use of electronic books at the Kyushu University. The total access counts for e-books in 2020 was higher than 2019. JSTOR had the highest access count with 846 % increase¹¹. Also, the Maruzen e-book library which holds Japanese textbooks witnessed the use of e-books on Medical Science, Mathematics, and Programming languages while e-books in Law and Economics were for the first time consulted during the COVID-19 pandemic¹¹. Similarly, the number of students who accepted to use e-books in India grew during the COVID-19 pandemic. A total of 237 hospitality students which represents the highest number of users of e-books compared to the past used it to accomplish learning tasks¹².

An investigation of the websites of Premier Technological Institutions of India during the COVID-19 pandemic revealed that out of 23 library websites of the Indian Institute of Technology (IITs), 22 of them made information and services available¹³. In addition, the National Digital Library of India (NDLI), an initiative of IIT also made information services available to its patrons¹³. The World Health Organisation (WHO)¹⁴ among other notable organisations around the world also responded to COVID-19 by making information services available and accessible to the public. For most organisations such as WHO, public safety is their utmost priority. WHO had to increase the capacity of its website on a bid to ensure the availability of health information to the general public¹⁴. Equally, some major publishers and library associations such as: ProQuest, Cambridge, Elsevier, Emerald, International Federation of Library Association (IFLA), America Library Association (ALA) and Nigeria Library Association (NLA) to mention a few also made online information on COVID-19 freely available to researchers⁴. The Duke University Libraries and National Library of Medicine were among libraries that participated in making online information available to their patrons during the COVID-19 pandemic, while NLA deployed online training platform to educate,

create awareness and enlighten its members and library patrons on safety measures and prevention of COVID-19 pandemic³.

Furthermore, evidence in a study showed that library information sources and services such as print materials and technologies were available to patrons during the COVID-19 pandemic in USAAs 80 % of the libraries did not report any changes to their current technology lending programmes, while 85 % provided access to print materials¹⁵. On the provision of library services, the study revealed that 65 % of libraries provided reference services and 25 % ensured that information services were provided by phone and online within a limited time frame¹⁵.

In Nigeria, there was evidence that the university libraries took some drastic decisions by adhering to all the prescribed COVID-19 safety measures such as: increasing hand washing points under a running water, use of face masks by library patrons and librarians, use of hand sanitizer, social distancing, wearing of hand gloves and using social media to attend to patrons in order to make information sources and services available to the library patrons¹⁷. Information sources such as: print materials and information literacy training were available to the library patrons through physical means and online via social media including: email, WhatsApp, Zoom, Skype and Google meet⁵. Equally, there were some libraries in Nigeria that made information sources and services available to their patrons via Online Public Access Catalogue (OPAC) during the COVID-19 pandemic⁴. Information services such as CAS, online SDI, electronic document delivery, online bibliographic service, virtual library service, online reference and online database search were also available¹⁶. Furthermore, study has shown that 13 and 17 out of 43 federal universities had access to online information services on COVID-19⁶. The spread of COVID-19 pandemic compelled libraries in Nigeria to provide online information services to their patrons, which could be seen as the ‘new normal’⁵.

3.2 Challenges of Availability of Information and Services

There were numerous challenges that impeded the availability of information services during the COVID-19 pandemic in Nigeria. It is evident that poor telecommunication networks, inadequate internet services and closure of some sections of the library during the pandemic period ranked high among the challenges¹⁸. Similarly, inadequate funding, lack of preparedness, erratic power supply, inadequate ICT facilities, high cost of facilities/bandwidth and inadequate manpower were among the challenges that hindered availability of information sources and services^{16,21}. Furthermore, dissemination of information at university libraries in Nigeria during the COVID-19 pandemic was hampered by poor coordination of library activities, closure of tertiary institutions because of COVID-19, ASUU strike action, limited contact with

patrons, lack of policy on disaster management and lack of data subscription for librarians³. A total of 29 (59 %) of 57 professionals confirmed that there was unavailability of library policy on disaster management and epidemic¹⁶ hence, a call for review of policy on availability of information services during emergency such as disaster and pandemic at the university library in Nigeria¹⁵.

4. METHODOLOGY

4.1 Research Approach

This post-COVID-19 study was carried out between February 2020 and January 2021. The descriptive survey design was adopted for the study. A descriptive survey method allows the collection of data using questionnaire or interview from a selected sample to represent a given population to which the results of the data analysis can be generalised. The design has proven to be reliable in research with a larger amount of data collected for a study in Social Science research¹⁹.

4.2 Population

The study population include some selected registered 200, 300, 400 and 500 level students who visited the library at the peak of COVID-19 pandemic in the federal, state and private universities in South-South of Nigeria (see Appendix A). The reason for selecting a larger population cutting across federal, state and private universities was to draw a representative sample from them in order to determine the level of information sources and services that were available at the different categories of universities in Nigeria during the pandemic. The 100 level students were excluded because they were not yet admitted into the university during the time of this research. The researchers intentionally selected 8 students from each of the universities, given a total of 240 students who served as respondents for the study from 30 universities, since they were available at the library during the COVID-19 pandemic in the various university libraries included in this study. The reason for using the fewer sample was because this study was limited to only those who used the library during the pandemic. The sample includes: (1) students from different universities (2) students at different academic levels (3) students from different academic programmes and (4) students who have varied information needs during COVID-19 pandemic. Using a consensus method, all the students were used as sample for this study since the population is not too large and is also manageable.

4.3 Research Instrument

The study used questionnaire for data collection. The questionnaire was made up of structured questions and was designed by the researchers to answer the research questions. It was printed and distributed face-to-face to the intended respondents. The questionnaire was easy to understand by the respondents and has five sections,

i.e. A to E. Section A provides the demographic details of the respondents. Section B provides answer on the availability of information services to the patrons. Section C offer information on the available information sources at the library during the pandemic while section D present answer on the information sources used most by patrons during the pandemic. Section D deals with the challenges that were facing the use of information sources and services at the university libraries in Nigeria. The reason for using questionnaire for this study was because it is easy to retrieve especially when it is distributed directly to the respondents and secondly, it provides first-hand information from intended respondents.

4.4 Test and Retest of the Questionnaire

To determine the precision of the tool that was used for the study, pre-reliability test was used, this include: content, face and concept validations. The researchers also employed the help of information professional who checked the questionnaire, made some corrections and confirmed it to be appropriate for data collection for this study. We also validated the content of the questionnaire by distributing 10 copies to 10 students at the University of Lagos located at the South-West geo-political zone of Nigeria who were not participants in this study. The 10 instruments were all returned and were analysed using Cronbach Alpha correlation co-efficient at 0.50 level of acceptance which gave a result of $r = 0.78$. The result showed that the questionnaire for the study is reliable for data collection since the test result is above 0.50 acceptance point.

4.5 Questionnaire Distribution and Collection

The questionnaire was distributed directly on the respondents at the various university libraries visited by the researchers in South-South geopolitical zone of Nigeria. The administration of the questionnaire directly on the respondents eliminated responses from unintended respondents. From a total population of 240 that the questionnaire was administered on, 198 (85%) responded appropriately to the questionnaire and were used for the analysis of this study while the remaining 42 were not included due to some irregular answers and wrong ticking. The retrieved data were analysed using Statistical Package for Social Sciences (SPSS) version 16.0 and the results are presented in chart, frequency table, percentage, mean and standard deviation for simplicity and understanding. On Table 4, the mean scores are rated in the following order: 0.1 to 1.9 = very low, 2.0 to 2.4 = low, 2.5 to 2.9 = high, 3.0 and above = very high.

5. RESULT

5.1 Demographic Information of the Respondents

The result reveals that all the universities in the South-South zone of Nigeria were represented (see Appendix A). Out of the sixteen departments represented

in the study, English and Sociology had 6 and 15 respondents respectively. It also shows that Law, Political Science, Business Management and Library and Information Science had 10, 18, 16 and 15 respondents respectively. Chemical Engineering had 6, Petroleum Engineering 7, and Mechanical Engineering 14 while Microbiology had 8, Biochemistry 12, Chemistry 15 and Physics 20 respondents. The result specifies that majority of the departments in the university were covered indicating a justifiable representation in the study.

The also result shows that 56 (28 %) of the respondents were 200 level students, 39 (20 %) of the respondents were in 300 level, 53 (27 %) of the respondents were 400 level students while 50 (25 %) of the respondents were in 500 level. This indicates that the population of the study included students at different levels between year 2 and year 5 at the various universities in South-South Zone of Nigeria. On the gender, 53.3% of the respondents were male while 46.7 % were female which means that, there were more male respondents in this study than their female counterpart.

6. FINDINGS

6.1 Available Information Services

The results in Table 1 reveal the available information services to the library patrons during the pandemic.

The results in Table 1 represent the availability and unavailability status of information services with their corresponding percentages across the different universities in Nigeria. The result shows that there was an expanded information services in all the university libraries across the different categories of universities in Nigeria to ensure information availability. The result reveals that most of the information services were available while a few of them were not available. The result in Table 1 also reveals that the different universities represented in this study provided information services which indicate that library users had access to information during the pandemic.

The result shows that over 50 % of the respondents indicate that reprographic service and expanded trial access were not much available compared to other information services. On the average, the overall results show that information services were available at the different libraries but not in full capacity as it were when there was no crisis. On the aggregate, the results in Table 1 reveal that information services were more available in the private university than the federal and state universities.

6.2 Available Information Sources

In Table 2, the study find out the information sources that were available at the university libraries during the pandemic.

Table 1. Available information services

Information services	Status		Fed Uni.		State Uni.		Priv. Uni.	
	Available	Unavailable	AV	UNV	AV	UNV	AV	UNV
Circulation service	119 (60.1)	79 (39.9)	40	26	36	30	43	23
Reprographic service	67 (33.8)	131 (66.2)	18	48	20	46	29	37
Inter-library loan service	142 (71.7)	56 (21.1)	50	16	37	29	55	11
Direct link of library homepage	113 (57)	85 (42.9)	37	29	30	36	46	20
Remote access	147 (74.2)	51 (25.2)	52	14	44	22	51	15
COVID-19 scholarly resources	161 (81.3)	37 (18.7)	53	13	46	20	62	4
Internet Link to open access resources	141 (71.2)	57 (28.8)	47	19	45	21	49	17
Expanded trial access	26 (13.1)	172 (86.9)	5	61	9	57	12	54
Selective Dissemination of Information (SDI)	122 (61.6)	76 (38.4)	40	26	36	30	46	20
Current Awareness Service (CAS)	103 (52)	95 (48)	34	32	29	37	40	26
Email service	110 (55.5)	88 (44.5)	38	28	33	33	39	27
Internet service	107 (54)	91 (46)	35	31	33	33	39	27
Document delivery service	109 (55)	89 (45)	38	28	34	32	37	29
Online reference service	113(57.1)	85 (43)	37	29	34	32	42	24
Online bibliographic service	106 (53.5)	92 (46.4)	36	30	32	34	38	28
Online database search	113 (57)	85 (42.9)	37	29	36	30	40	26

N = 198; AV = Available; UNV =Unavailable

Table 2. Available information sources

Information sources	Status		Fed. Uni.		State Uni.		Priv. Uni.	
	Available	Unavailable	AV	UNV	AV	UNV	AV	UNV
Print sources								
Textbook	129 (65.1)	69 (34.9)	38	28	43	23	48	18
Journals	102 (51.5)	96 (48.5)	27	39	35	31	40	26
Magazine	58 (29.3)	140 (70.7)	20	46	15	51	23	43
Newspaper	23 (11.6)	175 (88.4)	-	66	9	57	14	52
Conference proceedings	133 (67.1)	65 (32.3)	50	16	37	29	46	20
Reference sources	47 (23.7)	151 (76.3)	7	59	12	54	28	38
Abstract	49 (24.8)	149 (75.3)	-	66	22	44	27	39
Index	61 (30.9)	137 (69.2)	-	66	42	24	19	47
Project/thesis/dissertation	121 (61.1)	77 (38.8)	36	30	38	28	47	19
Online sources								
E-Book	132 (66.4)	66 (33.3)	36	30	44	22	52	14
e-journal	125 (63.1)	73 (36.9)	41	25	35	31	49	17
Databases	108 (54.5)	90 (45.5)	34	32	32	34	42	24
Dataset	46 (23.2)	152 (76.8)	17	49	14	52	15	51
Institutional repository	132 (66.6)	66 (33.4)	46	20	39	27	47	19
Multimedia source	34 (17.2)	164 (82.8)	10	56	12	54	12	54

N = 198; AV = Available; UNV =Unavailable

6.3 Information Sources Used During the COVID-19 Pandemic

The result in Table 2 shows that all the information sources were available at the different libraries represented in this study. The result indicates that among the print sources, textbooks, journals, conference proceedings, and projects/thesis/dissertations were most available than the other sources. The result also shows that magazine, newspapers, reference sources,

abstracts and indexes were slightly available. On the availability of the sources at the different universities represented in this study, the result shows some level of disparity. It shows that newspapers, abstracts and indexes were unavailable at the Federal universities while at the state and private universities, newspaper was slightly available. The result in Table further shows that all online information sources were available at the various universities. The result indicates that e-books,

e-journal, databases and institutional repository were most available while dataset and multimedia sources were slightly available at the libraries during the COVID-19 pandemic. The result in Table 2 clearly shows that all the information sources were generally available while some were unavailable at the various categories of university libraries represented in this study during COVID-19 pandemic.

The result in Table 3 shows the information sources that were used most by library patrons in university libraries during the pandemic. The result in Table 3 reveals that over 50 % of the respondents across the three categories of university libraries indicate that e-books, print journals, e-journals and databases were most used during the COVID-19 pandemic. The result also reveals that 46.5 % and 42.4 % of the respondents across the three different universities indicates that print books and magazines were used. Concerning the use

of information sources at the different universities, the result shows that print books, e-books, print journals, e-journals, and databases were mostly used. The result also shows that newspaper was not used at both federal and state universities while abstract was not used in the state university. The results further show that there was a decline on the usage of conference proceedings, reference sources, abstracts, indexes and audio-visual sources despite their availability at the library during the COVID-19 pandemic.

6.4 Challenges of Information Sources and Service Availability during COVID-19 Pandemic

In Table 4, the result portrays those challenges that impede the use of information sources and services at the university library.

Table 3. Information sources used

Information sources used during the COVID-19	Status		Fed. Uni.		State Uni.		Priv. Uni.	
	Used	Not used	Used	Not used	Used	Not used	Used	Not used
Print books	92 (46.5)	106 (53.6)	34	32	28	38	30	36
e-book	125 (63.1)	73 (36.8)	42	24	37	29	46	20
Print journal	108 (54.5)	90 (45.5)	39	27	32	34	37	29
E-journal	150 (75.8)	48 (24.2)	48	18	43	23	59	7
Database	130 (65.6)	68 (34.4)	42	24	45	21	43	23
Magazine	84 (42.4)	114 (57.6)	26	39	29	37	29	38
Newspaper	7 (3.5)	191 (96.5)	-	66	-	66	7	59
Conference proceedings	35 (17.7)	163 (82.4)	12	54	8	58	15	51
Reference sources	7 (3.5)	191 (96.5)	2	64	3	63	2	64
Abstract	7 (3.5)	191 (96.5)	2	64	-	66	5	61
Index	12 (6.1)	186 (93.9)	3	63	4	62	5	61
Audio-visual source	11 (5.6)	187 (94.4)	2	64	3	63	6	60

Table 4. Challenges of information sources and services

Challenges	N	Min	Max	Mean (X)	SD
Inadequate telecommunications network	198	2.00	5.00	4.1	0.95
Closure of some sections of the library	198	3.00	5.00	4.1	0.74
Inadequate preparation for crisis	198	3.00	5.00	4.1	0.89
Inadequate ICT facilities/bandwidth	198	3.00	5.00	4.1	0.75
Inadequate power supply	198	3.00	5.00	4.1	0.84
Inadequate internet services	198	2.00	5.00	3.9	0.91
Unavailability of library policy on pandemic and disaster management	198	1.00	5.00	3.9	1.07
Insufficient fund	198	1.00	5.00	3.7	0.98
Poor coordination	198	2.00	5.00	3.5	1.00
Lack of data subscription	198	1.00	5.00	3.1	1.10

N = 198. Note: SD = Standard deviation, Acceptable mean score = 2.5 Aggregate mean = 3.86

The result in Table 4 reveals some of the challenges that impede the availability of information sources and services at the university library. The result demonstrates that poor telecommunication networks, closure of some sections of the library, lack of preparation, inadequate ICT facilities/lower bandwidth and inadequate power supply with a mean score of 4.1 were the highest challenges. This is followed by inadequate internet services and unavailability of policy document on pandemic and disaster management with a mean score of 3.9. Equally, insufficient fund was also a challenge $X = 3.7$. Furthermore, the result shows that poor coordination and lack of data subscription were challenges of availability of information sources and service at the university library. This implies that it was strenuous to make information sources and services available to the library patrons at the university library during COVID-19 pandemic. The tabulated aggregate mean of 3.86 which is higher than the acceptable mean score of 2.50 indicates that there were more challenges that affected the availability of information sources and services at the university libraries in Nigeria at the wake of the pandemic.

7. DISCUSSION

The availability of information sources and services were faced with some challenges during the pandemic. There is evidence in this study that all the items in Table 4 negatively affected the availability of information sources and services in the university library during the COVID-19 pandemic since the mean scores are higher than 2.5. The major challenges that hindered the availability of information services and sources during the COVID-19 pandemic were poor telecommunication network and closure of some sections of the library. Most university library do not have ICT infrastructure to enhance telecommunication network²¹. The findings also reveal that some of the university libraries in Nigeria were ill-prepared for the pandemic with attendant inadequate ICT infrastructure, lower bandwidth and inadequate power supply. These factors would have a negative effect on the availability of information sources and services to the library patrons. It is also evident that Internet services which is a major component for the delivery of online information services to the library users was inadequate during the COVID-19 pandemic. The implication of these findings is that access to information sources and services may be affected since majority of the library users relied on online sources during the COVID-19 pandemic.

Furthermore, the finding shows that there was a lack of library policy on pandemic and disaster management. It means that most of the libraries represented in this study did not have any written policy on emergency and disaster management. Having a written policy for the handling of any crisis situation would help the university library to take prompt decision in making information sources and services available to the library patrons. As

revealed in this study, a lack of policy direction affected the availability of information sources and services during the COVID-19 pandemic. This finding corroborates the findings of Alabi and Sani¹⁶ which showed that 29 of 57 professionals reported that there was unavailability of library policy on pandemic and disaster management. One of the findings also shows that there was lack of data subscription for the library to make information sources and services available to the library users during the COVID-19 pandemic³. Subscribing data for the university library during the COVID-19 pandemic would enable them to make information sources and services available to the library users. The implication of none subscription of data for the library is that it would hamper the availability of information sources and service during major crisis such as COVID-19 pandemic. Inadequate or lack of data subscription for the library during any crisis may be a setback for the provision of information sources and services to the library patrons.

8. CONCLUSION

COVID-19 pandemic created a lot of challenges in the delivery of information sources and service to library users. All university libraries around the world took some strategic decisions and used certain approaches in order to make information sources and services available to their users. The situation was not different in Nigeria. This current study reveals that information sources and services were available and used at the different categories of university libraries in Nigeria despite the spread of COVID-19. The availability of information sources and services during major crisis such as COVID-19 pandemic would enable library users to be abreast of current happenings and therefore take decision on ways to mitigate its negative effect. Information sources and services are critical and making it available during crisis such as COVID-19 pandemic would help to support ongoing research that could help in the fight to the eradicate COVID-19 disease. Another implication of making information sources and services available at the library is that it would ensure that ongoing research, teaching and learning are not truncated in the university.

The emergence and spread of COVID-19 enables the university library to identify some major lapses in their quest to providing information sources and services to the patrons. Most of the approaches that were adopted before and during the COVID-19 were mostly traditional methods with human interface. From this study, it is evident that there was patronage by the library users during the COVID-19 pandemic. Such level of patronage would make the university library to strategize on the adoption of some emerging technologies such artificial intelligence and robotics for the provision of information sources and services to the library users during future incident. In a way, this

study shows the readiness of the university library in dealing with challenges as they unfold irrespective of the circumstances. The challenges facing the availability of information and services in the university library could not impede the resolution of the library to make information available to the library patrons in Nigeria during the COVID-19 pandemic.

9. LIMITATION

This study selected a fewer sample from the three categories of university in South-South of Nigeria. The fewer sample may not give a holistic view of the generality of the universities. Also, the researchers only used quantitative approach with questionnaire as the main instrument for data collection, without using both quantitative and qualitative approaches such as questionnaire and interview. The use of both approaches would have provided a different result. We recommend that future studies should expand the population and use both approaches.

10. RECOMMENDATIONS

In view of the preceding results, the recommendations below are inevitable:

1. The university library should continue to provide information sources and services to its patrons to curb debilitating diseases such as COVID-19 pandemic.
2. The university library should adopt new technologies such as Artificial Intelligence and robotics for the provision of information sources and services to library patrons during major crisis such as COVID-19 pandemic.
3. The government should consider a waiver for newspaper vendors during crisis such as COVID-19 pandemic and exclude them from any 'restriction order' to enable the delivery of newspapers and magazines to the library to enhance access to current information.
4. The library management should endeavor to subscribe to dedicated internet service provider (ISP) for internet access and effective communication of information and services to the library patrons.
5. Library management should put in place a crisis management team to prepare ahead in order to forestall any breakdown in the availability of information sources and services to the library patrons during crisis.
6. The library management should overhaul its policy on pandemic and disaster management to ensure an easy transition to crisis condition to avoid inadequate coordination of library services.
7. The university management should ensure that there is adequate funding for the university library in order to take action that would be beneficial to the library patrons in time of crisis.

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CONTRIBUTORS

Dr Saturday U. Omeluzor is the current Head of Public Services Division, University Library, Federal University of Petroleum Resources Effurun, Nigeria. He is a certified librarian by the Librarian Registration Council of Nigeria (LRCN) and member of several Library Associations including: Nigeria Library Association (NLA), Association for Information Science & Technology (ASIS & T) and Association of Adventist Librarians (ASDAL) among others. His research interest include: Artificial intelligence (AI) in library science, ICT in library science, Electronic information resources and database management.

Dr Vera N. Okonoko is substantive University Librarian of University of Delta, Agbor,. She is a member of the Nigerian Library Association at the state and national level and became Certified Librarian (CLN) in 2012. Her research interest include: ICT in library and information science, Reading habits in Nigeria, Employment skills, Staff retooling practices among others.

Dr Njideka N. Charlotte Ojukwu is a senior academic with Federal University Lokoja, Kogi State, Nigeria. She is CODESRIA Fellow, who authored over 19 publications mostly in international journals and over 14 conference paper presentations, all in information science and few multidisciplinary journals. Her research interests include: Sustainability strategies, Digital library services, AI, Research methodology and Data science.

Appendix A: Universities in south-south zone of Nigeria

	Universities	Status
1	Federal University of Petroleum Resources Effurun (FUPRE)	Federal
2	University of Benin (UNIBEN)	Federal
3	University of Port Harcourt (UNIPORT)	Federal
4	Federal University, Otuoke, Bayelsa State	Federal
5	Nigerian Maritime University Okerenkoko, Delta State	Federal
6	Federal University of Technology, IkotAbasi, Akwalbom State	Federal
7	Delta State University, Abraka (DELSU)	State
8	Ignatius Ajuru University of Education(IAUOE),Rumuolumeni, Port Harcourt, Rivers State	State
9	Ambrose Alli University, Ekpoma	State
10	Cross River State University of Technology, Calabar	State
11	Niger Delta University Yenagoa	State
12	Rivers State University	State
13	Edo State University Uzairue	State
14	University of Africa Toru Orua, Bayelsa State	State
15	Dennis Osadebe University, Asaba	State
16	Delta University of Science and Technology, Ozoro	State
17	University of Delta, Agbor	State
18	Rhema University, Obeama-Asa - Rivers State	Private
19	Obong University, ObongNtak	Private
20	Novena University, Ogume	Private
21	Ritman University, IkotEkpene, AkwaIbom	Private
22	Wellspring University, Evbuobanosa - Edo State	Private
23	Western Delta University, Oghara Delta State	Private
24	Arthur Jarvis University Akpoyubo Cross River State	Private
25	Admiralty University of Nigeria, Ibusa Delta State	Private
26	PAMO University of Medical Sciences, PortHarcout	Private
27	Topfaith University, Mkpatak, AkwaIbom State	Private
28	Havilla University, Nde-Ikom, Cross River State	Private
29	Margaret Lawrence University, Umunede, Delta State	Private
30	Sports University, Idumuje, Ugboko, Delta State	Private

Source: National Universities Commission website: <https://www.nuc.edu.ng/nigerian-universities/>