

**PANDEMIC AND DISASTER PREPAREDNESS OF SELECTED UNIVERSITY
LIBRARIES IN SOUTH-WEST, NIGERIA**

BY

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Abstract

The study examined the pandemic and disaster preparedness of academic libraries with special focus on three university libraries in South-west, Nigeria. It adopted a descriptive survey research design using the random sampling technique. Both quantitative and qualitative data were used for the Study. Using a self-designed questionnaire, an interview schedule and observation checklist as instruments, descriptive statistics were employed to analyse the data. Major findings from the study show that library services can be continued during the periods of pandemics and disasters by employing the use of virtual tools and social media platforms. Readiness and skillfulness of Library personnel for service delivery during future occurrences of pandemics and disasters were found to be seamless adjustment to emerging technology, information handling skills, disaster control gadgets handling skills (use of extinguishers, sprinklers, etc.), pandemic control gadgets handling skills (use of thermometer, etc.), reference and research support skills, online environment service rendering skills, electronic information management and dissemination skills and lastly first aid treatment skills. Envisaged challenges to pandemic and disaster preparedness were found to be fluctuating/inadequate power supply followed by lack/inadequate online environment information use skill on the parts of users and then slow internet bandwidth/poor internet connections. The study concluded by proffering recommendations on better pandemic and disaster preparedness measures.

Key Words: Pandemics, disaster preparedness, COVID-19, pandemic, academic libraries.

Introduction

The occurrence of pandemic and disaster in nations of the world can be dated to centuries, the emergence of pandemic results in widespread illnesses, disruption of human activities and even death. Hence, the experience creates lasting challenges with severe consequences. However, the side effect of the global spread of the pandemic has negatively hindered and disrupted library services due to its attending hazards. Thus, measures capable of mitigating the risks and hazard associated with the occurrence of pandemic and disaster on library services are adequate planning and preparation.

Background information on pandemics revealed that the disease is caused by influenza virus resulting in pandemic that spread globally. In ancient times, the virus was not isolated and identified due to poor knowledge of disease prevention and management until the twentieth century (World Health Organisation, (WHO) (2020). Hence, intermittent outbreaks of pandemic and diseases have created adverse and lasting side-effects on societies throughout history. Therefore, the knowledge of notable pandemic outbreaks that occur in human history is relevant for a better understanding of other forms of pandemic that are likely to occur in the future and their effects on livelihoods; specifically, library services. WHO (2020) noted that the commonest disease that ravaged the nations of the world was COVID-19 or Corona Virus Disease. Thus institutions, organisations, industries and the public domains were adversely affected by the aftermath of the pandemic.

At the outset of the pandemic, measures were taken by all and sundry; library and information centres inclusive, to establish mechanisms to prevent or curb its devastating effects on human activities and services, although library and information professionals within the country were at a loss as to curtail the wide spread of the pandemic, the government was swift in acting Chigwada & Ngulube (2024). This involved the imposition of the lockdown to forestall the impending disaster associated with the outbreak of the pandemic then.

The response to this was the efforts made by libraries all over the world to rebrand service delivery. Similarly, this occurrence led libraries around the world to be faced with challenges that came with the situation. One of these was the lockdown which affected the provision of access to library collections and services, library activities and their functional areas of operations were being suspended leading to grievous implication in which the processes of meeting the information needs of library users were restricted Jeyaraj (2021). As a result of this situation, libraries, which have been gateway to relevant information and knowledge for conducting research and development on various subject areas, were forced to close physical services to users. Thus, it resulted in having the libraries resorting to the promotion of digital and online service delivery.

In relation to pandemic other emergencies that had affected library services in time past are disaster. Abidin, Kiran & Samsudin (2024) defined a disaster, whether natural or man-made in the library context, as an unexpected incident whose timing is unexpected and

that can disrupt library services, with serious and devastating consequences. Similarly, the definition explains disaster as a sudden and unfortunate occurrence that leads not only to damaging property but bring calamities such as great suffering, injuries and even deaths to human beings. Generally, disaster is considered as an event that occur suddenly causing damages in matter of seconds, hours or days but some disaster can occur slowly that it becomes evident after the event had damaged or caused havoc.

Disaster in whatever form robs society of its sense of well-being and security, most importantly, is negatively impacted, which does not in any case spare the library. Hence, the need for disaster preparedness. Disaster preparedness enables the library to prepare for planned and unplanned changes associated with its occurrence, helping to create more flexible work arrangements which enhances the continuity of library services during incidence Nguyen & Suthiprapa (2024). Disaster preparedness involves the aspect of understanding and being able to tackle the incidence of disaster by devising measures necessary for dealing with it. Thus, activities involved during disaster preparedness must be based on the knowledge of the hazards as such libraries must have a check mechanism for them not to be taken unawares in the event of a disaster .

A gap between resource needs and resource availability will always arise in the incidence of serious pandemic and disaster. Further, in a severe pandemic, this gap will increase adversely due to disruption in library activities and overwhelming demand from information seekers at the same time. Basically, before disaster strikes, the visible role of the library is to serve as a source of information and educational tools to better enlighten community members to prepare for the occurrence and to avoid the risk or take preventive measures required to combat the disaster to minimise its adverse effect. As a result of attending impact of the outbreak of pandemic or disaster, managing its impact is important, therefore preparedness is essential and the right time to start preparing for either a pandemic or disaster is before it hits.

Thus, it is expected that academic libraries in Ogun State ought to ensure that planning ahead before the occurrence of pandemic and disaster is necessary and should be the main focus of a library that desires to stay in service and also leverage on lessons learnt from the disruptions to life and livelihoods occasioned by the COVID19 pandemic and other outbreaks to ensure that they are better prepared for subsequent outbreaks of pandemics and

disasters by stepping up on the provision of continuous library services. It is against this background that the study is aimed at investigating the pandemic and disaster preparedness of academic libraries in Ogun State as contributory factors to the continuity of library services during re-occurrence.

Research Questions

The main research question raised and answered by the study are:

- i. What are the forms of pandemics capable of suspending library services and the forms of disasters faced by academic libraries?
- ii. What are the preparations required of academic libraries and the facilities for offering library services during pandemics and disasters?
- iii. How skillful and ready are library staff for library service delivery during pandemics and occurrence of disasters?
- iv. What are the challenges associated with the provision of library services during pandemics and the occurrence of disasters?

Review of Related Literature

The Centers for Disease Control and Prevention (2014) as cited by Akram, Liang, Alam & Shah (2023) reported that the Athenian plague occurrence as a historically documented pandemic outbreak that broke out in 430-26 B.C., originated in Ethiopia and later spread throughout Egypt and Greece with early symptoms such as headaches, conjunctivitis, rash and fever among others. As a result of Athenian plague infected individuals were susceptible to death by the seventh or eighth day while survivors might suffer from partial paralysis, amnesia or blindness for the rest of their lives. 'Black Death'; which was another global pandemic outbreak which originated from China in 1334, was detected in Europe (Sicily) in 1347 and lasted till 1400. The Black Death resulted in reduction in the global population and death. Then the Antoine plague, also known as Plague of Galen, occurred in 161-180 A.D. This was transmitted by soldiers returning from Seleucia, it affected the Asia Minor, Egypt, Greece and Italy thus spreading across wide territory of the entire Roman Empire having severe impact on the Roman Empire. This was followed by the Justinian plague known to be a real plague pandemic caused by Yesinia Petis which came into existence in the mid-sixth century AD either in Ethiopia moving through Egypt or in the Central Asia spreading rapidly throughout the Roman world and beyond.

Similarly, the first pandemic of the eighteenth century started in the spring of 1729 occurring in Russia spreading across Europe within six months and around the globe over the next three years with another second pandemic occurrence of the century that started in China in the autumn 1781. The significant pandemic of the nineteenth century started in the winter of 1830 in China spreading across Southeast Asia, Russia and Europe and North America with high death rate globally spreading rapidly than the previous ones. Spanish Flu (1918-1920) was the first true global pandemic occurring in the first decades of the twentieth century creating devastating consequences for societies worldwide occurred in the middle of World War I resulting to disastrous global losses and death leading to shutdown of schools, business, social and economic interruption. Asian flu (1957-1958) the virus spread to Hong Kong in April, then to Singapore, Taiwan and Japan before spreading globally throughout the summer of 1957 spreading to twenty countries. The pandemic leads to societal disruption such as school and workplace absenteeism, low economic output and reduction in industrial production (Center for Disease Control and Prevention, 2014).

Hong Kong flu of 1968-1970 was the first virus to exhibit an advance spread, this pandemic was highly transmissible. Also, smallpox (1972) virus was an extremely contagious disease spreading through Africa with prominent skin rashes (pustules) involving 30% death rate having responsible for hundreds of millions death rate in the twentieth century alone. Swine flu of 2009-2010 is a recurrence of the Spanish flu of 1918 the pandemic emerged from Mexico in April 2009 recorded as a continuous outbreak in Mexico and United States spreading across several countries thus the World Health Organisation declared the occurrence over by August of 2010 Scientific Committee on Vaccine Preventable Diseases. (2023).

Next, came the Ebola outbreak of 2014-2016. The Ebola virus was prevalent in Central and West Africa with the outbreak occurring in a remote village of Guinea spreading mostly within families reaching Sierra Leone and Liberia some cases were recorded in Nigeria and Mali. Then Zika virus of 2015-2016 was discovered in rhesus monkeys in Uganda, the virus was identified in Brazil in 2015, making the virus a globally transmitted disease; it was transferred from Micronesia across the Pacific to Brazil thus the virus continues to spread creating a case of modern media pandemic(Akram et.al. (2023)

Disaster experience of libraries in Nigeria

The main types of disasters that affect libraries could be classified as natural and man-made Abidin, Kiran, & Samsuddin, (2024). In Africa, disasters associated with libraries could result from fire, water, war and lightning, etc., which had an adverse effect on library resources thereby reducing the accessibility and use of library materials such as books, manuscript etc. In 1987, Nigeria Institute of Policy and Strategic Studies Library, Kuru located in Jos recorded an incidence of fire outbreak in the library because of electricity failure; the damage by the fire outbreak involved the destruction of library materials such as reports and document.

Also, fire outbreak was experienced at the Alaafin of Oyo Palace, Oyo State Nigeria in 1990 resulting in the destruction of artifacts, books and monuments. The damage caused by fire outbreak in libraries subject library materials such as paper records, manuscript, books and document unusable or destruction beyond repair. During ancient times water has been accountable for the destruction of library materials such as books with flooding as the major agent which often occur after heavy downpour having negative impact on library resources (Iroeze, P. (2021) and Chiadukobi, Omoboriowo & Chiaghanam 2011).

The Federal Ministry of Education Library, Nigeria experienced the occurrence of flooding in 1987 because of leaking roof in the office building therefore the disaster resulted to damages to several books and teaching materials. Nigeria Forestry Research Library in 1988 recorded destruction of library materials and important research reports been drenched with water due to heavy rain. In 1990, flooding occurred in National Library of Nigeria building during renovation work rendering many important records unusable. The Nigerian Civil War 1967-1970 was a disastrous event that recorded losses of vital documents, books and destruction of libraries involving the destruction of the Eastern Nigeria libraries such as divisional libraries at Onitsha, Umuahia, and Ikot-Ekpeme also library materials were looted and damaged badly at the University of Nigeria Library Nsukka. The Herbert Macaulay Library which was the personal library of the first native president of Nigeria was also damaged badly and several valuable collections were stolen during the civil war natural disaster.

In their study on librarians' perception of disaster preparedness and its effect on effective preservation and conservation of library resources, Ilo, Nkiko, Izuagbe, and Furfuri

(2020) found that preservation and conservation of information resources would be more effective if disaster preparedness measures are incorporated into the library services.

In a study to determine the types of disaster preparedness plan and response strategy in university libraries Abdullahi, Nwachuku and Ahmad (2022) reported the types of disaster preparedness plan in university libraries in Northeast, Nigeria to be creating and updating contingency plans, insurance of library collections, identifying alternative storage sites and providing adequate fire protection apparatus. The study also identified response measures such as taking emergency response activities, production and documentation of disaster plans, up-to-date record keeping as panaceas for effective information resources preservation for use during and after the occurrence of a disaster.

In another related study on the preparedness and responsiveness of Malaysian academic librarians in handling disruptions in library services during a disaster, Abidin, Kiran, and Samsuddin (2024), found that, disaster preparedness should involve policies, plans, asset protection, risk management, coordination of disaster management and preparative measures; and (2) disaster response involving strategies for information and communication access, community engagement, emergency response teams and procedures, and resource availability.

Research Methods

The study adopted a descriptive survey research design; random sampling technique was used to select the sample. Both qualitative data were used for the Study.

Hence, a self-designed questionnaire, an interview session and observation were the data collection instrument made used of and a descriptive statistic was employed to analyse the data.

The study population comprised of 44 librarians, 84 library officers and 106 Library Assistants Using a random sampling technique, a sample size of two hundred and eleven (211) was determined using 90% of the population (Kelinger and Lee, 2000). The breakdowns of the sample size from the three libraries are presented in Table 1.

Table 1: Sample size of Librarians, Library Officers and Library Assistants

Name of Institution	Librarians	Library Officers	Library Assistants	Total
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Federal University of Agriculture Abeokuta (FUNAAB)	19	28	13	60
Olabisi Onabanjo University (OOU) Ago Iwoye	13	18	44	75
Tai Solarin University of Education (TASUED)	8	30	38	76
TOTAL	40	76	95	211

Data Administration, Collection, Analysis and Presentation

A total of 211 copies of the questionnaire were administered on the respondents over a period of three weeks, out of which 204 useable copies were retrieved, which gives a response rate of 96.68%. The interview session and observation were also carried out immediately. The university librarians of each university were interviewed.

Data collected were checked for correctness, completeness and both quantitative and qualitative methods were used to analyse the data using the International Business Machine SPSS (IBMSPPS), results were represented by frequency counts, means, percentages and standard deviations.

Table 2: Demographic information of respondents

Frequency distribution of respondents by gender

Gender	Frequency	Percentage (%)
Male	95	46.6
Female	109	53.4
Total	204	100.0

Frequency distribution of respondents by age

Age	Frequency	Percentage (%)
Under 30	9	4.4
31-40 years	63	30.9
41-50 years	72	35.3
51 and above years	60	29.4
Total	204	100.0

Frequency distribution of respondents by designation

Designation	Frequency	Percentage (%)
Librarians	33	16.1
Library Officers	76	37.3
Library Assistants	95	46.6
Total	204	100.0

Frequency distribution of respondents by academic qualification

Academic qualification	Frequency	Percentage (%)
Diploma	59	28.9
BLS/BA/B.Ed./B.Sc.	79	38.7
MLIS/MA	50	24.5
PhD	16	7.8
Total	204	100.0

Frequency distribution of respondents by year of working experience

Years of work experience	Frequency	Percentage (%)
1-5 years	12	5.9
6-10 years	43	21.1
11-15 years	68	33.3
Above 15 years	81	39.7
Total	204	100.0

Frequency distribution of respondents by years spent on current position

Years spent on current position	Frequency	Percentage (%)
1-3 years	108	52.9
4-5 years	51	25.0
6-8 years	30	14.7
9-10 years	4	2.0
Above 10 years	11	5.4
Total	204	100.0

Demographic characteristics of the respondents

Reported on Table 2 is the demographic characteristics of the respondents, namely, age, gender, designation, academic qualification, work experience and years spent on current position. It is reported that lesser percentage of the respondents are male 46.6% while their female counterparts have a higher percentage of 53.4%. The table shows that the least ranked age is under 30 years with 4.4% respondent, 30.9% are between the ages of 31 and 40 years while the highest ranked age range is between 41-50 years with 35.3% and 29.4% being 51 and above years of age.

It is further reported on the same table that 16.1% of the respondents are Librarians, 37.3% are Library officers and 46.6% are Library assistants. It is revealed that 38.7% are BLS/BA/B.Ed./BSc holders, 28.9% had Diploma certificates, 24.5% had MLIS/MA certificates and the least population was PhD 7.8% holder. Majority of the respondents, 39.7% had above 15 years of work experience, 21.1% had between 6-10 years of work experience, and 33.3% had between 11-15 years of work experience while few of the respondents had between 1-5 years of work experience 5.9%.

52.9% had between 1-3 years of work experience in their current position, 25.0% had between 4-5 years' work experience in their current position, 14.7% had between 6-8 years work experience in their current position, 2.0% had between 9-10 years' work experience in their current position, and 5.4% had above 10 years work experience in their current position. Very few (5.4%) had over 10 years of work experience while 39.7% had above 15 years of work experience as against over half of them having 1-3 years of work experience which implies that there are more experienced library staff who would be readily available to render library services during pandemic and disaster to play prominent roles in pandemic and disaster planning and management.

Table 3: Demographic characteristics of the Interviewed Respondents

Frequency distribution of respondents by age		
Gender	Frequency	Percentage (%)
Male	1	33.3
Female	2	66.7
Frequency distribution of respondents by age		
Age	Frequency	Percentage (%)
31-40 years	-	-
41-50 years	-	-
50 and above years	3	100
Frequency distribution of respondents by academic qualification		
Academic qualification	Frequency	Percentage (%)
PhD	2	66.7
MLIS	1	33.3
Frequency distribution of respondents by year of working experience		
Years of work experience	Frequency	Percentage (%)
11-15 years	-	-
Above 15 years	3	100

The Interview:

For the interview, the researchers booked an appointment with the head of the libraries. During the interviews, the researcher took notes and did an audio-recording of the interview sessions.

Observation:

Observation was carried out after the interview session to clarify some of the issues raised during the interview. The observation aimed at examining the availability of facilities needed for library services in the occurrence of a pandemic or disaster.

Table 4: Forms of pandemics capable of suspending library services

Pandemic	Never hinder library services	Hinder library services	Partially hinder library services	Strongly hinder library services	Mean	Std. Deviation
COVID 19	12 5.9%	22 10.8%	89 43.6%	81 39.7%	3.17	0.845
ZIKA virus	26 12.7%	33 16.2%	89 43.6%	56 27.5%	2.86	0.965
Smallpox	47 23.0%	26 12.7%	45 22.1%	86 42.2%	2.83	1.204
Ebola	39 19.1%	24 11.8%	74 36.3%	67 32.8%	2.83	1.090
Lassa fever	44 21.6%	22 10.8%	69 33.8%	69 33.8%	2.80	1.129
Swine flu	59 28.9%	30 14.7%	73 35.8%	42 20.6%	2.48	1.116
Spanish flu	49 24.0%	36 17.6%	93 45.6%	26 12.7%	2.47	0.995
Hong Kong flu	54 26.5%	46 22.5%	58 28.4%	46 22.5%	2.47	1.112
Asian flu	65 31.9%	41 20.1%	59 28.9%	39 19.1%	2.35	1.120

The forms of pandemic capable of suspending library services in Ogun State were identified by the respondents as reported on Table 4. “COVID 19 outbreak” ($\bar{x}=3.17$) was ranked highest by the mean score rating as the major form of pandemic that can suspend library services, and was followed in succession by “ZIKA virus” ($\bar{x}=2.86$), “Smallpox outbreak” ($\bar{x}=2.83$), “Ebola outbreak” ($\bar{x}=2.83$), “Lassa fever” ($\bar{x}=2.80$), “Swine flu” ($\bar{x}=2.48$), “Spanish flu” ($\bar{x}=2.47$), “Hong Kong flu” ($\bar{x}=2.47$), “Asian flu” ($\bar{x}=2.35$) respectively.

Hence, the major form of pandemic that can suspend library services is COVID 19. This finding is corroborated by that of Asif and Singh (2020) who noted that the COVID 19 outbreak enable libraries around the world to be faced with restrictions in providing access to its collections and services.

Table 5: Forms of disasters faced by academic libraries

Forms of disasters in academic libraries	Never	Occasionally	Often	Very often	Mean	Std. deviation
Natural Disaster (Weighted mean =2.11)						
Lightning	60 29.4%	70 34.3%	45 22.1%	29 14.2%	2.21	1.022
Fire outbreak	46 22.5%	91 44.6%	51 25.0%	16 7.8%	2.18	0.872
Flooding	74 36.3%	71 34.8%	35 17.2%	24 11.8%	2.04	1.004
War damage	97 47.5%	34 16.7%	47 23.0%	26 12.7%	2.01	1.105
Man-made Disaster (Weighted mean =2.78)						
Data loss	17 8.3%	38 18.6%	71 34.8%	78 38.2%	3.03	0.952
Computer crashing	34 16.7%	26 12.7%	58 28.4%	86 42.2%	2.96	1.105
Book theft	39 19.1%	32 15.7%	60 29.4%	73 35.8%	2.82	1.119
Virus and fire wall attack	18 8.8%	53 26.0%	96 47.1%	37 18.1%	2.75	0.856
Vandalism	46 22.5%	25 12.3%	70 34.3%	63 30.9%	2.74	1.127
Civil/Student unrest	48 23.5%	40 19.6%	66 32.4%	50 24.5%	2.58	1.100
Damage due to insects and rodent	39 19.1%	58 28.4%	58 28.4%	49 24.0%	2.57	1.055

On the forms of disaster faced by academic libraries that can suspend library services, respondents were asked to indicate the experienced forms of disaster in their libraries using the classification, very often, often, occasionally and never. This is presented on Table 5. Natural Disaster: “Lightning” ($\bar{x}=2.21$) was the major form of natural disaster academic libraries encountered, followed by “Fire outbreak” ($\bar{x}=2.18$), “Flooding” ($\bar{x}=2.04$), and lastly “War damage” ($\bar{x}=2.01$). Man-made disaster: “Data loss” ($\bar{x}=3.03$) was the major man-made disaster encountered by the academic libraries, followed by “Computer crashing” ($\bar{x}=2.96$), “Book theft” ($\bar{x}=2.82$), “Virus and fire wall attack” ($\bar{x}=2.75$), “Vandalism” ($\bar{x}=2.74$), “Civil/Student unrest” ($\bar{x}=2.58$), and lastly by “Damage due to insect and rodent” ($\bar{x}=2.57$) respectively.

The result revealed that lightning and fire outbreak are the major natural disaster encountered by academic libraries, while data loss, computer crashing, and book theft are the major man-made disaster encountered in the study. These findings agree with that of Chigwada & Ngulube (2024), who found that the most common disaster identified by the respondents includes lightning, flooding and war damage. Alegbeleye (1993) also submitted that lightning creates destructive effects on libraries from ancient times. He stated further that fire resulted in the destruction of several libraries due to their structure and the materials available in the library such as books, microform and heating elements allow fire outbreak to occur. Also, Ansari, Vaidya, Malik, & Ali (2024) confirmed that man-made disaster such as data loss, book theft, computer crashing; damage due to insect and rodent and vandalism are occurrence that are destructive.

Table 6: Preparations required of academic libraries for continuity of services during the occurrence of pandemics and disasters

Preparations put in place	Not available	Provided	Available	Readily available	Mean	Std.deviation
Buckets of sand	6 2.9%	27 13.2%	83 40.7%	88 43.1%	3.24	0.792
Fire alarm	25 12.3%	19 9.3%	53 26.0%	107 52.5%	3.19	1.038
Fire extinguisher (water sprinkler, sand bucket, fire alarms)	14 6.9%	31 15.2%	73 35.8%	86 42.2%	3.13	0.914
Fumigating facilities	25 12.3%	36 17.6%	38 18.6%	105 51.5%	3.09	1.086
Standby cleaners/moppers	19 9.3%	35 17.2%	78 38.2%	72 35.3%	3.00	0.949
Physical cleaning facilities (brooms, dusters, moppers)	30 14.7%	34 16.7%	62 30.4%	78 38.2%	2.92	1.066
Social-distancing enabled users' sitting arrangement	17 8.3%	53 26.0%	68 33.3%	66 32.4%	2.90	0.954
Water sprinklers	13 6.4%	46 22.5%	95 46.6%	50 24.5%	2.89	0.847
Nose and face masks	37 18.1%	36 17.6%	45 22.1%	86 42.2%	2.88	1.147
Thunder arrester	17	34	113	40	2.86	0.825

	8.3%	16.7%	55.4%	19.6%		
Fire tracers	31	36	79	58	2.80	1.017
	15.2%	17.6%	38.7%	28.4%		
Human temperature checker	42	34	62	66	2.75	1.120
	20.6%	16.7%	30.4%	32.4%		
Hand washing facilities (running water, soap)	37	38	69	60	2.75	1.071
	18.1%	18.6%	33.8%	29.4%		
Fire and smoke detector	68	39	49	48	2.38	1.174
	33.3%	19.1%	24.0%	23.5%		
Sanitizing facilities	75	31	65	33	2.27	1.124
	36.8%	15.2%	31.9%	16.2%		

Weighted Mean = 2.87

To determine the preparation put in place by academic libraries for rendering library services during the occurrence of pandemic and disaster, the respondents were asked to indicate the level of availability of the 15 items on pandemic and disaster preparedness of libraries. The result represented in Table 6 is rated on the scale readily available, available, provided and not available. Table 6 showed the preparations put in place by academic libraries for rendering library services during the occurrence of pandemics and disaster. “Buckets of sand” ($\bar{x}=3.24$) was ranked by the mean score rating as the major preparation put in place by academic libraries for rendering library services during the occurrence of pandemic and disaster, and was followed in succession by “Fire alarm” ($\bar{x}=3.19$), “Fire extinguisher (water sprinkler, sand bucket, fire alarms)” ($\bar{x}=3.13$), “Fumigating facilities” ($\bar{x}=3.09$), “Standby cleaners/moppers” ($\bar{x}=3.00$), “Physical cleaning facilities (brooms, dusters, moppers)” ($\bar{x}=2.92$), “Social-distancing enabled users’ sitting arrangement” ($\bar{x}=2.90$), “Water sprinklers” ($\bar{x}=2.89$), and lastly by “Nose and face masks” ($\bar{x}=2.88$) respectively.

This finding agrees with Ansari & Ali (2022)’s expression of the importance of fire protection such as buckets of sand, fire alarm fire extinguishers and smoke detectors. Jeyaraj (2021). added that fire is the least expected disaster and suggests methods of fire prevention.

Table 7: Facilities available to academic libraries for offering services during pandemic and disasters in Ogun State

Facilities	Not	Provided	Available	Readily	Mean	Std.
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	available			available	deviation	
Mobile phone	13 6.4%	13 6.4%	74 36.3%	104 51.0%	3.32	0.855
Projector	22 10.8%	14 6.9%	62 30.4%	106 52.0%	3.24	0.984
Library OPAC	16 7.8%	14 6.9%	82 40.2%	92 45.1%	3.23	0.887
Web camera	22 10.8%	4 2.0%	93 45.6%	85 41.7%	3.18	0.916
Video conf. facilities (Skype, Google meet, Zoom, Teams,)	17 8.3%	14 6.9%	91 44.6%	82 40.2%	3.17	0.883
Modem	28 13.7%	19 9.3%	64 31.4%	93 45.6%	3.09	1.047
Online research guides	6 2.9%	29 14.2%	113 55.4%	56 27.5%	3.07	0.729
Video and audio recording rooms and facilities	24 11.8%	15 7.4%	89 43.6%	76 37.3%	3.06	0.958
Computers: Laptops and desktops	35 17.2%	9 4.4%	91 44.6%	69 33.8%	2.95	1.035
External storage devices	25 12.3%	30 14.7%	90 44.1%	59 28.9%	2.90	0.959

Weighted Mean = 3.12

To determine the facilities available for offering services during pandemic and disaster by academic libraries in Ogun State, respondents were asked to indicate the facilities available in their library for offering library services with 10 items as the facilities available for offering library service during pandemic and disaster.

Table 7 showed the facilities available for offering services during pandemic and disaster by academic libraries in Ogun State. “mobile phone” (\bar{x} = 3.32) was ranked as the facility with the highest frequency available for offering library services during pandemic and disaster by academic libraries, this was followed closely by “projector” (\bar{x} = 3.24), “library OPAC” (\bar{x} = 3.23), “web camera” (\bar{x} = 3.18), “video conferencing rooms and facilities (Skype, Google meet, Zoom, Teams, Mixlr)” (\bar{x} = 3.17), “modem” (\bar{x} = 3.09), “online research guides” (\bar{x} = 3.07), “video and audio recording rooms and facilities” (\bar{x} = 3.06), “computers: Laptops and desktops” (\bar{x} = 2.95), in descending order and lastly “external storage devices” (\bar{x} = 2.90) respectively.

Therefore, mobile phones, projector, library OPAC, web camera, and video conferencing rooms and facilities (Skype, Google meet, Zoom, Teams, Mixlr) are the main facilities available for offering library service during pandemic and disaster by academic libraries in Ogun State. The finding corroborates that of Asif and Singh (2020) who noted that libraries having significant e-resources, digital services and online content on the website have enough opportunities to serve their users even in the disaster period throughout the world.

Respondents were asked to indicate the available service to users of academic libraries in Ogun State during pandemic and disaster. The result presented in Table 8 (below) indicates the information resources available to users of academic libraries in Ogun State during pandemic and disaster. “library website/page” ($\bar{x}=3.37$) was ranked as the resource with the highest frequency available to users of academic libraries in Ogun State during pandemic and disaster, this was followed by “social media platforms (Facebook, Telegram, WhatsApp, IG, YouTube, etc.)” ($\bar{x}=3.10$), “Internet-enabled official platforms (Email, Academia.Edu, LinkedIn)” ($\bar{x}=2.99$), “Google account (Google Classroom, document, forms, slides, podcasts, drive, etc.)” ($\bar{x}=2.92$), “private study carrels” ($\bar{x}=2.88$), “information resources loaning service” ($\bar{x}=2.86$), “off-campus access to library resources and services” ($\bar{x}=2.75$), “cell phone messages” ($\bar{x}=2.48$), in descending order and lastly by “Internet connectivity” ($\bar{x}=2.25$) respectively.

Therefore, the available library services to users of academic libraries in Ogun State during pandemic and disaster include library website/page, social media platforms (Facebook, Telegram, WhatsApp, IG, YouTube, etc.), Internet-enabled official platforms (Email, Academia.Edu, LinkedIn), Google accounts (Google Classroom, document, forms, slides, podcasts, drive, etc.) private study carrels, and Information resources loaning service respectively.

This finding is supported by that of Asif and Singh (2020) who found that web-based (virtual) seminar platforms can be used to conduct online meetings, lectures and conferences which involves creation of platforms that enable mutual interaction between the speakers and audiences for audio-visual communication with features such as multiple hosts/clients, live chat, question and answer, polls/voting and screen sharing etc. They further reported that

library websites are the major means of attracting users towards the library and projecting available library resources and services.

Table 8: Available service for pandemic/disaster period virtual information provision

Services	Not available	Provided	Available	Readily available	Mean	Std. deviation
Library website/page	14 6.9%	24 11.8%	39 19.1%	127 62.3%	3.37	0.940
Social media platforms (Facebook, Telegram, WhatsApp, IG, YouTube, etc.)	21 10.3%	26 12.7%	68 33.3%	89 43.6%	3.10	0.985
Internet-enabled official platforms (Email, Academia.Edu, LinkedIn)	21 10.3%	34 16.7%	76 37.3%	73 35.8%	2.99	0.970
Google account	30 14.7%	36 17.6%	59 28.9%	79 38.7%	2.92	1.073
Private study carrels	11 5.4%	38 18.6%	119 58.3%	36 17.6%	2.88	0.753
Information resources loaning service	18 8.8%	42 20.6%	94 46.1%	50 24.5%	2.86	0.888
Off-campus access to library resources and services	27 13.2%	47 23.0%	79 38.7%	51 25.0%	2.75	0.977
Cell phone messages	67 32.8%	28 13.7%	54 26.5%	55 27.0%	2.48	1.205
Internet connectivity	78 38.2%	25 12.3%	73 35.8%	28 13.7%	2.25	1.110

Weighted Mean = 2.84

Table 9: Academic library staff's skillfulness and readiness for library service delivery during pandemic and occurrence of disaster in academic libraries in Ogun State

Skills	Not skilled	Neutral	Skilled	Highly skilled	\bar{x}	S.D
Seamless adjustment to emerging technology	34 16.7%	30 14.7%	76 37.3%	64 31.4%	2.83	1.051
Information handling skills	41 20.1%	34 16.7%	56 27.5%	73 35.8%	2.79	1.136
Disaster control gadgets handling skills (use of extinguishers, sprinklers, etc.)	32 15.7%	43 21.1%	74 36.3%	55 27.0%	2.75	1.024
Project management skills	39 19.1%	32 15.7%	80 39.2%	53 26.0%	2.72	1.053
Pandemic control gadgets handling skills (use of thermometer, etc.)	42 21.1%	39 19.1%	57 27.9%	65 31.9%	2.71	1.128
Reference and research support skill	37 18.1%	47 23.0%	63 30.9%	57 27.9%	2.69	1.069
Computer software manipulation skill	45 22.1%	38 18.6%	59 28.9%	62 30.4%	2.68	1.129
Online environment service rendering skill	48 23.5%	37 18.1%	56 27.5%	63 30.9%	2.66	1.149
Electronic information management skill	51 25.0%	36 17.6%	51 25.0%	66 32.4%	2.65	1.176
First Aid treatment skills	39 19.1%	43 21.1%	74 36.3%	48 23.5%	2.64	1.043
Team working skills	49 24.0%	39 19.1%	54 26.5%	62 30.4%	2.63	1.152
Electronic information deployment skill	54 26.5%	33 16.2%	55 27.0%	62 30.4%	2.61	1.175
Teaching and learning support skills	43 21.1%	49 24.0%	57 27.9%	55 27.0%	2.61	1.098
Users service skill	48 23.5%	37 18.1%	68 33.3%	51 25.0%	2.60	1.103
Information management skills	57 27.9%	29 14.2%	60 29.4%	58 28.4%	2.58	1.174
Computer systems trouble shooting skill	53 26.0%	38 18.6%	59 28.9%	54 26.5%	2.56	1.141
Creative thinking	57 27.9%	37 18.1%	52 25.5%	58 28.4%	2.54	1.176
Information and documentation skills	60 29.4%	36 17.6%	57 27.9%	51 25.0%	2.49	1.160
Communication and networking skills	59 28.9%	23 11.3%	87 42.6%	35 17.2%	2.48	1.085

Weighted Mean = 2.64

The result indicated on Table 9 shows the library staff's skillfulness and readiness for library services delivery during pandemic and disaster in academic libraries in Ogun State. "seamless adjustment to emerging technology" ($\bar{x}=2.83$) was the skillfulness that recorded the highest frequency readiness for pandemic and disaster library service delivery and was followed in succession by "information handling skills" ($\bar{x}=2.79$), "disaster control gadgets handling skills (use of extinguishers, sprinklers, etc.)" ($\bar{x}=2.75$), "project management skills" ($\bar{x}=2.72$), "pandemic control gadgets handling skills (use of thermometer, etc.)" ($\bar{x}=2.71$), "reference and research support skill" ($\bar{x}=2.69$), "computer software manipulation skill" ($\bar{x}=2.68$), "online environment service rendering skill" ($\bar{x}=2.66$), "electronic information management skill" ($\bar{x}=2.65$), and lastly by "first aid treatment skills" ($\bar{x}=2.64$) respectively.

This finding is supported by Kaur & Mahaja (2024). who affirmed that libraries need to assess their chance of being exposed to pandemics and disaster, thus the need to become familiar with all the necessary steps to take in response to any pandemic and disaster situation.

Table 10: Challenges associated with the provision of services during pandemic and occurrence of disaster by academic libraries

Challenges faced	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Deviation
Fluctuating/inadequate power supply	36 17.6%	15 7.4%	72 35.3%	81 39.7%	2.97	1.087
Lack/inadequate online environment information use skill on the part of users	22 10.8%	33 16.2%	82 40.2%	67 32.8%	2.95	0.961
Insufficient fund	18 8.8%	41 20.1%	94 46.1%	51 25.0%	2.87	0.890
Users' unwillingness to adhere to stringent measures	35 17.2%	24 11.8%	79 38.7%	66 32.4%	2.86	1.055
Slow internet bandwidth/poor internet connection	32 15.7%	39 19.1%	69 33.8%	64 31.4%	2.81	1.049
Inadequate ICT infrastructure	37 18.1%	32 15.7%	73 35.8%	62 30.4%	2.78	1.070
Inadequate manpower	42 20.6%	23 11.3%	82 40.2%	57 27.9%	2.75	1.078
Interrupted internet connectivity	34 16.7%	35 17.2%	83 40.7%	52 25.5%	2.75	1.018

Lack of technical skill	35 17.2%	40 19.6%	74 36.3%	55 27.0%	2.73	1.041
Physical library service restriction	37 18.1%	43 21.1%	74 36.3%	50 24.5%	2.67	1.039
Poor library staff's attitude towards the services	44 21.6%	40 19.6%	63 30.9%	57 27.9%	2.65	1.106
Poor management support	44 21.6%	35 17.2%	83 40.7%	42 20.6%	2.60	1.043
Lack of alternative power supply	61 29.9%	20 9.8%	68 33.3%	55 27.0%	2.57	1.178

Weighted Mean = 2.77

Challenges academic libraries experience in rendering library services to users in Ogun State during pandemic and disaster were highlighted and respondents expected to indicate the ones they are faced with, Table 10 showed these challenges; “fluctuating/inadequate power supply” ($\bar{x}=2.97$) was ranked as the major challenge in rendering library services to users during pandemic and disasters, and this was followed by “lack/inadequate online environment information use skill on the part of users” ($\bar{x}=2.95$), “Insufficient fund” ($\bar{x}=2.87$), “users’ unwillingness to adhere to stringent measures” ($\bar{x}=2.86$), “slow internet bandwidth/poor internet connection” ($\bar{x}=2.81$), and lastly by “inadequate ICT infrastructure” ($\bar{x}=2.78$) respectively.

This finding corroborates that of Nguyen & Suthiprapa (2024). who found that issues that could prevent libraries from continued services include lack of funds and other community issues. Also, Asif and Singh (2020) confirmed that, for libraries to achieve their goals, libraries need to be equipped with latest infrastructure, information communication technologies and skilled manpower.

Conclusion

The study examined pandemic and disaster preparedness as contributory factors to the continuity of academic library services during occurrence and concluded that library website/page, social media platforms (Facebook, Telegram, WhatsApp, Instagram, and YouTube) Internet-enabled official platforms (Email, Academia.Edu, LinkedIn) and Google account are major online platforms for provision of library services as a means of enhancing the continuity of academic library services during pandemic and disaster in Ogun State.

Recommendations

Based on the findings made and conclusions drawn from the study, the following recommendations are put forward:

1. Academic libraries should establish an emergency response team in the university libraries to coordinate the incidence of pandemic and disaster.
2. The management of the academic library should encourage staff training on pandemic and disaster preparedness through the consultation of experts within or outside the organisation.
3. Academic libraries should invest in providing the skills and facilities that will enable the staff and library users to participate successfully in virtual library services during pandemic and disaster.
4. Academic libraries should develop different means of accessing physical library resources through virtual library services to support library users need and continuity of library services during the occurrence of pandemic and disaster.
5. University authorities and library management should make provision for regular supply of electricity to power electronic equipment needed for virtual library services during pandemic and disaster.
6. Government, organisations and corporate bodies should support academic libraries with funds to provide and sustain hybrid library services during pandemic and disaster periods.
7. Academic library management should encourage cooperation and understanding among themselves to enhance teamwork during the incidence of pandemic and disaster.
8. Academic libraries should back up information technology in the cloud as disaster management strategy.
9. Academic libraries should establish disaster plans related to policies and procedures to follow in the event of disaster.

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