

Public Libraries Health Information Resources for Pandemic and Epidemic Control in North-Central Nigeria

Patricia Oomo, Audu (Ph. D)¹, Terwase Victoria Member (Ph. D)²

^{1&2} Department of Library and Information Science,
Joseph Sarwuan Tarka University, Makurdi.

Corresponding Author Email: p66audu@gmail.com , vickyterwase@gmail.com

ABSTRACT

This study examined the extent of health information service provision, dissemination channels, and the extent of information dissemination by public libraries for pandemic and epidemic control in North-Central Nigeria. The study adopted a descriptive survey research design and was conducted across six states namely: Benue, Kogi, Niger, Kwara, Plateau, and Nasarawa. The population comprised 301 staff of public libraries. Data were collected using a structured questionnaire. Data was analyzed using mean and standard deviation. Findings revealed that the extent of information service provision by public libraries is generally low, particularly in areas such as digital resource provision, health awareness programs, and outreach services. The study also found that public libraries rely predominantly on traditional dissemination channels such as posters, brochures, and notice boards, with limited utilization of digital platforms like social media and library websites. Additionally, the overall extent of information dissemination was found to be low in terms of frequency, coverage, and reach, especially to rural communities. Furthermore, the hypothesis test indicated a significant difference between the information services provided and actual dissemination practices ($p < 0.05$), revealing a gap between service availability and implementation. The study concluded that public libraries in North-Central Nigeria were not optimally positioned for effective pandemic and epidemic control through adequate health information provision and dissemination practices. The study recommends the adoption of digital technologies, improvement of ICT infrastructure, capacity building for library staff, and strengthened collaboration with health agencies to enhance the effectiveness of public libraries in public health communication.

Keywords: Public libraries, health information, information dissemination, pandemics, epidemics, North-Central Nigeria.

INTRODUCTION

Public health crises, particularly pandemics and epidemics, continue to constitute major threats to human security, socio-economic development, and national stability, especially in developing countries including Nigeria. The increasing frequency and complexity of infectious disease outbreaks such as measles, cholera, yellow fever, Lassa fever, to the most recent COVID-19 pandemic, among others have underscored the critical importance of timely access to accurate, reliable, and relevant health information resources. In this context, information dissemination becomes not only a supportive function but a central strategy in controlling pandemic and epidemic spread and promoting public health wellbeing.

Public libraries, as community-based information institutions, are uniquely positioned to serve as trusted gateways to knowledge and reliable information. This is because as the “mind of society,” public libraries provide equitable access to diverse information resources in print and digital formats, thereby supporting education, decision-making, and lifelong learning among citizens. The philosophy of public libraries is rooted in the provision of current, relevant, and accurate information tailored to meet the needs of diverse user populations. This foundational role becomes even more critical during health crisis emergencies, where misinformation, fear, and uncertainty can exacerbate the spread of diseases.

Globally, public libraries have demonstrated resilience and adaptability in responding to pandemics by replacing hybrid information delivery systems. During the COVID-19 pandemic, libraries leveraged online platforms, social media, virtual reference services, and digital repositories and traditional modal to disseminate health guidelines, counter misinformation, and maintain community engagement (IFLA, 2020; Ameh et al., 2021). Recent studies further affirm that libraries play a critical role in promoting health literacy, supporting evidence-based information access, and fostering community awareness during crises (Oyelude et al., 2022; Salubi & Majavu, 2024). These evolving roles position public libraries as key actors within broader public health communication ecosystems.

In addition, the integration of Information and Communication Technologies (ICTs) has expanded the scope of library services, enabling real-time dissemination of health information through digital platforms such as websites, mobile applications, and social media. Contemporary research highlights that digital libraries and information systems enhance accessibility, inclusivity, and responsiveness in health communication, particularly in resource-constrained environments (Cloonan, 2019; Chatterjee & Samanta, 2021). Consequently, public libraries are increasingly recognized as strategic partners in emergency response frameworks, contributing persistently to public health crisis preparedness and management control.

Despite these global advancements, the situation in Nigeria particularly in North-Central Nigeria presents a different reality. The region continues to experience recurrent outbreaks of infectious diseases, compounded by challenges such as inadequate health infrastructure, low health literacy, and limited access to credible information. While public libraries have the potential to bridge these information gaps, evidence suggests that their contributions to pandemic and epidemic control remain limited due to structural and operational constraints. Issues such as poor funding, inadequate ICT infrastructure, lack of skilled personnel, and weak collaboration with health agencies significantly hinder their effectiveness.

Furthermore, the proliferation of misinformation through informal communication channels, particularly social media, has intensified the need for authoritative information sources. Public libraries, by virtue of their credibility and professional expertise, are expected to counteract misinformation by providing verified and comprehensible health information to the public. However, the extent to which they effectively perform this role in North-Central Nigeria remains insufficiently documented.

Statement of the problem

Public libraries are expected to provide up-to-date health information resources, utilize diverse dissemination channels, and actively engage communities in health education during pandemics and epidemics. They should function as accessible hubs for credible information, collaborate with health agencies, and leverage both traditional and digital platforms to reach diverse populations. However, available evidence suggests that there is a disconnect between this expected role and the current realities of public library services in the region.

Preliminary observations indicate that many public libraries in North-Central Nigeria are constrained by inadequate funding, poor infrastructure, limited integration of Information and Communication Technologies (ICTs), and insufficient professional capacity. These limitations

hinder their ability to acquire relevant health information resources and to disseminate such information effectively to the public. Furthermore, there appears to be weak collaboration between public libraries and key health institutions, thereby reducing the potential impact of libraries in coordinated public health responses.

In addition, the persistence of traditional, largely passive information dissemination methods such as reliance on print materials and limited outreach has reduced the reach and effectiveness of public libraries, particularly in an era where digital communication and real-time information access are critical. This challenge is further compounded by the widespread proliferation of misinformation through informal channels, especially social media, which often undermines public understanding of health issues and weakens disease control efforts.

Despite the recognized importance of information in pandemic preparedness and response, there seems to be paucity of empirical studies that comprehensively examine the health information resources of public libraries in North-Central Nigeria.

Objectives of the Study

The specific objectives of this study include to;

1. Determine the extent of provision of health information services by public libraries for pandemic and epidemic control in North-Central Nigeria.
2. Ascertain the channels adopted by public libraries to disseminate health information for pandemic and epidemic control in North-Central Nigeria.
3. Explore the extent to which public libraries disseminate health information for pandemic and epidemic control in North-Central Nigeria.

Research Questions

1. What is the extent of provision of health information services by public libraries for pandemic and epidemic control in North-Central Nigeria?
2. What channels are adopted by public libraries to disseminate health information for pandemic and epidemic control in North-Central Nigeria?
3. To what extent do public libraries disseminate health information for pandemic and epidemic control in North-Central Nigeria?

Hypotheses

The hypothesis of the study was;

HO₁: The extent of health information service provision by public libraries does not significantly influence pandemic and epidemic control in North-Central Nigeria.

HO₂: The channels adopted by public libraries do not significantly influence the dissemination of health information for pandemic and epidemic control in North-Central Nigeria.

HO₃: There is no significant difference in the extent to which public libraries disseminate health information for pandemic and epidemic control in North-Central Nigeria.

REVIEW OF RELATED LITERATURE

Public libraries are universally recognized as community-based information institutions established to provide equitable access to knowledge and information resources for all members of society. They are often described as the “local gateway to knowledge,” enabling lifelong learning, independent decision-making, and socio-cultural development. As institutions funded by government and public resources, public libraries are designed to meet diverse informational, educational, and recreational needs of users regardless of socio-economic status.

In contemporary society, public libraries have evolved beyond traditional repositories of books to become dynamic information hubs that integrate digital technologies, online resources, and community-centered services. Recent studies emphasize that public libraries play a critical role in promoting information literacy, bridging the digital divide, and supporting community resilience, particularly in developing countries (Cloonan, 2019; Salubi & Majavu, 2024). Their relevance is further amplified during public health crises, where access to credible information becomes essential for survival and well-being.

Pandemics and epidemics refer to the widespread occurrence of infectious diseases within a population, with pandemics having a global reach and epidemics being more localized. The increasing frequency of disease outbreaks has been attributed to factors such as globalization, urbanization, environmental changes, and increased human-animal interactions. Pandemics such as COVID-19, and epidemics like cholera and measles, have demonstrated the importance of public awareness, early detection, and effective communication strategies in disease control. According to recent global health literature, timely dissemination of accurate information significantly influences public compliance with preventive measures and reduces misinformation (WHO, 2021; Oyelude et al., 2022).

Information provision practices refer to the processes through which libraries acquire, organize, and make information resources available to users. These practices include collection development, reference services, current awareness services, and digital information services. Public libraries are expected to provide information that is accurate, relevant, and timely to meet user needs.

In the context of pandemics, information provision practices extend to the curation of health-related resources, dissemination of public health guidelines, and support for research activities. Recent studies highlight the role of libraries in providing access to digital databases, e-books, and verified online resources during health emergencies (Ashworth, 2020; Ali & Gatiti, 2020). These practices enhance public understanding and contribute to informed decision-making.

Information dissemination involves the systematic distribution of information to target audiences through various channels. It encompasses both traditional methods (print media, posters, radio) and modern digital platforms (websites, social media, mobile applications). Effective dissemination ensures that information reaches users in a timely and accessible manner.

Public libraries employ diverse dissemination strategies such as outreach programs, workshops, newsletters, and digital communication tools. Recent literature indicates that digital platforms, particularly social media and mobile technologies, have become essential tools for real-time information dissemination during pandemics (Jun & Chiang, 2019; Chatterjee & Samanta, 2021). However, the effectiveness of these practices depends on infrastructure, user accessibility, and institutional capacity.

Pandemic and epidemic control refers to the strategies and measures implemented to prevent, manage, and reduce the spread of infectious diseases. These include public health education, vaccination campaigns, surveillance systems, and communication strategies. Information plays a central role in control efforts, as it influences public behavior and compliance with health guidelines.

Public libraries contribute to disease control by providing accurate health information, promoting awareness, and countering misinformation. Studies have shown that access to reliable information enhances public health literacy and encourages preventive behaviors, thereby reducing disease transmission (Bhavnani et al., 2015; Taylor, 2016).

Ameh et al. (2021) reported that libraries utilized online platforms, email services, and virtual programs to disseminate health information and maintain user engagement. Similarly, IFLA (2020) documented that libraries worldwide provided information literacy training, promoted digital resources, and collaborated with health agencies to combat misinformation.

In Africa, Oyelude et al. (2022) found that libraries contributed to community resilience by disseminating verified health information and supporting awareness campaigns. However, the study also highlighted challenges such as inadequate ICT infrastructure and limited funding, which constrained service delivery.

In Nigeria, several studies have examined the role of libraries in pandemic response. Ganiyu et al. (2020) identified strategies such as virtual reference services, social media engagement, and digital resource promotion as effective approaches for information dissemination. However, the study noted that many libraries lacked the capacity to fully implement these strategies due to infrastructural limitations.

Furthermore, the study by Nkechi et al. (2018) revealed that Nigerian libraries face persistent challenges including poor funding, inadequate facilities, and low ICT adoption, which hinder their effectiveness in information provision and dissemination.

Theoretical Review

Diffusion of Innovations Theory (Rogers, 1962)

The Diffusion of Innovations Theory explains how new ideas, technologies, and practices spread within a social system over time. The theory identifies key elements such as innovation, communication channels, time, and social systems as determinants of adoption.

In the context of this study, health information provided by public libraries represents an “innovation” that must be communicated effectively to the public. Libraries serve as communication channels through which health knowledge such as hygiene practices, vaccination awareness, and disease prevention strategies is disseminated. The extent to which individuals adopt these practices depends on the effectiveness of information dissemination and the credibility of the source.

This theory is particularly relevant in understanding how public libraries influence behavioral change during pandemics and epidemics. Diffusion of Innovations Theory explains how health information spreads and influences behavior and provides a robust foundation for analyzing the effectiveness of health information practices in pandemic and epidemic control.

METHODOLOGY

This study adopted a descriptive survey research design. The design was considered appropriate as it enables the systematic collection and analysis of data from a defined population in order to describe existing practices and patterns. The study was conducted in North-Central Nigeria, comprising Benue, Kogi, Niger, Kwara, Plateau, and Nasarawa States. The population consisted of professional and para-professional staff working in public libraries within the region, as they are directly involved in information provision and dissemination activities. A multistage sampling technique was employed, involving purposive selection of functional public libraries, stratification of staff into professional and para-professional categories, and random sampling of respondents within each group. Data were collected using a structured questionnaire titled Public Libraries Health Information Practices Questionnaire (PLHIPQ), which was designed in line with the study objectives. The instrument contained sections measuring the extent of information service provision, the channels used for information dissemination, and the extent of dissemination practices.

Responses were obtained using a four-point Likert scale ranging from Very High Extent to Very Low Extent. The instrument was validated by experts in Library and Information Science and public health communication to ensure content relevance and clarity. Cronbach’s Alpha Reliability was established through a pilot study using the method, with a coefficient of 0.70 and above considered acceptable. Data were collected through direct administration of the questionnaire, and responses were analyzed using descriptive statistics, specifically mean and

standard deviation. A decision rule of 2.50 was used as the benchmark for determining the extent of practices. Ethical considerations such as voluntary participation, anonymity, and confidentiality of respondents were strictly observed throughout the study.

RESULTS

Table 1: Mean and Standard Deviation Analysis of the Extent of Provision of Information Services by Public Libraries for Control of Pandemics and Epidemics in North Central Nigeria

S/N	Item Statement	VHE	HE	LE	VLE	Mean	St. D	Remark
1	Reference services	66	71	93	62	2.48	1.06	Low Extent
2	Virtual support groups	15	21	171	85	1.88	.75	Low Extent
3	Online wellness programs	12	23	188	69	1.92	.69	Low Extent
4	Local health campaigns	51	49	100	92	2.20	1.07	Low Extent
5	Digital literacy training	22	33	118	119	1.86	.90	Low Extent
6	Multilingual support services	20	40	127	105	1.91	.88	Low Extent
7	Provision of resource guides	50	75	108	59	2.40	.99	Low Extent
8	Online community forums	11	18	174	89	1.83	.70	Low Extent
9	Provision of online health information portals	14	21	181	76	1.91	.72	Low Extent
10	Organization of virtual workshops and webinars	21	33	160	78	1.97	.77	Low Extent
11	Health information services	82	34	102	74	2.42	1.15	Low Extent
12	Social networking	74	50	110	58	2.48	1.08	Low Extent
13	Mobile library services	68	70	93	61	2.50	1.07	High Extent
14	Outreach library services	76	49	105	62	2.48	1.09	Low Extent
15	Extension services	80	55	98	59	2.53	1.10	High Extent
Cluster Mean						2.18	.93	Low Extent

Source: Survey data, 2025

Key: VHE = Very High Extent, HE = High Extent, LE = Low Extent, VLE = Very Low Extent

The result presented on table 1 revealed that the extent to which public libraries provide Health information for epidemic control was rated low, with an overall cluster mean of 2.24 (SD = 1.02). Although libraries demonstrated moderate engagement in promoting official health guidelines (Mean = 2.59) and participating in public health campaigns (Mean = 2.55), their involvement in activities such as organizing virtual health programs (Mean = 1.79), providing multilingual information (Mean = 2.00), and offering digital health resources (Mean = 2.01) remained low. This reflects a limited integration of digital technologies and community engagement strategies in epidemic information delivery.

Table 2: Frequency Counts and Percentages of the channels adopted by public libraries to disseminate information for control of pandemics and epidemics in North Central Nigeria

S/N	Channels	Frequency		Percentage (%)		Decision
		A	NA	A	NA	
1	Library websites	0	292	0	100	Not Adopted
2	Social media platforms	30	262	10.3	89.7	Not Adopted
3	Email newsletters	22	270	7.5	92.5	Not Adopted
4	Virtual events and webinars	0	292	0	100	Not Adopted
5	Mobile Apps	0	292	0	100	Not Adopted
6	Podcasts and videos	09	283	3.1	96.9	Not Adopted

7	Informational brochures and posters	170	122	58.2	41.8	Adopted
8	Collaboration with local media	101	191	34.6	65.4	Not Adopted
9	Collaboration with community organizations	110	182	37.7	62.3	Not Adopted
10	Virtual reference services	0	292	0	100	Not Adopted
11	Online resource guides	0	292	0	100	Not Adopted
12	SMS alerts	60	232	20.5	79.5	Not Adopted
13	Engagement with online communities	0	292	0	100	Not Adopted
14	Newspaper/Magazines	162	130	55.5	44.5	Adopted

Source: Survey data, 2025

Key: A = Adopted, NP = Not Adopted

The result on table 2 shows that public libraries in North-Central Nigeria largely do not adopt digital and modern dissemination channels. Most digital tools such as websites, webinars, mobile apps, and online guides recorded 100% non-adoption. Social media (10.3%) and email newsletters (7.5%) were minimally used. However, traditional channels such as brochures/posters (58.2%) and newspapers/magazines (55.5%) were the most commonly adopted. This indicates a strong reliance on traditional communication methods and a significant gap in digital information dissemination.

Table 3: Mean and Standard Deviation Analysis of the Extent to which Public Libraries Disseminate Information for Control of Pandemics and Epidemics in North-Central, Nigeria

S/N	Item Statement	VH E	H E	LE	VLE	Mean	St.D	Remark
1	Public libraries provide access to accurate information from reputable sources to combat misinformation	43	64	101	84	2.23	1.02	Low Extent
2	Public libraries disseminate information about the preventive measures of pandemics through various channels	50	78	98	66	2.38	1.02	Low Extent
3	Public libraries actively promote official health guidelines, such as wearing masks, practicing social distancing, and proper hand hygiene	79	80	68	65	2.59	1.11	High Extent
4	Public libraries offer resources that address mental health issues, coping strategies, and stress management techniques.	40	61	105	86	2.19	1.01	Low Extent
5	Public libraries provide online resources such as e-books, e-journals, databases, and online public access catalogue among others that allow patrons to access relevant health information from the safety of their homes.	31	42	118	101	2.01	.96	Low Extent
6	Libraries organize virtual programs featuring health experts to provide a platform for patrons to ask questions, receive accurate information, and address concerns	15	31	125	121	1.79	.82	Low Extent
7	Libraries provide information in multiple languages to cater to diverse populations,	23	37	146	86	2.00	.87	Low Extent

	ensuring that language barriers do not hinder understanding and access to critical information.							
8	Libraries actively participate in public health campaigns initiated by government agencies or health organizations, contributing to a coordinated effort to control the spread of the pandemic	78	82	54	78	2.55	1.15	High Extent
9	Libraries collaborate with local health departments and organizations to provide information about testing centers, vaccination sites, and other community resources, ensuring that individuals have access to necessary services	58	61	91	82	2.33	1.09	Low Extent
10	Libraries play a role in disseminating emergency alerts and updates from health authorities and local governments to ensure that communities stay informed in real-time.	60	57	88	87	2.31	1.11	Low Extent
Cluster Mean						2.24	1.02	Low Extent

Source: Survey data, 2025

Key: A = Adopted, NP = Not Adopted

The findings on table 3 reveal that the extent of information dissemination by public libraries is generally low. Although some activities such as promoting health guidelines (Mean = 2.59) and participating in public health campaigns (Mean = 2.55) were carried out to a high extent, most dissemination activities were rated low. Particularly weak areas include virtual programs (Mean = 1.79), online resources (Mean = 2.01), and multilingual communication (Mean = 2.00). The result on table 1 also revealed that the cluster mean was 2.24.

Hypothesis Testing

HO₁: public libraries health information resources do not influence pandemics and epidemics control in North Central Nigeria.

Table 4: Paired Samples Test of Information Services Provided by the Various Public Libraries and Information Provision and Dissemination practices for Control of Epidemics and Pandemics in North Central Nigeria

		Paired Differences							
		Mean	Std. Dev.	Std. Error Mean	T	Df	P-value	α-level	Remark
Pair 1	Information Services Provision and Information Provision and Dissemination Practices	- .05148	.16109	.00943	- 5.461	291	.000	.05	Significant

The result of the paired t-test presented on table 4 shows that the p-value (0.000) is less than the significance level (0.05), indicating a statistically significant difference between the types of information services provided and actual information dissemination practices. Therefore, the null hypothesis (HO₁) is rejected. This implies that although public libraries may offer certain information services, these services are not effectively translated into practical dissemination activities, revealing a gap between service availability and implementation.

HO₂: The channels adopted by public libraries do not significantly influence the dissemination of health information for pandemic and epidemic control in North-Central Nigeria.

Table 5: Paired Samples Test of Channels Adopted by Public Libraries and Information Dissemination Practices for Control of Epidemics and Pandemics in North Central Nigeria

Paired Differences	Mean	Std. Dev.	Std. Error Mean	T	Df	P-value	α-level	Remark
Pair 1: Channels Adopted - Information Dissemination Practices	-.07842	.18327	.01073	-7.312	291	.000	.05	Significant

The result of the paired samples t-test presented in Table 5 shows that the p-value (0.000) is less than the significance level (0.05), indicating a statistically significant difference between the channels adopted by public libraries and their actual information dissemination practices for pandemic and epidemic control. Therefore, the null hypothesis (HO₂) is rejected. This implies that although some traditional channels (such as informational brochures/posters and newspapers/magazines) are adopted, the limited use of digital and modern channels (e.g., library websites, social media, mobile apps, and virtual events) hinders effective dissemination. The gap reveals that the current mix of channels does not sufficiently support broad, timely, and inclusive health information delivery in North-Central Nigeria.

HO₃: There is no significant difference in the extent to which public libraries disseminate health information for pandemic and epidemic control in North-Central Nigeria.

Table 6: Paired Samples Test of the Extent of Information Dissemination by Public Libraries for Control of Epidemics and Pandemics in North Central Nigeria

Paired Differences	Mean	Std. Dev.	Std. Error Mean	T	Df	P-value	α -level	Remark
Pair 1: Extent of Dissemination – Information Provision and Dissemination Practices	.06215	.17284	.01012	6.142	291	.000	.05	Significant

The result of the paired samples t-test presented in Table 6 shows that the p-value (0.000) is less than the significance level (0.05), indicating a statistically significant difference in the extent of information dissemination practices relative to overall information provision efforts. Therefore, the null hypothesis (H_0) is rejected. This implies that while public libraries demonstrate some activity in promoting official health guidelines and participating in public health campaigns, the overall extent of dissemination remains low, particularly in areas such as virtual programs, online resources, multilingual support, and outreach to rural communities. The significant difference highlights inconsistencies in implementation and reach, underscoring the need for more consistent and expansive dissemination strategies to effectively contribute to pandemic and epidemic control in North-Central Nigeria.

Discussion

The findings of this study reveal important insights into the health information resources of public libraries for pandemic and epidemic control in North-Central Nigeria. The discussion is organized in line with the study objectives.

The results indicate that the extent of information service provision by public libraries is generally low, with a grand mean below the acceptable benchmark. This suggests that public libraries in the study area are not actively engaged in providing comprehensive health-related information services during pandemics and epidemics. While reference services were relatively available, critical services such as digital health resources, awareness programs, and workshops were limited. This finding corroborates earlier studies which reported that public libraries in Nigeria often rely on traditional service models and lack the capacity to provide innovative and proactive services during health crises. Similarly, Ameh et al. (2021) observed that many libraries struggled to adapt their services during the COVID-19 pandemic due to infrastructural and operational constraints.

From a theoretical perspective, this outcome reflects a limitation in the functional role of public libraries as posited by Functionalist Theory, which emphasizes that institutions must effectively perform their roles to maintain societal stability. The inability of libraries to provide adequate health information services indicates a dysfunction that may contribute to poor public awareness and increased vulnerability during health crises.

The findings further reveal that public libraries predominantly utilize traditional dissemination channels such as posters, brochures, and notice boards, while digital platforms such as social media and websites are underutilized. Although the overall mean suggests a moderate level of channel usage, the dominance of traditional methods limits the reach and effectiveness of information dissemination in a rapidly evolving digital environment. This finding aligns with previous studies which highlight the continued reliance on conventional communication methods in Nigerian libraries due to inadequate ICT infrastructure and limited digital capacity. However, recent literature emphasizes the importance of digital platforms in enhancing information

dissemination, particularly during pandemics where real-time communication is essential (Jun & Chiang, 2019; Chatterjee & Samanta, 2021).

In relation to the Diffusion of Innovations Theory, the limited adoption of digital dissemination channels suggests a slow rate of innovation adoption among public libraries. Since effective communication channels are critical for the diffusion of new ideas and health practices, the underutilization of modern technologies may hinder the spread of vital health information and delay behavioral change among the population.

The findings also reveal that the overall extent of information dissemination by public libraries is low, particularly in terms of frequency, coverage, and reach to rural communities. Although the information provided was perceived as accessible and understandable, its limited reach and irregular dissemination reduce its overall effectiveness.

This finding is consistent with earlier research (Nkechi et al., 2018; Ganiyu et al., 2020) which identified challenges such as poor funding, limited infrastructure, and inadequate outreach programs as barriers to effective information dissemination in Nigerian public libraries. It also supports the assertion that access to information alone is insufficient without effective delivery mechanisms that ensure wide coverage and timely dissemination.

The hypothesis testing revealed a statistically significant difference between the types of information services provided by public libraries and their actual information provision and dissemination practices ($t = -5.461$, $p < 0.05$). This led to the rejection of the null hypothesis (H_{O1}). This finding indicates that although public libraries may offer certain information services, these services are not effectively translated into practical dissemination outcomes. In other words, there exists a gap between what libraries provide and how effectively they disseminate that information to users. This result is particularly important as it highlights an issue of implementation inefficiency rather than mere absence of services. It suggests that even where services exist, they are not being utilized or delivered in ways that maximize their impact on public health awareness and behavior. This finding supports earlier studies which identified structural and operational challenges such as poor funding, inadequate ICT infrastructure, and lack of professional training as major barriers to effective information dissemination in Nigerian libraries (Nkechi et al., 2018; Ganiyu et al., 2020).

Within the framework of the Diffusion of Innovations Theory, this gap suggests that the communication process required for effective diffusion is weak or incomplete. The presence of services alone does not guarantee adoption; effective dissemination strategies and channels are necessary to ensure that information reaches and influences the target audience.

The hypothesis testing for H_{O2} revealed a statistically significant difference between the channels adopted by public libraries and their actual information dissemination practices for pandemic and epidemic control ($t = -7.312$, $p < 0.05$). This led to the rejection of the null hypothesis (H_{O2}). The finding indicates that while public libraries in North-Central Nigeria adopt some traditional channels such as informational brochures, posters, and newspapers/magazines, the minimal utilization of digital platforms (e.g., library websites, social media, mobile apps, and virtual events) limits the overall effectiveness of health information dissemination. This result highlights a structural mismatch in communication strategies, where reliance on conventional methods restricts reach, timeliness, and accessibility, particularly to younger and rural populations. It supports earlier studies that identified inadequate ICT infrastructure and limited digital capacity as key barriers to effective information dissemination in Nigerian libraries (Nkechi et al., 2018; Ganiyu et al., 2020).

Within the framework of the Diffusion of Innovations Theory, this gap suggests weak communication channels for the spread of health innovations. Effective dissemination requires diverse and modern channels to facilitate rapid adoption of preventive behaviors; the current over-reliance on traditional methods slows the diffusion process and reduces the libraries' potential impact on pandemic and epidemic control.

The hypothesis testing for H_{O3} revealed a statistically significant difference in the extent of information dissemination practices relative to overall information provision efforts ($t = -6.142, p < 0.05$). This led to the rejection of the null hypothesis (H_{O3}). The finding shows that although public libraries demonstrate moderate engagement in promoting official health guidelines and participating in public health campaigns, the overall extent of dissemination remains low, especially in virtual programs, online resources, multilingual support, and outreach to underserved communities. This inconsistency reveals implementation gaps that undermine the potential contribution of libraries to public health awareness and behavior change during health crises. The result aligns with previous research highlighting operational constraints such as poor funding, limited infrastructure, and inadequate outreach as factors limiting effective dissemination in Nigerian public libraries (Ameh et al., 2021; Ganiyu et al., 2020).

From the perspective of the Diffusion of Innovations Theory, the low extent of dissemination indicates incomplete stages of adoption within the community. While some information is provided, the limited scale and frequency of dissemination hinder widespread knowledge uptake and confirmation of health practices essential for effective pandemic and epidemic control.

Conclusion

This study examined the extent of information service provision, dissemination channels, and the extent of information dissemination practices by public libraries for pandemic and epidemic control in North-Central Nigeria. The findings reveal that public libraries in the region are not optimally positioned to effectively support public health communication during health crises.

Specifically, the study established that the extent of information service provision is generally low, with limited availability of proactive services such as health awareness programs, digital resources, and outreach initiatives. Although some level of traditional service provision exists, it is insufficient to meet the dynamic information needs associated with pandemics and epidemics. Furthermore, the study found that public libraries rely predominantly on traditional dissemination channels such as posters and notice boards, with minimal utilization of digital platforms such as social media and websites. This limits the speed, reach, and effectiveness of information dissemination, particularly in a digital age where real-time communication is essential.

In addition, the overall extent of information dissemination was found to be low, especially in terms of frequency, coverage, and reach to rural populations. While the information provided is relatively accessible and understandable, its limited distribution reduces its potential impact on public awareness and behavior change.

The study therefore concludes that public libraries in North-Central Nigeria are constrained by structural and operational challenges that hinder their effectiveness in pandemic and epidemic control. Consequently, their role as critical information hubs in public health communication remains underutilized.

Importantly, the result of the hypothesis testing revealed a significant difference between the information services provided by public libraries and their actual dissemination practices, indicating a disconnect between service availability and implementation. This suggests that even where information services exist, they are not effectively translated into practical outcomes that enhance public awareness and behavioral change.

Recommendations

Based on the findings and conclusions of the study, several key recommendations emerge to strengthen the role of public libraries in health information dissemination, particularly during pandemics and epidemics.

1. There is a clear need to enhance information service provision within public libraries. This can be achieved by expanding health-related services through the organization of regular awareness

programs, workshops, and seminars that educate the public on disease prevention and management. In addition, libraries should prioritize improving access to current and relevant digital health resources so that users can obtain accurate and timely information when needed.

2. The adoption of digital dissemination channels is essential in today's information-driven society. Public libraries should integrate modern communication technologies into their operations by actively utilizing social media platforms, library websites, and mobile applications. These tools can significantly increase the speed, accessibility, and reach of health information, ensuring that critical updates are delivered to a wider audience in real time.

3. Improving the coverage of information dissemination is also crucial. Libraries must strengthen their outreach efforts to ensure that underserved and rural communities are not excluded. This can be accomplished through initiatives such as mobile library services, community engagement programs, and strategic collaborations with local organizations. Such efforts will help bridge the information gap and promote equitable access to health knowledge.

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