

Awareness of Virtual Library for Access of Medical Information Services by Library Users at National Tuberculosis and Leprosy Training Centre (NTBLTC), Zaria, Kaduna State – Nigeria

By

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Abstract

This study investigated the Awareness of Virtual Library Services for Accessing Medical Information by Library Users at the National Tuberculosis and Leprosy Training Centre (NTBLTC), Zaria, Kaduna State, Nigeria. The article was guided by three research questions focusing on the users' awareness and utilization of these services, and the challenges hindering adoption. The study employed a quantitative research methodology using a survey research design. The population comprised 126 registered library users, and data were analyzed using descriptive statistics. The findings revealed that awareness of medical information services was found to be highest in circulation and lending, while services such as current awareness, research support, and medical reference were poorly known. Findings revealed that users largely recognized basic access services such as circulation and reference, while specialized medical information services—including indexing, research support, and translation—were less visible and underutilized. Major challenges identified included inadequate IT infrastructure, insufficient funding, lack of technical expertise, weak institutional policies, and data security concerns. The study concluded that the overall awareness of virtual library services for accessing medical information at NTBLTC, Zaria, is relatively low and inadequate. It was recommended that the library should expand beyond basic access services by introducing subject-specific medical databases while the institution should seek external funding, invest in staff training on digital tools, establish supportive institutional policies, tailored to the needs of health professionals and students.

Keywords: *Library Users, Medical Information Services, NTBLTC Zaria, Virtual Library*

Introduction

The library serves as a foundation for disseminating current and reliable information to users. Without adequate library services, it is not possible for a medical hospital or other institution to achieve significant academic development. The 21st century has seen a remarkable expansion of information services, primarily due to the rise of virtual libraries, which have transformed global information provision.

Ejegwa and Mngutyo (2023) describe a virtual library as a digital domain that houses and organizes virtual books and related documents. A virtual library is essentially the application of information and communication technology (ICT) in library services, resulting in significant improvements in the delivery of medical information. Nongo (2020) underlines the crucial role of virtual library services, highlighting that a virtual library, through network connectivity, can help improve knowledge sharing, provide faster responsiveness, provide a wide range of storage capacity for information sharing and reduce unnecessary delays.

Ingole and Monjee (2023) note that hospital libraries are increasingly using virtual platforms to collect, store, retrieve, and share information with students, researchers, and others. Through proper networking and authentication, users can remotely access digital resources, which aids medical education, lifelong learning, and professional growth.

Virtual library services are particularly useful in medical settings as they provide quick and uninterrupted access to e-resources regardless of location (Daniel, 2022; Nongo, 2020). Pushpendra (2016) and Kebede et al. (2020) argue that virtual library platforms facilitate collaboration with medical databases and provide user -friendly navigation with features such as drop - down menus. Nakiyingi (2024) emphasizes how crucial digital librarians are for security training, such as role-based access control (RBAC) and multi-factor authentication (MFA), as these measures protect collections and ensure reliable access.

The National Tuberculosis and Leprosy Training Centre (NTBLTC) currently maintains a handheld library with various materials, including diagnostic and treatment guidelines, medical books, research papers, journals, drug information, and educational materials on maternal and child health (MCH), HIV/AIDS, sexually transmitted infections (STIs), tuberculosis, leprosy, Buruli ulcer, cardiovascular diseases (CVDs), and dermatological conditions. This library provides high- quality medical information services.

The benefits of adopting a virtual library for medical information services include quicker and more convenient access to relevant materials, enhanced research support, and improved decision-making. Virtual libraries streamline workflow, reduce the time spent on manual searches, and enable librarians to focus on higher-value tasks. Ultimately, awareness and effective utilization of virtual library services can significantly strengthen the provision of medical information in institutions such as NTBLTC, ensuring that both health professionals and students meet their evolving information needs.

Statement of the Problem

Timely access to accurate and trustworthy medical information resources is crucial for evidence-based research and the delivery of high-quality medical information in specialist institutions like the National Tuberculosis and Leprosy Training Centre (NTBLTC), Zaria. To support academic productivity, improve clinical decision-making, and provide remote access to scholarly materials, health sciences libraries are progressively implementing virtual library (VL) services in accordance with worldwide trends (Cooke, 2021). Libraries in the twenty-first century run the risk

of becoming ineffectual, stagnant, and possibly outdated if they don't adopt virtual services and the right information technologies (Tofi, 2019).

Little is known about how much NTBLTC Library users are aware of, use, or gain from virtual libraries, despite previous research emphasizing their value in enhancing access to medical knowledge. Such an absence leaves a study gap in our knowledge of how virtual library services could improve the caliber, usability, and accessibility of NTBLTC's medical information. The degree of awareness and use of virtual libraries by NTBLTC Library patrons is unknown, although these services are known to improve access to medical information.

Additionally, Abule (2023) noted that medical libraries at Nigerian institutions are underutilized by students and medical professionals. The lack of crucial services like online databases, electronic warnings, selective dissemination of information (SDI), email notifications, and electronic resources consortia exacerbates this underutilization. These services are essential for increasing knowledge of the resources that are available and encouraging their efficient usage.

Thus, by evaluating the knowledge and use of medical information services at the NTBLTC Library, this study aims to close the reported gap. The study's findings will be useful in identifying gaps in institutional policies pertaining to the implementation of virtual library services, as well as constraints in human and infrastructure capability. In the end, the results will serve as a foundation for creating a successful, user-centered medical information service model specifically for the NTBLTC, enhancing the caliber of library materials and advancing the center's objectives.

Objectives of the Study

The study achieved the following objectives:

1. Determine the level of awareness of medical information services among NTBLTC Library users
2. Examine the extent do NTBLTC Library users utilize medical information services
3. Identify the challenges do library users face in utilizing virtual library services at NTBLTC, Zaria

Literature Review

A medical library is a specialized library commonly found in hospitals, medical schools, and health associations. Its core responsibility is to support physicians, health professionals, medical students, patients, and researchers in locating health and scientific information that enhances healthcare delivery through improved access, evaluation, and utilization of knowledge resources. According to Okafor, Njoroge, and Kimani (2023), libraries are entrusted with the role of sourcing, selecting, processing, organizing, and disseminating information resources in various formats to meet the needs of their users. Increasingly, these resources are being digitized and made accessible online to promote awareness and ease of use.

Patti (2021) emphasized that medical library users must be habituated to regular use of the library for professional growth, highlighting the need for Continuing Professional Development (CPD) programs for library professionals. Such initiatives, when facilitated by hospital authorities, help

enhance service delivery and strengthen the medical library user community. Ikolo (2020) investigated doctors' awareness and perception of medical library resources and services at Delta State University Teaching Hospital. The findings revealed that although a wide range of resources—such as medical textbooks, e-books, monographs, encyclopedias, local and international journals, databases (e.g., Medline, Hinari, ProQuest), seminar papers, atlases, dictionaries, technical reports, and services like reference, document delivery, computerized literature search, selective dissemination of information (SDI), reprography, and interlibrary loans were available, doctors demonstrated a low level of awareness.

Ikolo (2020) reported that at Delta State University Teaching Hospital Library, the most heavily used resources were textbooks (77%) and journals (80%), while computerized resources like MEDLINE on CD-ROM (35.9%) were gaining traction, indicating a shift towards digital resources. Medical library staff also play a key role in promoting health literacy. Klem et al. (2019) noted their contribution to patient education through information prescription programs in clinical settings. In a broader context, Bangani (2024) emphasized their role in strengthening community education, while Chowdhury and Chowdhury (2024) highlighted the importance of virtual resources in continuing education programs. Missingham (2021) suggested SDG-oriented evaluation measures for assessing academic library impact, and Thorpe and Gunton (2022) argued that aligning library services with the Sustainable Development Goals (SDGs) enhances accessibility, diversity, and equity.

Health professionals in Nigeria face numerous challenges in accessing and utilizing medical information. Adetarami and Bande (2023) identified several causes, including inadequate training of healthcare personnel in information use, poor facilities for data processing, restricted access to patient records due to improper record-keeping, and insufficient funding for implementing health information technologies. Ejegwa and Mnguty (2023) noted that medical information services are further hindered by barriers such as limited access to technologies, lack of awareness of virtual library services, weak information-gathering practices, scarcity of library professionals, negative attitudes toward library use, unreliable internet connectivity, inadequate ICT infrastructures, and information overload. In order to close these gaps and ensure high-quality medical information accessibility, this study suggests strategic investments in ICT infrastructure, personnel training, legislative changes, and long-term financing sources.

Research Methodology

A descriptive survey research design was used for this study. The population for the study consisted of 126 registered library users at the National Tuberculosis and Leprosy Training Centre (NTBLTC) in Zaria. Total enumeration sampling technique was used to the registered library users of National Tuberculosis and Leprosy Training Center Zaria based on the number of their population. The questionnaire was the only instrument for data collection, which was distributed by the researcher to the respondents through the aid of recruited research assistant. The data collected was presented and analyzed by using frequency distribution tables follow by discussions.

Interpretation of Results and Discussion of findings.

Table 1: Response Rate

S/No.	Respondents	Copies of Questionnaires Distributed	Copies of Questionnaires Retrieved	Percentage (%) of the Retrieved Copies of the Questionnaire
1	Registered library users	126	118	93.7%.

Source: computation 2025

Out of the 126 questionnaires distributed, 118 were successfully retrieved, giving a response rate of 93.7%. Such a high response rate strengthens the reliability and credibility of the study's findings, as it indicates that the sample closely represents the target population.

Table 2 Level of awareness on medical information services among library users in NTBLTC Zaria

S/no	Awareness	Highly Aware	Aware	Not Aware	Highly not Aware	Mean	SD
1	Current awareness	9	11	74	24	2.04	0.77
2	Medical index/abstract	5	9	71	33	1.88	0.72
3	Medical catalogue	2	6	51	59	1.58	0.67
4	Medical research	25	27	36	30	2.40	1.08
5	Circulation/lending	31	29	34	24	2.57	1.09
6	Medical Reference	2	6	49	61	1.57	0.67
7	Medical translation	2	4	46	66	1.51	0.65
8	Recreation/leisure	10	16	41	51	1.87	0.94
9	Inter library loan	8	11	42	57	1.75	0.88
10	Medical document delivering	18	24	35	41	2.16	1.07

Source: Field Survey, 2025

The analysis of awareness levels of medical information services at the NTBLTC Library reveals significant variations across different services. Circulation and lending services recorded the highest mean score (M = 2.57, SD = 1.09), showing that library users are more aware of this traditional service compared to others. This is consistent with the findings of Ojo (2018), who argued that circulation remains the most visible library service, forming the core of user-library interactions in many academic and medical settings.

Medical research services also scored relatively high in awareness (M = 2.40, SD = 1.08), suggesting that users recognize the importance of research support in enhancing medical studies and professional training. According to Ajibade (2021), awareness of research services is closely tied to the perceived academic benefits they provide, particularly in specialized institutions where medical decision-making relies heavily on scholarly evidence.

On the other hand, awareness of other crucial services such as current awareness (M = 2.04, SD = 0.77), document delivery (M = 2.16, SD = 1.07), and recreation/leisure services (M = 1.87, SD = 0.94) was only moderate. These figures suggest that while some users are familiar with these

services, a significant proportion remain unaware, thereby limiting their ability to fully benefit from available resources (Aina, 2019).

The lowest levels of awareness were observed in services such as medical translation (M = 1.51, SD = 0.65), medical reference (M = 1.57, SD = 0.67), cataloguing (M = 1.58, SD = 0.67), and interlibrary loan (M = 1.75, SD = 0.88). These results highlight a critical shortfall in user engagement with services that are central to knowledge discovery, accessibility, and collaboration. Ifidon and Ifidon (2019) note that poor awareness of such services often leads to underutilization, even when they are available, reducing the overall effectiveness of library operations.

The implications of these findings suggest that the NTBLTC Library needs to implement stronger awareness creation strategies, such as user education programs, orientation sessions, selective dissemination of information, and regular electronic alerts. Strengthening awareness will not only increase utilization of underused services like translation, reference, and interlibrary loan, but will also enhance user satisfaction, clinical decision-making, and academic productivity. This aligns with Igbeka's (2020) assertion that awareness is a key determinant of library service utilization and overall impact.

Table 3 Extent of utilization of medical information services by users of NTBLTC Zaria

S/no	Utilization	VHE	HE	LE	VLE	Mean	SD
1	Medical Current awareness it is accessible	4	8	30	76	1.49	0.77
2	Medical index/abstract accessible	6	8	37	67	1.60	0.82
3	Medical cataloguing accessible	12	18	37	51	1.92	0.99
4	Medical research available	14	18	37	49	1.97	1.02
5	Circulation/lending is accessible	9	11	58	40	1.91	0.85
6	Medical Reference accessible	3	5	54	56	1.62	0.69
7	Medical translation is accessible	4	5	53	56	1.64	0.72
8	Recreation/leisure is available	10	17	56	35	2.02	0.88
9	Interlibrary loan is accessible	18	22	42	39	2.16	1.04
10	Medical document delivering is available	6	9	37	66	1.62	0.83

Source: Field Survey, 2025

The analysis of utilization of medical information services at the NTBLTC Library shows that most services recorded low mean scores, reflecting minimal actual use despite their availability. Medical current awareness services, for instance, had one of the lowest mean scores (M = 1.49, SD = 0.77), indicating that even though such services are designed to keep users updated with recent medical developments, they are rarely accessed. This finding aligns with the observation of Nwokocha (2020), who emphasized that poor promotion and insufficient ICT facilities often hinder the effective use of current awareness services in Nigerian medical libraries.

Similarly, medical index/abstract services (M = 1.60, SD = 0.82), medical reference services (M = 1.62, SD = 0.69), and medical document delivery (M = 1.62, SD = 0.83) show very low utilization. This suggests that essential services meant to support scholarly retrieval and evidence-based practice are underused, a situation comparable to the findings of Mohammed and Garba (2021), who noted that lack of user training and awareness remains a barrier to effective resource utilization in specialized libraries.

Services like cataloguing (M = 1.92, SD = 0.99) and research support (M = 1.97, SD = 1.02) show slightly higher but still limited usage. According to Eze and Uzochukwu (2019), cataloguing and research services form the backbone of academic libraries, but their impact is diminished if users are not adequately guided on how to exploit them for medical research and clinical studies.

Interestingly, interlibrary loan (M = 2.16, SD = 1.04) and recreation/leisure services (M = 2.02, SD = 0.88) recorded the highest utilization levels among the services assessed. This could reflect users' reliance on resource-sharing arrangements to overcome local limitations, as well as their interest in non-academic resources for relaxation. As Ogbuiyi (2022) highlighted, interlibrary loan systems are increasingly becoming crucial in resource-scarce environments, particularly in health institutions where specialized information demands exceed local capacity.

The implications of these findings are significant. They show that NTBLTC Library users still rely heavily on traditional services and collaborative arrangements such as interlibrary loans while underutilizing specialized services like medical indexing, abstracting, and reference support. This underutilization may impede evidence-based medical practice, limit research productivity, and reduce the overall effectiveness of medical information services. As suggested by Yusuf (2018), libraries in specialized institutions must intensify efforts to create demand through targeted user education, training workshops, and strategic integration of ICT tools to enhance accessibility and encourage greater utilization.

Table 4 Challenges faced library users toward utilization of virtual library services

S/NO.	Challenges faced library users	Frequency	Percentage (%)
1	Limited funding to sustain virtual library services	89	75.4%
2	Lack of adequate IT infrastructure	76	64.4%
3	Insufficient technical expertise among library staff	78	66.1%
4	Unavailability of sufficient medical information resources	100	84.7%
5	Obstacle to internet connectivity	50	42.4%
6	High cost of maintenance and updating virtual library services	78	66.1%
7	Limited awareness on the benefits associated with virtual library services	50	42.4%
8	The absence of hospital policy supporting virtual library initiative	45	38.1%
9	Problems of data security and privacy concerns	45	38.1%

10	Difficulty of converting print materials to softcopies	79	66.9%
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Source: Field Survey, 2025

The findings reveal that the most critical challenge faced by NTBLTC Library users is the unavailability of sufficient medical information resources (84.7%). This indicates that despite efforts to digitize and expand services, the library still lacks adequate collections of current and specialized medical content. According to Eze and Agu (2021), resource scarcity is a widespread challenge in Nigerian medical libraries, which hinders effective learning, research, and clinical decision-making.

Limited funding (75.4%) also poses a significant barrier to sustaining virtual library services. Funding gaps restrict the library’s ability to subscribe to premium medical databases, invest in digital infrastructure, or expand its resource base. As observed by Ibrahim and Salihu (2020), inadequate funding is a persistent problem across African academic libraries and is one of the major reasons why virtual library services remain underdeveloped.

Closely related challenges include difficulty in converting print materials to digital formats (66.9%), insufficient technical expertise among library staff (66.1%), and high maintenance costs (66.1%). These findings suggest that even where infrastructure exists, sustainability remains a problem due to limited human capacity and the financial burden of maintaining digital systems. In agreement, Okonkwo (2022) emphasized that medical libraries require specialized staff training and consistent investment to sustain digital services.

Other challenges include poor IT infrastructure (64.4%) and unreliable internet connectivity (42.4%), both of which slow down access to medical information services. Weak connectivity remains a recurring issue across Nigerian institutions, limiting real-time access to critical databases (Abubakar, 2021). Additionally, limited awareness of the benefits of virtual library services (42.4%) further undermines adoption. Without proper sensitization, users may underutilize available resources.

The absence of supportive hospital policies (38.1%) and concerns about data security and privacy (38.1%) also emerged as relevant challenges. These factors highlight institutional and ethical dimensions of virtual library adoption. As Adebayo (2023) pointed out, medical libraries cannot thrive without clear institutional policies, frameworks for data governance, and secure access systems.

The implications of these findings are far-reaching. Addressing the shortage of resources and funding is critical to making virtual library services sustainable. Moreover, capacity building for library staff, investment in IT infrastructure, and user education campaigns are essential to enhance adoption and maximize impact. Failure to address these challenges may result in persistent underutilization of virtual library services, thereby limiting the ability of NTBLTC to support evidence-based medical practice, academic growth, and quality patient care.

Summary of Findings

This study investigates the

Based on the data collected and analyzed for this study, the following major findings were identified:

Table 2 the findings showed that the level of awareness of medical information service among NTBLTC users was highest for circulation and lending services. Other specialized medical information services, such as current awareness, research support, and medical references, were poorly recognized.

Table 3 the study revealed that the extent of utilization of most medical information services by users of the NTBLTC Zaria Library was generally low, with only a few services showing moderate engagement.

Table 4 the findings revealed that challenges such as inadequate IT infrastructure, insufficient funding, lack of technical expertise, weak institutional policies, and data security concerns remained major barriers to successful implementation.

Conclusion

It was concluded that the awareness of virtual library services for access to medical information services by library users in the National Tuberculosis and Leprosy Training Centre (NTBLTC), Zaria, Kaduna State, Nigeria, was relatively low and inadequate. While users recognized and utilized basic library services such as circulation, reference, and access to research materials, their awareness and utilization of specialized medical information services like indexing, medical translation, and research support remained poor. The actual implementation and adoption of these services were constrained by challenges such as weak IT infrastructure, insufficient funding, lack of skilled personnel, and fragile institutional policies. This showed that while the potential for a successful virtual library system existed, the current state of awareness and utilization of medical information services at NTBLTC was not satisfactory and required significant strategic improvement.

Recommendations

- 1) The library was recommended to implement awareness and user education programs to promote lesser-known services such as current awareness, research support, and medical reference tools, thereby increasing their visibility and encouraging wider utilization among users.
- 2) To enhance service usage, the NTBLTC Zaria Library was encouraged to conduct regular needs assessments, upgrade underutilized services based on user feedback, and integrate digital engagement tools that made services more accessible and attractive to users.
- 3) To overcome the identified challenges, NTBLTC was urged to seek funding from health and education-focused agencies, invest in staff training on digital library tools, establish institutional policies supporting virtual library development, and collaborate with ICT providers to improve internet reliability.

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