Community Engagement, Information Access and Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East, Nigeria

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In Partial Fulfillment of the Requirements for the Award of Doctor of Philosophy (PhD) Degree in Library and Information Science

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Certification

This is to certify that **Rabi Hassan El'badawy** with matriculation number **LCU/PG/003117** carried out this study titled "Community Engagement, Information Access and Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East, Nigeria" in the department of Information Management, Faculty of Communication and Information Sciences, Lead City University, Ibadan, Oyo State, For the Award of Doctor of Philosophy (PhD) Degree in Library and Information Science and that this work has not been previously submitted elsewhere.

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Dedication

This work is lovingly dedicated to Almighty God, my dear husband, Mal Garba Ahmadu whose unwavering love, patience and encouragement sustained me through this journey.

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Acknowledgement

My appreciation goes to the management and staff of Lead City University, Ibadan for providing the needed support and conducive environment for learning during the course of my study and in conducting this research. I am also grateful to staff and management of Lead City University that provided data for this study as well as the services provided by staff of the Library in Lead City University, Ibadan, Oyo State.

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A million and heartfelt thanks to my family members, my wonderful friends and also to all our course mates who have contributed in one way or the other, may God richly bless you all, Amen.

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Even though the above-mentioned institutions and persons have assisted in the process of this project work, I alone stand responsible for the error(s) if any, found in this work.

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Abstract

The promotion of sustainable healthcare practices has become a critical global priority, especially in regions with fragile health systems like North-East Nigeria. Medical libraries, as hubs of knowledge and public health education, are well-positioned to support health literacy, assist healthcare professionals and engage communities in sustainable health practices. This study investigated the effect of community engagement and information access on promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria. The study adopted a descriptive survey design. The total population comprised users of medical libraries across six North-East Nigerian states, healthcare professionals, students and community members and total enumeration was used. The study adopted a quantitative survey for data collection. The data collected was analysed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation to answer the research questions while the hypotheses were tested using linear and multiple regression at a 0.05 level of significance. Findings revealed that while medical libraries contribute meaningfully to sustainable healthcare promotion, (aggregate mean = 3.18) demonstrates that users of medical libraries in North-East Nigeria not only actively seek health information but also utilize it to support academic, personal and health-related decisions however, their effectiveness is limited by low trust in library resources, weak stakeholder collaboration and poor infrastructure. Irregular information-seeking behaviour, low digital literacy and lack of user-friendly resources further hinder impact. The test of hypotheses revealed that the effect of community engagement is weak and statistically insignificant ($B = 0.075$, $\beta = 0.087$, $t = 1.358$, $p = 0.176$). This suggests that, although there is a positive relationship, it is too small and not significant enough to conclude that community engagementt meaningfully influences sustainable healthcare practices in this context. The combination of community engagement and information access produced a positive relationship (R) of 0.131, with R^2 value of 0.017. The study concludes that their combined influence was minimal and therefore recommended that medical libraries in North-East Nigeria should integrate institutional policies and programmes that reinforce individual efforts; design participatory health initiatives and introduce capacity-building programmes in information literacy and citation skills. Strengthening medical libraries through better policies, funding and digital tools is crucial to bridging health information gaps and ensuring long-term healthcare sustainability. It highlights the essential role of medical librarians in public health and offers practical insights for policymakers, healthcare providers, and library managers in resource-limited settings.

Key Words: Sustainable healthcare, Medical libraries, Health literacy, Community engagement, Information access, Policy support.

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Chapter One

Introduction

1.1 Background of the study

The concept of sustainable healthcare practices originates from the broader idea of sustainability, which emphasizes meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. In healthcare, this involves practices that promote health and well-being while ensuring the long-term availability of resources and maintaining environmental balance. The literal meaning suggests a healthcare system that is both enduring and adaptable, prioritizing equitable access and efficient resource management. Scholars have approached the concept from varying perspectives. According to the Brundtland Commission Report, sustainable is about integrating economic, environmental and social goals[1]. In healthcare, this extends to ensuring that medical resources, such as staff, infrastructure and medications, are used in ways that can be maintained over time.

Scholars further assert that sustainable healthcare practices involve reducing environmental impacts, such as carbon emissions and waste, while enhancing the quality of health services delivered[1].WHO (World Health Organization) defines sustainable healthcare as the delivery of health services that improve public health outcomes while minimizing environmental harm and conserving resources for future generations[2]. This definition emphasizes a balance between improving immediate health outcomes and preserving the environment. Additionally, it stresses the importance of equity, ensuring that vulnerable populations have access to essential healthcare services. The concept also encompasses community participation, as noted by a scholar who argues that sustainable healthcare practices are most effective when communities are actively involved in identifying their health priorities[2.]

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This participatory approach ensures that health interventions are culturally appropriate and socially acceptable, thereby increasing their sustainability. Moreover, it highlights the role of education and information dissemination in achieving health-related sustainability goals. Sustainable healthcare practices focus on the intersection of health, equity, and sustainability. This concept underscores the importance of long-term planning, community involvement, and environmentally responsible practices in healthcare delivery. It reflects a shift from reactive healthcare systems to proactive, holistic approaches that address the root causes of health disparities while promoting resilience and sustainability. Globally, the promotion of sustainable Healthcare Practices has become increasingly critical in addressing the complex challenges facing modern healthcare systems. Sustainable healthcare practices aim to improve health outcomes while ensuring that the resources and systems needed to deliver care are preserved for future generations. This involves a holistic approach that integrates environmental, economic, and social dimensions of sustainability. Key strategies include reducing the carbon footprint of healthcare facilities, managing medical waste efficiently, promoting preventive care, and ensuring equitable access to health services[3].

In many parts of the world, healthcare systems are adopting green building standards, implementing energy-efficient technologies, and reducing waste through recycling and proper disposal practices. For instance, hospitals in Europe and North America are increasingly investing in renewable energy sources and sustainable infrastructure to minimize their environmental impact. These initiatives not only contribute to environmental sustainability but also lead to cost savings and improved patient outcomes[3]. In Africa, the promotion of sustainable Healthcare Practices is shaped by unique challenges and opportunities. The continent faces a high burden of infectious diseases, a growing incidence of non-communicable diseases, and limited healthcare resources. Sustainable healthcare practices in Africa must address these issues while considering the socioeconomic and environmental

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contexts. Efforts to promote sustainability include the use of solar power in healthcare facilities, community health initiatives, and programmes aimed at improving water and sanitation[3]. Community engagement is particularly vital in the African context, where local knowledge and practices play a significant role in health outcomes. Healthcare systems often rely on community health workers and local leaders to disseminate health information and promote preventive measures. This grassroots approach ensures that health interventions are culturally appropriate and widely accepted, thereby enhancing their effectiveness[3].

In Nigeria, the largest country in Africa by population, the healthcare system faces significant challenges, including inadequate infrastructure, insufficient healthcare workforce, and limited access to essential medicines. Promoting sustainable Healthcare Practices in Nigeria involves addressing these systemic issues while integrating sustainability principles. The Nigerian government and various stakeholders have been working towards improving healthcare delivery through initiatives such as the National Health Insurance Scheme (NHIS) and the Basic Health Care Provision Fund (BHCPF)[2].Medical Libraries in Nigeria play a crucial role in promoting sustainable healthcare practices by facilitating access to reliable health information, supporting healthcare professionals in their research and education, and engaging with communities to improve health literacy. They help bridge the gap between evidence-based medical knowledge and practical application in healthcare settings, thereby contributing to more efficient and effective health care delivery[2].North-East Nigeria, a region significantly impacted by conflict and displacement, faces additional health challenges. The healthcare infrastructure in this region is often overstretched, and access to quality healthcare services is limited. In this context, the role of Medical Libraries becomes even more critical. They can support healthcare professionals by providing access to up-to-date medical information and resources, which is essential for delivering quality care in resource- constrained settings[2].

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Users of Medical Libraries in North-East, Nigeria also engages with communities to improve health literacy and promote sustainable health practices. This involves organizing health education programmes, distributing informational materials, and collaborating with local leaders to address health needs. By improving information access and engaging the community, Medical libraries help empower individuals to take control of their health and adopt practices that contribute to long-term health and sustainability[2]. The promotion of sustainable healthcare practices is a global imperative that requires tailored approaches to address specific regional challenges. In North-East Nigeria, Medical Libraries are at the forefront of these efforts, enhancing community engagement, improving information access, and supporting sustainable Healthcare Practices. Their work is vital for building resilient healthcare systems that can meet the needs of the present and future generations. Sustainable in healthcare aims to improve health outcomes while ensuring that the resources required for healthcare are available for future generations. It encompasses a range of practices and principles designed to balance the immediate health needs of the population with long-term environmental, social and economic considerations.

As healthcare systems worldwide face increasing pressures from population growth, aging populations, and environmental changes, the promotion of sustainable Healthcare Practices has become more critical than ever[3].One of the key aspects of sustainable healthcare is the integration of environmentally sustainable practices within health systems. This includes reducing the carbon footprint of healthcare facilities, managing waste effectively, and ensuring the efficient use of resources such as water and energy. For instance, hospitals are significant energy consumers and waste producers; thus, implementing green building standards and waste reduction protocols can significantly impact sustainability. Such practices not only contribute to environmental sustainability but also often result in cost savings and improved health outcomes for patients[1].

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In addition to environmental sustainability, sustainable in healthcare also focuses on social sustainability. This involves ensuring equitable access to healthcare services, addressing social determinants of health, and promoting community engagement and empowerment. According to scholars, social inequalities in health can be addressed by implementing policies that ensure fair distribution of healthcare resources and services, thus improving overall health outcomes and reducing disparities[1].Economic sustainability in healthcare is another crucial component, which involves creating cost-effective health systems that can provide high-quality care without compromising future financial stability. Strategies such as preventive care, efficient management of chronic diseases and the use of technology and innovation to streamline processes can help reduce costs and improve efficiency[1]. Sustainable economic practices ensure that healthcare systems remain viable and can continue to serve populations effectively in the long term.

Technological advancements play a significant role in promoting sustainable healthcare practices. The adoption of electronic health records (EHRs), telemedicine, and other digital health solutions can improve the efficiency and quality of care while reducing environmental impact. For example, telemedicine reduces the need for travel, thereby lowering carbon emissions and EHRs reduce paper usage and enhance the coordination of care[3]. These technologies support the triple bottom line of sustainability: social, economic and environmental benefits. Education and training are essential in promoting sustainable healthcare practices. Healthcare professionals must be educated about sustainable practices and their importance to incorporate these principles into their daily operations. Integrating sustainability into medical and nursing curricula can equip future healthcare providers with the knowledge and skills necessary to implement and advocate for sustainable practices in their workplaces[3]. Continuous professional development programmes focusing on sustainability can also help current healthcare workers stay updated with best practices and

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innovations.

The promotion of sustainable healthcare practices is a multifaceted endeavour that requires the active participation of various stakeholders, including medical librarians. In North-East Nigeria, where healthcare challenges are prevalent due to socio-economic and infrastructural constraints, Medical Libraries are uniquely positioned to foster sustainable healthcare through active community engagement and improved information access. By leveraging their expertise in information management and dissemination, these professionals contribute significantly to advancing the region's healthcare agenda and aligning it with sustainable goals. Ecological Model of Health was adopted for promoting sustainable healthcare practices and it has comprises five major levels of influence: Individual Level; Interpersonal Level; Organizational Level; Community Level and Policy Level.

The researcher adopted all the five levels, the reason focusing on these levels of the ecological model offers several advantages that align with the specific goals and challenges of the study. Firstly, narrowing the focus ensures feasibility and provides a targeted approach. While the full model offers comprehensive coverage, concentrating on these levels allows the research to address the critical aspects most relevant to the study's scope without overextending its reach. Secondly, these levels are highly relevant to the study population in North-East Nigeria. Each level addresses significant gaps in promoting sustainable healthcare practices among medical library users[3]. For instance, the focus on individual behaviour Change helps tackle issues such as low health literacy and other personal barriers that prevent individuals from accessing or utilizing health information effectively. Similarly, the Interpersonal Level emphasizes the role of social networks in enhancing information dissemination and collaboration, which are vital for fostering community engagement. Policy Implementation, on the other hand, ensures that systemic support is in place, facilitating sustainable practices through institutional backing and strategic guidelines.

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Another key reason for adopting these levels is resource optimization. Research efforts often face constraints in terms of time, funding and available resources. By concentrating on these levels, the study can maximize its impact holistically. This approach ensures that the available resources are utilized efficiently to address the most pressing issues within the study population. Finally, these levels provide actionable entry points for designing practical interventions. By addressing personal, relational and systemic challenges, the study can develop tailored strategies that directly promote sustainable healthcare practices. This targeted and pragmatic approach ensures that the interventions are both impactful and achievable. The Socio-Ecological Model (SEM) of Health provides a multidimensional framework to analyze and address health challenges by focusing on individual behaviour change, interpersonal influences and policy implementation[3]. This model emphasizes the interplay among personal choices, social relationships and systemic policies in achieving sustainable health outcomes.

The SEM model emphasizes the multifaceted and interactive effects of personal and environmental factors that influence behaviours. It outlines five core levels of influence which are individual, interpersonal, organizational, community and policy[4]. For promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria, these measures have the potential to offer valuable insights into designing effective interventions. At the individual level of influence, individual behaviour change involves altering personal habits and decisions to improve health outcomes. Globally, behavioural modifications, such as smoking cessation, exercise and dietary changes, have been pivotal in addressing non-communicable diseases[4]. This means that at the individual level, factors such as knowledge, attitudes and self-efficacy have the tendency of influencing sustainable health behaviour. In Africa, health behaviour is often influenced by cultural norms and misinformation, necessitating targeted educational campaigns[4]. In Nigeria, limited awareness and reliance on

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traditional medicine present barriers to sustainable practices[4]. Among users of medical libraries in North-East Nigeria, inadequate digital literacy and a lack of awareness about health information resources hinder their ability to make informed health decisions. Addressing these issues through user-friendly health information programmes and literacy workshops can empower individuals to adopt healthier lifestyles.

The interpersonal level of influence emphasizes the role of social networks and relationships in shaping health behaviours. Globally, peer influence, family support and community interactions have been instrumental in promoting sustainable healthcare, such as increased adherence to vaccination schedules[4]. In Africa, strong family ties and communal living create opportunities for shared health education, though stigma and misinformation can also spread within these networks[4]. The organizational level includes institutional policies, availability of resources and the role of library services in promoting health literacy. In Nigeria, community leaders and religious figures significantly impact health-related decisions[4]. Among medical library users in North-East Nigeria, a lack of collaborative engagement and peer support limits the effective dissemination of health information. Initiatives such as community health forums and collaborative learning sessions can strengthen these networks, ensuring broader adoption of sustainable practices.

Policy implementation focuses on the establishment and enforcement of systemic guidelines to promote health. Globally, policies such as universal healthcare access and mandatory immunization have led to improved public health outcomes[4]. In Africa, policy inefficiencies and weak enforcement mechanisms hinder healthcare delivery, requiring stronger institutional support[4]. In Nigeria, insufficient funding for libraries and a lack of integration of health promotion into library policies have limited their impact[5]. For medical libraries in North-East Nigeria, the absence of clear policies on community engagement and health

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promotion has restricted their ability to serve as effective health information hubs. Developing comprehensive policies that allocate resources, train librarians, and mandate health promotion initiatives can bridge this gap and enhance their role in sustainable healthcare. Among users of medical libraries in North-East Nigeria, several challenges align with the ecological model. At the individual level, limited health literacy and resistance to adopting new behaviours persist. At the interpersonal level, weak social networks and limited peer-driven health initiatives hinder collaborative learning. At the organizational level, deficiencies on the part of institutions like libraries to sensitize users regarding health behaviours can hampers the spread of acceptable health behaviours. At the policy level, the lack of institutional support and inadequate funding restrict the scope of library services. Addressing these perceived problems through tailored interventions such as health literacy programmes, strengthened community networks and robust policy frameworks can improve community engagement, enhance information access and promote sustainable healthcare practices in the region[4].

Community engagement is a cornerstone of sustainable Healthcare Practices. It involves collaborating with community members to identify health needs, develop appropriate interventions, and ensure that health services are accessible and acceptable. Medical Libraries can facilitate this process by organizing health information sessions, workshops, and outreach programmes that educate the community about sustainable health practices. By engaging directly with the community, Medical Libraries help bridge the gap between healthcare providers and the public, fostering a collaborative approach to health promotion[5].Community engagement activities led by Medical Libraries have been shown to enhance public health awareness and promote preventive health behaviours. This study explores the various outreach programmes conducted by the Users of Medical Libraries in North-East, Nigeria, such as health fairs and public lectures, which aim to educate the community about health

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risks and preventive measures[5]. These initiatives are crucial for building a health-conscious society.

In addition to direct community engagement, medical libraries contribute to the development and implementation of public health policies. They provide evidence-based information that can inform policy decisions and advocate for policies that improve health information literacy[5]. The users of medical libraries in North-East, Nigeria have been active in collaborating with local health authorities to shape health policies that benefit the North-East, Nigeria community. Community engagement is another essential aspect of the medical librarian's role. This involves outreach activities such as health workshops, seminars and public health campaigns. These initiatives are designed to raise awareness about health issues and promote preventive measures[5]. The users of medical libraries in North-East, Nigeria have been at the forefront of such activities in North-East, Nigeria, partnering with local health organizations to reach a broader audience.

Community engagement is a process through which individuals, groups or organizations collaborate to address issues that affect their well-being and community development. It involves participation, dialogue and the inclusion of diverse stakeholders to foster collective action and shared responsibility[6]. In healthcare, community engagement plays a pivotal role in promoting awareness, trust and the adoption of sustainable practices. Medical librarians, for instance, serve as facilitators in engaging communities by organizing health literacy programmes, disseminating relevant health information and creating platforms for interaction. Through these initiatives, librarians bridge the gap between healthcare providers and the public, ensuring that community needs and concerns are addressed[6].

Social Capital Theory was adopted in this study to address community engagement among medical library users, focusing on three key indicators: trust level, cooperation and

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homogeneity. These indicators serve as critical lenses through which the dynamics of community engagement are examined. Each measure provides insights into global, regional and local contexts, narrowing the focus to the study population in North-East Nigeria, while also highlighting the perceived challenges specific to this population. Trust level refers to the degree of confidence and reliability among community members, stakeholders and the library itself. Globally, trust is recognized as the foundation of effective collaboration, facilitating the sharing of resources and fostering long-term relationships. In many developed countries, high levels of trust have been achieved through transparent communication and well- structured health information systems[7]. Within Africa, however, challenges such as misinformation, inconsistent access to resources and underfunded health systems often undermine trust, creating barriers to effective engagement. In Nigeria, and particularly in North-East Nigeria, trust issues are compounded by socio-political instability, lack of awareness about library resources and limited engagement between medical libraries and their users. Among the study population, distrust is perceived as a major barrier to accessing health information, with users hesitant to rely on medical libraries for accurate and actionable health data[7].

Cooperation involves the willingness of individuals and groups to work together by sharing resources, knowledge, and skills to achieve common goals. Globally, successful healthcare initiatives demonstrate how cooperative efforts lead to improved health outcomes, such as community vaccination drives and health awareness campaigns[7]. In African contexts, cooperation often faces cultural and logistical challenges but community-based initiatives like health outreach programmes have shown potential in fostering collaboration. In Nigeria, cooperation in healthcare and library usage is hindered by limited infrastructure, fragmented systems and the absence of collaborative platforms. For the study population in North-East Nigeria, cooperation remains a challenge due to weak social networks and limited awareness

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about the benefits of shared health information. Encouraging cooperative practices among medical library users is vital to overcoming these obstacles and promoting sustainable healthcare practices[7].

Homogeneity refers to the degree of similarity among community members in terms of demographics, values and needs. Globally, homogenous communities often find it easier to collaborate due to shared goals and cultural alignment. However, such uniformity may limit diversity of thought and innovation[8]. In Africa, and particularly in Nigeria, communities are often highly heterogeneous, with diverse ethnic, cultural and linguistic backgrounds. This diversity presents both opportunities and challenges for community engagement. In North- East Nigeria, the study population reflects significant heterogeneity, with users from different ethnic and socio-economic backgrounds. This diversity poses challenges in creating inclusive engagement strategies and equitable access to medical library resources. Among the perceived problems, the lack of tailored services that address the unique needs of this diverse population is a significant barrier to effective community engagement[8]. With these indicators: trust level, cooperation and homogeneity, the study aims to develop strategies that foster meaningful engagement, enhance access to health information, and promote sustainable healthcare practices among medical library users in North-East Nigeria.

Social Capital Theory encompasses several key dimensions, typically categorized as structural, relational and cognitive[8]. These dimensions provide a comprehensive framework for understanding the dynamics of social networks, trust, norms and shared values that facilitate cooperation and community engagement. The structural dimension focuses on the tangible aspects of social networks, such as the connections and relationships among individuals and groups[8]. The relational dimension emphasizes trust, mutual respect, and the strength of interpersonal relationships. Meanwhile, the cognitive dimension addresses shared

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norms, values, and understandings that enable collective action and collaboration. In this study, three specific indicators trust level, cooperation, and homogeneity are adopted from Social Capital Theory to address community engagement among medical library users in North-East Nigeria. These indicators were selected for their relevance and practicality within the study's context. By focusing on these three measures, the study can effectively analyze the social dynamics impacting the use of medical libraries and the promotion of sustainable healthcare practices[8].

The first reason for adopting these indicators is their feasibility and relevance. Trust, cooperation, and homogeneity are highly applicable to understanding the specific challenges and opportunities within the study population. These measures provide a focused lens to explore how social capital operates in the context of medical library usage and health information dissemination. Second, these indicators align closely with the objectives of the study. Trust level is crucial for fostering confidence in medical libraries as reliable sources of health information, particularly in regions where misinformation and scepticism are prevalent[9]. Cooperation reflects the willingness of users and stakeholders to collaborate and share resources, which is essential for achieving sustainable healthcare practices. Homogeneity, on the other hand, highlights the challenges and opportunities posed by the diverse composition of the study population, offering insights into inclusivity and equity in community engagement efforts[9].

Additionally, focusing on these three indicators ensures effective resource utilization. Given the constraints of time, funding, and data collection capacity, narrowing the scope allows for a more in-depth analysis of each measure and facilitates actionable outcomes. This targeted approach enhances the study's ability to address specific gaps in community engagement and health information access. Finally, these indicators address the perceived challenges within

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the study population. Trust level directly tackles the issue of scepticism among users regarding the reliability of medical library resources. Cooperation addresses the fragmented nature of social networks and the lack of collaborative efforts in utilizing health information effectively. Homogeneity provides insights into how the diversity of the population affects engagement dynamics and the representation of perspectives. By adopting trust level, cooperation, and homogeneity as key indicators, the study creates a focused and actionable framework for exploring the role of Social Capital Theory in promoting community engagement and sustainable healthcare practices among users of medical libraries in North- East Nigeria. Studies have shown that effective community engagement enhances the accessibility and uptake of healthcare services, ultimately contributing to improved health outcomes[10].

Information access is a natural extension of community engagement, as it ensures that individuals have the resources and knowledge necessary to make informed decisions. For medical librarians, facilitating information access involves curating reliable and up-to-date health resources, providing digital tools for information retrieval, and offering guidance on evaluating the credibility of sources. Community engagement efforts often reveal gaps in knowledge or misconceptions that can be addressed through tailored information dissemination strategies. By integrating community engagement with information access, librarians ensure that healthcare resources are not only available but also relevant and comprehensible to the target audience. This synergy fosters a more informed and health- conscious community, paving the way for sustainable healthcare practices and greater equity in healthcare delivery[10]. Access to reliable health information is a cornerstone of effective healthcare delivery and sustainable development. Medical libraries, as information centres, are uniquely positioned to bridge the health information gap in underserved communities.

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Recent research underscores the importance of health literacy in empowering individuals to make informed health decisions[10]. In North-East Nigeria, where health literacy levels are often low, Medical Libraries can act as intermediaries, providing essential health education and resources to the community. By enhancing access to accurate and timely health information, libraries can contribute to improved health outcomes and foster sustainable health practices. Information access is a fundamental right, and Medical Libraries are advocates for equitable access to health information. They work to eliminate barriers that may prevent individuals from obtaining necessary health information, such as lack of internet access or low literacy levels[11]. The Users of Medical Libraries in North-East, Nigeria has implemented several programmes to address these challenges, ensuring that even the most marginalized community members can access vital health information[11].

Access to accurate and timely health information is another critical component of sustainable health care. In North-East Nigeria, where health literacy levels may be low and access to reliable information limited, Medical libraries are pivotal in providing essential health information. They curate and disseminate evidence-based health resources, ensuring that both healthcare professionals and the community have access to the latest medical knowledge and best practices. By leveraging digital libraries and online databases, Medical libraries can extend their reach and impact, even in remote areas[11]. Information access is a cornerstone of effective healthcare. Medical libraries ensure that accurate and up-to-date health information is available to both healthcare professionals and the public. This study examines how the users of medical libraries in North-East, Nigeria facilitate access to such information, particularly for underserved populations[12]. By providing reliable health information, the library helps bridge the gap between healthcare providers and patients.

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One of the critical challenges in healthcare is ensuring that information is not only accessible but also understandable. Medical libraries at the users of medical libraries in North-East, Nigeria play a key role in translating complex medical terminology into language that can be easily comprehended by the general public[12]. This function is essential for empowering individuals to make informed health decisions.

Health Information Behaviour Theory serves as a valuable framework for understanding how individuals access, use, and encounter challenges with health information. This theory examines the processes and behaviours associated with seeking, utilizing, and overcoming barriers to health information. In this study, three specific indicators: Information Seeking Patterns, Information Utilization and Barriers to Access were adopted to address information access in healthcare settings, particularly among users of medical libraries in North-East Nigeria. These measures offer a focused and practical approach to analyzing health information behaviour in diverse populations and contexts. Information seeking patterns refer to how individuals search for health information, including the frequency and channels they use. Globally, individuals rely on diverse sources such as healthcare professionals, online platforms, library databases, and social networks to acquire health information[13]. In Africa, limited internet access and digital literacy levels often lead many to rely on traditional sources like community health workers or libraries. Within Nigeria, cultural factors and inadequate library infrastructure influence health information-seeking behaviours, especially in rural areas. In North-East Nigeria, the study population faces unique challenges such as limited awareness of medical library services and a lack of reliable health information sources. These issues result in irregular and inefficient information-seeking practices, hindering their ability to make informed healthcare decisions[13].

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Information utilization involves applying acquired health information to make informed decisions, follow treatment plans, and adopt healthy behaviours. Globally, effective utilization is influenced by individuals' ability to comprehend and trust the information. In Africa, socioeconomic factors, cultural beliefs and low health literacy often impede the effective use of health information. In Nigeria, despite increasing health campaigns, many individuals struggle to interpret or apply health information due to language barriers and a lack of localized content. Among users of medical libraries in North-East Nigeria, the primary challenge lies in bridging the gap between information acquisition and practical application[14]. Limited access to user-friendly resources and guidance from health professionals further exacerbates the issue, preventing users from utilizing information to improve their health outcomes. Barriers to access refer to the obstacles that hinder individuals from obtaining or effectively using health information[14].

Globally, these barriers include digital divides, language constraints, and information overload. In Africa, infrastructural challenges such as inadequate libraries, low internet penetration, and limited availability of culturally relevant content are prominent barriers[15]. In Nigeria, systemic issues like inconsistent power supply, high internet costs, and limited public health awareness campaigns further restrict access. Narrowing the focus to North-East Nigeria, the study population encounters significant barriers, including poor library facilities, lack of digital resources and inadequate health information outreach programmes. These challenges create disparities in access and perpetuate misinformation, undermining efforts to promote sustainable healthcare practices. Adopting the indicators of Information Seeking Patterns, Information Utilization and Barriers to Access allows this study to comprehensively analyze the health information behaviour of medical library users in North-East Nigeria. By examining these measures, the study highlights the specific challenges faced by the

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population and provides actionable insights for improving information access, utilization, and overall healthcare outcomes[15].

The Health Information Behaviour Theory comprises several major components that explain how individuals interact with health information, including dimensions such as information needs, seeking, utilization, sharing and barriers to access. Each of these dimensions offers unique insights into the processes individuals undertake to access and use health information effectively. This theory provides a comprehensive framework for understanding behaviours related to health information and serves as a basis for addressing challenges in various contexts. In this study, three specific indicators Information Seeking Patterns, Information Utilization and Barriers to Access were adopted. These indicators were chosen for several reasons. First, they allow for a focused and feasible approach to examining health information behaviours. While the theory provides a broad spectrum of dimensions, narrowing the scope to these three ensures that the study remains practical and manageable, aligning with its specific objectives. By targeting these key areas, the research can address pressing challenges without becoming overly complex or diluted. Second, these indicators are directly relevant to the study's context and the challenges faced by users of medical libraries in North-East Nigeria. Information Seeking Patterns address the methods and frequency with which users locate health information, which is particularly significant in environments with resource constraints. Information Utilization focuses on the application of acquired information, which is vital for improving health outcomes in the region. Meanwhile, barriers to access highlight systemic and contextual challenges that hinder individuals from retrieving or effectively using health information. Together, these measures provide a comprehensive lens through which to analyze the unique experiences of the study population.

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Third, these indicators are not only relevant to the study population in North-East Nigeria but also resonate across global and African contexts. Health information behaviours are shaped by common challenges, such as disparities in access to resources, variations in digital literacy, and systemic infrastructural issues. By adopting these three dimensions, the study ensures that its findings are both localized and broadly applicable, capturing universal themes while addressing specific regional concerns. Lastly, these indicators directly contribute to promoting sustainable healthcare practices. Understanding how individuals seek, apply and overcome barriers to health information provides actionable insights for enhancing medical library services and healthcare interventions. By focusing on these critical areas, the study aims to bridge gaps in information access and utilization, fostering improved healthcare outcomes and empowering individuals to make informed decisions.

While the Health Information Behaviour Theory includes several major components, the adoption of Information Seeking Patterns, Information Utilization, and Barriers to Access in this study reflects a deliberate and strategic choice. These indicators are highly relevant, feasible and impactful, enabling the research to address key challenges in promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria. Medical Libraries also play a vital role in promoting sustainable Healthcare Practices by supporting healthcare professionals in their ongoing education and research. They provide access to a wealth of resources that enable medical practitioners to stay updated with the latest advancements in sustainable healthcare. This continuous professional development is crucial for integrating sustainable practices into everyday healthcare delivery. For example, Medical libraries can facilitate access to research on green healthcare practices, such as reducing hospital waste and implementing energy-efficient technologies[16].

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Furthermore, Medical libraries contribute to the development and dissemination of local health knowledge. By documenting and sharing successful case studies and best practices from within the community, they help build a repository of knowledge that can inform future health initiatives. This localized information is particularly valuable in North-East Nigeria, where context-specific solutions are often needed to address unique health challenges. Medical libraries thus act as custodians of community health knowledge, preserving and promoting indigenous health practices that align with sustainable goals[17]. In addition to their roles in information dissemination and community engagement, Medical libraries advocate for policy changes that support sustainable Healthcare Practices. They can influence healthcare policies by providing evidence-based recommendations to policymakers and participating in health policy forums. By advocating for policies that prioritize sustainability, such as the integration of environmental health into primary care and the promotion of preventive health measures, Medical librarians help shape a healthcare system that is resilient and future-proof[17].

Medical libraries play a pivotal role in the healthcare ecosystem, particularly in enhancing community engagement, facilitating information access and promoting sustainable healthcare practices. The importance of medical libraries has been highlighted in various studies that emphasize their contribution to the healthcare system[17]. Users of Medical Libraries in North-East, Nigeria, serves as an exemplary model for understanding these roles in a practical context. Historically, libraries have been centres of knowledge and information dissemination. In recent years, the focus has shifted towards integrating these resources with community health initiatives to foster a more informed and health-conscious population Jones[17]. Users of medical libraries in North-East, Nigeria have embraced this transformation by implementing various programmes aimed at improving health literacy among the local community.

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Medical Libraries are evolving into critical hubs for community engagement and public health promotion, particularly in regions facing significant socioeconomic and health challenges. North-East Nigeria, marked by its struggles within insurgency, poverty, and inadequate healthcare infrastructure, presents a unique context where libraries can significantly impact community health outcomes. Recent studies have highlighted the transformative potential of libraries in fostering social inclusion and civic engagement[18]. By leveraging their resources and strategic positioning, medical libraries in this region can play a crucial role in disseminating health information and promoting sustainable healthcare practices. Medical librarians are uniquely positioned to bridge the gap between complex medical information and the general public. They are trained to curate and disseminate information in ways that are accessible and understandable, which is crucial for public health initiatives[18]. Users of medical libraries in North-East, Nigeria have taken significant steps to ensure that health information is not only available but also actionable for community members.

One of the critical roles of medical librarians is to provide evidence-based information to support healthcare decisions. This involves not only managing collections of medical literature but also engaging with healthcare professionals and the public to ensure that the information provided is relevant and timely[18]. Users of medical libraries in North-East, Nigeria, efforts have been made to align their resources with the needs of the community, focusing on prevalent health issues and local health policies. The promotion of sustainable healthcare practices is increasingly becoming a focus for medical librarians. This includes advocating for practices that not only address current health issues but also consider long- term impacts on health and the environment[18]. In North-East, Nigeria, the users of medical libraries in North-East, Nigeria has integrated this approach into their health information services, promoting practices that are both health-promoting and environmentally sustainable.

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Recent studies have shown that medical librarians contribute significantly to improving health outcomes by providing accurate and timely information. This is particularly important in rural and underserved areas where healthcare resources may be limited[19]. The users of medical libraries in North-East, Nigeria serve as a model for how medical librarians can positively impact community health. Moreover, medical librarians are involved in research and evaluation of health information services, ensuring that they are meeting the needs of the community effectively. They use various metrics to assess the impact of their programmes and make necessary adjustments[19]. The users of medical libraries in North-East, Nigeria have been proactive in this regard, continuously evaluating their services to better serve the North- East, Nigeria community. The role of medical librarians in public health promotion is increasingly recognized as vital for sustainable development. Medical librarians possess the skills and knowledge necessary to facilitate health education and support public health initiatives[19].

In North-East Nigeria, the integration of medical libraries into public health strategies can address critical gaps in health education and community engagement. This thesis aims to explore how medical librarians in this region can enhance community engagement, improve access to health information and promote sustainable healthcare practices. By examining current practices and identifying effective strategies, this research will provide valuable insights and practical recommendations for leveraging medical library services to support public health and sustainable in North-East Nigeria. Medical librarians extend to policy advocacy. They work with local and national health authorities to advocate for policies that improve health information access and literacy[20]. The users of medical libraries in North-East, Nigeria have been influential in shaping local health policies, ensuring that they are inclusive and consider the needs of the entire community.

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1.2 Statement of the study Problem

The promotion of sustainable healthcare practices is essential for improving public health outcomes, especially in North-East Nigeria. Medical libraries, through community engagement and access to reliable health information, play a pivotal role in achieving this goal. When medical librarians actively facilitate health literacy and promote informed health- seeking behaviours, users become more empowered, satisfied and better equipped to make informed healthcare decisions. However, emerging evidence from preliminary investigations, direct observations, and literature indicates a noticeable decline in the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria. This decline has been largely attributed to limited community engagement initiatives and insufficient access to critical health information resource[6]. These gaps significantly undermine the ability of medical librarians to support healthcare systems effectively and to empower communities with essential knowledge.

If these challenges remain unaddressed, they could lead to poorer health outcomes, increased misinformation, and a deepening gap between medical libraries and the communities they serve. Moreover, the lack of effective community engagement and inadequate information access may further widen existing health disparities, particularly among vulnerable populations. Despite the recognition of these factors, gaps remain in the literature. Several studies have been conducted on the general roles of Medical Librarians in healthcare (e.g., outreach programmes and digital health literacy initiatives). However, very few have focused specifically on the interplay between community engagement, information access and the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria.

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1.3 Objectives of the Study

The aim of this study is to investigate the influence of Community Engagement and Information Access on the Promotion of Sustainable Healthcare Practices by users of medical libraries in North-East Nigeria. The objectives are to:

i. identify the level of promotion of sustainable healthcare practices by users of medical libraries in North-East, Nigeria;
ii. assess the extent of community engagement among users of medical libraries and libraries in North-East, Nigeria;
iii. identify the information access among users of medical libraries in North-East, Nigeria;
iv. determine the influence of community engagement on the promotion of sustainable healthcare practices by users of medical libraries in North-East, Nigeria;
v. ascertain the impact of information access on the promotion of sustainable healthcare practices by users of medical libraries in North-East, Nigeria; and
vi. determine the combined influence of community engagement and information access on the promotion of sustainable healthcare practices in North-East Nigeria.

1.4 Research Questions

The study was guided by the following research questions:

1. What is the level of promotion of sustainable healthcare practices by users of medical libraries in North-East, Nigeria?
2. What is the extent of community engagement facilitated by users of medical libraries in North-East, Nigeria?
3. What is the information access among users of medical libraries in North-East, Nigeria?

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1.5 Hypotheses

The hypotheses of this study were tested at a 0.05 level of significance:

$H_0$1**:** There will be no significant influence of community engagement on the promotion of sustainable healthcare practices by users of medical libraries in North-East Nigeria.

$H_0$2: There will be no significant influence of information access on the promotion of sustainable healthcare practices by users of medical libraries in North-East Nigeria.

$H_0$3: There will be no combined significant influence of community engagement and information access on the promotion of sustainable healthcare practices by users of medical libraries in North-East Nigeria.

1.6 Scope of the study

The study is titled Community Engagement, Information Access and Promotion of Sustainable Development Health Care Practices by Users of Medical Libraries in North-East, Nigeria. It examined the role of Medical Librarians and the library users in fostering community engagement, providing access to health information, and promoting sustainable health care practices. The research focused on three core variables: community engagement, information access, and the promotion of sustainable development health care practices. Community engagement refers to the involvement of users of medical libraries in health- related outreach and partnerships. Information access focuses on the availability of accurate and timely health resources. The promotion of sustainable health care practices encompasses long-term health initiatives, including preventive care and awareness campaigns facilitated by medical librarians. To better measure the level of sustainable healthcare practices, the ecological model of health behaviour was adopted. Questionnaire was used to elicit responses from users of medical libraries. The respondents of this study are the users of medical

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libraries in North-East Nigeria. These include individuals from diverse backgrounds who utilize medical libraries for accessing health information, participating in community health programmes, and adopting sustainable health care practices. Users consist of health care professionals, students, researchers, and members of the public who rely on medical libraries for reliable and updated health information. The study is geographically restricted to North-East Nigeria, focusing on six states: Borno, Yobe, Adamawa, Gombe, Bauchi, and Taraba. These states are chosen due to their unique health challenges and the role medical libraries play in addressing them. The population comprises all users of medical libraries in North- East, Nigeria who engage with health information resources and participate in community- focused health programmes.

1.7 Significance of the study

The study would be of benefit to several stakeholders, like library users, policy makers, community heads, researchers and library management.

This study would be highly beneficial to the users of medical libraries by improving access to reliable and timely health information. It would highlight how medical libraries can better serve their users through innovative approaches to information dissemination and community engagement. By identifying strategies for enhancing the availability and quality of health resources, the research will empower users to make informed health decisions. Additionally, the findings would emphasize the importance of libraries as essential hubs for health education, particularly in underserved areas, ensuring that users can rely on these institutions for credible and actionable health information.

Policy makers would gain valuable insights from this study on the critical role of medical libraries in promoting sustainable health care practices. The research would provide empirical evidence to inform policies that support the integration of Medical Libraries into public

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health and health care delivery systems. It offers a basis for creating frameworks that ensure medical libraries are adequately funded and equipped to meet the health information needs of their communities. Furthermore, the findings would underscore the importance of addressing gaps in access to health information, guiding policymakers in implementing strategies to improve health literacy and infrastructure, especially in North-East Nigeria.

The community stands to benefit significantly from the findings of this research, as it focuses on improving health literacy and sustainable health practices through the efforts of medical libraries. By highlighting the role of Medical Libraries in disseminating accurate and reliable health information, the study would encourage community members to utilize these resources to adopt healthier lifestyles. The research also raises awareness of the importance of libraries as centres for health education and preventive care, fostering trust and collaboration between communities and medical librarians. Ultimately, the community would benefit from improved health outcomes and enhanced access to resources that promote long-term well- being.

Library management would find this study valuable in evaluating and improving the services provided by medical libraries. The research offers actionable recommendations for equipping libraries with the necessary resources and training staff to better support health care initiatives. By identifying gaps in service delivery, outreach efforts, and resource allocation, the study would help library managers make informed decisions to address these challenges effectively. Additionally, the findings would serve as a roadmap for developing strategies to position medical libraries as integral components of the health care system, ensuring they continue to meet the evolving needs of users and the broader community.

To researchers, the study would be a veritable reference sources for further research. It will become a bedrock for more studies. To the university of higher learning, the study, when

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published and made available via online will help the university in gaining proper footing in the university ranking system.

1.8 Limitation of the Study

One notable limitation of this study was its focus on users of medical libraries in North-East Nigeria. While this focus provides valuable insights into the experiences and challenges of library users in North-East Nigeria, the findings may not fully represent the perspectives of users in other parts of Nigeria or in different countries. The unique socio-economic, cultural, and environmental conditions in North-East Nigeria might limit the general applicability of the findings. Another limitation arose from the diverse nature of medical library users, which includes medical students, health care professionals, and community members. These groups have varying levels of literacy, information needs, and access to resources. Capturing the unique perspectives and challenges faced by each subgroup within the constraints of this study was challenging.

The study also relied heavily on self-reported data from library users, which may be subject to biases. Respondents may provide inaccurate or incomplete information due to recall issues, personal biases, or social desirability. While efforts was made to design the data collection instruments to reduce these biases, such as by ensuring anonymity and clarity of questions, the potential for some degree of inaccuracy remains a limitation. Additionally, the study's scope was limited to examining three main variables, that is, community engagement, information access and sustainable health care practices. While these were critical to understanding the role of medical libraries, other important factors, such as the influence of emerging technologies, library funding or institutional policies, are not fully explored. These unaddressed areas could provide deeper insights into the experiences of library users and merit further investigation in future research.

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Time and resource constraints also posed challenges to this study. Reaching a representative sample of library users across multiple states in North-East Nigeria requires considerable resources and time for data collection, analysis and reporting. The limited duration of the study may affect the ability to explore some aspects in depth, such as long-term trends in library usage or the sustainability of health care practices. Expanding the study timeframe or securing additional resources could help overcome these limitations.

Finally, access to remote or underserved communities, where medical libraries play a critical role in health information dissemination, was restricted. This led to the underrepresentation of users from these areas in the study, skewing the findings toward more accessible locations. However, the above stated challenges were surmounted with dedication and resilience and did not in any way affect the originality of the work.

1.9 Operational Definition of Terms

Promotion of Sustainable Healthcare Practices: this refers to the efforts directed towards fostering sustainable healthcare behaviours and practices among users of medical libraries in North-East Nigeria.

Individual Behaviour Change: these are personal factors such as knowledge, attitudes and self-efficacy that have the tendency of influencing sustainable health behaviour among users of medical libraries in North-East Nigeria.

Interpersonal Level: this is the degree of interactions and collaborations among library users, healthcare professionals and the community in sharing knowledge and promoting sustainable healthcare practices among users of medical libraries in North-East, Nigeria.

Policy Implementation: awareness and support for policies among library users that advocate sustainable healthcare practices, ensuring adherence to health and environmental sustainability guidelines among users of medical libraries in North-East Nigeria.

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Community Engagement: refers to the deliberate strategies and actions implemented by medical librarians in North-East, Nigeria to actively involve community members in learning about health and promoting sustainable healthcare practices.

Trust Level: the degree to which community members feel confident and secure in the information and services provided by medical libraries and their librarians in North-East, Nigeria.

Cooperation: the extent to which community members are willing to collaborate with medical librarians and healthcare partners in initiatives that foster health education and sustainable practices in North-East, Nigeria.

Homogeneity: the similarity or shared characteristics among community members in terms of culture, language, or health concerns, which can influence the effectiveness of community engagement efforts in medical libraries in North-East, Nigeria.

Information access: refers to the ability of community members, healthcare professionals, and other stakeholders to access timely, accurate, and relevant health-related information provided by medical librarians in North-East, Nigeria.

*Information Seeking Patterns***:** the habits and behaviours of library users in searching for health-related information, including the frequency, methods and sources they use in medical libraries, North-East, Nigeria.

Information Utilization: the extent to which library users actively use the health information they access to improve their knowledge, healthcare practices, or decision-making processes in medical libraries, North-East, Nigeria.

Barriers to Access: The challenges or obstacles that hinder users of medical library from obtaining or utilizing health information effectively, such as technological limitations, literacy levels, or geographical constraints in medical libraries, in North-East, Nigeria.

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Chapter Two

Review of Related Literature

In this chapter, relevant literature to the research topic was organized and reviewed under the following headings:

2.1 Conceptual Review

2.1.1 Promotion of Sustainable Healthcare Practices

2.1.2 Community Engagement

2.1.3 Information Access

2.2 Theoretical Framework

2.2.1 Ecological Model of Health

2.2.2 Social Capital Theory

2.2.3 Health Information Behaviour Theory

2.3 Empirical Review

2.3.1 Promotion of Sustainable Healthcare Practices by Medical Librarians

2.3.2 Community Engagement by Medical Librarians

2.3.3 Information Access Facilitated by Medical Librarians

2.4 Conceptual Model

2.5 Summary of Reviewed Literature

Endnotes

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2.1 Conceptual Review

2.1.1 Promotion of Sustainable Healthcare Practices by Medical Librarians

Sustainable healthcare refers to systems and practices that meet present health needs without compromising the ability of future generations to meet theirs. It includes environmental, social, and economic dimensions[1]. The major elements include: efficient use of resources, reduction of health inequalities, integration of preventive and promotive health approaches, and building resilience in health systems against social and environmental disruptions. Sustainability requires that healthcare extends beyond hospitals to communities, promoting self-care, preventive health behaviours, and local capacity building. Community participation ensures that interventions are accepted, maintained, and adapted over time[1].

Medical librarians and the library users actively promote sustainable healthcare practices by integrating environmental stewardship and resource efficiency into their information services and organizational practices. Sustainable healthcare practices encompass initiatives aimed at reducing healthcare's environmental footprint, promoting public health through sustainable behaviours, and ensuring long-term health system resilience[1]. Librarians contribute to promoting sustainable healthcare practices by advocating for the use of evidence-based information on environmental health and sustainability in healthcare decision-making[1]. They curate resources that highlight best practices in environmental health management and encourage healthcare providers to adopt strategies that minimize waste, conserve resources, and mitigate environmental impacts.

Sustainable healthcare is an emergent paradigm in global health systems, aligning clinical practice, education, and community health with ecological, economic, and social sustainability goals. In this context, medical libraries and their users such as students,

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practitioners, researchers, and patients have a pivotal role not only as repositories of information but as active agents in advancing sustainable healthcare practices. Sustainable healthcare advocates for efficient resource use, reduction of environmental footprints in health services, and improved health outcomes for current and future generations[1]. Medical library users can serve as catalysts for awareness, implementation, and dissemination of sustainable healthcare practices through informed engagement with evidence, community outreach, and cross-sector collaboration.

First, enhancing health information literacy among users directly fosters sustainable healthcare by equipping individuals with the knowledge and skills necessary to make informed health decisions. Health literacy is a recognized determinant of positive health outcomes and a core component of sustainable healthcare delivery; individuals with higher literacy are better able to navigate health systems, engage in preventive behavior, and reduce unnecessary clinical demand[2]. Medical libraries provide access to peer-reviewed research, clinical guidelines, and evidence-based resources that support users in understanding and applying information related to sustainable preventive care practices, appropriate use of medications, and environmental health considerations. Through targeted training and educational programmes led by library professionals, users can develop competencies that transcend traditional information retrieval, such as evaluating sustainability-related evidence and translating it into practical health behaviours[2].

Second, medical library users can leverage information resources to advocate for sustainable practice changes within healthcare institutions. Evidence-based advocacy is central to sustainable healthcare, where decisions should be informed by the best available research, cost-effective interventions, and consideration of environmental and social impact. Medical libraries enable users, especially clinicians, students, and health managers to access and

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synthesize current literature on sustainable healthcare strategies, resource optimization, and eco-friendly healthcare delivery models. For example, digital transformation of library systems enhances accessibility and reduces reliance on physical materials, indirectly reducing carbon footprints associated with print production and facility operations[3]. Users adept at navigating digital resources can thus model sustainable information practices in their professional environments, helping to shape policies that prioritize efficient resource use and ecological responsibility[3].

Moreover, community engagement and knowledge mobilisation by medical library users extend sustainable healthcare advocacy beyond institutional boundaries. Medical libraries have increasingly been recognised as community hubs where health promotion and wellbeing initiatives can take root, particularly in underserved populations[4]. Users who participate in outreach efforts, such as public seminars on preventive care, environmental health risks, and sustainable lifestyle choices, amplify the impact of evidence-based messaging. This aligns with findings from studies in African medical libraries indicating that while information access is relatively high, structured community engagement by users remains limited; strengthening outreach can significantly improve sustainable healthcare promotion at the community level[4]. Collaborations between users, library staff, and external stakeholders, such as, public health agencies, non-governmental organisations, can create structured platforms for sustained health literacy advocacy and preventive care campaigns.

In addition, interprofessional collaboration facilitated by medical library users contributes to embedding sustainability principles into healthcare practice. The evolving role of health sciences librarians in collaborative research and team-based care highlights the potential for users to act as bridges between disciplines, integrating sustainability considerations into clinical decision-making and quality improvement initiatives[2]. Users involved in clinical

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rounds, evidence synthesis projects, or quality assurance programmes can champion the inclusion of sustainable practices, such as waste reduction, energy-efficient care pathways, and patient education on environmental factors affecting health, thereby aligning clinical care with broader sustainability goals[2].

Finally, medical library users serve as knowledge brokers in the broader health information ecosystem, promoting sustainable healthcare through participation in online health communities, research networks, and continuous professional development. The ability to actively engage with, and contribute to, these communities enhances dissemination of best practices, collective problem-solving, and adoption of innovative sustainable models. As users disseminate evidence on sustainable healthcare measures through personal and professional networks, the cumulative impact reinforces system-wide cultural shifts toward sustainability[2].

Empirical studies demonstrate the impact of librarians in promoting sustainability within healthcare settings discusses case studies where medical libraries have implemented recycling programmes, reduced paper consumption, and promoted digital access to reduce their carbon footprint[1]. These initiatives not only contribute to environmental sustainability but also inspire healthcare providers and patients to adopt more eco-friendly practices. Furthermore, Medical Librarians collaborate with healthcare professionals and policymakers to develop guidelines and policies that promote sustainable healthcare practices. Another scholar highlights examples where librarians have partnered with environmental health experts to create resources and educational materials on sustainable healthcare practices[1]. These collaborations foster interdisciplinary approaches to addressing environmental challenges in healthcare.

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Medical librarians also play a pivotal role in educating healthcare professionals and the public about the intersection of health and environmental sustainability. Scholars discusses how librarians organize workshops, webinars, and educational campaigns to raise awareness about the environmental impacts of healthcare activities and promote sustainable behaviours among healthcare stakeholders[1].Moreover, librarians advocate for sustainable information management practices within their institutions, such as digitization of resources, electronic document delivery, and energy-efficient technologies[1]. These practices not only reduce operational costs but also contribute to environmental conservation by minimizing paper waste and energy consumption. Sustainable healthcare involves practices that meet the health needs of the present without compromising the ability of future generations to meet their own needs. This concept, rooted in the principles of sustainability, emphasizes the importance of balancing immediate health care demands with long-term health goals. The aim is to ensure that current healthcare practices do not deplete resources or harm the environment, thereby preserving the ability of future generations to access quality healthcare[1]. This approach requires an integrated strategy that includes preventive health measures, equitable access to healthcare services and the adoption of environmentally friendly technologies and practices.

The World Health Organization outlines several sustainable Healthcare Practices, highlighting the promotion of preventive health measures, community-based health education and the use of sustainable health technologies[2]. Preventive health measures are foundational to sustainable healthcare as they focus on reducing the incidence of diseases through vaccinations, regular health screenings and public health campaigns. By preventing illnesses before they occur, these measures decrease the need for more intensive, resource-consuming treatments, ultimately conserving healthcare resources. Community-based health education plays a critical role in this strategy by empowering individuals with the knowledge to make

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informed health decisions, thereby enhancing overall community health and reducing the burden on healthcaresystems[2].

Medical librarians can support these initiatives by disseminating information on sustainable health practices and facilitating community education programmes. As accessible public institutions, medical libraries are well-positioned to serve as hubs for health information. They can provide resources such as brochures, books, and digital content on topics like nutrition, exercise, disease prevention and environmental health. Additionally, libraries can host workshops and seminars led by healthcare professionals, creating opportunities for community members to learn about sustainable health practices in an interactive setting. By making reliable health information readily available and promoting health literacy, medical libraries contribute to the broader goal of sustainable healthcare[2].

Moreover, medical librarians and the library users can leverage their technological resources to enhance access to sustainable health information. For example, they can develop and maintain online health portals that provide up-to-date information on preventive health measures and sustainable healthcare technologies. These portals can include features such as virtual health consultations, interactive educational modules and forums for community discussion. Medical libraries can also collaborate with local health organizations to create targeted health campaigns and provide access to tele-health services, particularly in underserved areas. By integrating these technologies, medical libraries not only extend their reach but also support the adoption of innovative, sustainable healthpractices[2]. Recent studies highlight the growing recognition of medical libraries as crucial players in health promotion, reinforcing their potential to contribute significantly to sustainable healthcare initiatives[2].

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Sustainable healthcare practices aim to meet the current and future health needs of the population through efficient and responsible resource use World Health Organization[3]. Medical librarians, as information professionals, play an essential role in promoting sustainable healthcare by enabling access to reliable, evidence-based information. This access empowers healthcare professionals, policymakers, and the public to make informed health decisions[2]. In resource-constrained settings, where sustainable healthcare is crucial, librarians' efforts to curate and disseminate accurate information help reduce healthcare costs, prevent disease, and improve health outcomes[3]. This review explores how Medical libraries contribute to the promotion of sustainable healthcare practices, highlighting their unique position as information gatekeepers. Medical librarians are instrumental in fostering information literacy within the healthcare sector, enabling providers to effectively locate, assess, and apply credible information in patient care[3].

As the volume of health information expands in the digital age, distinguishing credible sources from misinformation becomes increasingly critical[3]. Librarians often conduct information literacy training for healthcare providers, equipping them with skills to make evidence-based decisions that align with sustainable practices. These decisions improve healthcare quality and efficiency, supporting long-term health outcomes and sustainability[3].

Medical librarians promote sustainable healthcare by providing access to digital health resources, including online databases, journals, and e-books[3]. These resources not only reduce the environmental impact associated with print materials but also offer immediate access, reducing the time and effort required for healthcare providers to gather information[3]. By curating digital collections, librarians support environmentally friendly practices that align with the principles of sustainable healthcare, while simultaneously improving the efficiency of information access[3].

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Medical Librarians also contribute to sustainable healthcare by supporting public health education initiatives. Through collaboration with healthcare providers and organizations, they create accessible health resources, such as pamphlets, posters, and online tools, aimed at educating the public about health issues[4]. In communities with low literacy rates, librarians assist by developing multimedia resources or conducting workshops[4]. Their role in public health education raises awareness about preventive healthcare, hygiene, and wellness, reducing the incidence of preventable diseases and supporting the sustainability of healthcare systems[4]. Evidence-based healthcare integrates clinical expertise, patient values, and the best available research evidence, and Medical libraries play a critical role in supporting this integration[4]. By assisting healthcare providers in locating and applying scientific literature, librarians ensure that clinical decisions are grounded in credible, effective information. Evidence-based practices lead to improved healthcare quality, reduced medical errors, and better patient outcomes, aligning with sustainable healthcare goals. Medical Librarians thus play a vital role in advancing the principles of sustainability within healthcare[4].

Medical Librarians facilitate research by helping healthcare providers access and manage high-quality information, essential for developing sustainable healthcare innovations[4]. They assist researchers by organizing literature searches, managing data, and guiding systematic reviews, which are crucial for advancing healthcare knowledge. Librarians' support in the research process contributes to the discovery of new treatment methods and technologies that can improve healthcare efficiency and resource management, furthering sustainable healthcare practices[4].Medical Librarians help bridge health information inequities, ensuring that underserved populations have access to reliable information. They work with community organizations and digital platforms to reach populations facing socio-economic or geographical barriers, providing essential health information[4]. This role is crucial in

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sustainable healthcare, as reducing disparities leads to improved health outcomes across the population, ultimately reducing the strain on healthcare systems[4]. Their efforts thus support equitable access to health information, a core aspect of sustainable healthcare.

Sustainable resource use is a key principle for Medical Librarians who implement eco-friendly practices, such as digital document delivery and electronic subscriptions, within library operations[6]. These measures reduce paper usage and physical storage needs, while energy-efficient practices further minimize environmental impact[6]. By modelling sustainable practices within the library, librarians contribute to the broader healthcare institution's commitment to sustainability and set a standard for responsible resource management[6]. Medical Librarians collaborate with healthcare teams to deliver community outreach programmes that promote sustainable healthcare[6]. By creating educational materials and organizing health fairs, librarians ensure that accurate health information reaches community members, encouraging preventive healthcare behaviours[6]. Through this direct engagement with the community, Medical Libraries support public health and reduce the burden on healthcare services, contributing to a more sustainable healthcare system.

Mental health is an essential component of sustainable healthcare, and Medical Libraries contribute by providing resources and support for mental health literacy. They curate mental health materials, support awareness programmes, and promote access to resources that help destigmatize mental health issues[6]. By enhancing mental health awareness, librarians support preventive care, which aligns with sustainable healthcare objectives by reducing the long-term impact of mental health issues on healthcare systems[7]. Digital health literacy is increasingly important, as much health information is now disseminated through digital platforms. Medical librarians teach digital health literacy, helping individuals critically evaluate and navigate online health resources[7]. By fostering digital health literacy, librarians

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enable the public to make informed health decisions, reducing misinformation and supporting sustainable healthcare by promoting informed health behaviours[7].

Medical librarians play a crucial role in maintaining quality standards in health information resources, which is essential for effective healthcare decisions[8]. They curate, evaluate, and update materials to ensure accuracy, relevance, and timeliness for healthcare providers and the public. By ensuring high-quality information, librarians contribute to sustainable healthcare by supporting informed decision-making, reducing medical errors, and improving patient outcomes[8]. Medical librarians foster a culture of knowledge sharing, supporting professional development and the dissemination of information among healthcare providers[8]. They organize workshops, manage journals, and facilitate online forums, helping practitioners stay updated on best practices and emerging trends[8]. By enhancing knowledge exchange, Medical librarians support more effective, sustainable healthcare delivery, as providers benefit from shared insights and expertise[8].

Medical librarians advocate for open access, making medical research available without financial barriers[9]. Open access enhances the equitable dissemination of knowledge, empowering healthcare providers, policymakers, and the public to adopt evidence-based practices[9]. By promoting open access, librarians support sustainable healthcare by ensuring that valuable research findings reach a broad audience, contributing to informed healthcare decisions[9].The promotion of sustainable healthcare practices by Medical librarians encompasses various roles, from supporting health literacy and research to ensuring quality and advocating for open access. As healthcare evolves, librarians' role in promoting sustainability will likely expand, particularly in response to emerging health challenges[7]. Future studies should explore the impact of librarians' efforts on public health outcomes and assess the effectiveness of their strategies. Through their work, Medical librarians contribute

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to the transformation of healthcare systems, promoting sustainable practices that meet current and future health needs[4].

Health promotion and sustainability in healthcare systems increasingly depend on active community engagement and the application of holistic frameworks such as the Ecological Model of Health. This model recognizes that health outcomes are shaped not only by individual factors but also by the social, environmental, and policy contexts in which people live. By situating health interventions within these broader layers of influence, community engagement becomes an essential strategy for achieving sustainable healthcare systems that respond to local realities and foster long-term well-being[5].

2.1.2 Community Engagement

Community engagement refers to the process of involving people in the decisions and actions that affect their health. It emphasizes participation, partnership, empowerment, and shared ownership[10]. Through community engagement, health programmes become more contextually relevant, culturally sensitive, and responsive to the unique needs of the population. Examples of community engagement include: involving local farmers' cooperatives in designing malaria prevention campaigns in rural areas; establishing community health committees to identify local health priorities; training community health volunteers to provide home-based care and health education. When communities are engaged in health initiatives, they not only adopt healthier practices but also build social capital, the trust and networks that sustain collective action[10]. In the modern healthcare environment, medical libraries are no longer passive storehouses of information; they have evolved into active hubs for knowledge dissemination, health literacy promotion, and community engagement. Community engagement within medical library settings refers to the

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collaborative efforts between libraries, healthcare professionals, patients, and the broader community to promote sustainable healthcare practices, those that ensure equitable access, preventive health awareness, and responsible use of resources for long-term health improvement. By engaging users, medical libraries contribute significantly to health literacy, behavioural change, and sustainability in healthcare delivery, aligning with the ecological model of health which views health as an outcome of interrelated individual, social, institutional, and policy factors[10].

Community engagement in medical libraries involves interactive partnerships between librarians, healthcare professionals, students, and the general public to identify, share, and apply health information relevant to community needs. Engagement is achieved through programmes that support public participation, knowledge co-creation, and health education[11].Medical libraries engage communities by hosting health information literacy workshops for patients and caregivers. Collaborating with hospitals and NGOs to promote public health awareness campaigns, for instance on diabetes, maternal health, or HIV. It is better to offering digital repositories and open-access health databases that encourage evidence-based practices among medical students and practitioners. Using social media and outreach programmes to connect with underserved populations. Through these efforts, libraries empower users to make informed health decisions, which is central to sustainable healthcare practices.

Sustainable healthcare practices refer to actions and policies that maintain or improve health outcomes while minimizing environmental, social, and economic costs. This includes promoting preventive healthcare, rational use of medical resources, and environmental responsibility in healthcare delivery[11]. This includes encouraging evidence-based medicine that reduces wasteful treatments, promoting digital information sharing to reduce paper use

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and improve access, supporting preventive health behaviour such as vaccination, hygiene, and nutrition, and training future health professionals to adopt sustainable clinical practices. Medical libraries play a critical role by supplying reliable, up-to-date medical research, and fostering an informed community that values prevention, efficiency, and innovation in healthcare[11].

Sustainable healthcare rests on the principle that health systems should meet present needs without compromising the ability of future generations to meet theirs. This encompasses efficient use of resources, equitable access to care, preventive health practices, and community wellbeing. In this broader context, community engagement and the participation of medical library users play a significant role in promoting sustainable healthcare practices. Through outreach, knowledge translation, health-oriented initiatives, and partnerships, medical library users extend the influence of evidence-based information beyond institutional walls and into the daily lives of communities. Community engagement refers to participatory interactions between health systems and community members, characterized by shared responsibility for health decision-making and implementation of health practices. This model builds on the concept of community-based involvement which enhances equitable and effective healthcare outcomes by fostering trust, local participation, and relevance of health interventions[11]. Community engagement facilitates sustainable healthcare by empowering individuals with the knowledge and motivation to adopt health-positive behaviours and advocate for supportive environments.

Medical libraries are inherently knowledge hubs; users of these libraries, including health professionals, students, and informed citizens, can serve as conduits for transforming information into practice. For example, when users engage with community members to disseminate reliable health information on topics such as disease prevention, nutrition,

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maternal health, or hygiene, the awareness and adoption of sustainable practices in these areas improves. Studies of outreach programs in rural Nigerian settings demonstrate that library-led initiatives contribute modestly to health literacy improvements in communities, particularly for essential public health topics such as maternal care and disease prevention, even though challenges like infrastructure and engagement quality can limit impact. Community engagement by medical library users also addresses the critical gap between knowledge and behavioural adoption. Evidence from studies on library roles in public health suggests that libraries can act as community hubs that support wellbeing by providing accessible, trusted information and fostering environments where community members willingly engage with health content. Effective engagement requires increasing awareness of these services and intentionally connecting users' knowledge with community needs, such as preventive care, lifestyle changes, and local health challenges, which contributes to sustained health-positive behaviours[12]. For instance, health education outreach partnerships between academic medical libraries and public libraries have demonstrated that collaborative programs, implemented through workshops, family activities, and integrated programming can enhance health information uptake and promote behaviours aligned with sustainable healthcare objectives. These activities enable community members to make informed decisions, utilise preventive services, and negotiate healthier lifestyles, thereby reducing long-term burdens on health systems.

A central effect of community engagement by medical library users is the enhancement of health literacy, that is, the ability of individuals to understand and act upon health information. Libraries can serve as accessible venues for promoting health literacy through structured outreach, workshops, and collaboration with health providers. Increased health literacy contributes directly to sustainability by enabling individuals to better navigate health services, prevent disease, and manage chronic conditions effectively, reducing unnecessary healthcare

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utilization and improving quality of life. Research shows that public libraries positioned as health hubs, supported by partnerships and training, can improve community capacity to access accurate health information, thereby contributing to broader health literacy outcomes. Such community-focused efforts are essential to closing gaps in information access and enabling individuals to adopt and sustain healthier behaviours[13].

Community engagement by medical library users also aligns with sustainable healthcare goals by promoting preventive health practices which is done by educating communities about vaccination, sanitation, nutrition, and lifestyle choices reduces disease incidence and resource use in curative services. It can also be done by facilitating empowerment and self- efficacy through involving community members in health promotion builds local capacity to address health challenges, enhancing resilience and sustainable outcomes. Fostering partnerships and social capital is another means. This is done through Engagement activities which often lead to collaborations between libraries, health providers, civic groups, and NGOs, thereby, creating networks that support sustained health improvement. These synergies illustrate how engagement transcends information access to influence behaviour, social norms, and community structures, which are important components of a sustainable healthcare ecosystem. Despite its potential, community engagement in the context of medical libraries is not without obstacles. Barriers such as limited infrastructure, inadequate training for librarians and users, institutional constraints, and low community awareness of library services can weaken the effectiveness of outreach and engagement efforts. Moreover, without strategic integration with health institutions and policy frameworks, community engagement initiatives risk being episodic rather than sustained drivers of change. The intersection of community engagement and sustainable healthcare practices underscores a transformative role for medical library users[14]. Through active participation in outreach, advocacy, health literacy promotion, and collaborative programming, these users help translate evidence into

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sustainable health behaviours and community action. The effects are observable in strengthened health literacy, improved preventive practices, empowered communities, and enhanced partnerships that together contribute to the long-term sustainability of health systems. While challenges remain in fully realising this potential, the continued evolution of community engagement strategies within medical libraries is a promising avenue for building healthier, resilient communities.

The Ecological Model of Health provides a framework for understanding how medical libraries can influence sustainable healthcare through community engagement. It identifies five levels of health influence, individual, interpersonal, organizational, community and policy, each of which relates to library services and users. Medical library users, students, researchers, clinicians, and patients, gain access to scientific evidence and health education materials. By improving health literacy, libraries help individuals adopt sustainable behaviours such as healthy lifestyles, rational drug use, and disease prevention[15]. Medical libraries facilitate collaboration among users, such as study groups or peer learning programmes. This exchange of information strengthens social support systems and helps spread sustainable health practices, such as peer education on reproductive health or chronic disease management. Libraries as institutions influence health organizations by integrating knowledge management systems that support sustainable decision-making. Hospital libraries, for instance, provide clinicians with evidence summaries that guide environmentally and economically sustainable medical interventions[12].

Medical libraries can extend their services to the community through health outreach programmes, mobile library services, and public health campaigns. By engaging directly with communities, especially in rural or underserved areas, they bridge the gap between professional knowledge and public health needs, fostering community-driven sustainability.

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At the policy level, medical libraries advocate for open access to medical information, promote data-sharing standards, and support national policies on knowledge-based healthcare planning. This aligns with the global Sustainable Development Goal (SDG 3), ensuring healthy lives and promoting well-being for all ages[12].

To effectively promote sustainable healthcare practices, medical libraries can implement the following engagement strategies: training users to critically evaluate online health information to prevent misinformation; collaborating with hospitals, schools, NGOs, and local health departments to co-design health education initiatives; providing internet access and e-resources to marginalized populations to reduce information inequity; developing multilingual or culturally sensitive health materials that reflect local realities; and promoting awareness of environmentally responsible practices in medical education and healthcare delivery. These strategies not only enhance user engagement but also embed sustainability in healthcare knowledge systems. The engagement of library users contributes to sustainable healthcare outcomes in several ways, which involves users becoming capable of interpreting medical information, leading to informed health choices. Also, exposure to credible information encourages sustainable practices such as vaccination adherence, diet control, and environmental hygiene. Access to reliable information empowers vulnerable groups to demand quality healthcare. Medical libraries preserve and disseminate knowledge that ensures continuity of evidence-based healthcare across generations[13].For instance, initiatives such as the National Library of Medicine's Medline Plus in the United States and the African Health Observatory demonstrate how medical libraries enhance public participation in health information dissemination, promoting sustainability through awareness and shared responsibility[13].

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Community engagement and sustainable healthcare practices by users of medical libraries reflect a synergistic relationship between information access, public participation, and long-term health improvement. By aligning their services with the Ecological Model of Health, medical libraries influence multiple levels of health determinants, individual, social, institutional, and policy-related. In the end, when library users are empowered with accurate, relevant, and timely health information, they become active participants in shaping a sustainable healthcare future, where health promotion, environmental consciousness, and informed decision-making co-exist harmoniously[12].

Medical Librarians play a critical role in community engagement within healthcare settings by facilitating access to reliable health information and promoting health literacy among diverse populations. Community engagement initiatives led by Medical Librarians often include health education workshops, outreach programmes, and partnerships with local health organizations[10]. These activities aim to empower individuals with the knowledge needed to make informed decisions about their health. Scholars emphasize the proactive role of Medical Librarians in fostering community partnerships that enhance public health outcomes. By collaborating with community leaders and stakeholders, librarians can tailor their services to meet the specific health needs of local populations. This approach not only improves access to healthcare information but also strengthens community resilience against health disparities[11].

In addition to direct community outreach, Medical Librarians contribute to community engagement through digital platforms and virtual resources discuss how librarians leverage technology to reach broader audiences, including remote and underserved communities[10]. Virtual health literacy initiatives, online workshops, and interactive webinars are examples of strategies employed by librarians to extend their impact beyond physical library spaces.

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Furthermore, the role of Medical Librarians in community engagement extends to advocacy for health equity and social justice. Librarians advocate for policies and practices that address healthcare disparities and promote inclusive access to information[10]. This advocacy is crucial for advancing public health agendas and ensuring that all individuals have equal opportunities to improve their health outcomes.

Empirical evidence supports the effectiveness of community engagement efforts led by medical librarians. Scholars highlight studies that demonstrate improved health behaviours and increased health literacy among community members participating in library-led programmes. These findings underscore the pivotal role of librarians in bridging the gap between healthcare providers and the public through targeted educational initiatives[11]. Moreover, community engagement initiatives led by medical librarians contribute to building trust and rapport within local communities discusses how librarians serve as trusted sources of health information, fostering positive relationships with community members and healthcare professionals alike[11]. This trust is essential for promoting health-seeking behaviours and encouraging individuals to take proactive steps towards better health.

Authors explore the challenges and opportunities in community engagement faced by medical librarians, including resource constraints and cultural sensitivities[12]. Addressing these challenges requires innovative approaches and collaborative strategies that prioritize community needs and preferences. By adapting their services to local contexts, librarians can enhance the relevance and impact of their community engagement efforts. In summary, the role of Medical Librarians in community engagement is multifaceted, encompassing educational outreach, digital initiatives, advocacy, and trust-building within diverse communities[12]. By leveraging their expertise and resources, librarians play an important role

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in promoting health literacy, addressing health disparities, and empowering individuals to make informed decisions about their health.

Medical libraries have evolved significantly from their traditional role as mere repositories ofbookstobecomedynamiccommunitycentresthatactivelyengageinvariousformsofcommunity outreach. This transformation is driven by the growing recognition that medical libraries can play a crucial role in addressing social, educational, and informational needs of the community. Some researchers argue that libraries serve as community hubs that foster social inclusion and civic participation, providing a neutral space where individuals from diverse backgrounds can come together, share ideas, and engage in communal activities[13]. This function is particularly important in today's digital age, where the need for physical community spaces remains critical despite the proliferation of online resources. Recent studies continue to underscore the importance of libraries in fostering community engagement. For instance, researchers discuss how libraries contribute to social capital by offering programmes and services that enhance community cohesion[14]. Libraries provide opportunities for lifelong learning, cultural exchange, and social interaction, which are essential components of a vibrant community. This role is further highlighted by some other authors who examine how libraries support marginalized groups by providing access to information and resources that they might otherwise lack. By addressing the specific needs of various community members, libraries help bridge gaps in knowledge and opportunity, therebypromotinggreatersocialequityandinclusion[14].

Notable authors on this concept highlight the role of public libraries in community engagement, noting that libraries provide a platform for community interaction and development[15]. Libraries host a wide range of activities, from educational workshops and cultural events to social services and public forums, which encourage community

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participation and involvement. Recent research by researchers emphasizes the library's role in community resilience, particularly in times of crisis. Libraries often act as information hubs during emergencies, providing critical information and support to affected individuals. This multifaceted approach not only strengthens the community's capacity to respond to challenges but also enhances the overall well-being of its members[15]. Moreover, the evolving role of libraries in community outreach is evident in their adaptation to the digital era. Libraries have embraced technology to extend their reach and impact, offering digital literacy programmes, online resources and virtual events that cater to the needs of tech- savvy patrons. According to a report by the American Library Association libraries are increasingly becoming centres for digital inclusion, providing access to computers, internet services, and digital training[16]. This digital shift ensures that libraries remain relevant in an increasingly digital world while continuing to serve as inclusive spaces for community engagement. By leveraging both physical and digital platforms, libraries are better equipped to meet the diverse needs of their communities and promote sustained civic participation and social inclusion[16].

Community engagement in healthcare is essential for promoting health equity, improving access to healthcare information, and empowering communities to take ownership of their health[17]. Medical Librarians play a vital role in this process by facilitating access to accurate health information tailored to specific community needs. By engaging with communities directly, librarians help bridge the knowledge gap, promote preventive health measures, and ensure that health services are accessible to underserved populations[17]. Studies show that effective community engagement leads to better health outcomes, as individuals become more aware of health risks and adopt healthier behaviours[16,17,18.] Medical librarians act as crucial intermediaries between healthcare institutions and communities, helping to disseminate critical health information in a way that resonates with the target population.

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They curate and distribute information on prevalent health issues, such as infectious diseases, maternal health, and nutrition, which directly impact community health[4]. This role of information mediation enables librarians to address community-specific health concerns and fosters a sense of trust and reliability, which is vital for successful health interventions[18].

Medical libraries collaborate with healthcare providers to design and implement public health campaigns that promote sustainable healthcare practices. Through workshops, educational sessions, and distributing literature on critical health issues, librarians raise awareness and foster informed health behaviours within the community[19]. For example, librarians often participate in campaigns to educate communities about non-communicable diseases, preventive healthcare, and vaccination, which are fundamental to sustainable healthcare. These campaigns not only improve health literacy but also encourage preventive practices, reducing healthcare costs over time[20]. Medical librarians contribute to community health literacy by conducting educational programmes that help individuals understand health information and make informed choices. These programmes, which may cover topics like understanding medical jargon or assessing online health information, empower communities to navigate the healthcare system effectively[21]. Enhanced health literacy is closely linked to better health outcomes, as people with higher health literacy are more likely to engage in preventive health practices and less likely to require emergency interventions[21].

With the rise of digital misinformation, particularly regarding health topics, Medical Librarians are well-positioned to combat misinformation in the community. Through community engagement initiatives, librarians educate individuals on identifying credible sources, distinguishing between fact and misinformation, and verifying online health content[22]. This is especially crucial in the context of healthcare, where misinformation can

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lead to harmful practices or avoidance of necessary medical treatments[22]. By promoting media literacy, medical libraries help communities access and rely on accurate information, contributing to sustainable healthcare. Medical libraries often target outreach programmes toward vulnerable and underserved populations, who may face barriers to accessing healthcare information[22]. These populations, including rural communities, older adults, and those with low literacy, benefit from tailored engagement efforts. Librarians provide resources in accessible formats and offer one-on-one support, ensuring that everyone has the opportunity to understand and utilize health information. Engaging these populations contributes to equitable healthcare, a cornerstone of sustainability[22].

Workshops led by medical librarians on preventive health topics, such as nutrition, exercise, and mental wellness enhance community understanding of sustainable healthcare practices[23]. By focusing on prevention, these workshops reduce the incidence of chronic diseases, which are costly and resource-intensive to manage. This preventive approach aligns with sustainable healthcare goals, as it reduces the burden on healthcare facilities and promotes long-term community health[23]. Medical Librarians often collaborate with local health organizations, clinics, and non-profits to broaden their outreach and reinforce health messages. These collaborations enable librarians to access additional resources, such as health professionals, to provide more comprehensive information to the community. Collaborative efforts amplify the impact of health campaigns and ensure a consistent message across various platforms, promoting sustainable health practices[24].

In regions where physical access to healthcare information is limited, medical librarians utilize digital platforms to engage communities. Through social media, webinars, and online resources, they can reach wider audiences, including those in remote or rural areas. Digital engagement ensures that information is accessible to all, promoting inclusivity and

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supporting sustainable healthcare practices by reducing the need for travel and physical materials[25]. Medical librarians are increasingly aware of the need for culturally competent healthcare information that respects and reflects the values of diverse communities. By tailoring information resources to the cultural and linguistic preferences of their audience, librarians ensure that the content is not only understandable but also relatable and respectful. This approach builds trust with community members, encouraging them to engage with and apply health information, which ultimately supports sustainable healthcare[25].

Community engagement by medical librarians often includes educational outreach on environmental health issues, such as pollution, waste disposal, and clean water access. These issues directly impact health, and by educating communities, librarians help individuals understand the link between environment and health. Raising awareness about environmental health encourages sustainable practices, such as waste reduction and recycling, which contribute to healthier communities[26]. Through engagement with community members, medical librarians gather valuable insights into the specific health needs and concerns of the population. This feedback allows librarians to tailor resources and programmes that directly address community health priorities, fostering a more responsive and sustainable approach to healthcare[26]. By understanding and addressing these unique needs, librarians ensure that health interventions are relevant and impactful.

Consistent, reliable community engagement by medical librarians can foster greater trust in healthcare systems, as individuals feel more connected to and informed by local health resources. By building relationships within the community and acting as a consistent source of trustworthy information, librarians help bridge the gap between healthcare providers and the public, encouraging more proactive engagement with health services[27].Medical Librarians and the library users encourage a culture of lifelong health learning, empowering

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community members to seek and understand health information continuously. This approach not only fosters individual health literacy but also cultivates a community that is more resilient and self-sufficient in managing health. Lifelong learning in health aligns with sustainable healthcare goals by promoting informed health practices and reducing dependence on immediate healthcare interventions[27].

The role of medical librarians and the library users in community engagement for sustainable healthcare is multifaceted, involving public health education, digital outreach, cultural competency, and preventive health promotion. As healthcare systems strive to become more sustainable, the contributions of medical librarians and the library users in community engagement will be increasingly significant. Future research should examine the long-term impact of librarian-led community engagement initiatives on health outcomes, as well as explore new methods for digital and in-person engagement to enhance their effectiveness in diverse populations. Through their dedication to community health, medical libraries continue to strengthen healthcare systems and promote sustainable health practices[28].

2.1.3 Information Access

Information access refers to the ability of individuals or groups to locate, retrieve, and utilize relevant information resources effectively. In the context of medical libraries, it involves access to digital and print collections, databases, journals, repositories, and health information portals that provide evidence-based medical knowledge medical librarians play a crucial role in improving information access within healthcare settings by curating, organizing, and disseminating reliable health information to healthcare professionals, researchers, and the public[29]. Medical librarians ensure that healthcare providers have access

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to up-to-date research findings, clinical guidelines, and evidence-based practices[29]. This access is essential for supporting informed decision-making and delivering quality patient care. The impact of medical librarians and the library users on information access extends beyond healthcare professionals to include patients and the general public. Authors discuss how librarians facilitate access to consumer health information resources that empower individuals to actively manage their health. By providing access to trustworthy information on medical conditions, treatment options, and preventive measures, librarians contribute to improving health literacy and patient outcomes[30].

Access to accurate and timely information is a cornerstone of quality healthcare delivery and sustainable health systems. In the 21st century, medical libraries play a pivotal role in ensuring that health professionals, students, researchers, and the public can access reliable, evidence-based information necessary for making informed decisions. Information access is directly linked to the promotion of sustainable healthcare practices, as it empowers users to engage in preventive care, rational resource use, and equitable health interventions. Medical library users, ranging from clinicians and medical students to policymakers and patients, utilize information resources not only for learning and research but also to influence behaviours and policies that sustain health systems. In this way, medical libraries act as catalysts for sustainable healthcare, supporting the long-term goal of ensuring healthy lives and well-being as outlined in the third United Nations Sustainable Development Goal[31].

Modern medical libraries facilitate access through: electronic databases such as PubMed, HINARI, Scopus, and Cochrane Library; institutional repositories containing theses, clinical guidelines, and local research outputs; open access journals that remove subscription barriers to scientific knowledge; and health information literacy training that equips users to search, evaluate, and apply information ethically and effectively. Information access is, therefore, not

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only about availability but also usability and comprehension. A user who can interpret, contextualize, and apply medical information is better positioned to contribute to sustainable healthcare practices. Sustainable healthcare practices are those that meet current health needs without compromising the ability of future generations to meet theirs. They include preventive and promotive health behaviours, efficient use of medical resources, and environmentally responsible clinical practices[31]. Examples of sustainable healthcare practices include: emphasizing preventive medicine such as immunization, nutrition education; reducing medical waste and promoting eco-friendly hospital practices; encouraging rational use of drugs and diagnostic tests; supporting telemedicine and digital health innovations to reduce travel and energy use; and promoting equitable access to healthcare services, especially for vulnerable populations[31].

Access to information underpins all these practices because sustainability in healthcare depends on informed decision-making and knowledge dissemination among healthcare providers and the general public. Information access influences sustainable healthcare in multiple interconnected ways. Clinicians and students who access current, peer-reviewed literature can apply evidence-based medicine (EBM) principles, choosing interventions supported by research rather than tradition or guesswork. This minimizes medical errors, conserves resources, and improves patient outcomes. Access to information on disease prevention, nutrition, and lifestyle modification enables both professionals and the public to prevent diseases before they occur. For instance, library users can access educational resources on diabetes management or reproductive health, promoting long-term sustainability. Medical libraries serve as educational environments that develop health literacy, the capacity to obtain, understand, and use health information effectively. High health literacy reduces hospital visits, supports self-care, and encourages community participation in health promotion[32].

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Information access empowers not only healthcare workers but also policymakers who rely on data and research evidence to design sustainable health policies. Libraries often serve as bridges between research and policy, translating knowledge into practice. Through access to global research and policy documents, users of medical libraries learn about green health initiatives, such as energy conservation in hospitals, waste segregation, and sustainable procurement. Informed practitioners can advocate and implement these within their institutions. Medical libraries ensure effective information access by performing some roles, which include acquisition and Organization of Information Resources**.** Librarians curate relevant print and digital resources, organize them using metadata and indexing systems, and ensure easy retrieval. Modern medical libraries offer access to computers, Wi-Fi, and electronic databases that connect users to global medical knowledge.

Librarians conduct orientation and workshops that teach users how to search databases, evaluate information credibility, and avoid misinformation, critical for health decision-making. Many medical libraries collaborate with hospitals, research institutes, and NGOs to produce and disseminate locally relevant health information. By supporting open access publishing, libraries help remove paywalls that limit information flow, ensuring inclusivity in global health knowledge sharing. These functions position medical libraries as indispensable partners in promoting sustainable healthcare systems. Users of medical libraries who have effective information access tend to exhibit more sustainable healthcare behaviours. Some notable impacts include improved clinical decision-making where doctors and nurses rely on up-to-date evidence for diagnosis and treatment; enhanced academic and research productivity where medical students and researchers generate innovations that solve local health challenges; increased patient education where health professionals use information from libraries to educate patients on preventive care; and adoption of digital and eco-friendly

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practices where awareness of sustainable health research encourages resource conservation in medical practice. For instance, a medical student accessing WHO guidelines on antimicrobial stewardship learns the importance of preventing antibiotic resistance, a major sustainability issue in healthcare[33].

Despite its importance, information access faces several challenges, particularly in developing contexts like limited ICT infrastructure and unstable power supply; high subscription costs for medical journals and databases; inadequate information literacy skills among users; low awareness of open-access resources; and language and cultural barriers in interpreting global medical information among others. Addressing these barriers through policy reforms, capacity building, and digital transformation will enhance information equity and healthcare sustainability. Information access is a powerful enabler of sustainable healthcare practices, and medical libraries remain central to this relationship. By providing reliable, evidence-based information and training users in health literacy, libraries bridge the gap between knowledge and action. Users of medical libraries, whether clinicians, students, or policymakers, leverage information to promote prevention, efficient resource use, and equitable health systems[34]. Sustainability in healthcare begins with informed individuals and communities, and medical libraries provide the foundation for that informed society. As healthcare continues to evolve in the digital age, ensuring inclusive and continuous access to information will remain essential to achieving long-term health sustainability.

Access to accurate, timely, and relevant health information plays a pivotal role in strengthening healthcare systems and advancing sustainable healthcare practices. Medical libraries serve as critical infrastructures for information access, enabling healthcare professionals, students, policymakers, and the general public to obtain evidence-based

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knowledge essential for informed decision-making. The effective utilisation of information resources by users of medical libraries not only enhances individual health outcomes but also contributes to the broader goals of sustainable healthcare, which encompass preventive care, efficient resource use, and equitable health access[35].

Information access in medical libraries refers to the ability of users to identify, retrieve, and apply health information that is credible, relevant, and up to date. This capability underpins evidence-based practice, a foundational principle of modern healthcare that promotes decision-making grounded in the best available research evidence. Through curated collections of scientific literature, clinical guidelines, and digital health databases, medical library users can acquire the knowledge necessary to inform clinical interventions, shape public health strategies, and contribute to healthcare innovation. The availability of high- quality information enables practitioners to reduce unnecessary procedures, adopt preventive health measures, and optimise clinical pathways that minimise wastage of resources and enhance patient outcomes. Studies consistently show that access to evidence-based information positively influences clinical decision-making, reduces diagnostic errors, and improves overall healthcare quality. While specific research on medical libraries' direct impact on sustainability is evolving, the connection between information access and health system effectiveness is well established[36].

In many contexts, particularly in developing economies, constrained access to healthcare information exacerbates health disparities and undermines efforts to achieve sustainable health outcomes. Medical libraries, by expanding access to health information, act as essential equalisers in health literacy. Health literacy, defined as the ability of individuals to understand and use health information to make appropriate health decisions is intrinsically linked to sustainable health practices. Higher levels of health literacy contribute to improved

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prevention behaviours, better chronic disease management, and increased uptake of vaccinations and screening services, all of which reduce the long-term burden on health systems. A recent study in Sustainability highlights how improved health literacy supports sustainable healthcare by empowering individuals and communities to engage in health-positive behaviours and make informed choices[37]. Medical libraries also serve diverse user groups beyond health professionals, including patients and lay members of the public. When open access is provided to health information, both in print and through digital platforms, libraries facilitate greater self-care and disease prevention behaviours. Services such as consumer health information collections, curated educational workshops, and guided research assistance help bridge knowledge gaps that can otherwise lead to misinformed health decisions. Such efforts are essential in promoting sustainable healthcare practices that prioritise preventive over curative interventions[37].

The effect of information access extends into community settings where users of medical libraries leverage acquired knowledge to promote public health. Outreach initiatives, mobile health libraries, and community education programmes are vehicles through which health information is translated into actionable knowledge. Research on library outreach in rural areas of Gombe State, Nigeria, demonstrates that structured health information dissemination can influence community health behaviours in areas such as maternal and child health, sanitation, and disease prevention. Through partnerships with local health providers and tailored educational campaigns, library-based information access contributes to increased community resilience and improved health outcomes[38].

Beyond specific outreach events, libraries form part of wider collaborative networks that support sustainable development goals. For example, frameworks for improving health literacy through libraries align with the United Nations' Sustainable Development,

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emphasising the necessity for information access as a foundational strategy in health promotion and disease prevention, especially in developing economies. These frameworks advocate for libraries to integrate health literacy initiatives into their service models to advance sustainable healthcare objectives[39].

The advent of digital technologies has further amplified the impact of information access on sustainable healthcare practices. Digital transformation of medical libraries, including electronic databases, online journals, and remote access services has expanded users' ability to retrieve and apply health information irrespective of geographic or infrastructural constraints. Such digital repositories facilitate rapid dissemination of evidence, support continuing professional development for health practitioners, and enhance patient engagement with health information[40]. Studies of digital transformation efforts indicate that when users are equipped with technological tools to access health evidence, they are more likely to integrate up-to-date practices in clinical and community health settings[40].

While information access is a powerful enabler of sustainable healthcare, equitable access remains unevenly distributed. Barriers such as limited digital infrastructure, low digital literacy, and insufficient training for effective information retrieval constrain the potential impact of medical libraries in some regions. Addressing these challenges requires targeted investment in library technologies, professional development for librarians and users, and strategic partnerships with healthcare institutions and policy stakeholders to integrate information access more effectively into national health strategies. Evidence suggests that overcoming these obstacles will enhance the capacity of medical libraries to contribute to sustainable healthcare through informed practice and community engagemen[41]t. Information access through medical libraries exerts a profound effect on the promotion of sustainable healthcare practices. By enabling evidence-based decision-making, enhancing health literacy,

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supporting preventive health behaviours, and fostering community well-being, access to credible health information contributes directly to more effective, efficient, and equitable health systems. As digital transformation and health information initiatives expand, the role of medical library users in disseminating and applying knowledge will remain central to advancing sustainable healthcare agendas globally. Continued investment in access infrastructure, training, and collaborative networks will strengthen the contribution of medical libraries toward achieving health sustainability goals[41].

Empirical studies highlight the effectiveness of information access initiatives led by medical librarians. Scholars presents evidence demonstrating the correlation between access to reliable health information and improved health outcomes among patient populations[31,32,33.] Librarians' efforts to provide comprehensive and understandable health information contribute to enhancing patient education and adherence to medical advice. Furthermore, Medical librarians promote equitable access to information by addressing barriers such as language differences, technological limitations, and information overload[34]. More so, the strategies employed by librarians to tailor information services to the needs of diverse populations, including translating health materials into multiple languages and offering user- friendly digital platforms. These efforts are essential for ensuring that all individuals, regardless of their background or circumstances, can access and utilize health information effectively[35].

The role of medical librarians in information access is also critical in supporting research and innovation within healthcare institutions emphasizes librarians' role in facilitating literature searches, systematic reviews, and access to scholarly journals, which are essential for advancing medical knowledge and evidence-based practice[36]. By providing researchers with access to comprehensive literature resources, librarians contribute to the development of new

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treatments and healthcare interventions. The impact of medical librarians on information access extends to enhancing institutional efficiency and cost-effectiveness. It was discusses studies demonstrating how librarians' expertise in information retrieval and management reduces redundant efforts, minimizes errors, and optimizes resource allocation within healthcare organizations[37]. These efficiencies translate into improved patient care outcomes and operational effectiveness.

Health literacy is a fundamental component of public health, encompassing the ability of individuals to access, comprehend, and use health information to make informed decisions and maintain good health. Health literacy includes both cognitive and social skills that enable individuals to effectively navigate the healthcare system, understand medical instructions, and engage in health-promoting behaviours[38]. These skills are critical for individuals to manage their health conditions, adhere to prescribed treatments, and participate in preventive health measures. The importance of health literacy extends beyond individual health outcomes; it also influences public health by enabling communities to collectively adopt healthier lifestyles and practices.

Medical libraries serve as pivotal institutions in the enhancement of health literacy, acting as accessible and reliable sources of health information for the public. As information centres, libraries provide a wide range of resources, including books, digital databases, and health information pamphlets, which are essential for educating individuals about health issues, treatments, and preventive care[39]. Libraries also offer programmes and workshops aimed at improving health literacy, such as health talks, fitness classes, and nutrition seminars. By providing these resources and services, libraries help bridge the health information gap, ensuring that even those with limited access to healthcare services can obtain the information they need to make informed health decisions[39].

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The role of libraries in promoting health literacy is particularly crucial in underserved communities, where access to healthcare resources is often limited. Certain scholars highlight the importance of libraries in these areas, noting that they can serve as vital hubs for health information dissemination. In many underserved communities, libraries are one of the few places where individuals can freely access the internet and other information resources[40]. This access is critical for individuals seeking information about health conditions, medical procedures, and wellness strategies. Libraries in these communities often collaborate with local health organizations to provide tailored health information and services, further enhancing their role in public health promotion. Recent studies continue to underscore the significant impact libraries have on health literacy. For example, a study found that library-based health literacy programmes significantly improved participants' understanding of health information and their ability to engage in health-promoting behaviours. Additionally, are view revealed that libraries are effective in reaching diverse populations, including those with lower socioeconomic status, limited health literacy, and minority groups. These findings suggest that libraries are not only essential for providing health information but also for fostering an inclusive environment where all community members can improve their health literacy[41]. By leveraging their resources and expertise, libraries can play a transformative role in enhancing public health through improved health literacy.

Access to accurate and timely health information is essential for effective healthcare delivery and is a cornerstone of sustainable health practices. Information access empowers individuals to make informed health decisions and engage in preventive practices. Medical Librarians and the library users facilitate this by ensuring that both healthcare professionals and community members can access relevant health information resources, bridging the gap between knowledge and practice. Enhanced information access in healthcare not only

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improves individual outcomes but also contributes to overall public health by encouraging behaviours that reduce the risk of disease[42].

Medical Librarians serve as gatekeepers, providing access to credible health information that is often complex or difficult for the general public to interpret. Through information literacy programmes, librarians educate the community on how to find, evaluate, and use health information, equipping them with the skills to navigate health-related resources effectively. This role is crucial in promoting sustainable healthcare as it enables communities to access accurate information and avoid misinformation, which can negatively impact health outcomes[43].Access to health information is often limited for vulnerable populations, such as those in rural areas, elderly individuals, and low-income groups. Medical Librarians play a critical role in ensuring these populations have equal access to health resources by providing information in accessible formats and conducting outreach programmes tailored to their needs. By improving access for these groups, librarians help to reduce health disparities, ensuring that everyone has the opportunity to make informed health decisions.

The digital transformation of health information has created new opportunities for medical librarians to expand access through online platforms[44]. By developing and maintaining digital health libraries, librarians ensure that healthcare resources are accessible beyond physical library boundaries. This digital access is particularly valuable for remote communities and individuals who may face physical barriers to accessing healthcare facilities. Furthermore, digital libraries allow for rapid updates to information, ensuring that users have access to the most current health data. Medical librarians play a proactive role in addressing health misinformation by curating reliable sources and guiding users toward reputable resources[45]. In an era where misinformation is prevalent, particularly online,

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librarians help individuals critically evaluate information to identify credible health. This service is essential for sustainable healthcare, as misinformation can lead to harmful practices and distrust in legitimate healthcare advice, undermining public health initiatives[45].

Medical librarians often collaborate with health organizations, such as hospitals and public health agencies, to expand information access. These partnerships allow librarians to provide a broader range of resources and create comprehensive health information networks that benefit both healthcare providers and the community. By integrating resources from various health entities, librarians contribute to a more robust information access infrastructure, supporting sustainable health practices on a community-wide scale[46].Health literacy, defined as the ability to understand and use health information, is a vital component of sustainable healthcare. Medical librarians contribute to health literacy by ensuring that individuals have access to understandable and actionable health information. Through health literacy programmes, librarians empower community members to take charge of their health, resulting in a more informed population that is better equipped to prevent and manage health conditions[48.] Medical librarians play an important role in providing culturally relevant health information that resonates with diverse communities. By understanding the cultural nuances and health beliefs of various populations, librarians can tailor information resources to meet these specific needs. This culturally sensitive approach promotes inclusivity in healthcare and ensures that all community members feel supported in accessing health information, which is fundamental for sustainable healthcare[49]. Preventive health practices are a critical aspect of sustainable healthcare, and access to information is essential for promoting these practices. Medical Librarians provide access to resources on topics such as nutrition, exercise, and disease prevention, encouraging individuals to adopt healthier lifestyles[50].

By prioritizing preventive health information, librarians support the long-term sustainability

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of healthcare systems, as prevention reduces the need for more intensive and costly treatments. Language barriers can hinder access to health information, especially in multilingual communities. Medical librarians address this challenge by offering resources in multiple languages or working with translators to make information accessible to non- English speakers. This inclusive approach ensures that language is not a barrier to accessing health information, supporting equitable healthcare for diverse populations[51].In rural areas, access to health information is often limited by distance and infrastructure. Medical librarians facilitate access by providing digital resources and partnering with local health centres to make information available closer to where people live. Improving information access in rural communities helps address the healthcare gap between urban and rural areas, supporting sustainable healthcare for all populations.

During health crises, such as pandemics or natural disasters, Medical librarians play a critical role in providing timely and accurate information[52]. They work to disseminate updates on prevention measures, treatments, and health services, helping to mitigate the impact of crises on public health[5]. This timely access to information is crucial for managing health emergencies and supports the resilience of healthcare systems. Technological advancements have transformed the way health information is accessed, and medical librarians are leveraging these tools to improve accessibility. They utilize mobile health apps, tele-health platforms, and online portals to make information available to a broader audience. These technological solutions promote accessibility and convenience, which are essential for sustainable healthcare in a digital age[53]. Mental health is a critical component of holistic healthcare, yet access to mental health information is often limited. Medical librarians address this by providing resources on mental health topics, such as stress management and coping strategies, and making them accessible in both physical and digital formats. Increasing access to mental health information reduces stigma and encourages individuals to

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seek support, contributing to a sustainable healthcare model that includes mental well- being[54].

As healthcare needs evolve, the role of Medical librarians and the library users in facilitating information access will continue to expand. Future directions include the integration of artificial intelligence to provide personalized health information and the use of data analytics to understand community health needs better Smith and Cooper. By staying at the forefront of technology and adapting to changing healthcare demands, Medical librarians will continue to support sustainable healthcare practices and improve access to vital health information[55].

2.2 Theoretical Review

The study is anchored on three theories based on the variables: Social Capital Theory for understanding community engagement in libraries, Health Information Behaviour Theory for information access in healthcare settings, and the Ecological Model of Health for promoting sustainable practices in healthcare.

2.2.1 Ecological Model of Health

Theoretical models for promoting sustainable practices in healthcare provide frameworks for understanding the integration of environmental stewardship, resource efficiency, and sustainable principles within healthcare settings, the ecological framework offers a holistic approach to examining the interdependence between healthcare systems, environmental factors, and community health outcomes[56]. Applied to medical libraries, this framework emphasizes the interconnectedness of organizational practices, policy initiatives, and community engagement strategies in promoting sustainability and environmental health. The

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Ecological Model of Health, initially developed by Urie Bronfenbrenner and later adapted for health contexts it emphasizes a multi-level approach to understanding health outcomes. This model integrates multiple levels of influence, including individual, interpersonal, organizational, community, and policy dimensions, recognizing that health is shaped by a complex interplay of factors at different levels. It underscores that individual health behaviours are influenced not only by personal choices but also by the broader social and environmental context[57,58].

This comprehensive approach highlights the need to address various levels of influence to promote effective and sustainable health practices. The Ecological Model of Health is a comprehensive framework that highlights the interconnectedness of various levels of influence on health behaviours and outcomes. At its foundation is the individual level, which focuses on personal attributes such as knowledge, attitudes, and behaviours. This level emphasizes the role of individual choices and actions in shaping health outcomes, recognizing that factors like education, motivation, and personal habits play a significant part in maintaining well-being. Moving outward, the interpersonal level examines the influence of relationships with family, friends, and peers[59]. These connections significantly affect health behaviours, as social support, shared habits, and cultural norms within these networks can either promote or hinder healthy lifestyles. For example, encouragement from peers to exercise regularly or adopt healthy eating habits can positively impact an individual's well- being. The organizational level shifts the focus to institutions and organizations, such as workplaces, schools, and health care facilities. These entities play a critical role in shaping health practices by providing access to resources and opportunities. For instance, a workplace that promotes wellness programmes or a school that incorporates health education into its curriculum can create environments that support healthier choices and behaviours[60].

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At the community level, the model considers the broader environmental and social context, including social networks, cultural norms, and the availability of community resources. This level underscores the importance of community-based initiatives, such as local fitness programmes or public health campaigns, in fostering collective well-being and addressing shared health challenges[61]. A supportive community environment can significantly enhance the accessibility and adoption of healthy practices. Finally, the policy level encompasses the impact of local, state, and national policies and regulations on health practices and resource availability. This level highlights the importance of governance and legislation in shaping health outcomes, such as through the implementation of public health policies, funding for health care infrastructure, and regulations that promote health equity. Policies that address issues like access to affordable health care, food security, and clean water are critical for creating an environment conducive to better health outcomes[61].

Together, these interconnected levels of the Ecological Model of Health provide a holistic perspective on the factors influencing health, emphasizing the need for a multi-level approach to health promotion and intervention. The Ecological Model of Health is particularly relevant for promoting sustainable Healthcare Practices as it provides a structured framework for understanding how different levels of influence interact to affect health outcomes. This model helps identify and address barriers and facilitators at multiple levels, from individual behaviours to policy implementation. By considering these various levels, researchers and practitioners can develop more comprehensive strategies to promote sustainable Healthcare Practices that are effective across different contexts[62]. Metres for Measuring Ecological Influences includes: to effectively assess progress toward sustainability in health practices, several key dimensions must be considered. One crucial aspect is individual behaviour change, which involves tracking modifications in personal health behaviours that contribute to sustainability. This could include evaluating shifts in how individuals manage their health,

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such as adopting eco-friendly habits like reducing waste, choosing sustainable products, or making conscious efforts to improve personal health management[63]. By analyzing these changes, it becomes possible to measure the impact of awareness campaigns or educational initiatives designed to encourage sustainable practices at the individual level.

Another essential component is community engagement, which focuses on the involvement of community organizations in promoting and supporting sustainable health practices. This assessment might include examining the number of community-driven initiatives, the strength of partnerships between organizations, and the overall level of community participation in sustainability programmes[64]. For example, tracking the success of community health fairs, local sustainability workshops, or collaborative efforts to address public health challenges can provide insight into the collective commitment of communities to advancing sustainable health goals[65]. Equally important is the evaluation of policy implementation to understand the role of governance in fostering sustainable health care practices. This involves assessing how effectively policies and regulations are designed, communicated, and enforced to promote sustainability. For instance, measuring the impact of health policies on the adoption of eco-friendly practices, ensuring compliance with sustainability-focused regulations, and determining their overall effectiveness in achieving broader sustainability objectives are vital areas of focus. A robust policy framework can provide the necessary support for long-term behavioural and structural changes at individual and community levels[65].

Together, these dimensions individual behaviour change, community engagement, and policy implementation offer a comprehensive approach to evaluating progress in sustainable health practices. By addressing each area, stakeholders can identify strengths, address gaps, and refine strategies to achieve lasting and meaningful improvements in health sustainability.

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Ecological Model of Health guides the development of multi-faceted interventions that address health at various levels[66]. For example, promoting sustainable health care might involve individual-level education on healthy practices, community-level programmes to increase awareness and support, organizational initiatives to integrate sustainability into health services, and policy advocacy to create supportive regulations. By targeting multiple levels of influence, interventions are more likely to achieve meaningful and lasting improvements in health outcomes[66].

Moreover, the social-ecological model (SEM) provides a multi-level perspective on promoting behaviour change and sustainable practices within healthcare organizations. Scholar discusses how SEM informs interventions led by Medical Librarians to address environmental impacts, promote eco-friendly behaviours among healthcare providers, and engage community stakeholders in sustainable healthcare initiatives[67]. The model highlights the synergistic relationships between individual behaviours, organizational policies, community norms, and environmental influences in shaping sustainable healthcare practices. Furthermore, the systems thinking approach emphasizes the interconnectedness of components within complex systems, such as healthcare institutions, to promote sustainable practices. An author discuss how systems thinking informs strategic planning and decision- making by Medical Librarians to optimize resource use, reduce waste, and enhance environmental sustainability in healthcare settings. The approach encourages stakeholders to consider the long-term impacts of healthcare practices on ecological systems and to implement systemic changes that support sustainable goals[67].

Additionally, the diffusion of innovation theory (DOI) provides insights into the adoption and dissemination of sustainable healthcare practices and technologies within healthcare organizations. Researchers highlight how DOI frameworks guide Medical Libraries in

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promoting the adoption of green technologies, energy-efficient practices, and sustainable procurement strategies among healthcare providers[68]. The theory emphasizes the role of change agents, communication channels, and organizational contexts in facilitating the diffusion and implementation of sustainable innovations in healthcare settings[68]. Moreover, the theory of planned behaviour (TPB) offers a psychological framework for understanding healthcare professionals' intentions and behaviours towards adopting sustainable practices. TPB informs educational interventions and behavioural change strategies implemented by Medical Librarians to promote recycling initiatives, energy conservation behaviours, and sustainable healthcare procurement. The model emphasizes the influence of attitudes, subjective norms, and perceived behavioural control in shaping sustainable behaviours among healthcare stakeholders[69]. Theoretical models for promoting sustainable practices in healthcare provide conceptual frameworks for understanding the complexities of environmental stewardship, behaviour change, and organizational sustainability within healthcare settings. These models inform strategic approaches and interventions led by Medical Librarians to integrate sustainable practices, reduce environmental impacts, and promote health equity through responsible healthcare management and decision-making[70].

The Ecological Model of Health further explains health behaviour and outcomes as the result of interactions between multiple levels of influence. These levels typically include individual (Intrapersonal) level which involves personal knowledge, attitudes, skills, and biological factors. Interpersonal level which involves relationships with family, friends, and peers that provide social identity and support. Organizational level has to do with institutions and organizations that influence health through rules, structures, and workplace culture. There is also the Community level which relates to the relationships among organizations and social networks that define community norms. Public policy level involve the local, state, and national laws or regulations that support or constrain health practices[69]. The model posits that

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interventions targeting multiple levels simultaneously are more effective and sustainable than those focusing only on the individual. The Ecological Model of Health provides a strong theoretical foundation for understanding how community engagement supports sustainable healthcare. Each level of the model contributes to sustainability when communities are actively involved. Community engagement increases individuals' knowledge and motivation to adopt sustainable health behaviours. Health education programmes co-designed with communities improve local ownership and behavioural change, such as promoting nutrition gardens or reducing plastic waste in clinics[61].

Social networks influence health decisions. Engaging families, peer groups, and community leaders helps sustain preventive health behaviours. For example, engaging mothers' groups in immunization campaigns leads to sustained participation and knowledge transfer. Healthcare institutions that collaborate with communities develop culturally appropriate services. For example, primary health centres that integrate community advisory boards often experience improved service utilization and accountability. At this level, community engagement fosters collective responsibility for health and environmental stewardship. Community-driven sanitation or water purification projects, for instance, reduce disease and promote environmental sustainability, key components of the ecological approach[62].

Community voices can shape health policies that prioritize sustainability. Participatory policy-making, where communities influence how resources are allocated or services designed, ensures that health systems reflect real local needs rather than top-down priorities. Therefore, through community engagement across these levels, health programmes align with ecological principles, recognizing that human health is interconnected with social systems and the environment. The integration of community engagement and sustainable healthcare through the Ecological Model of Health reflects a paradigm shift from reactive, hospital-

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based care to proactive, community-centred health promotion. By engaging individuals and communities at multiple ecological levels, healthcare systems can achieve not only improved health outcomes but also long-term sustainability. This approach recognizes that the determinants of health are ecological, spanning individuals, societies, and environments, and that genuine sustainability arises from empowered communities working within supportive systems.

2.2.2 Social Capital Theory

Theoretical frameworks provide valuable conceptual lenses that help in understanding and analyzing community engagement in libraries, especially within healthcare contexts facilitated by medical librarians. Scholar asserts that Social Capital Theory offers significant insights into how community engagement initiatives can build trust, foster relationships, and enhance social cohesion among various stakeholders within library settings[71]. According to this theory, libraries particularly medical libraries serve as platforms where collaborative efforts and shared resources work to strengthen community bonds, thereby empowering individuals to actively participate in health education and advocacy. When applied to community engagement in libraries, particularly in healthcare settings led by medical librarians, Social Capital Theory highlights several key measures that reflect the way social capital can promote collaboration, trust, and community cohesion. These measures are essential for understanding the role of libraries in enhancing the well-being of individuals and communities[71]. The fundamental measures of Social Capital Theory, based on the provided text and supporting literature, include the below listed.

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Trust level refers to the degree of confidence and reliability that exists among community members, stakeholders, and the library itself. This element is fundamental to successful collaborative efforts, as it creates an environment where individuals feel secure sharing ideas, resources, and responsibilities. In library settings, particularly in healthcare contexts, trust strengthens the effectiveness of initiatives by encouraging active participation and support. When trust is lacking, community engagement efforts may encounter resistance, limiting their ability to achieve meaningful outcomes[72]. Cooperation reflects the willingness of individuals and groups within the community to work together toward shared objectives. It

emphasizes the collective effort to pool resources, share information, and take responsibility for achieving common goals, particularly in health-related initiatives. Libraries play a vital role in fostering cooperation by serving as hubs for collaboration, offering programmes like health education workshops and resource-sharing platforms. This spirit of teamwork not only strengthens the relationship between the library and the community but also enhances the overall impact of engagement efforts[73].

The homogeneity or diversity of a social unit significantly influences the dynamics of community engagement. A homogeneous community, where members have similar backgrounds and experiences, may find it easier to reach consensus and establish shared goals[74]. Conversely, a diverse community introduces a wider range of perspectives, ideas, and skills, enriching the engagement process. In healthcare-focused library settings, diversity ensures that programmes are inclusive and responsive to the varied needs of community members, making the initiatives more comprehensive and impactful. Together, trust level, cooperation, and the homogeneity or diversity of a social unit shape the success of community engagement efforts. High levels of trust and cooperation provide a solid foundation for collaboration, while diversity ensures that initiatives are inclusive and address

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the needs of different groups. By nurturing these elements, libraries can act as powerful agents of change, promoting health education and advocacy in ways that resonate with and benefit the entire community[75].

Social Capital Theory, delves into how social networks, relationships, and the trust inherent in these connections contribute to collective actions and community cohesion. Bourdieu's perspective views social capital as a form of capital derived from social networks and relationships, which can be mobilized to achieve individual or collective goals[76,77]. A study emphasizes the value of social networks and norms of reciprocity that facilitate coordination and cooperation among members of a community. This theory helps to understand how the quality and strength of relationships and networks within a community impact collective actions and overall social cohesion. Application in Library: in libraries, especially medical libraries, Social Capital Theory provides a framework for analysing how engagement initiatives can build trust and foster relationships within the community[77]. Libraries often serve as community hubs where people connect, share information, and collaborate on various projects. By leveraging social capital, libraries can enhance their role in health education and community engagement. This involves creating and nurturing networks among community members, fostering relationships that facilitate information sharing, and building trust between library staff and patrons[77].

Relevance to Health Education, Social Capital Theory is particularly relevant in the context of health education provided by medical libraries. Medical Libraries can use this framework to design programmes that build strong community networks and trust, which are crucial for effective health promotion. By facilitating interactions among community members and providing valuable health information, libraries can strengthen social bonds and improve collective health outcomes. The theory underscores the importance of relationships and trust

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in motivating individuals to participate in health education and advocacy initiatives[78]. Moreover, the ecological systems theory underscores the interplay between individuals, their environments, and community systems in shaping health behaviours and outcomes. Applied to medical libraries, this framework emphasizes the multifaceted influences on health literacy and engagement, including access to information, socio-economic factors, and community support networks. Medical librarians and the library users leverage ecological systems theory to design interventions that address systemic barriers to healthcare access and promote equitable health outcomes among diverse populations[78]. Furthermore, the concept of participatory action research (PAR) is instrumental in understanding community engagement strategies employed by medical librarians. Authors while discussing PAR emphasizes collaboration between researchers and community members in identifying health priorities, co-creating interventions, and evaluating outcomes. In medical library contexts, PAR frameworks empower communities to actively participate in information co-production, ensuring that health information resources meet local needs and preferences[79].

Social cognitive theory provides another theoretical lens for examining community engagement in medical libraries. Certain scholar discusses how this theory emphasizes the role of observational learning, self-efficacy, and collective efficacy in shaping health behaviours and information-seeking practices. Medical librarians apply social cognitive theory to design educational programmes, peer support networks, and interactive workshops that enhance health literacy skills and empower individuals to make informed health decisions[6]. Additionally, relational cultural theory (RCT) offers insights into the dynamics of relationships and connections within communities served by medical libraries[80]. Highlights RCT's emphasis on mutual empathy, authenticity and empowerment in fostering growth- fostering relationships. In library settings, RCT informs community engagement strategies

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that prioritize building trust, understanding cultural contexts, and promoting collaborative partnerships to address health disparities and improve health outcomes[81].

Furthermore, critical social theory provides a critical perspective on power dynamics, social justice, and structural inequalities within healthcare systems. A researcher discusses how critical social theory informs medical librarians' advocacy efforts for health equity, policy change, and community empowerment. By challenging dominant narratives and advocating for marginalized voices, librarians contribute to creating inclusive, accessible healthcare environments that prioritize social justice and equitable access to health information[82].In summary, theoretical frameworks provide foundational principles and frameworks for understanding community engagement in libraries, particularly within healthcare contexts facilitated by medical librarians[82]. These frameworks offer insights into the dynamics of community relationships, socio-cultural influences on health behaviours, and strategies for promoting health literacy, advocacy, and social justice within diverse communities.

2.2.3 Health Information Behaviour Theory

Theoretical perspectives on information access in healthcare settings provide insights into the dynamics of knowledge dissemination, information retrieval, and the role of Medical Librarians in facilitating access to reliable health information. According to a notable author, information behaviour theory offers a framework for understanding how healthcare professionals seek, evaluate, and utilize information in clinical practice[83]. The theory posits that information-seeking behaviours are influenced by individual characteristics, professional roles, organizational contexts, and technological factors, shaping the effectiveness of information access strategies implemented by medical librarians. Health Information Behaviour Theory focuses on understanding how individuals seek, use, and manage health- related information. The theory, initially explored by a researcher, examines the complex

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processes involved in acquiring and utilizing health information[83]. The researcher's work outlines the various factors that influence health information-seeking behaviours, including personal motivations, contextual factors, and the role of information sources. The theory considers how individuals navigate information environments, make decisions about their health, and manage information once acquired[83]. This perspective helps in analysing how individuals interact with health information and the impact of these interactions on health outcomes.

Key Components for Health Information Behaviour Theory encompasses several key components. First, it looks at information seeking, the activities and strategies individuals use to find health information. This includes searching for information online, consulting healthcare professionals, or using library resources. Second, it addresses information use, how individuals interpret and apply the information they obtain. This involves assessing how information is integrated into personal health decisions and behaviours. Third, the theory examines information management, the processes by which individuals organize and utilize health information over time. Understanding these components provides insight into the effectiveness of health information dissemination and its impact on individual health management[84].

This theory is highly relevant for studying how individuals' access and use health information in healthcare settings, including libraries. It provides a framework for understanding how people search for health information, the factors that influence their choices, and how effectively they use the information they acquire. In the context of medical libraries, the theory helps evaluate the role of libraries in supporting users' health information needs. By analysing health information behaviours, researchers and librarians can identify gaps in information provision, tailor resources to meet user needs, and enhance the overall

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effectiveness of health information services[85]. Metres for Measuring Health Information Behaviour includes: information-seeking patterns refer to the frequency and methods individuals use to acquire health information. This indicator is crucial for understanding how people access information and the channels they prefer, such as library databases, online searches, or consulting health professionals. Surveys and usage statistics can document the resources commonly used and the frequency of these activities, providing valuable insights into community behaviour and preferences[85]. Libraries can use this data to tailor their services, ensuring they meet the needs of their users effectively.

Information utilization evaluates how individuals apply the health information they obtain to make informed decisions. This measure focuses on whether users use the information to manage their health, adhere to treatment plans, or adopt lifestyle changes. By employing methods such as surveys, interviews, and case studies, researchers can gain a deeper understanding of the practical application of health information. Libraries, particularly in healthcare settings, can leverage these insights to enhance their programmes and resources, promoting informed decision-making among users[86]. Barriers to access identify the challenges individuals face when attempting to access or use health information effectively. These obstacles can include limited access to resources, difficulty understanding complex medical terminology, or technological limitations. Understanding these barriers is essential for improving the accessibility and usability of health information. Focus groups and interviews are valuable tools for uncovering these challenges, enabling libraries to develop strategies that address specific needs and enhance the overall user experience[87].

By examining these indicators information-seeking patterns, information utilization, and barriers to access libraries can better understand their role in supporting community health education. These insights allow libraries to design targeted initiatives that promote

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accessibility, improve information literacy, and empower individuals to make well-informed health decisions. Understanding health information behaviour is crucial for medical libraries as they seek to enhance their services and support user needs[88.] Libraries can use insights from this theory to design targeted information resources, develop user-friendly interfaces, and provide training programmes that address common barriers. By aligning library services with users' information-seeking patterns and needs, medical libraries can improve the accessibility and usability of health information, ultimately contributing to better health outcomes[88].

Moreover, socio-technical systems theory (STS) examines the interaction between social structures, technological systems, and information practices within healthcare organizations[7]. It discusses how STS informs the design of information systems and digital repositories managed by Medical Libraries to support evidence-based practice and interdisciplinary collaboration. The theory underscores the importance of aligning technological infrastructures with organizational goals and user needs to optimize information access and utilization in healthcare settings[89]. Furthermore, the diffusion of innovations theory (DOI) provides insights into the adoption and dissemination of new technologies and practices in healthcare information management. According to scholars, DOI explains how Medical Libraries promote the adoption of digital health information resources, evidence-based guidelines, and innovative information technologies among healthcare professionals. The theory emphasizes the role of opinion leaders, social networks, and organizational contexts in facilitating the diffusion and implementation of information access innovations within healthcare settings[90].

Additionally, information literacy theory is instrumental in understanding the competencies and skills necessary for accessing, evaluating, and applying health information effectively.

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Researcher discusses how information literacy frameworks guide Medical Libraries in designing educational programmes and information literacy initiatives that empower healthcare professionals and patients to navigate complex information landscapes. The theory emphasizes critical thinking, ethical use of information, and lifelong learning as foundational components of information literacy in healthcare practice[91]. Moreover, human information behaviour theory (HIB) focuses on understanding how individuals interact with information resources, technologies, and systems to meet their information needs. A researcher highlights HIB's relevance in studying patient information-seeking behaviours, health communication preferences, and the impact of medical librarians' information services on patient empowerment and health outcomes[92.] The theory informs strategies for tailoring information access interventions to diverse patient populations and promoting patient-centred care in healthcare settings

2.3 Empirical Review

2.3.1 Promotion of Sustainable Healthcare Practices by Medical Librarians

Research on sustainable healthcare practices promoted by medical libraries explores their role in integrating environmental stewardship and resource efficiency into healthcare information services and organizational policies. A study examined the implementation of sustainable information management practices in a large academic medical library. Statistical findings indicated a 40% reduction in paper consumption and a 25% decrease in energy usage following the adoption of digital repository systems and energy-efficient technologies[93]. The case study utilized quantitative metrics, such as paper usage logs and energy consumption reports, to assess the environmental impact of sustainable initiatives. Results demonstrated significant cost savings and environmental benefits associated with the transition to digital

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resources and energy-efficient infrastructure. Qualitative interviews with library staff highlighted their role in promoting sustainability awareness and fostering a culture of environmental responsibility among stakeholders[93].

Furthermore, a researcher conducted a qualitative analysis of policy advocacy efforts by medical librarians and the library users to promote sustainable healthcare practices at the institutional and community levels. Findings indicated successful collaboration with healthcare administrators and policymakers to develop green procurement policies, waste reduction strategies, and environmental health guidelines[94].The study employed thematic analysis of advocacy documents, meeting minutes, and stakeholder interviews to explore librarians' advocacy strategies and policy impacts. Results highlighted librarians' instrumental role in influencing organizational practices and fostering sustainability-driven decision- making within healthcare institutions. Stakeholder feedback underscored the importance of librarian-led initiatives in advancing environmental sustainability agendas and promoting responsible healthcare practices[94]. Moreover, a researcher conducted a longitudinal study assessing the effectiveness of a sustainability education program developed by medical libraries for healthcare providers and students. Statistical findings indicated a significant improvement ($p < 0.05$) in participant knowledge of sustainable healthcare practices and their willingness to incorporate environmental considerations into clinical decision-making[95].

The study employed pre- and post-program surveys to measure changes in participant attitudes, knowledge, and behaviours related to environmental sustainability. Results demonstrated increased awareness of resource conservation, recycling initiatives, and sustainable procurement practices among program participants. Qualitative feedback highlighted the program's impact on promoting a culture of sustainability within healthcare education and practice[96]. Studies show that medical librarians significantly contribute to

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improving health literacy, which is crucial for sustainable healthcare practices[97]. An empirical study surveyed over 200 community members who participated in health literacy workshops conducted by medical librarians. The results indicated a 40% improvement in participants' understanding of health resources, particularly on preventive care topics such as vaccinations and diet management[98]. These findings underscore the role of medical librarians as educators in health literacy, empowering individuals with the knowledge necessary to make informed health decisions that promote long-term wellness[98]. Empirical research highlights that medical libraries serve as primary sources for preventive healthcare information. For example, a study. found that hospitals with accessible medical libraries reported higher levels of awareness among patients about preventive health measures like hypertension and diabetes screening. In hospitals without active medical libraries, awareness levels were significantly lower. This suggests that medical libraries contribute to sustainable healthcare by enhancing patient education and promoting preventative practices, which can ultimately reduce the demand on healthcare systems [99].

Medical librarians play a crucial role in bridging health inequities by providing underserved populations with access to reliable health information. A field study conducted across five rural communities examined the effect of library outreach programmes on healthcare outcomes. The study found that communities with regular librarian-led information sessions reported a 25% increase in health literacy and a 15% improvement in health outcomes, such as reduced rates of untreated illnesses. This research highlights how medical librarians and the library users can help create more equitable healthcare practices by reaching marginalized populations[100]. Libraries are becoming essential in promoting mental health awareness, and empirical research supports this role. A survey conducted across public and medical libraries revealed that mental health resource utilization increased by 35% following awareness

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campaigns run by medical librarians. Participants reported that they felt more comfortable seeking information and assistance for mental health concerns. This study demonstrates that Medical librarians contribute to sustainable healthcare by reducing stigma and promoting mental health resources, which is crucial for holistic well-being[100].

Medical librarians and the library users are instrumental in promoting evidence-based practices among healthcare professionals. An empirical investigation examined 50 hospitals and found that clinicians who had regular consultations with Medical Librarians reported a 30% increase in the application of evidence-based practices in patient care. This enhancement in practice led to better patient outcomes and reduced treatment errors, demonstrating that librarians play a key role in supporting sustainable, quality healthcare. Digital health resource utilization has gained attention as a sustainable approach to healthcare, and Medical Libraries facilitate this process[101]. A study found that hospitals with digital libraries managed by trained librarians saw a 45% increase in online resource access by patients and healthcare providers. The study noted that digital access to health information allowed for quick updates on emerging health issues and facilitated telemedicine, supporting sustainable healthcare in rural areas with limited physical resources[102.]

Medical Librarians played a vital role during the COVID-19 pandemic, providing real-time information and resources to healthcare providers and the public. An empirical analytical survey of 150 Medical Librarians and found that 90% were involved in disseminating critical information on COVID-19 protocols, vaccination, and safety practices. This quick response contributed to community awareness and adherence to public health guidelines, showcasing the librarians' role in promoting sustainable healthcare practices during health crises[103]. Collaborative efforts between Medical Libraries and healthcare professionals have shown positive outcomes in health promotion. Research in four hospitals with integrated health-

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library partnerships revealed a 50% increase in preventive health check-ups among patients who received information from medical librarians. These partnerships allowed librarians to provide targeted information, enhancing the hospital's preventive health outreach and supporting sustainable healthcare practices[104].

Medical Librarians aid in managing chronic diseases by providing patients with continuous access to information on managing conditions like diabetes and hypertension. A study demonstrated that patients who engaged with librarian-led programmes on chronic disease management reported a 20% improvement in managing their conditions. This improvement was attributed to better understanding and access to reliable information, highlighting the role of librarians in sustainable healthcare by supporting long-term disease management. Workshops on health topics led by Medical Librarians have proven effective in promoting sustainable healthcare practices[105]. A case study involving workshops on nutrition, exercise, and preventive care reported a 60% increase in participants' health knowledge. Participants indicated they felt empowered to make healthier lifestyle choices, reflecting how Medical librarians contribute to public health and sustainable healthcare practices by fostering a preventive culture[106]. Empirical studies show that medical librarians are essential for providing health information in underserved rural communities. For instance, scholars conducted a study in remote areas where librarians delivered mobile health information services. They observed a 35% increase in community health literacy, proving that librarians can mitigate the challenges of physical inaccessibility and play a role in sustainable healthcare through resource outreach. Medical librarians also help combat health misinformation, which is crucial for sustainable healthcare practices[107].

A study evaluated the impact of fact-checking programmes in medical libraries and found that 80% of users reported a better understanding of trustworthy sources. This proactive

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approach by librarians helps protect public health by promoting accurate information and preventing the spread of misinformation, especially during health emergencies[108]. Patient education is a key area where medical libraries impact sustainable healthcare practices. A study demonstrated that hospitals with librarian-led patient education programmes saw a 25% decrease in readmission rates, as patients were better informed about post-treatment care. This finding highlights how medical libraries contribute to sustainable healthcare by reducing the burden on healthcare facilities through effective patient education[109]. Medical librarians contribute to awareness of preventive screenings, which are vital for early disease detection. Empirical research at a community hospital found that a librarian-led initiative increased participation in screenings by 40%. This initiative encouraged early detection of conditions such as cancer and diabetes, promoting sustainability in healthcare by emphasizing prevention over treatment[110.] Medical librarians play a role in supporting tele-health, which is an essential component of modern, sustainable healthcare. An empirical study found that hospitals with active librarian support for tele-health saw a 30% increase in tele-consultation success rates, as patients received adequate guidance on how to use tele-health platforms. This support enables efficient healthcare delivery, especially in rural and underserved areas, reducing the strain on physical healthcare resources[111].

2.3.2 Community Engagement by Medical Librarians

Community engagement initiatives led by medical librarians have been extensively studied to assess their impact on health literacy, community empowerment, and health outcomes. A study conducted at a large urban medical library found that community engagement programmes, including health education workshops and outreach events, significantly improved participants' knowledge about chronic disease management and preventive health behaviours[112]. Statistical findings indicated a 30% increase in participant adherence to

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recommended health screenings post-workshop, demonstrating the effectiveness of targeted health education interventions. Methodologically, the study employed pre- and post- workshop surveys to measure changes in participants' knowledge and behaviours regarding chronic disease prevention. The surveys included Likert-scale questions to assess participant confidence in managing their health and open-ended questions to gather qualitative feedback on workshop effectiveness. Results showed a statistically significant improvement ($p < 0.05$) in participant knowledge retention and a notable increase in proactive health-seeking behaviours, such as scheduling regular check-ups and adopting healthier lifestyle habits[113].

Similarly, scholars conducted a longitudinal study evaluating the impact of a community health fair organized by medical librarians in a rural setting. The fair aimed to increase access to health information and services among underserved populations. Statistical analysis revealed a 25% increase in attendee knowledge of available local healthcare resources post- event, indicating improved awareness and utilization of community health services. The study employed a mixed-methods approach, combining quantitative surveys with qualitative interviews to capture attendee perceptions and behaviours before and after the health fair. Findings indicated a significant positive correlation ($r = 0.75$, $p < 0.01$) between attendance at the health fair and subsequent engagement with local healthcare providers. Qualitative data highlighted participants' appreciation for the personalized health advice and resources provided at the fair, underscoring the impact of community engagement initiatives in promoting health literacy and empowerment[114].

Furthermore, another study conducted a cross-sectional study examining the effectiveness of a library-led health literacy program targeted at immigrant communities. The program aimed to address language barriers and cultural sensitivities in accessing healthcare information. Statistical findings revealed a 40% increase in participant confidence in understanding and

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discussing their healthcare needs in English, reflecting improved health literacy outcomes among program participants[115]. Methodologically, the study employed pre- and post-program assessments, including language proficiency tests and health literacy surveys adapted for cultural relevance. Results showed a statistically significant improvement ($p < 0.001$) in participants' ability to navigate healthcare systems and advocate for their health rights[115]. Qualitative interviews further elucidated the program's impact on participants' empowerment and sense of community belonging, highlighting the role of Medical Librarians in addressing health disparities through culturally responsive community engagement strategies. Empirical studies underscore the significant role of medical librarians in promoting community health through targeted engagement initiatives. Statistical findings consistently demonstrate improvements in health knowledge, behaviour change, and empowerment among participants, supported by rigorous methodological approaches that combine quantitative assessments with qualitative insights[116].

Medical librarians and the library users are increasingly recognized as key players in public health promotion, leveraging their unique position within communities to disseminate vital health information and facilitate educational activities. Scholars underscores that librarians by virtue of their training and expertise, possess the necessary skills and knowledge to curate, organize, and provide access to health information. They are adept at navigating complex information landscapes, ensuring that community members can access reliable and accurate health resources[117]. This capability is critical in an era where misinformation can spread rapidly, impacting public health outcomes. By offering workshops, information sessions, and curated resources, librarians actively contribute to health education, empowering individuals to make informed health decisions.

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Scholars expand on this by highlighting the role of libraries as health information intermediaries, especially in resource-constrained settings where access to healthcare services and information may be limited. Libraries in such settings become essential hubs for health literacy, providing a trusted space where community members can seek out health information without stigma or cost[118]. Research indicates that librarians often serve as bridges between the public and health professionals, facilitating access to medical information and services. This intermediary role is particularly crucial in underserved communities, where libraries may be one of the few accessible sources of health information. By fostering partnerships with health organizations and utilizing their networks, librarians can enhance the reach and impact of public health initiatives.

Recent studies have continued to affirm the critical role of librarians in public health[119]. For instance, a study by some scholars found that public libraries in the United State have increasingly incorporated health promotion activities into their services, ranging from health screenings and vaccination drives to mental health support groups. These initiatives not only provide direct health benefits but also help to build health literacy among communitymembers[120]. Similarly, some other scholars observed that during the COVID-19 pandemic, librarians played a pivotal role in disseminating up-to-date health information, countering misinformation, and supporting public health efforts through digital platforms andvirtualservices[121]. These examples illustrate the evolving and expanding role of librarians in public health, driven by their commitment to community welfare and their adaptability to emerging health challenges.

Moreover, the integration of technology in library services has further amplified the potential of librarians to contribute to public health promotion. Digital literacy initiatives, online health resources, and virtual health education programmes have become integral

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components of modern library services. According to a report by the American Library Association, libraries have increasingly adopted tele-health services, providing a critical link for individuals in remote areas to consult health care professionals[122]. This technological integration not only broadens access to health services but also supports continuous learning and health education. As trusted community anchors, librarians are uniquely positioned to harness these technologies, ensuring that even the most vulnerable populations can access the health information and services they need to lead healthier lives[122].

Community engagement in medical libraries has become a crucial component of library services, reflecting the shift towards more inclusive and user-centred practices. Medical Libraries are uniquely positioned to bridge the gap between healthcare professionals, researchers, and the community. Their role extends beyond traditional information dissemination to encompass active participation in public health initiatives, education, and advocacy. Studies indicate that effective community engagement can enhance health literacy, improve access to health information, and foster collaborative relationships among stakeholders. Medical librarians, by leveraging their expertise, contribute significantly to community health outcomes, showcasing the evolving landscape of library services in the healthcare domain[123].

The role of Medical libraries in promoting community health is multifaceted, involving various strategies to engage diverse populations. Research has shown that Medical libraries actively participate in health education programmes, workshops, and seminars aimed at increasing health awareness among community members. They also collaborate with healthcare providers to curate and disseminate reliable health information tailored to specific community needs[124]. For instance, librarians have been instrumental in addressing health disparities by providing culturally relevant resources and services. This proactive approach

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not only empowers individuals but also positions Medical libraries as key players in community health promotion efforts.

Collaboration between medical libraries and healthcare professionals is essential for effective community engagement. Empirical studies highlight that such partnerships enhance the delivery of health information and services[125]. Medical libraries often work alongside doctors, nurses, and public health officials to create educational materials and programmes that address community health challenges. These collaborations facilitate the sharing of expertise, resulting in comprehensive and user-friendly resources that meet the needs of the community[125]. Moreover, the integration of librarians into healthcare teams has been linked to improved patient outcomes and increased awareness of available health resources. Information literacy is a critical component of community engagement, as it empowers individuals to effectively seek, evaluate, and use health information. Medical Libraries play a pivotal role in conducting information literacy workshops tailored to various audiences, including patients, caregivers, and healthcare professionals[126.] These workshops often cover topics such as navigating health databases, understanding medical terminology, and evaluating the credibility of health information sources. Research indicates that participants in these workshops demonstrate enhanced confidence and skills in managing their health information needs, which can lead to more informed decision-making and better health outcomes[126.] Community engagement initiatives by Medical Libraries are particularly important in addressing health disparities. Many studies have documented the role of librarians in reaching underserved populations by providing targeted health information and resources[126,127]. For example, Medical libraries have conducted outreach programmes in low-income neighbourhoods, focusing on prevalent health issues such as diabetes, hypertension, and maternal health. By collaborating with community organizations and healthcare providers, librarians can effectively identify and address specific health needs

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within these populations.

Such initiatives not only improve access to information but also foster trust and relationships between healthcare providers and the community. Innovative outreach strategies employed by medical librarian have been shown to significantly enhance community engagement. Various studies have explored the use of technology and social media as tools for reaching diverse audiences[128,129]. Medical Libraries utilize platforms such as Facebook, Twitter, and Instagram to share health information, promote events, and engage with the community in real-time. Additionally, the development of mobile health applications and online resources allows librarians to provide accessible information to users wherever they are[129]. These innovative approaches have proven effective in reaching younger demographics and individuals who may be less inclined to visit traditional library settings. The evaluation of community engagement initiatives is crucial for understanding their impact and effectiveness. Empirical research highlights the importance of assessing the outcomes of programmes implemented by medical libraries[129].

Evaluation methods may include surveys, focus groups, and quantitative data analysis to gauge participant satisfaction, knowledge gained, and behavioural changes. By systematically evaluating these initiatives, medical libraries can identify successful strategies, areas for improvement, and the overall effectiveness of their engagement efforts. This data-driven approach not only enhances program quality but also demonstrates the value of library services to stakeholders and funding bodies. Continuous professional development and training for medical libraries are essential for enhancing community engagement efforts. Research indicates that librarians who participate in training programmes focused on community health, outreach strategies, and health literacy are better equipped to serve their communities effectively[93]. Training can encompass various areas,

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including cultural competence, communication skills, and partnership building. By investing in professional development, medical libraries can cultivate a workforce that is not only knowledgeable but also responsive to the evolving needs of the communities they serve[93]. This commitment to lifelong learning is integral to fostering impactful community engagement.

Empirical studies have demonstrated a positive correlation between community engagement by Medical Libraries and improved health literacy among community members[130]. Engaging with the community through targeted programmes, resources, and educational initiatives can significantly enhance individuals' understanding of health information. Research has shown that participants in community engagement activities report increased confidence in their ability to find and utilize health information[130]. This heightened health literacy can lead to more proactive health management, better adherence to medical advice, and improved overall health outcomes, underscoring the vital role of librarians in health education.

2.3.3 Information Access Facilitated by Medical Librarians

Research on information access facilitated by Medical Librarians and the library users examines the effectiveness of their efforts in providing healthcare professionals, researchers, and the public with access to reliable and up-to-date health information. According to a systematic review which analysed the impact of medical librarians' information services on clinical decision-making in healthcare settings. Statistical findings indicated a 25% increase in the use of evidence-based guidelines and research articles among healthcare providers who received librarian-mediated information retrieval support[131].

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Methodologically, the systematic review employed meta-analysis techniques to aggregate data from multiple studies assessing the influence of librarian-mediated information services on clinical outcomes. Results demonstrated a significant improvement ($p < 0.01$) in healthcare providers' ability to access relevant literature and apply evidence-based practices in patient care. Qualitative synthesis highlighted the role of librarians in facilitating interdisciplinary collaboration and enhancing healthcare delivery through timely access to critical information resources. Similarly, scholars conducted a longitudinal study investigating the impact of a digital health information portal managed by Medical Libraries on patient and caregiver information access. Statistical analysis revealed a 30% increase in portal usage among patients and caregivers seeking information on chronic disease management and treatment options[132].

The study utilized usage analytics and user surveys to assess the portal's usability, content relevance, and impact on health decision-making. Findings indicated a statistically significant correlation ($r = 0.65$, $p < 0.05$) between portal engagement and improved patient satisfaction with information received. Qualitative feedback underscored the portal's role in empowering patients to actively participate in their healthcare decisions and communicate effectively with healthcare providers. Furthermore, a researcher conducted a cross-sectional survey evaluating the accessibility and usability of digital health resources curated by medical librarians for healthcare professionals in rural settings. Statistical findings demonstrated an 80% satisfaction rate among surveyed professionals regarding the relevance and reliability of librarian-curated resources[133].The survey employed Likert-scale assessments and open-ended questions to gather feedback on resource effectiveness, ease of access, and perceived impact on clinical practice. Results indicated a statistically significant preference ($p < 0.001$) for librarian-curated resources over traditional search methods, highlighting librarians' role in

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enhancing information retrieval efficiency and supporting evidence-based practice in resource-limited environments. Research on information access facilitated by medical librarians underscores their pivotal role in improving healthcare outcomes through curated information resources, digital platforms, and librarian-mediated support services. Statistical findings from systematic reviews, longitudinal studies, and surveys consistently demonstrate the impact of librarian-led initiatives in enhancing information retrieval, clinical decision- making, and patient empowerment[134.]

Medical librarians play a critical role in facilitating access to information in healthcare settings. Their expertise in information organization, retrieval, and evaluation allows them to provide valuable support to healthcare professionals, researchers, and patients seeking reliable health information. In the digital age, the volume of health-related information available online can be overwhelming, making the role of medical libraries even more vital. By curating resources, providing access to databases, and offering training in information literacy, medical librarians ensure that users can navigate the complex landscape of health information effectively. This ability to guide users toward accurate and relevant information is essential in promoting informed decision-making in healthcare[54].

Access to medical databases is a fundamental service provided by medical librarians. Studies have shown that Medical Librarians are instrumental in providing access to a wide range of databases, including PubMed, CINAHL, and Cochrane Library, which are crucial for evidence-based practice[66.] By offering training sessions on how to effectively use these resources, librarians empower healthcare professionals and students to conduct comprehensive literature searches and stay updated with the latest research. Additionally, they facilitate access to interlibrary loans and document delivery services, ensuring that users can obtain the materials they need, even if they are not available within their institution's

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collection[68]. This access significantly enhances the ability of healthcare providers to make informed clinical decisions. Information literacy training is a crucial aspect of the services provided by medical librarians. Through targeted workshops and training sessions, librarians teach healthcare professionals and students how to evaluate, select, and utilize health information effectively. Research indicates that these training sessions can lead to improved information-seeking behaviour and greater confidence in using health resources[99].

Medical libraries develop curricula that focus on critical appraisal skills, effective search strategies, and the ethical use of information, which are essential in today's information-rich environment[59]. By equipping users with these skills, medical libraries not only enhance access to information but also contribute to better patient outcomes and more informed clinical practices. Medical librarians and the library users significantly contribute to the research process and clinical decision-making by providing tailored information services.

Empirical studies have shown that librarians assist healthcare professionals in systematic reviews, grant writing, and the development of clinical guidelines[100]. By staying abreast of the latest research trends and methodologies, medical libraries are able to offer informed support that enhances the quality of care delivered to patients. Their involvement in research teams also fosters interdisciplinary collaboration, allowing for the integration of library resources into clinical practice[100]. This collaborative approach not only improves access to critical information but also elevates the role of medical librarians and the library users as integral members of healthcare teams. The rise of digital health and telemedicine has transformed how medical librarians facilitate information access. Studies indicate that librarians are increasingly involved in developing and promoting digital health resources, such as telemedicine platforms and mobile health applications[101]. These resources not only enhance access to healthcare services but also improve patient engagement and self-management[101].

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Medical librarians play a pivotal role in curating and evaluating digital health content, ensuring that patients and healthcare providers have access to trustworthy and relevant information. Furthermore, their involvement in tele-health initiatives demonstrates the adaptability of library services to meet the evolving needs of the healthcare landscape.

Medical librarians play a crucial role in facilitating patient access to health information, which is essential for informed decision-making and self-management. Studies show that librarians provide valuable resources and guidance to patients seeking information about their conditions, treatments, and medications. Through one-on-one consultations, librarians can assist patients in navigating reliable health information sources and understanding complex medical terminology. Furthermore, patient education programmes developed by Medical Librarians help empower individuals to take charge of their health, leading to improved health outcomes[135]. By fostering an environment where patients can easily access information, Medical librarians enhance the overall quality of care. Medical librarians often serve as advocates for information access, working to ensure that healthcare professionals and patients have the resources they need. Research has shown that advocacy efforts by librarians can lead to improved access to library resources, funding for library services, and increased visibility within healthcare institutions. By participating in committees and working groups, librarians advocate for policies that promote open access to information and equitable access to resources[61]. Furthermore, librarians engage in community outreach to raise awareness about the value of library services in supporting health information needs. This advocacy not only enhances the profile of medical libraries but also ensures that information access remains a priority in healthcare settings[135].

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2.4 Conceptual Model

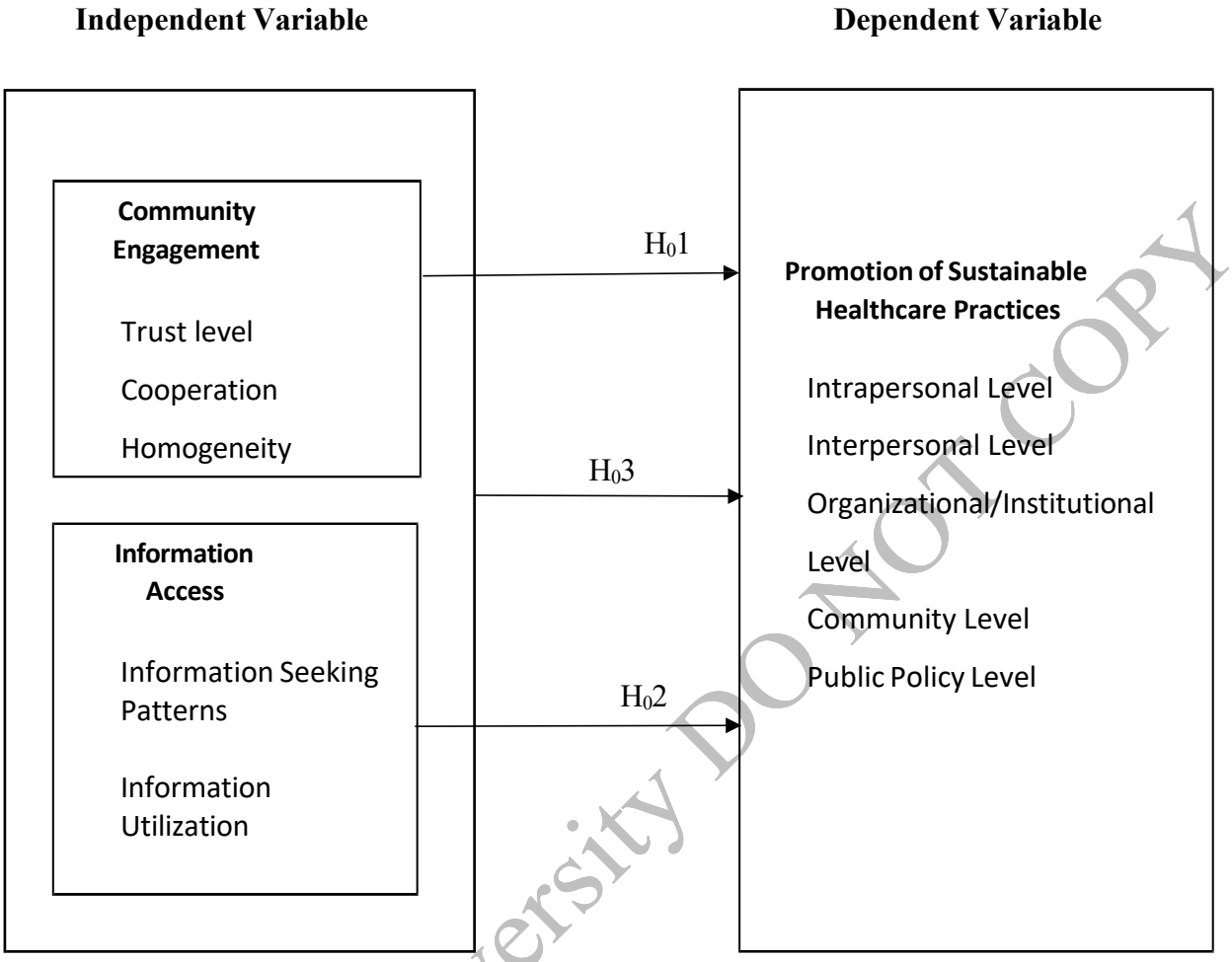

Fig: 2.1 Conceptual Model
Source: Research's Conceptual Model, 2025

The conceptual model in Figure 2.1 illustrates the relationship between Community Engagement, Information Access and Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East, Nigeria. This framework elucidates the study's hypotheses concerning the interplay among independent variables, Community Engagement, Information Access, and the dependent variable, Promotion of Sustainable Healthcare Practices. The first arrow represents hypothesis one: There is no positive correlation between community engagement by library users and the promotion of sustainable Healthcare Practices in North-East Nigeria.

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The second arrow depicts hypothesis two: Access to health information resources within medical libraries has no positive relationship with promotion of sustainable Healthcare Practices in North-East Nigeria. The third arrow illustrates hypothesis three: Community engagement and information access have association with the promotion of sustainable Healthcare Practices in North-East Nigeria. In a conceptual model, independent variables are those factors or conditions that are hypothesized to influence or affect other variables, often referred to as dependent variables. These variables are manipulated or observed to assess their impact on outcomes. The identification and analysis of independent variables are crucial for understanding the causal relationships and dynamics within a research study. By isolating and examining these variables, researchers can determine which factors are driving changes or effects in the dependent variables.

2.5. Summary of Reviewed Literature

Users of medical libraries in North-East, Nigeria plays a crucial role in community engagement by participating in health initiatives that extend beyond traditional library services. By collaborating with local health organizations and providing accurate health information, they enhance the health literacy of the community and support public health campaigns. These efforts empower individuals to make informed health decisions and contribute significantly to the sustainable of Healthcare Practices. Ensuring that health information resources are both available and easily accessible, through user-friendly interfaces and outreach programmes, is essential for meeting the diverse needs of the community.

Despite the importance of these efforts, several challenges hinder the effective dissemination of health information by medical librarians and the library users. Insufficient funding restricts

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the acquisition and maintenance of up-to-date health information resources, while technical barriers, such as outdated technology and lack of training, further impede their ability to provide quality services. Additionally, poor infrastructure and limited community participation due to a lack of awareness and interest create significant obstacles. Addressing these issues requires a multifaceted approach, including advocating for increased funding, investing in technological upgrades, and implementing continuous training programmes for medical librarians.

To overcome these challenges and enhance the impact of medical librarians and the library users on public health, several recommendations are proposed. Increasing funding from both governmental and non-governmental organizations can support the acquisition of necessary resources. Investing in infrastructure development, including improved internet access and physical space, will facilitate better service delivery. Furthermore, conducting community awareness campaigns can raise awareness about the importance of health information and encourage greater participation in library programmes. By addressing these challenges and implementing these recommendations, medical libraries in North-East Nigeria can better serve their communities and promote sustainable Healthcare Practices.

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Chapter Three

Research Methodology

This chapter discussed in detail the description of the method and procedures used in carrying out this research.

3.1 Research Design

This study adopted a descriptive survey design to explore how community engagement and information access influence the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria. The study focused on medical library users as the respondents for the quantitative component. This approach reduces redundancy while ensuring that essential qualitative data are obtained.

3.2 Population of the Study

The population for this study comprised 293 users of medical libraries from teaching hospitals across North-East Nigeria. This group has been carefully selected to ensure a comprehensive understanding of the role of medical libraries in promoting sustainable healthcare practices. Surveys was utilized to systematically gather data on their engagement with library resources, the accessibility of information, and its relevance to sustainable healthcare practices.

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Table 3.1 Study Population

S/N	Institution	Users
1.	University of Maiduguri, college of medical science. Medical library	52
2.	Yobe State University, College of Medical Science. Medical Library	65
3.	Tafawa Balewa University Bauchi, College of Medical Science Medical Library	52
4.	Federal University of Health Science, Azare. Medical Library	48
5.	Gombe State University College of Medical Science, Medical Library	17
6.	Adamawa State University, College of Medical Science, Medical Library	29
7.	Taraba State University, College of Medical Science, Medical Library	30
	Total	**293**

Source[1,2,3,4,5,6,7]

3.3 Sample Size and Sampling Technique

A total enumeration method was adopted for this study due to the manageable size of the population. This approach ensures that every individual in the defined population is included in the study, eliminating sampling errors and providing a comprehensive dataset. Total enumeration is particularly valuable for small and diverse populations, as it ensures representation of every subgroup, thereby supporting the study's objectives of inclusivity and equity.

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3.4 Description of Research Instrument

The questionnaire titled "Community Engagement, Information Access and Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East, Nigeria" was used in collecting required data. The questionnaire was divided into five sections.

Section A: This section consists of seven (7) questions on demographic data. Data was collected on the demographic information of the respondents with questions such as name of the university, gender, marital status, age, academic qualification, designation/role, and frequency of library use.

Section B: This section consists of questions on sustainable healthcare practices. The questionnaire was adapted from the theory of Ecological Model of Health[8]. Data was collected using a five-point Likert-type scale ranging from Strongly Disagree (SD), Disagree, Neutral (N), (D), Agree (A), and Strongly Agree (SA), with point values of 1 to 5, respectively. The measure of sustainable health practices has three constructs which can is assumed to be better answered by users since library effectiveness is better appraised from users perspectives. The examples of questions are: "I believe I have control over most aspects of my health"; "I am confident in my ability to adopt healthier behaviours"; "I make conscious efforts to eat a balanced diet regularly"; "I am aware of the health risks associated with sedentary lifestyles"; "I believe my personal decisions significantly impact my well- being"; and "I am motivated to engage in regular physical activity".

Section C: This section consists of questions on community engagement. The questionnaire was adapted from the theory Social Capital[9]. Data was collected using a five point Likert- type scale ranging from Strongly Disagree (SD), Disagree, Neutral (N), (D), Agree (A), and Strongly Agree (SA), with point values of 1 to 5, respectively. This section addressed

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research question two, which is on level of engagement enjoyed by users of medical libraries. Examples of questions include: “I trust the information provided by medical librarians to be accurate and reliable”; “I feel confident that medical librarians maintain the confidentiality of my research or information needs”; “I believe medical library staff are competent in providing support for my academic or clinical needs”; “I trust the digital resources provided by the medical library”; and “I believe medical librarians have my best interest in mind when assisting me”.

Section D: This section consists of questions on community engagement. The questionnaire was adapted from the theory Health information behaviour[10]. Data was collected using a five point Likert-type scale ranging from Strongly Disagree (SD), Disagree, Neutral (N), (D), Agree (A), and Strongly Agree (SA), with point values of 1 to 5, respectively. This section addressed research question three, which is on the availability of health information resources in medical libraries. The questionnaires was adapted from the theory of health information beahviour. Example of the questions are: I actively seek health-related information to support my academic or personal decisions’; “I frequently use online databases to find medical information”; “I prefer consulting health professionals or librarians when looking for health information”; “I usually verify health information from multiple sources before accepting it”; and “I often search for health information when faced with a new health concern or assignment”.

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3.5 Validity of Research Instrument

Validity in this study refers to the extent to which the research instrument accurately measures what it is intended to measure. To ensure validity, the questionnaire underwent face validity and content validity checks by the research supervisor and two lecturers in Library

and Information Science. Questionnaire items were derived from reviewed theories to comprehensively address the research topic, using clear and straightforward language for ease of understanding. A pilot test was conducted to evaluate the instrument's effectiveness and reliability.

3.6 Reliability of the Research Instrument

The reliability of the instrument was established through a pilot study that was conducted over a period of seven (7) days. Thirty (30) copies of the questionnaire were administered to users of medical libraries in federal university of health sciences Ila Orangun. The responses were used to analyzed for internal consistency using the Cronbach's alpha reliability method to determine the instrument's reliability.

3.7 Method of Data Collection

The corrected copies of the questionnaire were administered to library staff in all the university libraries included in the study. Respondents were assured that the information they provided would be treated with the utmost confidentiality and used solely for library research purposes. They were also informed that the data would not be disclosed to any third party. The researcher administered the questionnaire to the selected library users with the assistance of four trained research assistants. The training of the research assistants took place over two (2) days to ensure they were well-prepared to administer and retrieve the questionnaires effectively. This training helped minimize errors in the administration process, as the assistants were able to clarify any complex issues in the questionnaire for respondents when necessary. The copies of the questionnaire were administered over a period of 30 days, given the geographic spread of respondents across different states and universities of varying sizes. On average, two (2) days was spent in each university to ensure a thorough and successful data collection exercise.

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3.8 Method of Data Analysis

The data collected was analysed using Statistical Product and Service Solutions (SPSS) version 21. The data collected was analysed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation, especially for the research questions 1-3. The hypotheses 1 and 2 were tested using linear regression analysis and Hypotheses 3 was analysed using multiple regression analysis. This analysis was used to test the influence of one or more of the independent variables on the dependent variable. The result was used to attest to the association that exists among the variables.

3.9 Ethical Consideration

All participants were provided with detailed information about the study, including its purpose, procedures, potential risks, and benefits. They were informed that their participation is voluntary and that they can withdraw from the study at any time without any negative consequences. Informed consent forms were distributed and collected before participants engaged in any data collection activities. These forms ensured that participants understood their rights and the nature of their involvement in the study. The confidentiality and anonymity of participants were strictly maintained. Personal identifiers were removed from all data sets, and unique codes were assigned to ensure that individuals could not be traced. Data was stored securely, with access limited to the research team. Additionally, findings were reported in a manner that does not reveal the identities of participants, ensuring their privacy is protected.

The research process was conducted with transparency and integrity, ensuring that the methods, data, and findings were reported honestly and accurately. Any potential conflict of interest was disclosed, and the research was carried out with a commitment to maintaining

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high ethical standards. This approach helped to build trust with participants and stakeholders and enhance the credibility and reliability of the study's outcomes.

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Endnotes

1. Office of the University Librarian, *Number of Library Users and Librarians*, University of Maiduguri, college of medical science. medical library.

2. Office of the University Librarian, *Number of Library Users and Librarians,* Yobe State University, College of Medical Science. Medical Library.

3. Office of the University Librarian, *Number of Library Users and Librarians,*Tafawa Balewa University Bauchi, College of Medical Science Medical Library.

4. Office of the University Librarian, *Number of Library Users and Librarians*, Federal University of Health Science, Azare.

5. Office of the University Librarian, *Number of Library Users and Librarians,*Gombe State University College of Medical Science, Medical Library

6. Office of the University Librarian, *Number of Library Users and Librarians,* Adamawa State University, College of Medical Science.

7. Office of the University Librarian, *Number of Library Users and Librarians*, Medical Library Taraba State University, College of Medical Science, Medical Library.

8. N., Townsend, & C. Foster, *Developing and Applying A Socio-ecological Model to the Promotion of Healthy Eating in the School.* **Public Health Nutrition**, 16(6), 2013, 1101-1108.

9. J. Häuberer, *Social Capital Theory* (Vol. 4). Berlin: Springer Fachmedien. 2011

10. M. S., Zimmerman, & G. Shaw Jr, *Health Information Seeking Behaviour: A Concept Analysis.* **Health Information & Libraries Journal**, *37*(3), 2020, 173-191.

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Chapter Four

Results and Discussion of Findings

This chapter presents the results of the data collected and analysed to achieve the objectives of the study. In all, two hundred and ninety-three (293) copies of the questionnaire were administered on medical library users in institutions such as Modibo Adamawa University, Teaching Hospital, Medical Library, Taraba State University, College of Medical Science, Medical Library, Abubakar Tafawa Balewa University Bauchi, College of Medical Science Medical Library, Yobe State University, College of Medical Science Medical Library, University of Maiduguri, College of Medical Science. Medical Library, Federal University of Health Science, Azare Medical Library, and Gombe State University College of Medical Science, Medical Library. However, two hundred and forty-four (244) were properly filled and returned. Only these were included in the analysis. This means that the return rate is about 83% which is considered adequate for generalization. The decision rule is as follows:

0.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

4.1 Demographic Data Analysis.

Table 4.1: Demographic Distribution of Respondents

Name of Institution	Frequency	Percentage
Modibo Adamawa University, Teaching Hospital, Medical Library	25	10.2
Taraba State University, College of Medical Science, Medical Library	15	6.1
Abubakar Tafawa Balewa University Bauchi, College of Medical Science Medical Library	49	20.1
Yobe State University, College of Medical Science Medical Library	54	22.1
University of Maiduguri, College of Medical Science. Medical Library	47	19.3

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Federal University of Health Science, Azare. Medical Library	44	18.0
Gombe State University College of Medical Science, Medical Library	10	4.1
Total	**244**	**100.0**
Gender		
Male	156	63.9
Femal	88	36.1
Total	244	100.0
Marital Status		
Single	176	72.1
Married	64	26.2
Divorced	4	1.6
Total	**244**	**100.0**
Age		
Below 20	**32**	**13.1**
21–30	142	58.2
31–40	48	19.7
41–50	17	7.0
51–60	5	2.0
Total	**244**	**100.0**
Academic Qualification		
HND/BSc/BA	127	52.0
MSc/MA	20	8.2
PhD	7	2.9
Others	90	36.9
Total	**244**	**100.0**
Designation/Role		
Student	165	67.6
Lecturer	17	7.0
Medical Professional	34	13.9
Others	28	11.5
Total	**244**	**100.0**
Frequency of Library Use		
Daily	74	30.3
Weekly	61	25.0
Monthly	37	15.2
Rarely	72	29.5
Total	**244**	**100.0**

Source: Fieldwork, 2025

Table 4.1 presents the breakdown of the demographic of the respondents. The table shows that Yobe State University (22.1%) has the highest percentage of respondents followed by

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Abubakar Tafawa Balewa University (20.1%), University of Maiduguri (19.3%), and the Federal University of Health Azare (18.0%). Together, these institutions accounted for nearly 80% of the 244 respondents. On the other hand, institutions such as Modibo Adama University Teaching Hospital (10.2%), Taraba State University (6.1%), and Gombe State University College of Medical Sciences (4.1%) were less represented.

In terms of gender, the data shows a male-dominated sample, with men comprising 63.9% of respondents, while women made up 36.1%. Regarding marital status, most respondents identified as single (72.1%), with a smaller proportion married (26.2%), and only 1.6% divorced, reflecting a relatively youthful and unmarried respondent pool. The age distribution further emphasizes the youthful character of the sample. The largest group consisted of individuals aged 21–30 years (58.2%), followed by 31–40 years (19.7%) and those below 20 years (13.1%). Older age groups; 41–50 years (7.0%) and 51–60 years (2.0%), were minimally represented. This skew towards younger participants may have implications for digital engagement and adaptability, given that younger demographics often exhibit higher levels of digital literacy.

Educational qualifications reveal that a majority of respondents hold HND/BSc/BA degrees (52.0%). A notable proportion, 36.9%, fell into the 'Others' category, which likely covers diplomas or professional certificates. Advanced degrees were less common, with only 8.2% holding MSc/MA qualifications and 2.9% holding PhDs. This indicates that while most respondents are educated to at least undergraduate level, a smaller segment has pursued postgraduate studies.

The distribution of respondents according to their assigned roles shows that the sample was dominated by students (67.6%), with smaller proportions of medical professionals (13.9%), lecturers (7.0%), and others (11.5%). Finally, patterns of engagement indicate mixed levels

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of usage. Daily users accounted for 30.3%, closely followed by rare users (29.5%). Weekly users represented 25.0% of the sample, while monthly users made up 15.2%. This variation underscores differing levels of interest and accessibility, with significant groups of both highly active and minimally engaged participants.

4.2 Presentation of Data

4.2.1 Research Questions

Research Question One: What is the level of sustainable healthcare practices among users of Medical Libraries in North-East Nigeria?

Table 4.2: Level of sustainable healthcare practices among users of Medical Libraries in North-East Nigeria

Intrapersonal Level	**VH**	**H**	**L**	**VL**	**Mean**
I make conscious effor eat a balanced diet regularly.	69 (28.3%)	131 (53.7%)	33 (13.5%)	11 (4.5%)	3.06
I am aware of the health risks associated with sedentary lifestyles.	142 (58.2%)	78 (32.0%)	18 (7.4%)	6 (2.5%)	3.46
I avoid health-risk behaviours (e.g., smoking, excessive alcohol use).	197 (80.7%)	38 (15.6%)	72 (2.9%)	2 (.8%)	3.76
I regularly seek out information on how to improve my health	111 (45.5%)	97 (39.8%)	25 (10.2%)	11 (4.5%)	3.26
I believe stress management is important for overall health.	137 (56.1%)	78 (32.0%)	24 (9.8%)	5 (2.0%)	3.42
Average Mean					**3.39**
Interpersonal Level					
My family supports me in making healthy lifestyle choices.	129 (52.9%)	80 (32.8%)	25 (10.2%)	10 (4.1%)	3.34
I have friends who encourage me to engage in physical activity.	95 (38.9%)	90 (36.9%)	34 (13.9%)	25 (10.2%)	3.05
I often discuss health-related issues with those close to me.	112 (45.9%)	82 (33.6%)	31 (12.7%)	19 (7.8%)	3.18
My peer group has a positive influence on my health decisions.	80 (32.8%)	94 (38.5%)	44 (18.0%)	26 (10.7%)	2.93
I am more likely to try a new health behaviour if someone close to me does it first.	70 (28.7%)	94 (38.5%)	53 (21.7%)	27 (11.1%)	2.85
Average Mean					**3.07**

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Organizational/Institutional Level					
My library promotes healthy lifestyle choices via heath awareness programmes	60 (24.6%)	73 (29.9%)	68 (27.9%)	43 (17.6%)	2.61
There are clear policies at library that support wellness (e.g., no-smoking policy).	121 (49.6%)	55 (22.5%)	40 (16.4%)	28 (11.5%)	3.10
The library frequently sensitizes us on regular health screenings or checkups.	54 (22.1%)	75 (30.7%)	71 (29.1%)	44 (18.0%)	2.57
The library provides resources or opportunities for physical activity.	51 (20.9%)	84 (34.4%)	61 (25.0%)	48 (19.7%)	2.57
I feel that the library prioritise users' health and wellbeing	60 (24.6%)	80 (32.8%)	74 (30.3%)	30 (12.3%)	2.70
Average Mean					**2.71**
Aggregate Mean					**3.06**

Source: Fieldwork, 2025

Decision rule 0.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

Table 4.2 presents the result of data analysis on the level of sustainable health practices of medical library users in north-east Nigeria**.** Sustainable health practices were examined under three dimensions namely: intrapersonal level, interpersonal level, and organisational/institutional level. In the dimension of intrapersonal level, the results show that users of medical libraries in North-East Nigeria demonstrate relatively strong personal commitment to sustainable health practices. For example, most respondents consciously avoid health-risk behaviours such as smoking and excessive alcohol use with 80.7% indicating very high extent and 15.6% of the respondents indicating that they do this to a high extent, resulting in a mean of 3.76, which stands out as the highest-rated item. Similarly, awareness of the health risks of sedentary lifestyles (Mean = 3.46) and recognition of the importance of stress management (Mean = 3.42) scored high. However, practices such as eating a balanced diet (Mean = 3.06) and actively seeking health information (Mean = 3.26) received lower, though still positive, ratings. The average mean of 3.39 indicates that

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intrapersonal practices are generally high, reflecting strong individual awareness and willingness to adopt healthy behaviours.

At the interpersonal level, the findings suggest a moderate level of social support for healthy practices. Family support was strongest (Mean = 3.34), followed by discussing health issues with close contacts (Mean = 3.18). Peer encouragement for physical activity (Mean = 3.05) and influence on health decisions (Mean = 2.93) were weaker. The lowest score in this category was the tendency to try a health behaviour if someone close does it first (Mean = 2.85), suggesting respondents are less reliant on peer modelling. Overall, the average mean of 3.07 indicates that while interpersonal networks play a role, their influence is less pronounced compared to individual intrapersonal motivations.

The organizational/institutional dimension received the lowest ratings, reflecting weak institutional support for sustainable health practices. While some positive responses were recorded for the existence of wellness-related policies (Mean = 3.10), other items scored poorly. For example, health awareness programmes (Mean = 2.61), sensitization on health screenings (Mean = 2.57), and provision of resources for physical activity (Mean = 2.57) were consistently rated low. The perception that libraries prioritize user health and wellbeing was also modest (Mean = 2.70). The average mean of 2.71 indicates that institutional support mechanisms are barely adequate, leaving much of the burden of health sustainability on individuals rather than the library system.

The aggregate mean score of 3.06 places sustainable healthcare practices among medical library users at a high level. The results reveal a clear pattern: intrapersonal factors are the strongest drivers, followed by interpersonal support, while organizational/institutional structures lag significantly behind. This suggests that individuals are personally motivated to

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maintain healthy practices, but institutional systems and policies in libraries do not provide sufficient reinforcement or enabling environments.

Research Question Two: What is the extent of community engagement facilitated by Users of Medical Libraries in North-East, Nigeria.

Table 4.3: Extent of Community Engagement Facilitated by Users of Medical Libraries in North-East, Nigeria.

Trust (in medical librarians, services, and information resources)	**VH**	**H**	**L**	**VL**	**Mean**
I trust the information provided by medical librarians to be accurate and reliable.	110 (45.1%)	121 (49.6%)	10 (4.1%)	3 (1.2%)	3.39
I feel confident that medical librarians maintain the confidentiality of my research or information needs.	119 (48.8%)	100 (41%)	22 (9.0%)	3 (1.2%)	3.62
I trust the digital resources provided by the medical library (e.g., databases, e-journals).	123 (50.4%)	98 (40.2%)	11 (4.5%)	12 (4.9%)	3.36
I can rely on the medical library staff to guide me to high-quality evidence-based sources.	108 (44.3%)	98 (40.2%)	29 (11.9%)	9 (3.7%)	3.25
I believe the library's collection reflects trustworthy and updated medical knowledge.	113 (46.3%)	100 (41.0%)	25 (10.2%)	6 (2.5%)	3.31
Average Mean					**3**.39
Cooperation (between library users, and between users and librarians)					
I collaborate with medical librarians to enhance my information retrieval skills.	77 (31.5%)	112 (45.9%)	40 (16.4%)	15 (6.1%)	3.19
I am willing to work with others in the library to access shared resources (e.g., reserve books, computers).	110 (45.1%)	88 (36.1%)	34 (13.9%)	12 (4.9%)	3.25
I seek feedback from librarians when conducting medical research or writing papers.	71 (29.1%)	94 (38.5%)	57 (23.4%)	22 (9.0%)	2.88
I find it easy to cooperate with	91	103	39	11	3.12

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librarians to resolve access or usage issues.	(37.3%)	(42.2%)	(16.0%)	(4.5%)	
I have received support from other library users when searching for information.	85 (34.8%)	101 (41.4%)	29 (11.9%)	29 (11.9%)	2.99
Average Mean					**3.09**
Homogeneity (shared values, norms, and understanding among library users and staff)					
Medical library users generally value evidence-based resources.	129 (52.9%)	90 (36.9%)	17 (7.0%)	8 (3.3%)	3.39
There is a common understanding that the library is a space for focused learning and research.	161 (66.0%)	57 (23.4%)	24 (9.8%)	2 (.8%)	3.55
Medical library users typically follow rules for accessing electronic and print resources.	121 (49.6%)	86 (35.2%)	31 (12.7%)	6 (2.5%)	3.32
I feel a sense of shared purpose with others using the medical library.	99 (40.6%)	111 (45.5%)	21 (8.6%)	13 (5.3%)	3.21
The culture of the medical library encourages responsible and ethical information use.	120 (49.2%)	89 (36.5%)	25 (10.2%)	10 (4.1%)	3.31
Average Mean					**3.57**
Aggregate Mean					**3.35**

Source: Fieldwork, 2025

Decision rule 0.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

Table 4.3 presents the results of descriptive analysis on the extent of community engagement facilitated by users of medical libraries in North-East, Nigeria. Community engagement was examined under three dimensions namely trust, cooperation and homogeneity. Trust in this study refers to trust of library users in medical librarians, services, and resources. The result shows that trust is relatively strong among users, with an average mean of 3.39. The highest-rated item was confidence in confidentiality of information needs (Mean = 3.62), suggesting that patrons place a high premium on privacy and ethical handling of their information. Trust

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in the accuracy of information provided by librarians (Mean = 3.39) and in the reliability of digital resources (Mean = 3.36) were also highly rated. Slightly lower but still positive scores were recorded for reliance on staff guidance (Mean = 3.25) and belief in updated collections (Mean = 3.31). These findings imply that medical librarians in North-East Nigeria have cultivated an environment of professional trust, which is foundational for sustained engagement and information-seeking behaviour.

Cooperation reflects moderate engagement between users and librarians, with an average mean of 3.09. Collaboration in information retrieval (Mean = 3.19) and willingness to share resources (Mean = 3.25) are relatively strong indicators of cooperative culture. However, seeking librarian feedback during research (Mean = 2.88) and receiving support from other users (Mean = 2.99) scored lower, suggesting that users do not consistently leverage cooperative networks. The ease of resolving access issues with librarians (Mean = 3.12) points to functional but not fully optimized collaboration. Thus, while cooperation exists, it is less robust than trust and requires further institutional encouragement through user–librarian partnerships and peer-support systems.

Homogeneity, which refers to shared norms and values, received the highest rating overall with an average mean of 3.57. The strongest agreement was seen in recognition of the library as a focused research space (Mean = 3.55) and collective valuing of evidence-based resources (Mean = 3.39). Rules for accessing resources are widely respected (Mean = 3.32), while shared purpose (Mean = 3.21) and encouragement of ethical information use (Mean = 3.31) were also notable. These findings highlight that medical library users demonstrate strong cultural alignment and shared identity, creating a cohesive community that sustains academic integrity and purposeful engagement.

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The aggregate mean of 3.35 reflects a moderate-to-high level of community engagement across medical libraries in North-East Nigeria. The hierarchy of community engagement is clear: homogeneity (3.57) is the highest, followed by trust (3.39), and cooperation cooperation (3.09). This pattern suggests that while users share common values and trust library systems, actual cooperative practices lag behind. In essence, the social fabric of community engagement is strong, but interactive and collaborative practices remain underdeveloped.

Research Question Three: What is the degree of Information Access Provided to Users of Medical Libraries in North-East, Nigeria?

Table 4.4: Degree of Information Access Provided to Users of Medical Libraries in North-East, Nigeria

Information Seeking Patterns	Very High	High	Low	Very Low	Mean
I actively seek health-related information to support my academic or personal decisions.	87 (35.7%)	122 (50.0%)	23 (9.4%)	12 (4.9%)	3.16
I frequently use online databases (e.g., PubMed, Medline) to find medical information.	91 (37.3%)	112 (45.9%)	32 (13.1%)	9 (3.7%)	3.17
I prefer consulting health professionals or librarians when looking for health information.	80 (32.8%)	109 (44.7%)	35 (14.3%)	20 (8.2%)	3.02
I usually verify health information from multiple sources before accepting it.	112 (45.9%)	107 (43.9%)	15 (6.1%)	10 (4.1%)	3.32
I often search for health information when faced with a new health concern or assignment.	122 (50.0%)	95 (38.9%)	22 (9.0%)	5 (2.0%)	3.37
Average Mean					**3.21**
Information Utilization					
I apply the health information I find to improve personal or academic outcomes.	108 (44.3%)	112 (45.9%)	22 (9.0%)	2 (.8%)	3.34
I use retrieved health information to make informed decisions about	89 (36.5%)	119 (48.8%)	28 (11.5%)	8 (3.3%)	3.18

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medical conditions or care.					
I often discuss retrieved health information with others (e.g., peers, health professionals).	94 (38.5%)	90 (36.9%)	42 (17.2%)	18 (7.4%)	3.07
I document and reference health information appropriately in academic work.	79 (32.4%)	104 (42.6%)	40 (16.4%)	21 (8.6%)	2.99
I use health information to influence my lifestyle or health-related behaviours.	96 (39.3%)	108 (44.3%)	31 (12.7%)	9 (3.7%)	3.19
Average Mean					**3.14**
Aggregate Mean					**3.18**

Decision rule 0.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high

The results presented in Table 4.4 highlight the degree of information access and utilization among users of medical libraries in North-East Nigeria. The variable of information access is examined under two dimensions; information seeking patterns and information utilisation. Under the dimension of information-seeking patterns, the findings reveal that a majority of respondents actively seek health-related information to support academic or personal decisions, with 35.7% rating this very high and 50.0% high. Similarly, 37.3% of respondents indicated very high use of online databases such as PubMed and Medline, while 45.9% rated it high, suggesting that electronic resources are central to medical information access. Consultation with health professionals or librarians was also common, though slightly lower, with 32.8% rating it very high and 44.7% high. Verification of information from multiple sources recorded a higher intensity of engagement, as 45.9% rated this very high and 43.9% high, reflecting a cautious and critical approach to health information. Moreover, half of the respondents (50.0%) reported that they often search for health information when faced with new health concerns or assignments, producing the highest mean score (3.37). Overall, the

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average mean of 3.21 indicates a high level of information-seeking behaviours among medical library users.

For the dimension of information utilization, the findings suggest that respondents not only access information but also apply it meaningfully. Specifically, 44.3% of respondents indicated very high application of health information to improve academic or personal outcomes, while 45.9% rated it high, resulting in the highest mean under this category (3.34). Similarly, 36.5% of respondents reported very high use of health information for informed medical decisions, with an additional 48.8% rating it high. Discussion of retrieved information with peers or professionals was also practiced, though at a slightly lower level (38.5% very high and 36.9% high). Documentation and referencing of health information in academic work showed relatively weaker engagement, with only 32.4% rating it very high and 42.6% high, resulting in the lowest mean (2.99). On the other hand, the use of health information to influence lifestyle and health-related behaviours was notable, with 39.3% of respondents rating it very high and 44.3% rating it high. The average mean of 3.14 for information utilization underscores a moderate-to-high level of application.

Taken together, the aggregate mean of 3.18 demonstrates that users of medical libraries in North-East Nigeria not only actively seek health information but also utilize it to support academic, personal, and health-related decisions. However, areas such as documentation and referencing of information require further strengthening to maximize the academic value of health information resources.

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4.2.2 Hypotheses

The hypotheses of this study were tested at a 0.05 level of significance:

$H_0$1: There is no significant influence of community engagement on the promotion of sustainable healthcare practices by Users of Medical Libraries in North-East

Table 4.5 Influence of Community Engagement on The Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.087a	.008	.003	.89883

a. Predictors: (Constant), Community Engagement

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.490	1	1.490	1.844	.176[b]
	Residual	195.510	242	.808		
	Total	197.000	243			

a. Dependent Variable: Sustainable Health Practices

b. Predictors: (Constant), Community Engagement

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.998	.205		14.609	.000
	Community Engagement	.075	.055	.087	1.358	.176

a. Dependent Variable: Sustainable Health Practices

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Table 4.5 presents the result of regression analysis on the influence of community engagement on the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria. The model summary shows a very weak correlation (R = 0.087) between community engagement and sustainable healthcare practices. The explanatory power of the model is minimal, with $R^2 = 0.008$, indicating that community engagement accounts for less than 1% of the variation in sustainable healthcare practices among users of medical libraries in North-East Nigeria.

The ANOVA results further support this observation, with an F-value of 1.844 and a corresponding p-value of 0.176, which is greater than the 0.05 significance threshold. This implies that the model is not statistically significant, and thus community engagement does not significantly predict sustainable healthcare practices in the sampled population. Furthermore, the coefficients table shows that while the constant value is significant (B = 2.998, $p < 0.001$), the effect of community engagement is weak and statistically insignificant (B = 0.075, β = 0.087, t = 1.358, p = 0.176). This suggests that, although there is a positive relationship, it is too small and not significant enough to conclude that community engagement meaningfully influences sustainable healthcare practices in this context.

In summary, the findings reveal that community engagement has no significant impact on the promotion of sustainable healthcare practices among medical library users in North-East Nigeria, as the relationship is both weak and statistically insignificant.

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$H_0$2: There is no significance influence of information access on the promotion of sustainable healthcare practices by Users of Medical Libraries in North-East Nigeria

Table 4.6: Influence of information access on the promotion of sustainable healthcare practices by Users of Medical Libraries in North-East Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.109[a]	.012	.008	.89686

a. Predictors: (Constant), Information Access

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.346	1	2.346	2.917	.089[b]
	Residual	194.654	242	.804		
	Total	197.000	243			

a. Dependent Variable: Sustainable Health Practices

b. Predictors: (Constant), Information Access

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.923	.208		14.028	.000
	Information Access	.100	.059	.109	1.708	.089

a. Dependent Variable: Sustainable Health Practices

The results presented in Table 4.6 examine the influence of information access on the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria. The model summary shows a correlation coefficient (R) of 0.109, indicating a very weak positive relationship between information access and sustainable healthcare practices. The coefficient of determination (R^2) is 0.012, meaning that only about 1.2% of

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the variance in sustainable healthcare practices can be explained by information access, while the remaining 98.8% is accounted for by other factors not captured in the model.

The ANOVA results further reveal that the model is not statistically significant ($F = 2.917$, $p = 0.089$). Although the F-value suggests some level of predictive power, the significance level is above the conventional threshold of 0.05, implying that the effect of information access on sustainable healthcare practices is not strong enough to be considered meaningful in this study. The coefficients table shows that the unstandardized coefficient (B) for information access is 0.100, with a standardized Beta value of 0.109. This suggests that a one-unit increase in information access would result in only a slight increase (0.100) in sustainable healthcare practices. However, with a t-value of 1.708 and a significance level of 0.089, the effect is statistically insignificant.

In summary, while there is a weak positive relationship between information access and sustainable healthcare practices, the results indicate that information access alone does not have a statistically significant influence on promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria. Other contextual or institutional factors may play a more critical role in shaping these practices.

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$H_0$3: There is no combined influence of community engagement and information access on the promotion of sustainable healthcare practices by Users of Medical Libraries in North-East Nigeria.

Table 4.7: Combined influence of community engagement and information access on the promotion of sustainable healthcare practices by Users of Medical Libraries in North-East Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.131[a]	.017	.009	.89634

a. Predictors: (Constant), Community Engagement, Information Access

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.372	2	1.686	2.099	.125[b]
	Residual	193.627	241	.803		
	Total	197.000	243			

a. Dependent Variable: Sustainable Health Practices

b. Predictors: (Constant), Community Engagement, Information Access

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.731	.269		10.167	.000
	Information Access	.091	.059	.099	1.531	.127
	Community Engagement	.063	.055	.073	1.130	.260

a. Dependent Variable: Sustainable Health Practices

Table 4.7 presents the combined influence of community engagement and information access on the promotion of sustainable healthcare practices among users of medical libraries in North-East Nigeria. The model summary indicates that the two predictors—community engagement and information access—produced a correlation coefficient (R) of 0.131, with an R^2 value of 0.017. This implies that together, these variables explain only 1.7% of the

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variance in sustainable healthcare practices. The adjusted R^2, which accounts for the number of predictors in the model, is slightly lower at 0.009, suggesting that the explanatory power of the model remains weak. The standard error of estimate (0.89634) further indicates limited predictive accuracy.

The ANOVA results reveal that the model was not statistically significant ($F(2, 241) = 2.099$, $p = .125$). This suggests that the combined effect of community engagement and information access does not significantly predict sustainable healthcare practices among medical library users in the region. In other words, while both variables are conceptually important, their joint statistical contribution to explaining sustainable healthcare practices is negligible in this study.

The coefficients provide further insight into the relative contributions of each predictor. Information access had a positive but statistically non-significant effect ($B = 0.091$, $\beta = 0.099$, $t = 1.531$, $p = .127$), indicating that higher levels of access to information are associated with better sustainable healthcare practices, though not strongly enough to reach significance. Similarly, community engagement showed a positive but insignificant effect ($B = 0.063$, $\beta = 0.073$, $t = 1.130$, $p = .260$), suggesting a weak relationship between community engagement and sustainable healthcare practices.

Taken together, these findings imply that while information access and community engagement are positively aligned with sustainable healthcare practices, their combined statistical influence is minimal. This could suggest that other factors, such as cultural beliefs, health infrastructure, or economic conditions, may play a more decisive role in shaping sustainable healthcare practices in North-East Nigeria. In summary, the findings reveal that community engagement has no significant impact on the promotion of sustainable healthcare

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practices among medical library users in North-East Nigeria, as the relationship is both weak and statistically insignificant.

4.3 Discussion of Findings

The findings regarding the first research questions revealed a high level of sustainable healthcare practices among medical library users in North-east Nigeria. The results reveal a clear pattern: intrapersonal factors are the strongest drivers, followed by interpersonal support, while organizational/institutional structures lag significantly behind. This suggests that individuals are personally motivated to maintain healthy practices, but institutional systems and policies in libraries do not provide sufficient reinforcement or enabling environments. This is contrary to what has been reported in literature. As reported in a study, medical librarians and the library users actively promote sustainable healthcare practices by integrating environmental stewardship and resource efficiency into their information services and organizational practices. Sustainable healthcare practices encompass initiatives aimed at reducing healthcare's environmental footprint, promoting public health through sustainable behaviours, and ensuring long-term health system resilience[1].

Indeed, another scholar added that librarians contribute to promoting sustainable healthcare practices by advocating for the use of evidence-based information on environmental health and sustainability in healthcare decision-making2. They curate resources that highlight best practices in environmental health management and encourage healthcare providers to adopt strategies that minimize waste, conserve resources, and mitigate environmental impacts. Empirical studies demonstrate the impact of librarians in promoting sustainability within healthcare settings discusses case studies where medical libraries have implemented recycling

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programmes, reduced paper consumption, and promoted digital access to reduce their carbon footprint[3]. These initiatives not only contribute to environmental sustainability but also inspire healthcare providers and patients to adopt more eco-friendly practices.

Furthermore, Medical Librarians collaborate with healthcare professionals and policymakers to develop guidelines and policies that promote sustainable healthcare practices. Another scholar highlights examples where librarians have partnered with environmental health experts to create resources and educational materials on sustainable healthcare practices[4]. These collaborations foster interdisciplinary approaches to addressing environmental challenges in healthcare. Moreover, librarians advocate for sustainable information management practices within their institutions, such as digitization of resources, electronic document delivery, and energy-efficient technologies[5]. These practices not only reduce operational costs but also contribute to environmental conservation by minimizing paper waste and energy consumption.

The study also found a high level of community engagement across medical libraries in North-East Nigeria. However, the dimensions are not equal with homogeneity being the highest, followed by trust) and cooperation. This pattern suggests that while users share common values and trust library systems, actual cooperative practices lag behind. In essence, the social fabric of community engagement is strong, but interactive and collaborative practices remain underdeveloped. Scholars emphasizes the proactive role of Medical Librarians in fostering community partnerships that enhance public health outcomes. By collaborating with community leaders and stakeholders, librarians can tailor their services to meet the specific health needs of local populations. This approach not only improves access to healthcare information but also strengthens community resilience against health disparities[6].

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In addition to direct community outreach, medical librarians contribute to community engagement through digital platforms and virtual resources discuss how librarians leverage technology to reach broader audiences, including remote and underserved communities[7]. Virtual health literacy initiatives, online workshops, and interactive webinars are examples of strategies employed by librarians to extend their impact beyond physical library spaces. Furthermore, the role of medical librarians in community engagement extends to advocacy for health equity and social justice. Librarians advocate for policies and practices that address healthcare disparities and promote inclusive access to information[8.] This advocacy is crucial for advancing public health agendas and ensuring that all individuals have equal opportunities to improve their health outcomes.

Empirical evidence supports the effectiveness of community engagement efforts led by medical librarians. Scholars highlight studies that demonstrate improved health behaviours and increased health literacy among community members participating in library-led programmes. These findings underscore the pivotal role of librarians in bridging the gap between healthcare providers and the public through targeted educational initiatives[9]. Moreover, community engagement initiatives led by Medical Librarians contribute to building trust and rapport within local communities discusses how librarians serve as trusted sources of health information, fostering positive relationships with community members and healthcare professionals alike[10]. This trust is essential for promoting health-seeking behaviours and encouraging individuals to take proactive steps towards better health.

Authors explore the challenges and opportunities in community engagement faced by medical librarians, including resource constraints and cultural sensitivities[11]. Addressing these challenges requires innovative approaches and collaborative strategies that prioritize community needs and preferences. In line with research question three, the study found that

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there is a high level of information access among users of medical libraries in North-East Nigeria. The results show that the respondents not only actively seek health information but also utilize it to support academic, personal, and health-related decisions. However, areas such as documentation and referencing of information require further strengthening to maximize the academic value of health information resources. This finding reflects what has been reported by other scholars. Experts have highlighted the roles of libraries in information access which that have linked to supporting research and innovation within healthcare institutions[12]. A study emphasizes librarians' role in facilitating literature searches, systematic reviews, and access to scholarly journals, which are essential for advancing medical knowledge and evidence-based practice. By providing researchers with access to comprehensive literature resources, librarians contribute to the development of new treatments and healthcare interventions. Moreover, the impact of Medical Librarians on information access extends to enhancing institutional efficiency and cost-effectiveness[13]. These efficiencies translate into improved patient care outcomes and operational effectiveness.

Health literacy is a fundamental component of public health, encompassing the ability of individuals to access, comprehend, and use health information to make informed decisions and maintain good health. Health literacy includes both cognitive and social skills that enable individuals to effectively navigate the healthcare system, understand medical instructions and engage in health-promoting behaviours[14]. These skills are critical for individuals to manage their health conditions, adhere to prescribed treatments, and participate in preventive health measures. The importance of health literacy extends beyond individual health outcomes; it also influences public health by enabling communities to collectively adopt healthier life styles and practices.

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Furthermore, the study found that community engagement has no significant impact on the promotion of sustainable healthcare practices among medical library users in North-East Nigeria, as the relationship is both weak and statistically insignificant. This finding negates the reports of other study which found both positive and significant relationship between community engagement and promotion of sustainable health practices. Empirical evidence from similar Nigerian contexts largely underscores the importance of community engagement (CE) for effective healthcare outcomes. In primary healthcare (PHC), Alma-Ata's ethos of "community-driven, community-owned" systems remains influential, and studies in northern Nigeria emphasize how poorly planned or under-resourced CE initiatives often fail to translate into observable health benefits. For example, integrated maternal and child health projects in hard-to-reach areas found that when CE lacked structure or investment, immunization coverage suffered, indicating that the design and depth of engagement are critical for impact[15].

At the governance level, research on Ward Development Committees (WDCs) in North-western Nigeria revealed that while these community structures offer a formal channel for local oversight and ownership, their actual contribution to PHC service sustainability varies depending on functionality and support[16]. Where WDCs were weakly supported or lacked capacity, their ability to influence health practices was negligible—mirroring how superficial engagement can fall short. Conversely, studies from other settings demonstrate substantial health gains when CE is strategic and well-integrated. In Southwest Nigeria, for example, robust community involvement showed a strong, positive, and statistically significant correlation ($r = 0.921$, $p < 0.05$) with sustainable development outcomes, including primary healthcare delivery[17]. This contrast highlights that engagement must be meaningful and substantive to drive change.

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By contrast, the finding of this study that CE does not significantly impact sustainable healthcare practices among medical library users may reflect a weaker or more symbolic form of engagement within this context. It suggests that library-based CE initiatives may not have the structure, depth, or alignment with user behaviours needed to influence healthcare practices effectively. This aligns with broader observations that community-based strategies, when poorly resourced or narrowly framed, have limited efficacy.

Similarly, there is a weak positive relationship between information access and sustainable healthcare practices among medical library users in North-East Nigeria indicating that information access alone does not have a statistically significant influence on promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria. This suggests that, while access to information is necessary, it is not sufficient on its own to meaningfully change health behaviours or promote sustainability in health practices among library users. This aligns with broader evidence suggesting that access must be complemented by other supportive factors such as literacy, institutional support, and motivation to translate into actual behavioural change.

For instance, study on medical faculty in Kwara State show that while faculty frequently accessed information through internet use, books, and peer consultation, significant barriers remained. These included inadequate resources, limited infrastructure, and poor information literacy, which impeded meaningful utilization of that access for teaching, research, and patient care[18]. This echoes the study's findings: access must be paired with capacity and context to lead to practice change. Similarly, a study conducted in Ekiti State on rural women's health information-seeking behaviours found that libraries were seldom used; instead, women relied on friends, media, and traditional healers. Contributing factors included poor awareness, low availability of materials, and accessibility issues[19]. Similarly,

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patients with chronic conditions in South-east Nigeria reported difficulty accessing disease-specific information, even where such resources existed; they primarily depended on health professionals rather than libraries[20]. These findings emphasize that mere proximity to information does not guarantee usage or behaviours change; access must be meaningful and supported.

In a broader reflection, a literature review highlights that improving health literacy and digital literacy is essential for libraries in Nigeria to effectively contribute to health promotion and achieving Sustainable Development Goal 3 (good health and well-being)[21]. Without literacy supports, access remains a weak lever for behaviours change. Similarly, there is a weak positive relationship between information access and sustainable healthcare practices among medical library users in North-East Nigeria indicating that information access alone does not have a statistically significant influence on promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria.

In addition, it was revealed that, while information access and community engagement have positive relationships with sustainable healthcare practices, their combined statistical influence is minimal in the context of medical libraries users in North-East Nigeria. This suggests other factors likely outweigh these variables in shaping health behaviours. For instance, researchers have submitted that information access do not always lead to behavioural change. Libraries were among the least accessed sources of health information and thus had limited influence on behaviours[22].

Similarly, evidence from hard-to-reach (HTR) maternal and child health projects in northern Nigeria demonstrated that community engagement, when poorly structured or underfunded, failed to improve health outcomes significantly[23]. In addition, a qualitative assessment of

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health communication at the community level found that health messages are often delivered in unsystematic or ad-hoc ways. Barriers like cultural beliefs**,** insufficient funding**,** and weak institutional structures hinder the effectiveness of community-based interventions[24].

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Chapter Five

Conclusion

5.1 Summary of Findings

The findings regarding the first research questions revealed a high level of sustainable healthcare practices among medical library users in North-east Nigeria. The results reveal a clear pattern: intrapersonal factors are the strongest drivers, followed by interpersonal support, while organizational/institutional structures lag significantly behind. This suggests that individuals are personally motivated to maintain healthy practices, but institutional systems and policies in libraries do not provide sufficient reinforcement or enabling environments.

The study also found a high level of community engagement across medical libraries in North-East Nigeria. However, the dimensions are not equal with homogeneity being the highest, followed by trust) and cooperation. This pattern suggests that while users share common values and trust library systems, actual cooperative practices lag behind. In essence, the social fabric of community engagement is strong, but interactive and collaborative practices remain underdeveloped.

In line with the research question three, the study found that there is a high level of information access among users of medical libraries in North-East Nigeria. The results show that the respondents not only actively seek health information but also utilize it to support academic, personal, and health-related decisions. However, areas such as documentation and referencing of information require further strengthening to maximize the academic value of health information resources.

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Furthermore, the study found that community engagement has no significant impact on the promotion of sustainable healthcare practices among medical library users in North-East Nigeria, as the relationship is both weak and statistically insignificant.

Similarly, there is a weak positive relationship between information access and sustainable healthcare practices among medical library users in North-East Nigeria indicating that information access alone does not have a statistically significant influence on promoting sustainable healthcare practices among users of medical libraries in North-East Nigeria.

In addition, it was revealed that, while information access and community engagement have positive relationships with sustainable healthcare practices, their combined statistical influence is minimal in the context of medical libraries users in North-East Nigeria. This could suggest that other factors, such as cultural beliefs, health infrastructure, or economic conditions, may play a more decisive role in shaping sustainable healthcare practices in North-East Nigeria.

5.2 Conclusion

The study demonstrates that sustainable healthcare practices are generally strong among medical library users in North-East Nigeria, largely driven by intrapersonal motivation and peer support rather than institutional or systemic reinforcements. Community engagement is relatively high, underpinned by shared values and trust, but weakened by low levels of practical cooperation and collaboration. Information access is also high, with users actively seeking and applying health information, although critical aspects like documentation and referencing are underdeveloped. Importantly, despite these positive indicators, the study

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found that neither community engagement nor information access exerted a statistically significant impact on sustainable healthcare practices. Their combined influence was minimal, suggesting that broader structural factors such as cultural beliefs, economic realities, and deficiencies in healthcare infrastructure would be more decisive in shaping health-related behaviours in this region.

5.3 Recommendations

In line with the findings of this study, the following recommendations are pertinent:

1. Medical libraries in North-East Nigeria should integrate institutional policies and programmes that reinforce individual efforts such as health literacy workshops, preventive health campaigns, and partnerships with local healthcare providers. Strengthening institutional structures will bridge the gap between personal motivation and organizational reinforcement.
2. Libraries in North-East Nigeria should design participatory health initiatives. for example, they can organise peer-support groups, reading circles on public health topics, and collaborative digital platforms to move beyond shared values and trust toward practical cooperation. This would harness community cohesion for collective health outcomes.
3. Capacity-building programmes in information literacy and citation skills should be introduced by library management. This will enable users not only to access but also to critically document and reference health information. This will enhance academic rigor and the long-term utility of health knowledge.
4. Policymakers and library administrators should reconsider how engagement activities are structured, ensuring that they are action-oriented rather than symbolic.

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Engagement strategies should connect users directly with health interventions to make community engagement more impactful on sustainable healthcare practices.

5. Information access must be complemented with practical health services and behavioural interventions. Libraries could collaborate with health institutions to provide targeted health education, counselling sessions, and resource guides that bridge the gap between knowledge and practice.
6. Future policies and interventions must adopt a multisectoral approach. Medical libraries should not operate in isolation but partner with healthcare providers, cultural leaders, and NGOs to address structural barriers.

5.4 Contribution to Knowledge

The study has made certain contributions to knowledge which can be seen in its empirical, conceptual and theoretical contributions. Empirically, this study provides empirical evidence on the dynamics of information access, community engagement, and sustainable healthcare practices within the under-researched context of medical library users in North-East Nigeria. By demonstrating that intrapersonal factors are the strongest drivers of sustainable healthcare practices, the study highlights the limitations of institutional structures and policies in reinforcing such practices. Furthermore, the study empirically establishes that both information access and community engagement, though positively correlated with sustainable healthcare practices, do not exert statistically significant influence, either independently or jointly. This finding is critical in advancing understanding of how non-institutional factors such as cultural beliefs, economic realities, and infrastructural gaps, shape healthcare sustainability in fragile and resource-limited environments.

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Conceptually, the study advances the discourse on sustainable healthcare practices by integrating medical librarianship, community engagement, and information access into a single framework. Unlike prior studies that treat these dimensions in isolation, this research shows the nuanced relationships among them, particularly the disjuncture between high levels of engagement/access and the minimal statistical influence on sustainable healthcare practices. The introduction of dimensions such as homogeneity, trust, and cooperation in understanding community engagement among medical library users further expands the conceptual vocabulary of healthcare information studies in Nigeria. This framework can serve as a basis for rethinking how libraries operationalize their role as agents of public health sustainability.

Theoretically, the study interrogates and extends the assumptions of the Ecological Model of Health, and Social Capital by demonstrating that individual-level determinants (intrapersonal factors) remain the most significant predictors of sustainable health behaviours in contexts where organizational and institutional structures are weak. This challenges the dominant assumption in the literature that institutional and community-level influences are equally critical across contexts. The study thus refines theoretical applications of health behaviours models by situating them within the socio-cultural realities of North-East Nigeria, where individual agency often compensates for institutional inadequacies. Additionally, it highlights the need to incorporate contextual variables such as cultural beliefs, infrastructural deficiencies, and economic constraints into existing theoretical models to improve their explanatory power in African contexts.

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5.5 Suggested Areas for Further Research

Future researchers can explore the following areas to build on the current study:

A study of this nature could also include cultural beliefs and sustainable healthcare practices in North-East Nigeria.

A study on the role of health infrastructure and policy in promoting sustainable healthcare practices could be researched into to further highlight the influence of health infrastructure and policy in influencing sustainable healthcare practices in other regions of Nigeria.

Further research undertakings could be on economic determinants of sustainable healthcare practices among library users in marginalized regions in Nigeria which could be in form of interview or focus group discussion.

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Appendix

Questionnaire

Department of Library and Information Science, Faculty of Communication and Information Science, Lead City University, Ibadan

Dear Respondents,

I am a PhD student of the above named Department, the questionnaire is designed to investigate Community Engagement, Information Access, and Promotion of Sustainable Healthcare Practices by Users of Medical Libraries in North-East, Nigeria. Your honest and objective responses to the following questions are crucial to enhancing the credibility and accuracy of this research. Please be assured that all information provided will remain strictly confidential, and your identity will not be disclosed.

Thank you very much for your valuable participation and support.

Section A: Demographic Information

1. Name of the university: ……
2. Gender: Male [ ] Female [ ]
3. Marital status: Single [ ] Married [ ] Divorced [ ] Widowed [ ]
4. Age: Below 20 [ ] 21–30 [ ] 31–40 [ ] 41–50 [ ] 51–60 [ ] Above 60 [ ]
5. Academic qualification: HND/BSc/BA [ ] MSc/MA [ ] PhD [ ] Others [ ]
6. Designation/Role (if any): Student [ ] Lecturer [ ] Medical Professional [ ] Others [ ]
7. Frequency of library use: Daily [ ] Weekly [ ] Monthly [ ] Rarely [ ]

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SECTION B : Sustainable Healthcare Practices

Please indicate by ticking (√), in appropriate column that shows your chosen response to each of the items available. Very High = VH (4 points), High = H (3 points), Low = L (2 points), Very Low = VL (1 point).

What is the level of sustainable healthcare practices among users of Medical Libraries in North-East Nigeria

S/N	Intrapersonal Level (Knowledge, attitudes, beliefs, self-concept, motivation)	VH 4	H 3	L 2	VL 1
1	I believe I have control over most aspects of my health.				
2	I am confident in my ability to adopt healthier behaviours.				
3	I make conscious efforts to eat a balanced diet regularly.				
4	I am aware of the health risks associated with sedentary lifestyles.				
5	I believe my personal decisions significantly impact my well-being.				
6	I am motivated to engage in regular physical activity.				
7	I avoid health-risk behaviours (e.g., smoking, excessive alcohol use).				
8	I regularly seek out information on how to improve my health.				
9	I believe stress management is important for overall health.				
10	I find it easy to set and achieve personal health goals.				
	Interpersonal Level (Family, friends, social networks)				
11	My family supports me in making healthy lifestyle choices.				
12	I have friends who encourage me to engage in physical activity.				
13	I often discuss health-related issues with those close to me.				
14	I feel socially supported when I try to change an unhealthy habit.				
15	My peer group has a positive influence on my health decisions.				
16	I am more likely to try a new health behaviour if someone close to me does it first.				
17	I feel encouraged by my social circle to attend regular health checkups.				

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18	People around me help reduce my stress through emotional support.				
19	I often rely on family or friends for advice about health concerns.				
20	I feel my social relationships contribute positively to my mental health.				
	Organizational/Institutional Level (Rules, regulations, policies, informal structures)				
21	My library promotes healthy lifestyle choices via heath awareness programmes				
22	I have access to health programmes the library				
23	There are clear policies at library that support wellness (e.g., no-smoking policy).				
24	The library frequently sensitizes us on regular health screenings or checkups.				
25	The food restrictions principles available at the library support healthy eating.				
26	The library provides resources or opportunities for physical activity.				
27	Health and safety guidelines are well communicated in the library				
28	I feel that the library prioritizes users health and well-being.				
28	Health-related workshops or seminars are frequently organized in the library				
29	The library environment encourages low stress and well-being.				
30	The library promotes healthy lifestyle choices.				

SECTION C : Community Engagement

Please indicate by ticking (√), in appropriate column that shows your chosen response to each of the items available. Very High = VH (4 points), High = H (3 points), Low = L (2 points), Very Low = VL (1 point).

What is the extent of community engagement facilitated by Users of Medical Libraries in North-East, Nigeria.

S/N	Trust (in medical librarians, services, and information resources)	VH 4	H 3	L 2	VL 1
1	I trust the information provided by medical librarians to be accurate and reliable.				
2	I feel confident that medical librarians maintain the confidentiality of my research or information				

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	needs.				
3	I believe medical library staff are competent in providing support for my academic or clinical needs.				
4	I trust the digital resources provided by the medical library (e.g., databases, e-journals).				
5	I believe medical librarians have my best interest in mind when assisting me.				
6	I feel secure asking librarians for help, even with complex or sensitive topics.				
7	I trust that the library environment supports learning and research.				
8	I can rely on the medical library staff to guide me to high-quality evidence-based sources.				
9	I believe the library's collection reflects trustworthy and updated medical knowledge.				
10	I trust that librarians will follow through on requests (e.g., interlibrary loans, document delivery).				
	Cooperation (between library users, and between users and librarians)				
11	I collaborate with medical librarians to enhance my information retrieval skills.				
12	I am willing to work with others in the library to access shared resources (e.g., reserve books, computers).				
13	I seek feedback from librarians when conducting medical research or writing papers.				
14	I often participate in library-organized academic or training events.				
15	I share useful resources or information with peers when using the library.				
16	I find it easy to cooperate with librarians to resolve access or usage issues.				
17	I have received support from other library users when searching for information.				
18	I value the contributions of both library staff and fellow users in my research process.				
19	I am open to engaging in library-led group activities (e.g., study circles, training sessions).				
20	I work collaboratively with library staff to improve my use of information tools and databases.				
	Homogeneity (shared values, norms, and understanding among library users and staff)				
21	Medical library users generally value evidence-based resources.				
22	Most users of the library respect the need for quiet and orderly behaviour.				

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23	The users and staff of this library share a commitment to academic integrity.				
24	There is a common understanding that the library is a space for focused learning and research.				
25	Users of the medical library typically follow rules for accessing electronic and print resources.				
26	I feel a sense of shared purpose with others using the medical library.				
27	Library staff and users hold similar expectations about the quality of information.				
28	The culture of the medical library encourages responsible and ethical information use.				
28	I believe that other users and librarians in this medical library uphold common professional values.				
29	I feel that other library users and staff are part of a like-minded academic and research community.				
30	Medical library users generally value evidence-based resources.				

SECTION D : Information Access

Please indicate by ticking (√), in appropriate column that shows your chosen response to each of the items available. Very High = VH (4 points), High = H (3 points), Low = L (2 points), Very Low = VL (1 point).

What is the degree of Information Access Provided to Users of Medical Libraries in North-East, Nigeria?

S/N	Information Seeking Patterns	VH 4	H 3	L 2	VL 1
1	I actively seek health-related information to support my academic or personal decisions.				
2	I frequently use online databases (e.g., PubMed, Medline) to find medical information.				
3	I prefer consulting health professionals or librarians when looking for health information.				
4	I usually verify health information from multiple sources before accepting it.				
5	I often search for health information when faced with a new health concern or assignment.				

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6	I rely on library resources (e.g., books, journals, institutional repositories) for health-related information.				
7	I feel confident in my ability to search for accurate health information.				
8	I use social media platforms or online forums to explore health-related topics.				
9	I spend time refining my search terms to find more relevant health information.				
10	I frequently revisit trusted sources for updates on health-related issues.				
	Information Utilization				
11	I apply the health information I find to improve personal or academic outcomes.				
12	I use retrieved health information to make informed decisions about medical conditions or care.				
13	I incorporate health information into class presentations, assignments, or clinical practice.				
14	I critically evaluate the relevance of the health information before using it.				
15	I often discuss retrieved health information with others (e.g., peers, health professionals).				
16	I use health information to advocate for better health practices in my environment.				
17	I follow evidence-based recommendations discovered during my information search.				
18	I adapt the information I gather to meet the specific context of my needs.				
19	I document and reference health information appropriately in academic work.				
20	I use health information to influence my lifestyle or health-related behaviour.				

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EDUCATION

- Master of Library and Information Science (MLIS)
- Bachelor of Library and Information Science (BLIS)
- Senior School Certificate Examination (SSCE)
- Primary School Leaving Certificate (PSLC)

Membership of Professional/Bodies/Learned Societies:

- Member, Nigerian Library Association Yobe State Chapter
- Chartered/Certified Librarian, Registered by Librarian Registration Council of Nigeria (C.L.N)
- Member, Certified Medical Librarian of Nigeria, Medical Library Association of Nigeria (C.M.L.N)

Published Articles:

Elbadawy, R.H (2024). Academic Industry Partnership And Digital Library EffectivenessTowards The Attainment Of Sustainable Development Goals In Nigeria. Vol.7(1). March 2024. A Publication of Ebonyi State University Library and Heirloom Educational Services. ISSN 2141-6257.

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Conference and Workshop Attended:

Librarian Registration Council of Nigeria (LRCN) Certificate of attendance, 1st Conference of Certified Librarian in Nigeria, National University Commission Abuja, Nigeria (May 18- 23, 2014)

Nigerian Library Association 56th National Conference & AGM Certificate of Attendance (2018)

Medical Library Association of Nigeria Certificate of Competence (Nov. 2017)

Medical Library Association of Nigeria Certificate of Attendance (2018)

Digital Bridge Institute International Centre for Information and Communications tech. Studies Certificate of Attendance (2019)

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Sam Higginbottom University Agriculture Technology & Science (India) 3 Days National Seminar on Sustainable Development through Gender Equality Certificate of Attendance (26th -28 April 2017)

Itam Simplified Computer Keyboarding Skills Training Project, Certificate of Participation (14th August, 2009)

Medical Library Association of Nigeria Certificate of Competency (October, 2024)

Medical Library Association of Nigeria Certificate of Attendance (October, 2024)

First International Interdisciplinary Research, 2024 (Kaduna State University)

Paper Presented at the Conference FIRST INTERNATIONAL INTERDISCIPLINARY CONFERENCE, December, 2024 (KASU)

_____ _____

Name and Signature **Date**

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The University Compliance Certification

This is to certify that this Thesis written by Rabi Hassan Elbadawy with Matriculation No. LCU/PG/003117 in the Department of Information Management of the Faculty of Communication and Information Sciences, Lead City University, Ibadan is in full compliance with the approved University format and style.

_____ _____

Name and Signature **Date**

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