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Challenges Affecting Utilization of Print and Electronic Resources in Kenya Medical Training College Libraries

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Abstract

Purpose: This study aimed to examine challenges affecting utilization of print and electronic resources in Kenya Medical Training College libraries.

Materials and Methods: The study employed a descriptive cross-sectional design using a quantitative to examine the challenges experienced by students and faculty in utilizing print and electronic resources in Kenya Medical Training College (KMTC) libraries. A multistage sampling technique was used to select the study sites, with proportionate sampling employed for students and a census conducted for all available lecturers. Completed questionnaires were checked for completeness, coded, and analyzed using IBM SPSS Statistics Version 27 to generate descriptive statistics, including frequencies and percentages. Findings were presented using tables and figures.

Findings: The study established that students and faculty experienced a range of challenges that hinder effective utilization of both print and electronic library resources in KMTC libraries. The major challenges affecting print resource utilization included restricted library opening hours, shortages of books, limited loan periods, inadequate seating capacity, and outdated print materials.

Unique Contribution to Theory, Practice and Policy: The study recommended that KMTC should strengthen the acquisition and regular updating of print collections to address shortages of essential textbooks and eliminate obsolete materials.

Keywords: *Information Access, Library Challenges, Kenya Medical Training College*

JEL CODES: *D83, I21, I23*

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INTRODUCTION

Academic libraries play a critical role in supporting teaching, learning, and research, and this role is especially important in health professions education. Competency-based training in nursing, clinical medicine, pharmacy, and allied health requires students to apply current, evidence-based knowledge in practice, while faculty need up-to-date materials to prepare and deliver relevant instruction. Libraries support both groups by providing clinical guidelines, standard textbooks, and peer-reviewed literature in print and electronic formats. However, the effectiveness of these resources depends not only on their availability but also on users' ability to access and utilize them without significant constraints. Where such constraints exist, students and faculty may rely on outdated or unverified information, which may weaken evidence-based learning and readiness for clinical practice. As higher education institutions increasingly invest in hybrid library systems, attention has shifted from resource provision to understanding the barriers that limit effective access and use. These barriers may arise from infrastructural, technological, institutional, or user-related factors, each of which can influence the quality of library services and learning outcomes (Ama & Undie, 2021).

The transition from predominantly print collections to hybrid library environments has introduced new opportunities as well as new challenges. In health training, electronic resources offer particular advantages: they provide rapid access to current clinical evidence, drug information, and treatment protocols, and they support learning during clinical attachments and community placements through remote access. Yet their effective utilization depends on reliable technological infrastructure, adequate information literacy skills, and institutional support (Yebowaah & Plockey, 2017). Similarly, continued reliance on print resources may be constrained by inadequate collections, limited physical space, outdated editions, and insufficient funding, which is a concern in fields where clinical knowledge evolves rapidly. Previous studies have shown that factors such as accessibility of resources, internet connectivity, availability of computers, staffing levels, and financial support significantly influence the effectiveness of academic library services (Bernard & Dulle, 2014; Yusuf, Hanafi, & Muhajir, 2018). In competency-based curricula, where learners are expected to demonstrate practical skills and evidence-informed decision-making, limited access to either format can hinder the achievement of learning outcomes and readiness for clinical practice.

Kenya Medical Training College (KMTC) has established libraries across its constituent campuses to provide students and faculty with access to print and electronic resources that support competency-based health professions education. As the institution continues to expand its library services, understanding the challenges that hinder effective utilization of available resources is essential for improving library operations and maximizing the benefits of institutional investments. This study therefore examined the challenges affecting the utilization of print and electronic resources among students and faculty in selected KMTC libraries.

Problem Statement

Academic libraries are expected to provide an enabling environment that allows students and faculty to access and utilize print and electronic resources efficiently in support of teaching, learning, and research. Achieving this objective requires not only adequate library collections but also supportive infrastructure, reliable technology, sufficient staffing, and user-friendly services. At Kenya Medical Training College (KMTC), libraries have been established across constituent campuses to provide both print and electronic information resources. However,

KMTC operates a large multi-campus network spread across diverse geographical settings, and resource availability and infrastructural conditions are likely to vary widely between campuses, including differences in collection size, internet connectivity, computer availability, staffing, and physical space. Institutional observations also suggest that users continue to experience difficulties in effectively utilizing available resources. For instance, library attendance records at Makindu Campus indicated that only 15-30 users visited the library daily despite a student and faculty population of approximately 1,100, while some students completed their training without borrowing a single library book (KMTC, 2021). These observations suggest that barriers beyond the mere availability of resources may be limiting effective library utilization, thereby affecting students, faculty, and the institution's return on investment in library services.

Previous studies have identified a range of factors affecting utilization of academic library resources, including inadequate infrastructure, limited internet connectivity, insufficient computers, outdated collections, financial constraints, and low digital literacy among users (Yusuf, Hanafi, & Muhajir, 2018; Kojo, Sakibu, & Urthur, 2018; Ama & Undie, 2021). Nevertheless, much of the existing evidence has focused on universities outside Kenya and has generally examined library utilization or user preferences rather than the specific challenges affecting access to both print and electronic resources in middle-level health training institutions. Consequently, empirical evidence on the challenges experienced by students and faculty in utilizing library resources within KMTC remains limited, and findings from a single campus cannot be assumed to represent the experiences of users across the network. This study therefore examined the challenges affecting the utilization of print and electronic resources in selected KMTC libraries, drawing on a multi-campus sample to capture the range of resource and infrastructural conditions, and to provide evidence for improving library services, resource accessibility, and institutional decision-making.

Conceptual Framework

Relationship between independent variable (Challenges affecting Library Resource Utilization) and dependent variable (Utilization of print/ electronic media by staff and students).

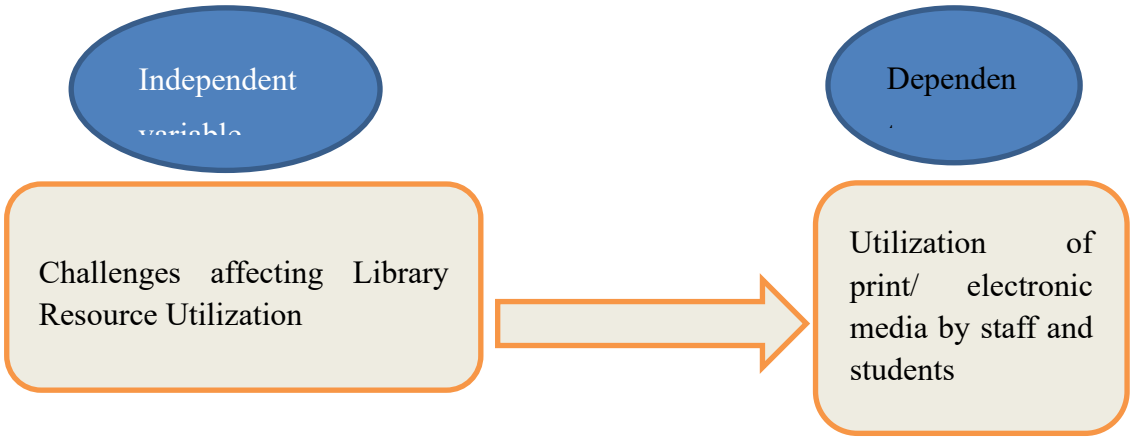


Figure 1. 1: Conceptual Framework

Empirical Review

Effective utilization of print and electronic library resources depends not only on the availability of information but also on users' ability to access, retrieve, and apply it in support

of teaching, learning, and research. Previous studies have identified information literacy and computer literacy as fundamental prerequisites for effective use of electronic resources. While computer literacy enables users to operate digital technologies, information literacy equips them with the skills required to identify information needs, search for relevant resources, evaluate retrieved information, and apply it appropriately (Adeleke & Emeahara, 2016). Consequently, inadequate digital competencies, limited information retrieval skills, and insufficient user training have been reported as major barriers to effective utilization of electronic library resources (Pérez & Murray, 2010). In addition, users of medical information require timely, reliable, and easily accessible resources to support evidence-based teaching and clinical practice, making efficient library services particularly important within health training institutions (Tenopir, King, & Bush, 2004).

In health sciences education, utilization of specialized medical resources presents distinct challenges. Biomedical, nursing, and allied health journals are costly, and institutions in low- and middle-income countries often rely on free or low-cost programmes such as the World Health Organization's Health InterNetwork Access to Research Initiative (HINARI), now part of Research4Life, which currently lists Kenya among its free-access countries (Research4Life, 2025). Yet the availability of such resources does not ensure their use. Access depends on institutional registration, credential management, and user awareness, and the content offered through country arrangements varies by publisher and institution category, so coverage of specialized nursing and clinical titles may be incomplete. A study of postgraduate doctors in teaching hospitals across five African countries found limited awareness of free-access initiatives, with fewer than half of respondents having heard of HINARI, and found that use was associated with Internet access on institutional computers; the authors concluded that strong institutional endorsement and management were needed to make such initiatives effective (Smith et al., 2007).

Kenyan evidence points the same way. A study of electronic resource use across Kenyan academic and research institutions identified poor connectivity and limited computer access as major barriers, while usage was higher where awareness and training were stronger (Gathoni et al., 2011). Likewise, final-year medical students at the University of Nairobi reported absent internet facilities, slow connection speeds, and cost as common barriers to accessing new medical information, and the authors observed that many students were unaware that their library provided free full-text access to online journals (Gituma et al., 2009). These constraints also affect faculty, who depend on current evidence to keep teaching materials and curricula up to date. Within KMTC, the library reports membership of the Kenya Libraries and Information Services Consortium, registration for HINARI, and access to UpToDate, yet whether students and faculty can reach and use these resources in practice remains unexamined.

Print resources remain important in health training and are not free of constraints. In the Nairobi study, the journal most often read by final-year students was a print title held in the library (Gituma et al., 2009), suggesting that print holdings continue to shape what learners read, particularly where electronic access is limited. However, print utilization is constrained by outdated collections and financial limitations on acquiring current editions (Yusuf, Hanafi, & Muhajir, 2018; Kojo, Sakibu, & Urthur, 2018). In health training, where clinical knowledge changes quickly, such constraints reduce the value of print collections for both learners and instructors.

Beyond users' skills and the availability of specialized content, institutional and technological factors have also been shown to influence effective library resource utilization. Studies have

reported that inadequate internet connectivity, limited access to computers, technological infrastructure, and differences in users' characteristics constrain access to electronic information resources (Weng et al., 2013). Existing evidence, however, provides limited insight into the specific barriers that students and faculty encounter when using both print and electronic resources, including specialized medical databases, within middle-level health training institutions such as those offering certificate and diploma programmes in nursing, clinical medicine, and allied health sciences. Without such evidence, institutional efforts to improve library services may fail to address the practical constraints affecting resource accessibility and use, including gaps in awareness, access, and coverage of both print and electronic collections. This study therefore identified the challenges affecting utilization of print and electronic resources among students and faculty in selected Kenya Medical Training College libraries to inform targeted service improvement strategies.

METERIALS AND METHODS

The study employed a descriptive cross-sectional design using a quantitative to examine the challenges experienced by students and faculty in utilizing print and electronic resources in Kenya Medical Training College (KMTC) libraries. The study was conducted in nine selected KMTC campuses drawn from the College's 71 constituent campuses distributed across Kenya. The study population comprised students and lecturers utilizing library services in the selected campuses, while those unwilling or unable to participate were excluded. A multistage sampling procedure was used to select the study participants. The 71 KMTC campuses were first clustered into eight geographical regions, from which three regions (Upper Eastern, Central, and Nairobi) were selected through simple random sampling. Within the selected regions, nine campuses (Nairobi, Machakos, Oloitoktok, Nyeri, Murang'a, Gatundu, Meru, Embu, and Kitui) were purposively selected based on the availability of established libraries, ICT laboratories, resident librarians, and ICT officers.

The student sample size was determined using Fisher et al.'s (1998) formula, yielding an initial sample of 384 respondents at a 95% confidence level, assuming a 50% prevalence and a 5% margin of error. The sample was adjusted using a design effect and increased by 10% to account for non-response, resulting in a final sample of 637 students. The student sample was proportionately allocated across the selected campuses according to student population and further stratified by programme of study and level of training. A census of all available lecturers in the selected campuses was conducted. Quantitative data were collected using a structured electronic questionnaire administered through SurveyMonkey to students and lecturers. Completed questionnaires were checked for completeness, coded, and analyzed using IBM SPSS Statistics Version 27 to generate descriptive statistics, including frequencies and percentages. Findings were presented using tables and figures. Ethical approval was obtained from the KMTC College Research and Ethics Review Committee (CRERC), an independent ethics review committee, and the National Commission for Science, Technology and Innovation (NACOSTI). Confidentiality and informed consent were observed throughout the study.

FINDINGS

A total of 835 respondents participated in the study, comprising 783 students and 52 faculty members drawn from nine KMTC campuses. The majority of respondents were under 25 years and were enrolled in Nursing and Clinical Medicine programmes.

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Challenges Affecting Utilization of Print Resources

Respondents reported several challenges that limited effective utilization of print library resources. Among students, the most frequently reported challenge was restricted library opening hours (35.4%, n = 263), followed by a shortage of books (33.6%, n = 250), limited loan duration (29.1%, n = 216), limited seating capacity (20.2%, n = 149), and outdated print materials (15.6%, n = 116). Other challenges included difficulty locating books (11.8%), absence of library cards (7.9%), negative staff attitudes (6.7%), shortage of library staff (5.7%), and unconducive library environments (4.0%). Lecturers identified similar constraints, although the magnitude of the challenges differed. The most commonly reported challenge was a shortage of books (50.0%, n = 24), followed by restricted opening hours (29.2%, n = 14) and outdated materials (29.2%, n = 14). Limited seating capacity (17.0%) and limited loan duration (16.7%) were also identified as important barriers. Overall, both students and lecturers considered inadequate print collections and restricted access to library facilities as the principal barriers to effective utilization of print resources. This is illustrated in Figure 3.1 below.

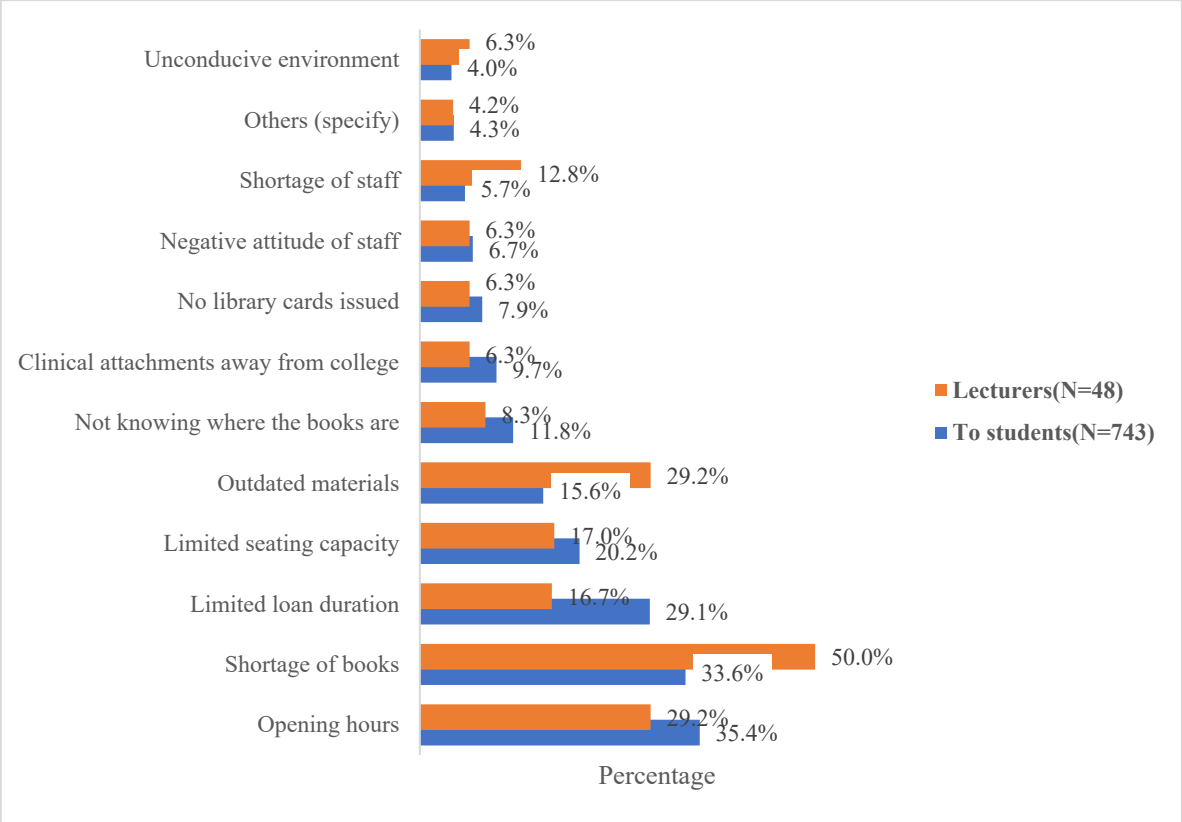


Figure 3.1: Challenges in Print Resource Usage for Students and Lecturers

Challenges Affecting Utilization of Electronic Resources

Figure 3.2 below shows that electronic resource utilization was also constrained by several technological and access-related challenges. Approximately 64.1% (n = 513) of library users reported experiencing difficulties when accessing or utilizing electronic resources. Among those reporting challenges, slow internet connectivity was the most frequently cited barrier, affecting 75.8% (n = 385) of respondents. Other major challenges included difficulty locating relevant information (24.7%, n = 125), limited access to computers (19.5%, n = 99), and inadequate skills for retrieving electronic resources (9.8%, n = 50). These findings suggest that

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although electronic resources are widely available within KMTC libraries, their effective utilization continues to be constrained primarily by limitations in technological infrastructure and users' information retrieval skills. Addressing these barriers would likely improve accessibility and enhance the use of electronic library resources across the institution.

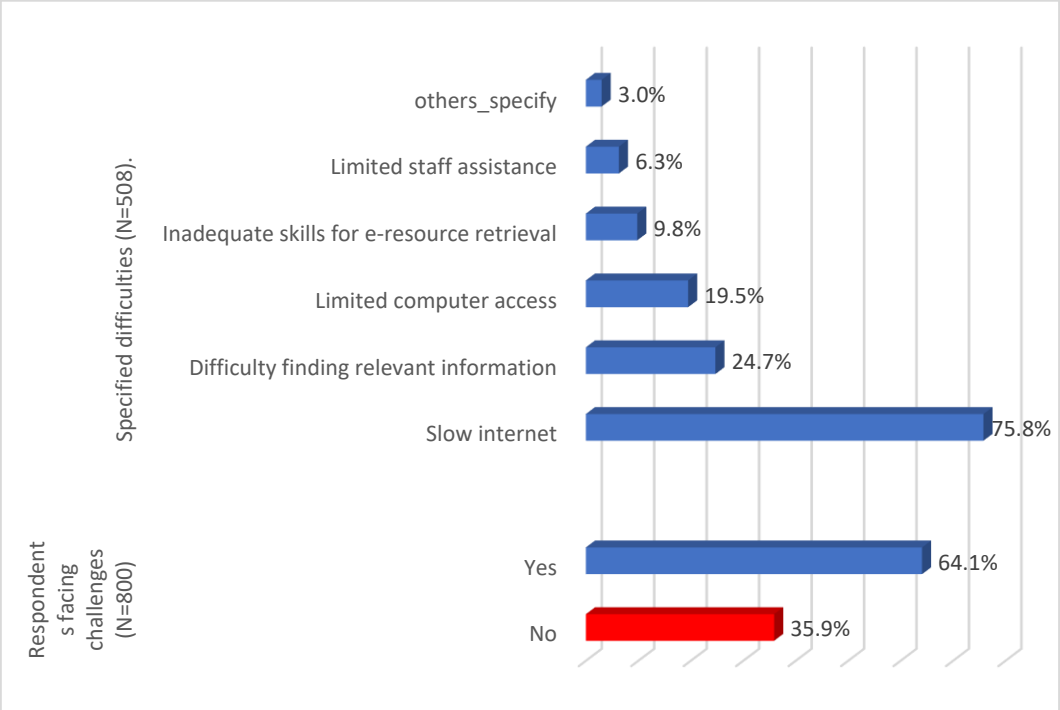


Figure 3.2: Challenges Relating to the Use of Library e-Resources

Comparative Analysis of Challenges Affecting Print and Electronic Resource Utilization

The findings revealed distinct patterns in the challenges affecting print and electronic resource utilization. Challenges associated with print resources were predominantly related to the adequacy and accessibility of physical library collections, including shortages of books, restricted opening hours, limited borrowing periods, inadequate seating capacity, and outdated materials. In contrast, challenges affecting electronic resources were largely technological, with slow internet connectivity, limited computer availability, difficulty retrieving relevant information, and inadequate digital skills emerging as the most significant barriers. Overall, the findings demonstrated that effective utilization of library resources required simultaneous improvement of both physical library facilities and digital infrastructure. While print resource utilization depended largely on collection adequacy and library operations, electronic resource utilization is influenced primarily by technological capacity and users' ability to navigate digital information systems. These findings underscore the need for a balanced approach to library development that addresses challenges affecting both resource formats.

Summary

The study established that students and faculty experienced a range of challenges that hinder effective utilization of both print and electronic library resources in KMTC libraries. The major challenges affecting print resource utilization included restricted library opening hours, shortages of books, limited loan periods, inadequate seating capacity, and outdated print materials. Lecturers similarly identified shortages of books and outdated materials as the most

significant barriers to effective use of print collections. The findings further revealed that utilization of electronic resources is constrained mainly by technological and infrastructural limitations. The most frequently reported challenges included slow internet connectivity, difficulty locating relevant information, inadequate access to computers, and insufficient skills for retrieving electronic resources. More than half of the respondents experienced at least one challenge when accessing electronic resources, suggesting that availability of digital resources alone does not guarantee effective utilization. Overall, the study demonstrated that the challenges affecting library resource utilization extend beyond the availability of information resources to include institutional, technological, infrastructural, and user-related constraints. Addressing these barriers is essential for improving access to scholarly information and maximizing the benefits of investments in both print and electronic library resources across KMTC campuses.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The study concluded that effective utilization of print and electronic resources in KMTC libraries was constrained by different but complementary challenges. Print resource utilization was primarily limited by inadequate physical collections, restricted access through limited opening hours and borrowing periods, insufficient seating space, and outdated materials. These constraints reduced users' ability to access essential learning resources despite their continued importance in teaching and learning. Electronic resource utilization was mainly affected by technological barriers, including slow internet connectivity, inadequate computer access, limited digital information retrieval skills, and difficulties locating relevant information. The findings indicated that improvements in digital infrastructure alone were insufficient unless accompanied by user support and information literacy initiatives. Overall, enhancing library utilization required simultaneous investment in both physical library resources and digital infrastructure to ensure equitable access to quality information resources for students and faculty.

Recommendations

Based on the findings, the study recommended that KMTC should strengthen the acquisition and regular updating of print collections to address shortages of essential textbooks and eliminate obsolete materials. Library management should also review borrowing policies and operating hours to improve access to print resources, particularly for students undertaking clinical placements and other academic commitments. Also, the College should invest in strengthening ICT infrastructure by improving internet connectivity, increasing the number of computers available to library users, and enhancing the reliability of electronic library systems across all campuses. This will reduce the technological barriers currently limiting access to electronic resources. Additionally, regular information literacy and digital skills training programmes should be implemented to improve users' ability to search, retrieve, and effectively utilize electronic information resources. Such programmes should target both students and faculty members to maximize the benefits of available digital collections.

Suggestions for Further Studies

Future studies should examine the effectiveness of information literacy programmes in improving students' and faculty members' ability to access and utilize electronic library resources within medical training institutions. Further research should also investigate the

impact of digital infrastructure, including internet connectivity and access to ICT facilities, on the utilization of electronic resources in higher education institutions.

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