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Use Patterns, Purposes, and Frequency of Electronic Resources among Library Patrons: A Descriptive Research Design

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ABSTRACT

This study examined the usage patterns, purposes, and frequency of electronic resources among library patrons at Hubert Kairuki Memorial University (HKMU), a health sciences institution in Tanzania. The research was structured around objectives to evaluate the availability of resources, identify purposes of use, and assess frequency of access, employing a mixed-methods approach. Data were collected through surveys of 288 students, selected via systematic random sampling, and semi-structured interviews with four purposively chosen library staff, utilizing structured questionnaires and interview guides. Results indicated that a substantial portion of patrons were aware of the library's electronic resources, including e-theses, e-books, and e-journals, as corroborated by catalogue records and staff perspectives, though a notable minority lacked awareness, suggesting deficiencies in outreach efforts. The primary purposes of use included academic research, assignment completion, staying abreast of health sciences literature, and professional development, consistent with HKMU's academic mission. While the majority frequently engaged with these resources, a considerable subset accessed them infrequently or not at all, often due to challenges in navigation or limited digital literacy, as reported by staff. The study concludes that despite the availability of robust e-resources at HKMU Library, barriers to awareness and usage persist.

KEYWORDS

E-resource utilization;
e-resource use pattern;
library patrons; Hubert
Kairuki Memorial University

Introduction

The rapid growth of electronic resources has significantly transformed the way academic libraries deliver services and meet the diverse needs of their users. These resources, including e-books, electronic journals, and online databases, have become essential tools for teaching, learning, and research. University libraries, as key knowledge hubs, are tasked with ensuring that these resources are not only available but also accessible to students, faculty, and researchers. However, challenges such as limited funding, inadequate infrastructure, and low awareness among users continue to affect the provision and utilization of electronic resources.¹ This evolving landscape highlights the importance of evaluating the availability and usage frequency of electronic resources to identify gaps and develop targeted improvement strategies.

Previous studies have provided valuable insights into the availability and use of electronic resources in academic libraries. For instance, one study reported that pharmacy colleges in Karnataka faced funding challenges, resulting in limited acquisition of library resources.² Similarly, another study found that electronic resources in medical libraries in South-South Nigeria were available at low levels and were not easily accessible to users.³ Other studies have shown disparities in usage patterns, with factors such as IT skills, internet connectivity, and awareness influencing the frequency of use.⁴ These findings underscore the need for further investigation into the underlying factors influencing the accessibility

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and utilisation of electronic resources. While much attention has been given to the availability of electronic resources, less emphasis has been placed on understanding usage frequency and how it aligns with users' academic and research needs. Most studies have either focused on specific types of resources or limited their scope to certain user groups. This fragmented approach leaves a gap in comprehensively examining the patterns of availability and frequency of usage of electronic resources across different contexts and institutions. Understanding these patterns is critical for addressing the challenges faced by library users and improving service delivery in academic libraries. This study aims to fill this gap by investigating the frequency at which electronic resources are used, the purposes for their use and seeks to provide a holistic understanding of the challenges and opportunities in accessing and utilising electronic resources, particularly in academic libraries. The findings are expected to inform policies and practices that enhance the role of electronic resources in supporting teaching, learning, and research activities in higher education, in particular in health sciences institutions.

Despite increasing investments in e-resources within health sciences education in low- and middle-income countries, persistent suboptimal awareness and utilization contribute to significant gaps in evidence-based learning and clinical training. Inadequate engagement with e-resources can impair the development of critical research skills, restrict access to up-to-date medical knowledge, and widen disparities in educational outcomes relative to institutions in high-income settings, ultimately affecting the quality of healthcare workforce preparation⁵ Investigating these issues at HKMU, a private health sciences institution in Tanzania, provides contextual insights into broader challenges across sub-Saharan Africa while offering transferable lessons for global efforts to mitigate the digital divide in medical education.

Hubert Kairuki Memorial University, a private health sciences institution in Dar es Salaam, Tanzania, established in 2000, enrolls over 1,000 students primarily in medicine, nursing, and allied health programmes. The university library holds approximately 5,000 print volumes and provides access to subscribed databases (EBSCOhost, Emerald Insight, Taylor & Francis) alongside open-access resources via Research4Life (HINARI, AGORA, ARDI, OARE). Annual licensed database access is secured through the Consortium of Tanzania University and Research Libraries. Open-access materials are systematically integrated to enhance service delivery, supporting HKMU's expanding programs in science, humanities, and specialised fields such as the Master of Social Work, the Master of Science in Public Health, and Research in Edible and Medicinal Mushrooms. These electronic resources are essential for scholarly inquiry, complementing print collections and facilitating internet-based searches. User demographics, including program distribution and academic levels, are detailed in the results section to contextualize engagement patterns.

To guide the investigation, this study is framed by the following research questions:

- (i) What electronic resources are available at HKMU Library, and to what extent are patrons aware of them?
- (ii) How frequently do patrons use these electronic resources, and how do demographic factors (gender, education level, age) influence usage patterns?
- (iii) For what purposes do patrons access electronic resources, and how do these purposes vary across demographic groups?

These questions directed data collection and analysis, enabling a structured exploration of availability, frequency, purposes, and demographic influences on e-resource engagement.

Literature Review

The Availability of Electronic Resources

Several studies have been conducted on the availability and use of library resources, services, and facilities. For instance, one study examined the availability of library resources and services in

Pharmacy Colleges of Karnataka using a survey method with a questionnaire tool to collect data from six pharmacies. The study's findings showed that none of the libraries chosen for this study received any government funds and thus had not purchased library resources.⁶ Similarly, early research in health informatics highlighted barriers to electronic resource adoption in clinical settings, emphasizing the need for improved access in resource-constrained environments.⁷ In another study on the Availability and Access of Electronic Information Resources to Medical Library Users in Universities in South-South, Nigeria, researchers used a descriptive survey design to evaluate the availability of different types of electronic information resources and their accessibility to various categories of medical library customers. Results showed that the overall percentage of electronic information resources available in all the medical libraries studied was relatively low, about 30.9% on average. In addition, it was found that all electronic information resources studied were rarely accessible to all categories of users in the medical libraries in the South-South Nigerian universities.⁸

Another study conducted on the availability, use and constraints of electronic information resources by postgraduate students at the University of Ibadan adopted a descriptive survey design with a sample of 300 postgraduate students within seven out of 13 Faculties, which were randomly selected for inclusion. The study's outcomes showed that the Internet was ranked as the most accessible and widely used resource in the university.⁹ Recent investigations in developing contexts have further highlighted persistent disparities in resource availability, often attributed to institutional funding and infrastructure limitations.¹⁰ Additionally, a study evaluating the availability and use of electronic resources by Auchi Polytechnic students used a descriptive survey with a questionnaire as the primary data collection method and found that Auchi Polytechnic College has limited electronic information resources in its library.¹¹ In Tanzania, a study on the use of electronic resources by students at the College of Business Education employed a case study design and used a multimethod approach with data collected using questionnaires, interviews, and personal observations. The study findings revealed that the electronic information resources accessible to college students were electronic journals, e-books, and other online databases.¹² Emerging scholarship continues to document these challenges in African higher education, noting variable access to specialized health-related databases.¹³

Frequency of Usage of Electronic Resources

Despite the challenges students face in accessing and using electronic resources in university libraries, there are mixed results regarding the frequency of use of e-resources among different groups. For instance, study results by one research team showed that the frequencies and percentages of respondents regarding the extent of utilisation of electronic library information resources were higher, indicating that students use them to address information needs in academic, teaching, learning, and consultancy services.¹⁴ However, another study noted that the extent of usage of library information resources by postgraduate students at the University of Ibadan was low, which, to a large extent, was contributed by factors like non-possession of requisite IT skills and problems accessing the Internet.¹⁵ Studies in health sciences contexts have similarly reported inconsistent usage patterns, influenced by user training and resource relevance.¹⁶ Another study examined the awareness and use of electronic resources in the University Libraries at the University for Development Studies, showing that 88.8% of the respondents were library users, and 65% were aware of the availability of e-resources in the library.¹⁷

A study on the evaluation practices of electronic resources in University Libraries in Southeast Nigeria employed a descriptive survey design. The results showed that the library's electronic information resources were highly adequate, and that all electronic resources were used to a great extent by library clients, indicating that users were accessing and utilising them for teaching, research, and learning purposes.¹⁸ Another study conducted on academic staff and researchers using electronic resources in Tanzania adopted a descriptive cross-sectional design to administer questionnaire surveys to 170 academic staff and researchers in selected universities. The study

identified differences in patterns of access to and usage of e-resources for supporting teaching and research activities among the participating universities. Furthermore, the study revealed that the extent of usage of open-access electronic resources was high compared to subscribed information resources.¹⁹ Contemporary analyses reinforce these findings, pointing to evolving usage trends driven by digital literacy initiatives and open-access movements.²⁰ Several studies have examined the availability and use of electronic resources in academic libraries, highlighting varying levels of accessibility, awareness, and utilization across different institutions. Research has shown that many libraries face challenges, including limited funding, inadequate resources, and insufficient IT skills among users, which hinder the effective use of electronic resources.²¹ While some studies reported high usage of open-access resources, others identified low access to subscribed databases, particularly in developing regions.²² Longitudinal perspectives further illustrate how early adoption barriers in clinical and educational settings have persisted into modern digital environments.²³ Despite these insights, there is a lack of comprehensive studies focusing on the patterns of both availability and frequency of usage of electronic resources within academic libraries, especially those in the health academic sector. This study intends to address this gap by investigating the availability and frequency of use of electronic resources among students at a medical library in Tanzania.

Theoretical Framework

This study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) as its theoretical framework.²⁴ UTAUT synthesizes eight prior models to explain technology adoption through four key constructs: performance expectancy (perceived benefits for task performance), effort expectancy (ease of use), social influence (normative pressures), and facilitating conditions (supporting infrastructure). Moderated by age, gender, experience, and voluntariness, these factors predict behavioural intention and actual usage.²⁵ In this descriptive investigation of use patterns, purposes, and frequency of electronic resources among library patrons at HKMU, UTAUT offers a structured lens for interpreting empirical results. Performance expectancy aligns with patrons' academic and research purposes, effort expectancy addresses barriers such as digital literacy that affect frequency, social influence reflects peer or institutional norms shaping patterns, and facilitating conditions highlight infrastructural constraints in resource-limited settings. This application elevates the study's descriptive insights, linking them to broader information science discourses on technology acceptance and informing strategies for enhanced e-resource utilization in health sciences libraries.

Methods

Area of the Study

This study was conducted at HKMU in Dar es Salaam, Tanzania, a private institution specializing in health sciences. Due to time and financial constraints, a single-site case study was selected, prioritizing depth over broad generalizability.²⁶ While this focus limits the study's applicability to other contexts, it ensures relevance to health sciences libraries, aligning with the objectives of examining e-resource availability and usage in a specialized academic setting. HKMU was chosen for its well-equipped computer laboratory with full-time internet access, which enables students, lecturers, and library patrons to engage with web-based resources, such as e-journals and databases. The HKMU Library also provides computer and information literacy training, equipping students with skills to navigate electronic resources effectively. The health sciences specialization makes HKMU an ideal case for studying e-resource usage patterns relevant to medical education and research, offering insights applicable to similar institutions. Geographical proximity and collaborative opportunities further supported the selection, providing logistical advantages and access to expert staff.

Research Approach

This study employed a mixed-methods research approach, combining qualitative and quantitative methods to comprehensively explore the availability, frequency of use, and purposes of electronic resources at the HKMU Library.²⁷ Quantitative data were gathered through structured questionnaires to quantify the extent of e-resource use and awareness among students. Qualitative data were collected via semi-structured interviews with library staff to gain insights into resource management and user challenges. The mixed approach enabled triangulation, enhancing the validity and reliability of findings by cross-verifying quantitative trends with qualitative contexts.²⁸ This method was chosen to address the study's objectives by providing measurable data on resource availability and usage patterns, complemented by detailed staff perspectives on user behaviours and barriers.

Research Design

The study employed a descriptive research design to systematically document the characteristics of e-resource availability and usage at HKMU Library.²⁹ Descriptive designs provide a snapshot of real-world conditions, capturing the features of specific groups or situations as they occur.³⁰ This design was implemented through a combination of survey questionnaires administered to students and interviews conducted with library staff, allowing for a detailed examination of user interactions with e-resources. The approach facilitated the identification of patterns in resource use, awareness levels, and potential challenges without manipulating variables, aligning with the study's aim to describe phenomena in a health sciences library context.³¹ The descriptive design was particularly suitable for generating insights that could inform library practices and policies specific to HKMU's academic environment.

Population, Sampling Procedure, and Sample Size

The study population consisted of 1,442 individuals, comprising 1,438 registered students and 4 library staff members at HKMU Library. Library staff were included because they manage e-resource subscriptions, provide user support, and have direct knowledge of resource availability and usage challenges, complementing student perspectives on access and engagement.³² Their inclusion enriched the study by offering insights into operational and promotional aspects of e-resource management, directly addressing the objectives of assessing availability and usage purposes. Systematic random sampling was used to select 288 students (20% of the student population), ensuring each had an equal chance of inclusion to minimize bias and enhance representativeness.³³ This method involved selecting every fifth student from a randomized list of registered students, ensuring a diverse sample across academic levels. All four library staff were purposively sampled due to their small number and critical role in library operations, as their expertise was essential for addressing the study's objectives.³⁴ The sample size was determined using established guidelines, which recommend including the entire population for groups under 100 and sampling 20% for populations between 600 and 1,500.³⁵ Accordingly, all four library staff members were included, and 288 students were sampled from the 1,438-student population. Of the 288 students surveyed, 250 responded, yielding an 86.8% response rate, which supports the robustness of the findings. The total sample size consisted of 292 respondents (288 students and 4 staff), ensuring fair representation of both groups to generate reliable insights into e-resource usage patterns.

Data Collection Methods, Analysis, and Presentation

Data were collected using two primary methods: structured questionnaires for students and semi-structured interviews for library staff. Questionnaires, distributed to 288 students, included closed-ended questions to quantify awareness, usage frequency, and purposes of e-resource use, with one open-ended question to capture challenges. The questionnaire was pre-tested with 10 students to ensure clarity and reliability, with minor revisions made to simplify wording.³⁶ Interviews with the four library staff were conducted face-to-face, lasting 20–30 minutes each, using an interview guide with open-ended questions to explore resource availability, user behaviours, and barriers. Interviews

were audio-recorded (with consent) and transcribed for analysis. Observations of library computer lab usage were initially planned but omitted due to time constraints, with the focus shifted to richer interview data to compensate. Quantitative data from questionnaires were analyzed descriptively using frequencies and percentages, calculated with SPSS software to ensure accuracy. Qualitative data from interviews were thematically analyzed, involving coding transcripts to identify recurring themes such as resource accessibility, user challenges, and promotional strategies.³⁷ Findings were presented in tables, figures, and narrative summaries, with percentages corrected to reflect multiple-response questions where applicable (e.g., resource availability). This dual analysis approach provided a comprehensive understanding of e-resource usage, combining measurable trends with contextual insights from staff perspectives.

Clarification of Key Terms and Measures

“Availability” refers to the objective institutional provision of e-resources, verified through library records and staff interviews (e.g., subscriptions to EBSCOhost, Emerald Insight, Taylor & Francis, and Research4Life programs). “Awareness” refers to patrons’ self-reported knowledge of these offerings, as captured in survey responses. This user-centered perspective on perceived availability is investigated because mere listings of resources do not reveal utilization barriers, such as inadequate promotion or discovery tools, which critically influence actual engagement in resource-limited settings. “Frequency of use” is operationalized as self-reported access sessions per period (e.g., daily, weekly, monthly or yearly) among active users, distinct from duration of engagement (years of access, reported separately). Low or infrequent usage is interpreted multifactorially, encompassing potential issues of resource relevance, navigation difficulties, infrastructural constraints, and digital literacy gaps, rather than attributing it solely to marketing failures – as evidenced by qualitative staff insights on content fit and user feedback. These self-reported measures, although subject to recall bias, are standard in descriptive library usage studies and are triangulated with staff interviews to enhance robustness.

Results and Discussion

Background Information of the Respondents

The study collected three key biographical details of the respondents: gender, education level, and age, which may influence the usage of electronic resources among library users. The findings from the analysis are summarized in Table 1.

The demographic characteristics are helpful to the research, as they offer valuable insights into the potential determinants affecting the engagement with electronic resources among student populations. For instance, the distribution of gender may reveal divergent trends in the access to and utilization of electronic resources, attributable to possible variances in preferences, competencies, or opportunities between male and female participants. Likewise, educational attainment emerges as a pivotal variable, as it frequently corresponds with the capacity to discern and proficiently employ electronic resources. For example, individuals possessing advanced educational credentials, such as those holding doctoral degrees, may demonstrate a higher level of interaction with academic resources

Table 1. Background information of the respondents (n = 250).

Category	Sub-category	Frequency	percent
gender	female	132	52.8
	male	118	47.2
education level	phd	32	12.8
	bachelor	121	48.8
	diploma	97	38.4
age group (years)	40 and above	60	24.0
	30-39	100	40.0
	21-29	90	36.0

compared to those with educational qualifications at the diploma level. Other studies have tied the influence of education on e-resource usage with ICT skills levels, positing that ICT skills are predictors of e-resources utilisation, and competence and dexterity in ICT resulting from training at a higher level were essential requirements for the use of computers, which in turn increases usage of e-resources.³⁸

Finally, the distribution of age is of considerable importance as it may signify generational disparities in familiarity with technology and electronic resources. Younger participants may have been raised in an environment characterized by advanced digitalization, potentially leading to a superior proficiency in utilizing electronic platforms, whereas older individuals might necessitate supplementary training or assistance. Grasping these demographic dimensions is essential for the formulation of strategies aimed at enhancing the accessibility and utilization of electronic resources, thereby ensuring that all students can reap the benefits of these resources irrespective of their backgrounds. For example, in a study conducted in Ghana, it was found that younger students were found to be ardent users of e-resources compared to older students and also exhibited some form of mastery and technical know-how well above those of older students.³⁹

A library staff member noted during interviews: “Younger students, especially those in their 20s, seem more comfortable navigating e-resources, but older students often ask for help with database searches, which suggests a need for targeted training.” This insight supports the need for tailored support to address age-related differences in digital proficiency. From a UTAUT perspective, these demographic moderators age, gender, and experience (proxied by education level) play a critical role in shaping technology acceptance. Younger respondents and those with higher educational qualifications likely exhibit stronger performance expectancy and effort expectancy, facilitating greater engagement with e-resources. These patterns contrast with findings from more resourced libraries in developed countries, where demographic differences are less pronounced due to widespread digital literacy,⁴⁰ while aligning closely with similar constraints reported in other African health sciences institutions.⁴¹ Cross-tabulation of demographics with key variables reveals meaningful patterns. For example, all unaware respondents (18%) were male and from diploma programs as indicated in [Figure 1](#), suggesting targeted outreach for these groups. Higher education levels (PhD) correlated with greater awareness and long-term usage (>2 years), while younger age groups (21–29) showed higher overall usage rates but more infrequent access among some, likely due to competing digital distractions. These associations inform a nuanced argument: demographics moderate e-resource engagement, with advanced education and youth facilitating adoption but diploma-level and older users requiring enhanced support to bridge gaps.

The Availability of Electronic Resources

Awareness of the Availability of Electronic Resources

The researcher inquired about the respondents’ awareness of the electronic health resources available at the HKMU Library. The analysis of responses revealed that a substantial majority, comprising 205 (82%) of the participants, indicated that they were aware of the presence of these resources. In contrast, a smaller portion, accounting for 45 (18%) of the respondents, reported that they were not aware of the availability of such electronic resources, as summarized in [Figure 1](#).

This data highlights a high level of awareness among the library’s user base regarding the electronic resources offered, although a minority of users may still benefit from increased awareness initiatives. The findings suggest that 82% of respondents are aware of the available electronic health resources at HKMU Library, which indicates a commendable level of knowledge among the library’s user base. This high awareness can be attributed to the library’s effective communication strategies, user engagement efforts, and perhaps the prominence of electronic resources within the library’s offerings.⁴²

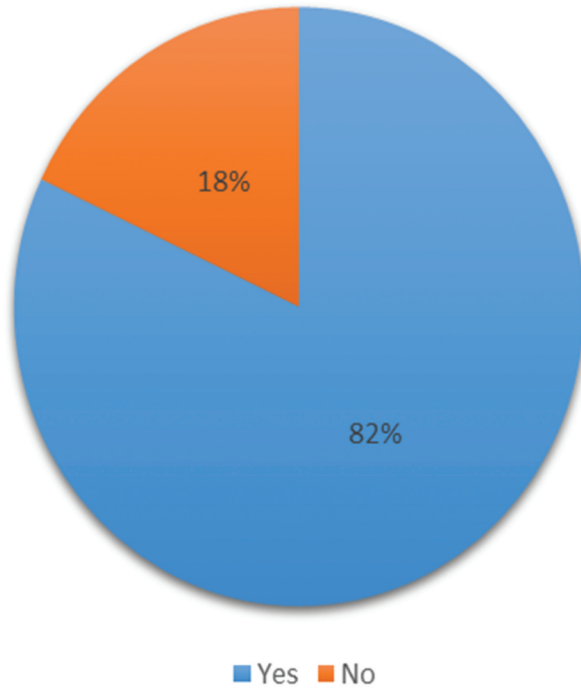


Figure 1. Awareness of the availability of health electronic (n = 250)..

However, 18% of respondents reported being unaware of available electronic resources, highlighting opportunities for enhanced information dissemination and targeted user education. These findings emphasize the need for robust communication mechanisms to ensure equitable access and maximize utilization among all users. Moreover, they reinforce the potential for HKMU to foster international partnerships and collaborations with publishers and established health sciences universities in developed countries, initiatives that could spur resource exchanges, capacity building, and improved access in low-income settings. Successful precedents include collaborations between Muhimbili University of Health and Allied Sciences (MUHAS), the University of Nairobi (UoN), and Kilimanjaro Christian Medical University College (KCMUCo) with the University of California, San Francisco (UCSF), which have yielded substantial benefits in resource sharing and institutional development.⁴³

One library staff member explained:

We hold orientation sessions at the start of each semester, but some students miss them due to scheduling conflicts, which might explain why a few are unaware of our e-resources.

Another staff member added:

We’ve noticed that posting reminders on the library’s noticeboard and social media helps, but we need more consistent outreach to reach everyone.

These qualitative insights highlight promotional efforts and underscore the need for broader, ongoing campaigns to close the awareness gap. The 18% unawareness rate reflects insufficient facilitating conditions and social influence under UTAUT, where inadequate institutional support and peer norms may hinder initial acceptance of e-resources. This awareness level is notably higher than reported in comparable African institutions, such as those in Nigeria⁴⁴ or Ghana,⁴⁵ where under-funding often limits promotional activities, but lower than in well-resourced Western libraries, where near-universal awareness is common due to integrated digital marketing.⁴⁶ A staff member

highlighted underfunding challenges: “Limited budget for marketing means we rely on word-of-mouth and basic posters, which doesn’t reach all students, especially those in clinical placements off-campus.”

Electronic Resources Available at HKMU Library

The respondents were asked about the electronic resources available at the HKMU library, and the analysis revealed a comprehensive array of resources accessible to users. Electronic theses and dissertations (E-theses and dissertations) gathered the highest response, with 223 (17.8%) participants acknowledging their availability. This indicates a strong emphasis on supporting research and academic endeavours at HKMU. Electronic books and journals closely followed, with 222 (17.7%) and 220 (17.6%) respondents, respectively, underscoring the library’s commitment to providing essential scholarly materials in digital formats. Moreover, the study identified the presence of various other electronic resources, each catering to specific information needs. These included e-reference sources (10.1%), e-statistics (9.2%), electronic newspapers (7.4%), bibliographic databases (5.9%), e-digital collections (5.6%), e-media collections (4.2%), and e-government publications (2.7%). The library’s diverse digital collection aligns with the multifaceted requirements of its user community, ranging from academic research to statistics and government publications. Interestingly, CD-ROM databases were indicated by 19 (1.5%) respondents, reflecting a historical technology that still holds relevance in specific contexts. These findings collectively highlight the richness of electronic resources available at the HKMU library, catering to a broad spectrum of user information needs. [Table 2](#) shows the summary of these findings.

The findings regarding the availability of electronic resources at HKMU library are noteworthy and hold substantial implications for the institution’s academic and research endeavours. With electronic theses and dissertations, electronic books, and electronic journals being the most prominently acknowledged resources, HKMU library prioritizes supporting scholarly activities. This aligns with the modern academic landscape’s demand for digital resources, providing students and researchers easy access to a wealth of academic literature and research materials.⁴⁷ The prevalence of these resources reflects the institution’s commitment to facilitating academic excellence and fostering an environment conducive to research and learning.

Moreover, the diversity of electronic resources offered by the HKMU library, including e-reference sources, e-statistics, electronic newspapers, bibliographic databases, digital collections, media collections, government publications, and even CD-ROM databases, signifies a comprehensive approach to meeting the multifaceted information needs of its user community. This diversity aligns with contemporary library practices, where institutions aim to provide a wide range of digital materials to cater to the varied requirements of students, faculty, and researchers.⁴⁸ It supports academic pursuits and enhances the quality and scope of research conducted within the institution. Additionally, while relatively less

Table 2. Electronic resources available and used at HKMU library (n = 250).

Electronic resources	Responses	Percent
e-reference sources	126	10.1%
e-media collection	52	4.2%
cd-rom databases	19	1.5%
e-thesis and dissertation	223	17.8%
e-government publication	34	2.7%
electronic newspaper	98	7.8%
e-digital collections	70	5.6%
bibliographic databases	74	5.9%
e-statistical sources	115	9.2%
electronic books	222	17.7%
electronic journals	220	17.6%

prominent, the inclusion of CD-ROM databases demonstrates a commitment to preserving valuable legacy resources, ensuring accessibility to older materials that may still hold relevance in specific research contexts. These results underscore the library's dedication to advancing its academic and research objectives by offering a diverse range of electronic resources. This proactive strategy aligns with modern library service trends and ensures that the institution will continue to be a centre for creating and sharing knowledge, thereby enhancing the academic experience for all its stakeholders.

Furthermore, the interviews with library staff provided valuable insights into the range of electronic health information resources available at the HKMU library. One of them echoed that:

Our library has a comprehensive electronic resource collection, including e-books, e-theses and dissertations, e-journals, and e-reference sources. This diverse set of resources reflects the library's commitment to catering to the myriad information needs of our library users.

Another interviewed library staff member said:

These resources support academic and research activities, ensuring that students, researchers, and faculty members can access the latest scholarly content and reference materials

A third staff member added:

We maintain subscriptions to key health sciences databases like PubMed and Hinari, which are critical for medical research, but some students struggle with navigating these platforms.

Another noted:

CD-ROMs are still used for older medical texts not available online, especially for historical research, but they're less popular compared to e-journals.

These qualitative findings confirm the survey data and highlight challenges in user navigation, suggesting a need for enhanced training to maximize resource utilization. The prominence of research-oriented resources (e-theses, e-books, e-journals) aligns with high performance expectancy in UTAUT, where users perceive these tools as directly enhancing academic and research outcomes. Critically, HKMU's emphasis on locally relevant resources (e.g., e-theses) contrasts with broader collections in developed-country health libraries, where global databases dominate due to greater funding,⁴⁹ while resembling patterns in other African institutions constrained by subscription costs and bandwidth limitations.⁵⁰ A staff member elaborated on underfunding: "Budget constraints force us to prioritize free resources like Hinari over premium journals, limiting access to cutting-edge publications available in Western universities."

Frequency of Usage of Electronic Resources

The second objective of this study was to determine the frequency of electronic resource usage at the HKMU Library. To acquire a thorough knowledge of this utilization, two questions were presented to the respondents, each precisely tailored to elicit different aspects of their interaction with the electronic resources as presented in the following subsections:

Usage of Electronic Resources Available at HKMU Library

Respondents were asked whether or not they use the electronic resources available at HKMU. According to the analysis's findings, out of 250 participants, 220 (88%) claimed they utilize electronic resources, while only 30 (12%) said they do not, as show in [Table 3](#).

The study's findings on the use of electronic resources at the HKMU library have significant implications for the university's academic environment. To begin with, the high percentage of students (88%) who reported using these resources demonstrates a favourable trend in the adoption of technology for learning. This suggests that students are seeking digital resources to

Table 3. Usage of electronic resources at HKMU library (n = 250).

		Frequency	Percent
valid	yes	220	88.0%
	no	30	12.0%

enhance their studies and research. As a result, the institution should continue to invest in extending and updating its electronic resource collection to keep it relevant and comprehensive.

Furthermore, given the majority's use of these resources, HKMU can improve its support services by providing sophisticated search strategies and arranging workshops to help students utilize the benefits of these resources. The 12% of respondents who do not use electronic resources, on the other hand, constitute both a difficulty and an opportunity for HKMU. This group may face challenges such as poor digital literacy or a lack of knowledge about available tools.⁵¹ The institution can create focused initiatives such as digital skills training and awareness campaigns to address these concerns. In this way, HKMU can overcome the digital divide among its students, guaranteeing that everyone can benefit from electronic resources. The study highlights the importance of continued efforts to improve access to and utilization of digital learning materials, which align with the changing landscape of higher education. The interviewed library staff noted that:

Patrons frequently visited the library in order to access the e-resources through the library's computer lab than they did with the university computer laboratories

Another staff member elaborated:

Students often come to the library lab because it's quieter and has dedicated support for e-resource access, but slow internet speeds sometimes discourage frequent use.

A third staff member added:

We've seen an increase in usage since introducing weekly database training, but non-users often cite a lack of confidence in using online tools.

These insights underscore the library's role as a hub for digital access and emphasise the need for enhanced infrastructure and training to support all users. The 88% usage rate indicates strong behavioral intention under UTAUT, driven by perceived performance benefits and improving facilitating conditions through targeted training. This high usage rate exceeds levels reported in similar under-resourced African medical libraries,⁵² likely due to HKMU's focused health sciences orientation, but falls short of near-universal adoption in developed-country institutions enabled by superior infrastructure.⁵³ A staff member noted underfunding issues: "Unreliable electricity and limited bandwidth make off-campus access difficult, pushing students to the library lab despite overcrowding."

The Frequency of Using E-resources

Among the 220 study participants who confirmed using the electronic resources at the HKMU library, their reported usage frequency varied. As presented in [Table 4](#), the findings indicate that many participants had different frequencies of engagement with electronic resources. These results highlight the diverse experience levels of users, ranging from relatively new users to those with several years of familiarity with the electronic resources at the HKMU library.

The data presented in [Table 4](#) offer insights into the frequency of usage of electronic resources among the study participants. The results reveal diverse engagement patterns, with most respondents falling into different categories. Specifically, 87 (34.8%) participants reported using electronic resources for more than two years, indicating a substantial familiarity and potentially higher

Table 4. The frequency of using e-resources (n = 220).

		Frequency	percent
valid	infrequent	31	12.4%
	less than one year	61	24.4%
	one year	24	9.6%
	two years	17	6.8%
	more than two years	87	34.8%

competence in utilizing these resources. On the other hand, 61 (24.4%) participants reported using electronic resources less than a year, suggesting a newer group of users who may still be adapting to these resources. Interestingly, 31 respondents (12.4%) reported infrequent usage of the resources. This may reflect a lack of integration into their academic routines and poor marketing of library electronic resources, as noted by previous studies.⁵⁴ The distribution of usage durations can be a valuable indicator of the effectiveness of promoting and using electronic resources within the HKMU library. These findings suggest that many participants have found value and relevance in incorporating them into their studies and research endeavours.⁵⁵

Furthermore, the presence of users who reported minimal usage or rare engagement highlights potential areas for improvement in promoting the benefits and accessibility of electronic resources. As the study aimed to investigate the availability and usage frequency of electronic resources, these findings highlight the importance of tailoring support, training, and information dissemination strategies to users' varying levels of experience and familiarity.

A staff member noted:

Frequent users, like final-year students, rely on e-resources for theses, but infrequent users often say they don't know how to start or find the tools intimidating.

Another added:

We're planning more hands-on workshops to boost confidence among new users, which could reduce infrequent use

Long-term users (more than two years) likely reflect habitual usage shaped by positive effort expectancy and accumulated experience, a key moderator in UTAUT that strengthens behavioural intention over time. The substantial proportion of long-term users (34.8%) contrasts with lower sustained engagement in broader African university libraries affected by intermittent access,⁵⁶ while the 12.4% infrequent usage mirrors persistent barriers in developing contexts, unlike the consistent high-frequency patterns in affluent institutions supported by robust infrastructure.

The Purpose for Using Electronic Resources from the Library

The third objective was to find out the purpose of using electronic resources from the library. To address the objective of identifying the purpose of e-resource use, respondents were asked about their primary reasons for accessing these resources. Survey results showed that 60% used e-resources for academic research, 25% for assignments, 10% for staying updated with health sciences literature, and 5% for professional development, as summarized in Table 5.

Table 5. The purpose for using electronic resources from the library (n = 250).

purpose of using e-resources	percent	Frequency
academic research	60	150
assignments	25	62
staying updated with health sciences literature	10	25
professional development	5	13

The findings indicate that the primary use of electronic resources among respondents is for academic research (60%) and completing assignments (25%), while fewer users access them for staying updated with health sciences literature (10%) and professional development (5%). This suggests that libraries are mainly perceived as academic support hubs rather than as centres for lifelong learning and professional growth. Similar patterns were observed by earlier researchers, who found that most users primarily engage with e-resources for immediate academic needs rather than for continuous professional development.⁵⁷ This highlights the need for libraries to not only strengthen collections that support research and coursework but also to actively promote the broader use of e-resources for professional and lifelong learning purposes. A member of the library staff affirmed:

A predominant number of students utilize electronic journals and theses for the formulation of research papers or assignments, whereas faculty frequently engage with databases to remain informed about advancements in the medical field.

Another staff member observed:

A subset of students employs electronic resources in preparation for professional examinations; however, this occurrence is notably less frequent in comparison to research-based requirements.

These observations highlight the multifaceted purposes of electronic resource utilisation, which are congruent with the library's mission of facilitating health sciences education and research endeavours. This examination positions the research as a significant scholarly contribution toward the comprehension of electronic resource usage patterns within a specialised academic framework, rather than serving as a defence for library funding allocations. Dominant research and assignment purposes underscore high performance expectancy in UTAUT, where patrons view e-resources as essential for achieving academic goals, thereby driving sustained usage intention. This task-oriented dominance is consistent with usage in other African health libraries facing resource constraints,⁵⁸ but contrasts with more balanced professional development engagement in developed settings enabled by comprehensive lifelong learning support.⁵⁹

Conclusions

Availability of Electronic Resources

The study confirmed that HKMU Library offers a wide range of electronic resources tailored to the needs of its health sciences community, aligning with the objective of determining resource availability.

Frequency of E-Resource Use

The study successfully examined the frequency of e-resource use, revealing that the majority actively engage with HKMU Library's electronic resources, accessing them several times per week, indicating deep integration into academic routines. However, the minority reported infrequent use, pointing to barriers such as limited digital literacy or navigation difficulties. These results suggest that while e-resources are widely used, targeted interventions are needed to address the needs of infrequent and non-users to maximize engagement in the health sciences library context.

Purposes of Using Electronic Resources

To address the objective of identifying the purposes for using electronic resources, the study found that the HKMU Library's e-resources serve multiple academic and professional functions, including academic research, assignments, health sciences literature, and professional development, with the latter accounting for only 5%. However, the relatively low percentage of resources used for

professional development suggests an opportunity to promote e-resources for career-oriented applications, enhancing their utility beyond academic tasks.

Recommendations

- (i) *Enhance Awareness Campaigns for E-Resource Availability*: To address the 18% of respondents unaware of HKMU Library's electronic resources, the library should implement a robust, multi-channel awareness campaign. This could include regular email newsletters, social media posts, and digital signage in high-traffic areas, such as the computer lab, highlighting available resources, including e-journals, e-books, and health sciences databases. Orientation sessions should be scheduled multiple times per semester to accommodate students with conflicting schedules, as suggested by staff feedback. Partnering with academic departments to integrate e-resource introductions into course orientations can further ensure students are informed.
- (ii) *Develop Targeted Digital Literacy Training Programs*: The infrequent users and non-users, coupled with staff observations of navigation challenges, indicate a need for enhanced digital literacy training. The library should offer regular, hands-on workshops focusing on navigating databases. These workshops, as suggested by staff, should include more hands-on sessions, featuring practical exercises on search strategies and resource access, thereby building confidence among users intimidated by online tools. Online tutorials or recorded sessions can supplement in-person training, ensuring accessibility for all.
- (iii) *Promote E-Resources for Professional Development*: Given that only 5% of respondents used e-resources for professional development, the library should launch targeted campaigns to promote these resources for career-oriented purposes, such as preparing for medical examinations or staying updated with industry trends. This could involve creating curated resource guides for professional development, as suggested by staff noting faculty use for medical advancements, and hosting seminars on leveraging e-resources for career growth. Collaborating with faculty to integrate professional development resources into curricula or extracurricular activities can further encourage use.

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Limitations of the study

The present investigation was conducted within the confines of a single higher learning institution library located in Tanzania, a developing nation. Consequently, the conclusions derived from this research may not possess the capacity for generalization to libraries located in alternative geographical regions, especially in developed nations where the engagement with e-resources is comparatively less problematic. The study's descriptive, cross-sectional design provides a valuable snapshot but limits causal inferences and longitudinal tracking of changes in usage patterns. Future research could employ pre- and post-intervention longitudinal designs to evaluate the impact of library initiatives on e-resource awareness and frequency, addressing the call for more dynamic assessments of interventions.

Appendix

Questionnaire guide for students

Purpose: To collect quantitative data on the availability, usage frequency, and purposes of electronic resources among student library patrons at Hubert Kairuki Memorial University. The questionnaire will be distributed to 288 systematically sampled students, with 250 responses collected (86.8% response rate). The survey includes closed-ended questions for ease of analysis, with one open-ended question for additional insights. It should take 10–15 minutes to complete. Responses will be analyzed descriptively using frequencies and percentages.

Questionnaire

Section A: Demographic information

- (1) Gender:
 - (a) ☐ Female
 - (b) ☐ Male
- (2) Education Level:
 - (a) ☐ PhD
 - (b) ☐ Bachelor
 - (c) ☐ Diploma
- (3) Age Group:
 - (a) ☐ 21-29 years
 - (b) ☐ 30-39 years
 - (c) ☐ 40 and above

Section B: Awareness and Availability of Electronic Resources

4. Are you aware of the electronic resources available at HKMU Library?

- ☐ Yes
- ☐ No

(1) Which electronic resources are available at HKMU Library? (Select all that apply)

- (a) ☐ E-Reference Sources
- (b) ☐ E-Media Collection
- (c) ☐ CD-ROM Databases
- (d) ☐ E-Thesis and Dissertation
- (e) ☐ E-Government Publication
- (f) ☐ Electronic Newspaper
- (g) ☐ E-Digital Collections
- (h) ☐ Bibliographic Databases
- (i) ☐ E-Statistical Sources
- (j) ☐ Electronic Books
- (k) ☐ Electronic Journals

Section C: Usage and Frequency

6. Do you use the electronic resources available at HKMU Library?

- ☐ Yes
- ☐ No

- (1) If yes, how frequently do you use electronic resources?
 - (a) ☐ Infrequent (less than once a month)
 - (b) ☐ Less than one year (regular use for less than 12 months)
 - (c) ☐ One year

- (d) ☐ Two years
- (e) ☐ More than two years
- (2) What is the primary purpose of using electronic resources? (Select one)
 - (a) ☐ Academic research
 - (b) ☐ Assignments
 - (c) ☐ Staying updated with health sciences literature
 - (d) ☐ Professional development
 - (e) ☐ Other (please specify): _____

Section D: Open-ended question

9. What challenges, if any, do you face when accessing or using electronic resources at HKMU Library? (Provide details)

Thank you for your participation. Your responses will help improve library services

Interview Guide for Library Staff

Purpose: To gather qualitative insights on the availability, usage, and challenges of electronic resources at Hubert Kairuki Memorial University Library from library staff perspectives. **Instructions:** The interviewer will conduct semi-structured, face-to-face interviews with each of the four library staff members. Each interview should last approximately 20-30 minutes. Questions are open-ended to encourage detailed responses, with follow-up prompts as needed. Responses will be recorded (with consent) and transcribed for thematic analysis.

Questions:

- (1) What types of electronic resources are currently available at the HKMU Library?
 - (a) Follow-up: Can you describe the range of resources (e.g., e-journals, e-books, databases) and their relevance to health sciences?
- (2) How do library patrons (students and faculty) typically access and use these electronic resources?
 - (a) Follow-up: Are there specific resources that are more popular, and why?
- (3) What are the primary purposes for which patrons use electronic resources?
 - (a) Follow-up: For example, are they used for research, assignments, or staying updated with health sciences literature?
- (4) What challenges do patrons face when accessing or using electronic resources?
 - (a) Follow-up: Are there issues related to digital literacy, internet connectivity, or resource navigation?
- (5) How does the library promote awareness and usage of electronic resources?
 - (a) Follow-up: What strategies (e.g., workshops, marketing) have been effective or need improvement?
- (6) Are there any gaps in the current electronic resource collection or support services that you have observed?
 - (a) Follow-up: What additional resources or training could enhance usage?