

**ANALYSIS OF THE UTILIZATION OF LIBRARY RESOURCES BY
UNDERGRADUATE STUDENTS AT SOROTI UNIVERSITY**

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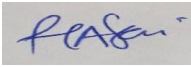


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DECLARATION

I, Atai Hellen Flavia declare that this study is original and it has never been submitted before for any award in any University.

Sign  Date 15/04/2025

ATAI HELLEN FLAVIA

(Student)

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APPROVAL

This work has been prepared under my supervision and is now ready for submission with my approval as the University supervisor.

Sign  Date 15/04/2025

NORA NAIBOKA ODOI (PhD)

(Supervisor)

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OPERATIONAL DEFINITIONS

Utilisation Of Library resources	A process by which students' access, retrieve, use or decide not to use the resources provided in the library, including books, journals, databases, and digital content, to support their academic needs
Library Resources	The collection of materials and services offered by a library, including physical items like books, journals, and maps, as well as digital resources such as e-books, databases, and online journals, along with other services like reference assistance, study spaces, and access to information technology.
Undergraduate Students	Individuals enrolled in a university pursuing their first degree.
Access To Library Resources	The ability or right of students to retrieve and make use of the materials and services provided by a library, which may include both physical and digital content, as well as the tools and platforms that facilitate this access.
Information	Data that has been organized, processed, and presented in a meaningful context to provide knowledge or understanding, which can be acquired from various sources such as books, articles, databases, and websites, and is used to support learning, decision-making, and communication.

LIST OF ABBREVIATIONS

AOR	Adjusted Odds Ratio
BAOBAB	Building a Base of Online Academic Books
CI	Confidence Interval
COR	Crude Odds Ratio
EBSCOHOST	Elton B. Stephens Company Host
IEEE	Institute of Electrical and Electronics Engineers
URL	Universal Resource Locator
OVID	Online Video Interactive Database

ABSTRACT

Effective utilisation of library resources enhances academic performance by enabling students to access, evaluate, and use relevant information. Despite advancements in academic libraries in Uganda, challenges such as limited funding, staffing, and outdated infrastructure persist. This study assessed the utilisation of library resources among undergraduate students at Soroti University. A school-based descriptive survey with a quantitative approach was conducted among 200 third and fourth-year undergraduate students of Soroti University academic year 2019/20 and 2020/21. The study examined access and usability of library resources, extent of utilisation, and the type of resource used print versus electronic. Data were analyzed using SPSS version 26, employing descriptive statistics and binary logistic regression. Results showed that 72% (n=145) of students accessed information via search engines, while 22% (n=44) used the library website and 10% (n=20) the library login system. Regular library visits were reported by 61% (n=122), primarily for quiet study 79.5% (n=159) and borrowing print materials 56% (n=112). Print resources were used by 61% (n=122) of students, while 49.5% (n=99) accessed electronic resources. Overall, 55% (n=111) utilized library resources. Utilization was linked to library accessibility AOR = 5.9 (95% CI: 2.14–16.25, p = 0.001), academic year AOR = 0.2 (95% CI: 0.09–0.49, p < 0.001), and awareness of available resources AOR = 0.7 (95% CI: 0.34–0.97, p = 0.021). Print resources were more frequently utilized than electronic resources, with most students accessing information through search engines or librarian assistance. Key factors influencing library use included operational hours, academic level, and resource awareness. To improve resource utilisation, awareness campaigns should be enhanced, library hours extended, digital literacy training provided, and integration of library resources into coursework promoted.

Keywords: Library resources, utilisation, access, academic libraries, Uganda

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Introduction

This chapter is organized into nine sections: the background of the study, problem statement, study purpose and objectives, research questions, scope, significance of the study, justification, and conceptual framework.

1.1 Background to the Study

Information utilisation, in the context of libraries, refers to the extent to which students, faculty, and researchers engage with available information resources and services (O'Donnell & Anderson, 2021). This engagement involves accessing resources, searching for information, evaluating it, rejecting irrelevant content, and using relevant information (O'Donnell & Anderson, 2021; Kwaku et al., 2023). The provision of library and information services is essential in academic libraries, which serve as crucial resources for students, faculty, and researchers in their pursuit of knowledge and research (Abubakar, 2020). They represent a cornerstone of research and educational activities in higher education institutions (Kwaku et al., 2023; Abubakar, 2020). Consequently, the quality of library and information services provided by these libraries plays a crucial role in shaping the learning and research experiences of students and faculty members. Universities have historically served as hubs of knowledge and scholarship (Oladokun & Mooko, 2022). Libraries, as the beating hearts of these institutions, are vital in providing students with access to a curated collection of information resources.

In the digital age, however, the information landscape underwent a dramatic transformation. Globally, academic libraries experienced significant changes due to technological advancements and the shift towards digital resources. Libraries increasingly adopted new technologies to improve access to information resources and services (O'Donnell & Anderson, 2021). It was also reported that information-seeking behaviour among students was changing. Nonetheless, challenges such as outdated resources, inadequate library staffing, and limited materials continued to affect library service provision in some regions. In Africa, academic libraries faced numerous challenges, including limited funding, inadequate infrastructure, and a shortage of trained personnel (Kwaku et al., 2023; Kekana & Kheswa, 2020). Despite these challenges, academic libraries in Africa played a crucial role in supporting research and

teaching in higher education institutions. Efforts were made to address these challenges through collaboration, resource-sharing, and the adoption of new technologies.

In Uganda, academic libraries have made significant progress in recent years, with the adoption of new technologies and the expansion of library services. However, challenges such as limited funding, inadequate staffing, and outdated infrastructure continued to affect library service provision (Kwaku et al., 2023). Efforts were made to address these challenges through partnerships and collaborations, as well as the adoption of new technologies. Nonetheless, the assessment of library and information services provision gained increased attention due to the changing nature of library services and the need to ensure the effective use of resources (O'Donnell & Anderson, 2021). Existing literature on library information utilization by undergraduates has largely concentrated on electronic resources, particularly their availability, usage, and relevance (Gakibayo and Okello-obura 2019), as well as users' awareness, utilization, and satisfaction with online resources (Panhilason 2024). However, there is limited research that holistically examines both print and electronic resources together. This gap is important because undergraduate students often rely on a mix of traditional print materials and emerging electronic resources to meet their academic needs. Therefore, this study seeks to analyze the utilization of library information resources by undergraduate students at Soroti University, with a focus on identifying the types of resources accessed (both print and electronic) and evaluating the ease of access and usability of available library resources and services.

1.2 Contextual Background

Soroti University is one of the newest public institutions of higher learning in Uganda, having been established in 2015 (Soroti University, 2024). The university is located in Soroti District, in the Eastern Region of Uganda, and is the first public university in the Teso sub-region. Soroti University was created by an Act of Parliament, the Universities and Other Tertiary Institutions Act 2001, which established the legal framework for all universities in Uganda (Soroti University, 2024). The university is committed to providing high-quality education, research, and innovation that will contribute to the development of the region and the country as a whole. The Soroti University Library is a vital component of the university's academic and research infrastructure. The library was established in 2016, shortly after the university itself was founded (Soroti University, 2024). It houses a growing collection of print and electronic resources that support the academic programs offered by the university. The library's collection

includes books, journals, and other materials in a wide variety of subject areas, including the sciences, social sciences, humanities, and business (Soroti University, 2024). The library also provides a range of services to support the research needs of faculty, staff, and students, including reference assistance, information literacy instruction, and interlibrary loan (Soroti University, 2024). As Soroti University continues to develop and expand, its library will no doubt continue to play an important role in the intellectual life of the institution and the region it serves.

1.3 Statement of the Problem

Libraries are vital to the academic success of students in higher education institutions. They offer a broad range of information resources and services that support teaching, learning, and research activities (Oladokun & Mooko, 2022). Undergraduate students should be able to integrate library resources into their academic work seamlessly. To do so, they need to be aware of the diverse collections, databases, and services available and possess the skills to navigate them effectively (O'Donnell & Anderson, 2021). This capability enables students to conduct thorough research, develop critical thinking skills, and achieve academic excellence.

Despite the well-documented importance of academic libraries in fostering student success, there is a concerning trend of underutilisation of library resources among undergraduate students in many universities (Oladokun & Mooko, 2022).

Soroti University recognizes the significance of its library resources, with its FY 2022/2023 strategic plan emphasizing the enhancement of teaching, learning, and research through the acquisition of additional resources (Soroti University Vote Budget Framework FY 2022/2023). However, the university faces a troubling trend of underutilisation of its library information resources by students (Soroti University Vote Budget Framework FY 2022/2023). This issue challenges Soroti University's goal of enhancing educational outcomes. To address this challenge and ensure that students fully benefit from available library resources, it is essential to understand the factors contributing to their underutilisation, which this study aims at analysing further.

1.4 Purpose of the Study

The study aims to assess the access and utilisation of library resources by undergraduate students at Soroti University.

1.4.1 Specific Objectives of the Study

The specific objectives of the study are:

- i. To explore how undergraduate students at Soroti University access different categories of library (electronic and print) information resources.
- ii. To establish the extent (range, breadth) to which undergraduates at Soroti University utilise different categories of library (electronic and print) information resources.
- iii. To compare the (in- depth) utilisation levels of library information resources (electronic and print) by undergraduate students at Soroti University.

1.5 Research Questions

The research questions for the study are:

- i. How do undergraduate students at Soroti University access different categories of library (electronic and print) information resources?
- ii. To what extent (range) do undergraduate students at Soroti University utilise different categories of library (electronic and print) information resources?
- iii. What are the (in-depth) utilisation levels of library information resource categories (electronic and print) by undergraduate students at Soroti University?

1.6 Scope of the Study

This study's content was limited to the objectives of the research which are to find out the extent to which undergraduate students at Soroti University utilise different categories of information resources; find out the utilisation in-depth levels of information resource categories by undergraduate students at Soroti University; and find out how undergraduate students at Soroti University access different categories of information resources. The geographic scope of this study was limited to Soroti University which is located in Soroti district, Eastern Uganda (Soroti University, 2024). The study was conducted between May-October 2024. The activities to be undertaken include submitting and defending the research proposal, collecting and analysing data, and writing and submitting the final report. The study endeavoured to utilise recent literature that does not exceed five years old.

1.7 Significance of the Study

- The findings of this study are expected to inform policy decisions related to the utilisation of library information resources by undergraduate students in academic institutions. The

information gathered from the study may be used to improve the quality of library services offered to students, faculty and researchers at Soroti University and other academic institutions.

- The study's findings may be used to develop targeted programs and workshops to improve student awareness and skills in using library resources. This, in turn, may empower students to conduct more effective research, develop critical thinking abilities, and ultimately achieve greater academic success. The research may also identify areas where students lack information literacy skills, allowing the library to develop targeted instruction sessions to bridge these knowledge gaps. This may equip students to become more effective and independent information seekers throughout their academic careers and beyond.
- The study's findings may also inform librarians and the institution's managerial team the state of utilisation of library information resources at Soroti University Library. By understanding how students use or do not use library resources, the library may optimize its collection development and service offerings. This could involve focusing on acquiring resources most in demand by students or developing new services that address their specific needs.
- The study's findings may guide the development of targeted outreach programs to inform students about the full range of library resources and services available. Additionally, it may inform the creation of workshops and training sessions tailored to address student information literacy gaps. Data on student library use may be used to demonstrate the library's impact on student learning and success. This may be valuable for securing continued funding and support from the university administration.
- By promoting increased student utilisation of library resources, the study may contribute to a more vibrant learning environment at Soroti University. This may foster a culture of research and critical thinking, which benefits not only students but also faculty and the wider academic community. A well-utilized and effective library may be a point of pride for Soroti University, contributing to its reputation as an institution that prioritizes student success and fosters a strong research culture. This may attract prospective students and faculty, ultimately benefiting the entire university community.

- The study is also expected to provide valuable insights into the adequacy of library information resources for undergraduate students by Soroti University. The specific objectives of the study, such as investigating the challenges faced, will help identify areas where improvements can be made. With the proposed solutions, Soroti University can enhance its services and resources, thereby improving the learning and research experience of its users.
- Lastly, the study is expected to contribute to the body of knowledge on the utilisation of library information resources by undergraduate students, particularly in developing countries. The findings of the study may be used as a reference for future research in this area by scholars and other researchers, and may also inform best practices for library services in similar contexts.

1.8 Justification of the Study

- Limited access to digital resources and electronic libraries, essential for research and online learning, is a significant issue in Uganda's educational institutions. The United Nations Joint Programme on Data and Statistics, in partnership with the Uganda Bureau of Statistics, identifies this gap as compounded by inconsistent internet connectivity and low digital literacy among students (United Nations Uganda, 2023). This study focuses on Soroti University to assess these challenges and develop strategies for improving student access to digital resources, which is expected to enhance academic performance.
- Funding challenges in Uganda's education sector, highlighted by UNICEF, have resulted in limited resources in university libraries, restricting students' access to up-to-date learning materials (UNICEF Uganda, 2023). The transition to program-based budgeting under Uganda's National Development Plan III underscores the need for increased financial support in higher education to ensure library adequacy. This study will examine current university library resources to identify areas for improvement, helping address resource access and learning challenges.
- Many students underutilize available library services due to limited awareness or familiarity with library systems, particularly for research databases and electronic resources. A 2023 UNICEF report on Uganda's education sector emphasizes the need for orientation programs and ongoing support to enable students to make effective use of

library resources (UNICEF Uganda, 2023). This study is essential to assess library resource utilization by undergraduate students, providing evidence to support the design of orientation programs and targeted support services.

1.9 Conceptual Framework

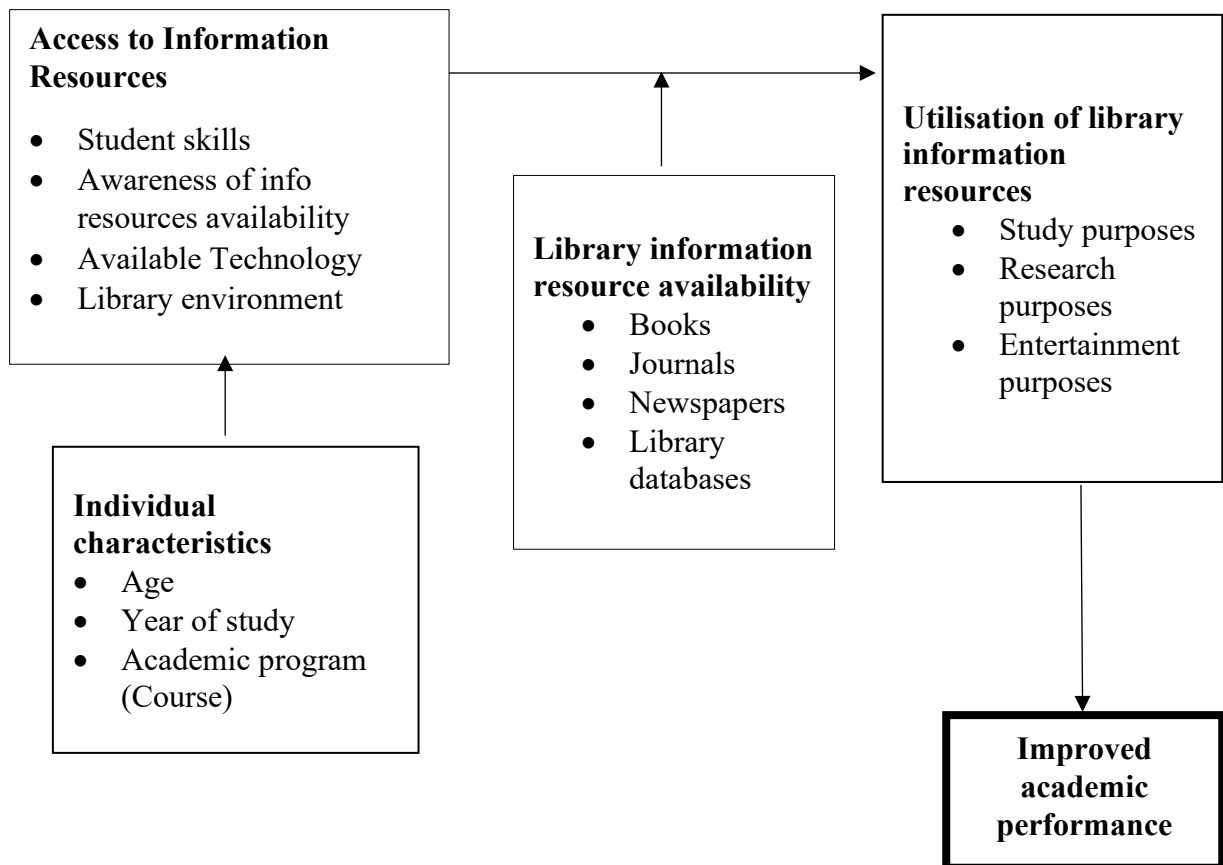


Figure 1.1: Conceptual framework for the utilisation of library information resources by undergraduate students at Soroti University.

Adopted from: Information Behaviour theory (Wilson, 1999)

According to Wilson's Information Behavior Theory (1999) as a framework, the relationship between library resource availability, individual characteristics, access to resources, and the utilisation of these resources can be understood in the context of academic performance.

According to Wilson (1999), the availability of library information resources such as books, journals, newspapers, and databases plays a crucial role in shaping students' information-

seeking behavior. When these resources are readily accessible, students are more likely to engage with them for various purposes, including study, research, and entertainment. However, the mere presence of these resources is not sufficient; their effective utilisation is influenced by individual characteristics, such as age, year of study, and academic program. For instance, older students or those in advanced years of study are typically more familiar with library resources and possess the skills necessary to access and use them effectively. Similarly, students in certain academic programs may have specific needs for particular resources, such as science students requiring access to databases and journals, while humanities students may rely more on books and newspapers (Oladokun & Mooko, 2022).

Access to information resources is further influenced by several factors, including students' skills, the availability of technology, and the library environment. Students who possess strong information literacy skills, such as the ability to search databases or evaluate sources, are more likely to access and utilise the available resources effectively (Odonell & Anderson, 2021). The availability of technology, such as internet access, library computers, and digital tools, also plays a significant role in determining access to digital resources like e-books and online databases. A conducive library environment, characterized by adequate seating, proper lighting, and quiet study spaces, facilitates easier access to these resources and encourages their use for academic purposes (Kwaku et al., 2023).

The effective utilisation of library resources for study and research purposes is directly linked to improved academic performance. Students who actively engage with library resources are more likely to develop critical thinking skills, conduct in-depth research, and achieve academic excellence. Access and availability, shaped by individual characteristics and supported by a favorable library environment, determine the extent to which students utilise these resources (Abubakar, 2020). When students have the necessary skills and access to technology, they are better positioned to leverage library resources for their academic success.

In conclusion, the availability of library information resources, coupled with individual characteristics and access factors, influences the utilisation of these resources, which in turn impacts academic performance. As Wilson's Information Behavior Theory suggests, understanding these relationships can help academic institutions develop strategies to enhance students' access to and use of library resources.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature review provides a critical evaluation of existing scholarly work related to the research topic. This chapter presents insights from previous studies relevant to the proposed research, including discussions on the theoretical framework and a review of literature based on the study objectives. It examines prior studies in relation to the current research, which explores the utilisation of library information resources. The chapter concludes by identifying research gaps that justify the need for this study.

2.1 Theoretical Review

The study was anchored by the Information Seeking behaviour Theory as advanced by González-Teruel and Foley (2020). This theory describes how individuals identify their information needs, the methods they use to search for information, and the key factors that influence their access and utilization of library resources. Anchoring the study on this theory provided a framework for understanding how users interact with library resources, the challenges they face, and the utilization patterns of information access and use.

2.1.1 The Information Behaviour theory

This theory states the user information-seeking behaviour occurs in a complex and dynamic process (Foley, 2020). It assumes that individuals have a range of information needs that are influenced by various factors including their characteristics, task requirements, and environmental factors (González-Teruel; Foley, 2020). The theory also proposes that individuals actively seek information and use it to satisfy their information needs (Foley, 2020). Consequently, the theory can be used to understand the information-seeking behaviour of undergraduate students. By understanding the information needs of the users and the factors that influence their information-seeking behaviour, the library can tailor its information resources and services to meet the needs of the users.

2.2 Library information access by university students

Mwinyimbegu (2019) explored the role of public libraries in facilitating access to information in Niger State, Nigeria. Using purposive sampling, data were collected from 37 respondents

comprising professional and para-professional library staff. The study revealed that available resources were limited to textbooks, reference sources, and newspapers, while only four out of twelve mechanisms for enhancing information access were in use. Challenges included inadequate funding, lack of current textbooks, and an un conducive learning environment. The study concluded that public libraries in Niger State lack sufficient information resources to meet users' needs and recommended increased government funding. However, the findings were limited by the study's narrow focus on a small purposive sample, which reduces the generalizability of results.

Olaotan (2016) investigated how library resource factors influence the reading habits of senior secondary school students in Ogun State, Nigeria. Using a survey design, data were collected from 537 students through questionnaires. The study revealed that school libraries were poorly equipped, with only textbooks and novels commonly available, while instructional and electronic resources were largely absent. Students mainly used the library for borrowing books and accessing information but relied on external sources for study and reading due to the scarcity of relevant resources. Findings further showed that reading habits were positively predicted by library resource availability (5.5%), adequacy (19.2%), and utilization (12.6%). However, since the study population comprised secondary schools that were often not equipped with electronic resources, the findings were skewed towards print resources, limiting the scope of generalization.

A study by Nabirye and Mwesigwa (2023) at Makerere University in Uganda reported that although 70% of university libraries in Uganda provide both print and electronic resources, only 35% of undergraduate students actively utilise these resources. The study found that 40% of students are aware of digital resources, and only 25% have accessed them. Additionally, 60% of students faced challenges accessing electronic databases due to poor internet connectivity, while 45% lacked adequate training on digital platform use.

In Kenya, a study by Musangi and Ouma (2022) at Kenyatta University revealed that 55% of students reported difficulty accessing digital library resources due to limited computer availability and inadequate internet connectivity. The study also found that although 80% of the library's resources were available online, only 30% of students were effectively using them, largely due to low digital literacy and insufficient training programs.

Alemu (2020), in a study conducted at Addis Ababa University in Ethiopia, reported that access to library information resources is significantly hindered by outdated infrastructure, limited funding, and a shortage of skilled library personnel. The study highlighted that only 40% of students regularly used the library's resources, with 60% citing a lack of awareness about available digital resources and inadequate training on how to access them.

In South Africa, Fourie and Meyer (2021) conducted a study at the University of Pretoria that found 75% of students were aware of the electronic resources provided by the library, but only 50% actively used them. The study reported that barriers such as limited access to computers, high data costs, and inadequate digital literacy were key factors limiting the effective utilisation of these resources.

A study by da Silva and Costa (2021) at the University of São Paulo in Brazil found that while 90% of students were aware of electronic library resources, only 60% reported frequent use. The study indicated that students faced difficulties in navigating digital databases and expressed a preference for print materials, with 45% attributing their limited use of electronic resources to a lack of proper training and guidance.

Another study in Nigeria by Eze and Asogwa (2022) at the University of Nigeria, Nsukka, reported that only 38% of students used digital resources provided by the library. The study identified challenges such as inadequate funding, poor internet connectivity, and a lack of user education as major barriers to accessing and utilizing library resources.

2.3 Library information resources provided by university libraries

Olaotan (2016) assessed the availability and utilization of information resources at the University of Calabar Library, Nigeria. Using a survey design, data were collected from 204 registered students randomly and accidentally sampled from a population of 4,080. Results showed that various information resources were available, students had good access to them, and that availability strongly influenced utilization. The study recommended that university libraries should actively market their resources and services to increase user engagement. However, its reliance on a single university context limits the broader generalizability of the findings.

A study by Nanyonga (2021) at Kyambogo University in Uganda found that university libraries primarily provide a mix of print and electronic resources, including textbooks, academic journals, newspapers, and specialized databases. The study highlighted that 65% of students relied on print resources, while only 35% used electronic resources due to limited awareness and training on digital platforms. Additionally, 50% of the library's budget was allocated to acquiring print materials, reflecting a preference for physical resources among the student body.

In Kenya, Wanyama and Mutisya (2022) conducted a study at Moi University that showed the library offered an extensive range of information resources, including e-books, online journals, multimedia materials, and open access databases. However, only 40% of students reported frequent use of electronic resources, primarily due to inadequate ICT infrastructure and limited digital literacy skills. The study also noted that 70% of students accessed traditional print re

Ahmed (2020) examined electronic resource utilization at Ramat Library, University of Maiduguri, Nigeria, drawing on a stratified sample of 170 registered students. The study showed that while students frequently accessed electronic resources with unlimited accessibility, their awareness of the availability of resources such as e-journals, e-books, scanners, printers, and audio-visuals remained unclear. Although providing useful insights, the study was limited by its exclusive focus on electronic resources, neglecting print materials, which constrained the generalizability of its findings.

Alemayehu (2023) in a study at Jimma University, Ethiopia, reported that university libraries provided a diverse range of resources, including print books, periodicals, electronic journals, and research databases. Despite these offerings, the study found that only 30% of the library's resources were electronic, and many students preferred print materials. The limited use of electronic resources was attributed to a lack of awareness and insufficient digital training among students and staff.

In South Africa, Bothma and Hart (2021) examined library information resources at the University of Cape Town. The study found that the library offered a comprehensive collection of electronic resources, including over 300,000 e-books, numerous digital databases, and online research tools. Despite this, 55% of students continued to prefer print materials, particularly for extended reading and in-depth study. The study noted that while electronic resources were plentiful, their effective use was constrained by a lack of digital skills and high internet costs.

A study by Almeida and Marques (2022) at the Federal University of Minas Gerais in Brazil identified that university libraries provided a wide range of information resources, including digital archives, academic journals, and a significant number of e-books. However, the study reported that only 60% of students accessed these resources, with many preferring physical books due to challenges in navigating electronic databases and a lack of comprehensive user education programs.

Ojo and Aina (2020) in Nigeria, at the University of Ibadan, reported that the university library provided an extensive range of resources, including both print and digital materials, research repositories, and access to international databases. Despite these offerings, the study found that only 45% of students actively used the digital resources available, with the majority citing a preference for print materials due to perceived ease of use and lack of digital literacy skills.

2.4 Comparing Utilisation levels for Electronic and Print Resources

A study by Kintu and Okello (2023) at Makerere University in Uganda compared the utilisation levels of electronic and print resources among undergraduate students. The study found that 58% of the students preferred using print resources, such as textbooks and journals, while only 42% utilised electronic resources. The primary reasons for this preference included ease of access to print materials and limited digital literacy skills. However, students who accessed electronic resources reported greater ease in finding updated information and conducting comprehensive research.

A research by Abok and Kwanya (2016) investigated the information needs and seeking behaviour of 821 final-year students purposively sampled from a population of 1,642 at the Federal University of Petroleum Resources, Effurun (FUPRE). Findings showed that students primarily sought information for academic development, project writing, career opportunities, and self-growth, often consulting Google, search engines, lecture notes, and peers. Key challenges identified included an uncomfortable library environment, limited internet access, inadequate facilities, and information overload. The study recommended improving library conditions and internet connectivity but was limited by its reliance on purposive sampling, which may have introduced selection bias, and by not clearly outlining the availability and accessibility of library resources.

In Kenya, a study by Mutuku and Omondi (2022) at the University of Nairobi revealed that 64% of the students primarily relied on print resources for their studies, while only 36% frequently used electronic resources. The study attributed this trend to limited internet access, high data costs, and inadequate digital infrastructure. Furthermore, students indicated a preference for print resources due to the perceived reliability and familiarity of physical texts.

At Addis Ababa University in Ethiopia, a study by Desta and Tesfaye (2021) found a similar pattern, with 70% of students preferring print resources over electronic ones. Despite the availability of electronic journals and databases, many students (30%) were hesitant to use them due to limited digital skills and inadequate training on how to navigate electronic platforms. The study highlighted the need for better ICT infrastructure and digital literacy programs to enhance electronic resource utilisation.

In South Africa, Moyo and Hoskins (2022) conducted a study at the University of Pretoria that showed a more balanced utilisation of resources, with 52% of students using electronic resources and 48% relying on print materials. The study found that while electronic resources were popular for quick reference and access to the latest research, print resources remained the preferred choice for in-depth study and extended reading due to their tangibility and ease of annotation.

A study by Souza and Santos (2023) at the University of São Paulo in Brazil found that 67% of students predominantly used electronic resources, while only 33% preferred print materials. The study attributed the higher use of electronic resources to the university's comprehensive digital library system, which provided easy access to a wide range of e-books, journals, and research databases. The availability of online resources and user-friendly digital platforms significantly influenced students' preference for electronic resources.

Similarly, in Nigeria, a study by Adeyemi and Babalola (2021) at Obafemi Awolowo University found that 55% of students utilised electronic resources more frequently than print resources (45%). The study suggested that improved internet connectivity, access to digital devices, and training in digital literacy were key factors driving the higher utilisation of electronic resources. However, print resources continued to be valued for specific purposes, such as preparing for exams and coursework.

2.5 Factors influencing Library Information Utilisation

A study by Mukasa and Kyambadde (2023) at Kyambogo University in Uganda identified several factors influencing the utilisation of library information resources among students. The study reported that 68% of students cited accessibility as a key factor, highlighting issues such as limited library hours and inadequate seating capacity. Additionally, 54% of the students pointed to a lack of awareness about available resources and services, which hindered their effective use. The study also found that 47% of respondents were deterred by insufficient ICT skills, which affected their ability to access electronic resources.

Anafo et al. (2020) investigated barriers to e-resource accessibility at the University of Mines and Technology (UMaT), Ghana, using responses from 537 participants drawn from students, academic staff, and library personnel. The study found that although the LAN infrastructure and systems such as Koha, OPAC, and UMaT Space enhanced services like document delivery and circulation, access was hindered by inadequate access points and low awareness of available e-resources. It recommended information literacy initiatives to improve usage. However, the study was limited by its exclusive focus on electronic resources, which restricts the generalizability of the findings.

In Kenya, a study by Wambua and Kamau (2022) at Kenyatta University explored factors affecting library usage and found that 62% of students mentioned the quality and relevance of library collections as a significant factor. The research revealed that outdated materials and limited access to digital resources discouraged many students from utilising the library effectively. Furthermore, 49% of students identified insufficient orientation programs as a barrier, suggesting that enhanced training sessions could promote better resource utilisation.

In Ethiopia, Tesfaye and Tsegaye (2021) conducted a study at Jimma University, which highlighted that 57% of students considered library environment factors, such as noise levels and inadequate lighting, as influential in their decision to use the library. The study also found that 40% of students felt that limited internet access and slow network speeds affected their ability to utilise electronic resources effectively. Furthermore, 63% of the respondents cited language barriers, particularly the predominance of English-language resources, as a challenge.

In South Africa, Nkosi and Mthethwa (2022) at the University of KwaZulu-Natal examined the determinants of library usage and found that 71% of students reported that personal motivation and academic requirements were primary factors. The study showed that students

who were motivated by specific academic goals, such as completing assignments or conducting research, were more likely to use library resources. In contrast, 38% of students indicated that a lack of technological skills limited their use of electronic databases and digital resources.

A study by Carvalho and Gomes (2023) at the Federal University of Rio de Janeiro in Brazil reported that 65% of students identified ease of access to electronic resources as a significant factor influencing library utilisation. The study highlighted that student who had easy access to electronic journals and databases were more inclined to use these resources regularly. Conversely, 52% of the respondents mentioned that poor library infrastructure, such as insufficient computer terminals and outdated software, negatively impacted their ability to utilize available resources.

In Nigeria, a study by Okoro and Onuoha (2021) at the University of Lagos found that 59% of students considered institutional support, such as the availability of online tutorials and workshops, crucial for enhancing library utilisation. The study also reported that 45% of students were influenced by peer behaviour, noting that students were more likely to use the library if their peers did. Additionally, 38% of the respondents cited socio-economic factors, such as the cost of internet data and transportation to the library, as barriers to effective library use.

2.6 Research Gap

While numerous studies have explored various factors influencing the utilisation of library information resources across different universities globally, there remains a significant gap in understanding the specific factors affecting library use among undergraduate students in newer public institutions established in 2020, such as Soroti University in Uganda. Existing literature predominantly focuses on well-established universities, leaving out emerging institutions that may face unique challenges related to infrastructure, resource availability, and student engagement with library services.

Additionally, there is limited research examining the comparative utilisation levels of electronic versus print resources in these contexts, as well as the specific barriers that students in such settings may encounter. The role of individual characteristics, such as age, year of study, and academic program, in shaping information-seeking behaviour and the extent to which these factors influence library resource use in new academic environments remains underexplored. Therefore, this study aims to address these gaps by analysing the utilisation of

library information resources by undergraduate students at Soroti University, focusing on both electronic and print resources and identifying the factors influencing their use.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

As guided by the study objectives in section 1.4, this chapter outlines the steps taken to conduct the study, covering various aspects of the research methodology. It provides details on the research approach, research design, area of study, study population, sample size, and sampling strategy. It also describes the data collection methods, data quality control and analysis

procedures, ethical considerations, and discusses the anticipated limitations and delimitations of the study.

3.2 Research design and approach

This study utilized a school-based descriptive survey design, which was appropriate for identifying patterns and characteristics within the undergraduate student population (Creswell & Creswell, 2018). The design served as a blueprint for the study by outlining the strategy for addressing the research questions (Patel & Patel, 2019). It was considered suitable because it enabled the collection of data from a relatively large group of students at one point in time, allowing for the assessment of how library information resources were accessed and utilized. Compared to experimental designs, which focus on establishing cause-and-effect relationships, or longitudinal designs, which track changes over time, the descriptive survey design was more practical and cost-effective for capturing the current status of library resource utilization among students.

3.2.1 Description of the study design

A school-based cross-sectional study design with a quantitative approach was employed. This design minimizes research bias and allows for the measurement of relationships between variables and library utilisation among fourth- and third-year students. It also enables the collection of standardized data from a larger sample size, enhancing the study's ability to generalize the findings to a broader population.

3.3 Study Area

The study was conducted at Soroti University, located in Soroti District, Uganda, along Moroto Road, approximately seven kilometers from Soroti City (Soroti District, 2024). Situated about 292.8 kilometers from Kampala, Uganda's capital, Soroti University was selected as the study site because it is a relatively young institution, unlike older universities where most similar studies have been conducted.

3.4 Study Population

The study population refers to the group of individuals considered for participation in a research study (Casteel & Bridier, 2021). For this study, the population consisted of third- and fourth-year students in Soroti University. These two groups have had a long stay at the university and are knowledgeable about the existing library information and experience in utilisation of library services.

Soroti University has an estimated population of 320 third- and fourth-year students drawn from the existing two colleges of School of Engineering and Technology and School of Health Sciences (Soroti University, 2024).

3.5.0 Sample size

The study, utilized Krejcie and Morgan's (1970) sample size table is to determine an appropriate sample size, based on population size and desired confidence level. According to this table, a sample size of 200 participants is deemed sufficient to represent the population accurately (Figure 3.1 in the appendix). Table 3.1

Table 3.1: Study Population, Sample Size and Sampling Strategy

Faculty	Population	Required sample size
School of Engineering and Technology	50	42
<i>Computer Engineering</i>	30	30
<i>Electronics</i>	20	12
School of Health Sciences	270	158
<i>Medicine and Surgery (MBChB)</i>	40	28
<i>Nursing Science</i>	72	38
<i>Medical Laboratory Sciences</i>	60	34
<i>Physiotherapy</i>	98	58
Total	320	200

3.5.1 Sampling Strategy

A total of 200 third- and fourth-year students were sampled from Soroti University's two colleges School of Engineering and Technology and School of Health Sciences using a multi-stage approach. The colleges were purposively selected, programs within each college were stratified, and respondents were chosen through simple random sampling using class lists provided by the Heads of Departments. Sample sizes were determined using Krejcie and Morgan tables, resulting in 42 students from Engineering and Technology (30 from Computer Engineering, 12 from Electronics) and 158 from Health Sciences (28 from Medicine and

Surgery, 38 from Nursing Science, 34 from Medical Laboratory Sciences, 58 from Physiotherapy). This approach ensured equal opportunity for selection, minimized bias, and enhanced representativeness across programs and colleges.

3.6.0 Data collection methods and tools

Data collection methods refer to the techniques used to gather information for a study (Taherdoost, 2021). While data collection tools were used to actually collect data. This study utilised survey questionnaire and document review methods and tools.

3.6.1 Survey questionnaire method and tool

A survey questionnaire is a structured research tool used to gather specific information from respondents systematically. It consists of a series of pre-determined questions designed to collect quantitative data. The survey questionnaire consisted of thirteen questions embedded in five sections. Section One collected data on demographics, including the respondent's faculty, gender, age, and year of study. Section Two gathered information on library usage, asking how frequently respondent visited the library and the purposes for which they used it. Section Three collected data on information resource utilisation, both electronic and print, detailing how often respondent used specific resources and how they accessed them. Section Four collected data on factors influencing information utilisation, including library hours, availability of books and resources, staff attitude, and library space. Section Five collected data on challenges faced when accessing electronic and print resources. see appendix II.

3.7 Data quality control

Data quality control is the process of ensuring that the collected data is free from errors (Kothari, 2019). It was used to improve the validity and reliability of the research findings. Validity refers to whether a test, measure, or research method truly assesses what it claims to assess, while reliability refers to the consistency of a measure over time and across different conditions (Creswell & Creswell, 2018). To achieve data quality, the survey instruments were pretested, research assistants trained, and data cleaning was conducted.

3.7.1 Pretesting of the data collection instrument

Questionnaire was pre-tested before being used in the field for data collection, In the pretest, the Third- and Fourth-year students at Busitema University (A university within Soroti city, but not part of the study) were interviewed.

3.7.2 Training of Research assistants

Three (3) research assistants were trained thoroughly on the data collection procedures to ensure consistency and accuracy in administering the surveys.

3.7.3 Data cleaning

Before the data analysis process, data was cleaned by correcting errors, inconsistencies, or missing values to ensure data accuracy and completeness.

3.8 Data Analysis

The sections below could be introduced

3.8.1 Univariate analysis

Data were cleaned, coded, and entered into Excel, then exported to SPSS Version 26 for analysis. Descriptive statistics, including means and standard deviations, were calculated at the univariate level, and the results were presented in tables and figures.

3.8.2 Bivariate and multivariate analyses

Data was analysed using binary logistic regression. The association between independent variables and library information resource utilisation was presented using Crude odds ratios and Adjusted odds ratios. A p-value of 0.2 was used as the cut-off point for including variables in the multivariate analysis. A p-value of 0.05 was applied to determine statistical significance.

3.9 Ethical Considerations

Permission to do the study was granted by Research Ethics Committee (REC) at Uganda Christian University (**Application number: UCUREC-202: UCUREC-2024-1069**). Research participants were fully informed about the study's purpose, potential risks and benefits, and what their participation would involve. They were asked to provide voluntary consent and were informed of their right to withdraw at any time without penalty.

Confidentiality was maintained by ensuring that all information gathered from participants was kept private and not shared without their permission. Steps were taken to minimize any risk of harm and to ensure that participants were not exposed to undue stress or discomfort. Additionally, all secondary sources were properly acknowledged and referenced, plagiarism check was done (**Level of similarity 14%**).

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents the data analysis, and findings as guided by research objectives. The inclusion of challenges and individual characteristics in the study objectives was driven by the need to comprehensively understand factors that affect students' access to and use of library resources.

4.1 Response Rate

A total of 200 respondents were targeted for interviews, all of whom participated, resulting in a 100% response rate. Additionally, library-related information was reviewed using a document review checklist.

4.2 Socio Demographic Characteristic

Out of 200 respondents, males were 116 (58.0%) and females 84 (42.0%). The majority, 174 (87.0%), were aged 21–25 years, with an average age of 24 (± 3) years. Most respondents, 147 (73.5%), were in their third year, while 53 (26.5%) were in their fourth year (Table 4.1).

Table 4.1: Socio-demographic Characteristics of study respondents

Variable	Frequency (N=200)	(%)
Programme of study		
Computer engineering	30	15.0
Electronic Engineering	20	10.0
Medicine and Surgery (MBChB)	28	14.0
Nursing Science	38	19.0
Medical Laboratory Sciences	34	17.0
Physiotherapy	50	25.0
Gender of student		
Male	116	58.0
Female	84	42.0
Age group in years		
21-25	174	87
26-30	16	8.0
≥ 31	10	5.0
Average Age	24(± 3)	
Academic Year		
Year Three	147	73.5
Year Four	53	26.5

Source: Primary Data

The findings in Table 4.1 indicate that most respondents were male, aged between 21-25 years, with an average age of 24 (± 3) years. The majority were third-year students from the School of Health Sciences.

Objective 1: To explore how undergraduate students at Soroti University access different categories of library (electronic and print) information resources.

4.3 Access of different Library Information Resources

Out of 200 respondents, 145 (72.5%) accessed electronic library resources through search engines, 44 (22.0%) used the library website, 20 (10.0%) used the library login, and 34 (17.0%) used other means such as the library mobile app or asking a friend. This shows that search

engines are the most preferred method for accessing electronic library resources, indicating that students rely more on external search tools than institutional platforms.

For print resources, 163 (81.5%) sought assistance from librarians, 43 (21.5%) browsed library stacks, 16 (8.0%) used the online library catalog, and 18 (9.0%) relied on other methods, including artificial intelligence and YouTube. This shows that most students prefer direct interaction with librarians for accessing print materials, suggesting a need for improved self-navigation tools within the library.

Regarding challenges in accessing electronic resources, 120 (60.0%) lacked awareness of available resources, 87 (43.5%) found the library website difficult to navigate, 60 (30.0%) lacked access to computers, and 51 (25.5%) faced internet access issues. This shows that lack of awareness and difficulties in navigating the library website are major barriers, highlighting the need for better user education and website improvements (Table 4.2).

Table 4.2: Accessibility of Library Information Resources (N=200)

Variable	Response	Freq.	percent
Accessibility of electronic library Resources	Library Website	44	22.0
	Library Log in	20	10.0
	Search engine	145	72.5
	Others**	34	17.0
Accessibility of print library resources	Browsing the library stacks	43	21.5
	Online library catalogue	16	8.0
	Asking librarian	163	81.5
	Others*	18	9.0

Others*: Artificial intelligence, YouTube, **Others**:** Library Mobile app, Asking a-friend

Source: Primary Data

The finding in table 4.2 show that students rely more on search engines and inquiring from librarians rather than official library platforms. challenges lack of awareness, difficulty in navigating the library website, and insufficient copies of print materials hinder effective resource utilization.

Objective II: To establish the extent (range) to which undergraduates at Soroti University utilise different categories of library (electronic and print) information resources.

4.4 Utilisation of Library Information Resources

Out of 200 respondents, 122 (61.0%) reported always visiting the library last semester, 67 (33.5%) rarely visited, and 11 (5.5%) never visited. This shows that most of students actively use the library, but a significant portion still underutilize.

Regarding the purpose of library use, 159 (79.5%) visited to study in a quiet place, 112 (56.0%) borrowed physical books, 21 (10.5%) accessed electronic resources, 1 (0.5%) attended workshops or training, and 45 (22.5%) used it for other reasons, such as accessing strong WiFi or research. This shows that students primarily use the library as a quiet study space rather than for academic resource access, highlighting a need to promote resource utilization.

For print resource usage, 123 (61.5%) rarely used books, 25 (12.5%) never used them, and only 52 (26.0%) used them frequently. Physical journals were rarely used by 81 (40.5%), never used by 113 (56.5%), and frequently used by only 6 (3.0%). Newspapers were rarely read by 92 (46.0%), never read by 97 (48.5%), and frequently read by 11 (5.5%). This shows that print resources, especially journals and newspapers, are underutilized, suggesting a shift in student preference towards digital or alternative sources.

For electronic resource usage, 90 (45.0%) never used eBooks, 66 (33.0%) rarely used them, and 44 (22.0%) used them frequently. Online journals were never used by 114 (57.0%), rarely used by 70 (35.0%), and frequently used by only 16 (8.0%). Online databases were never used by 98 (49.0%), rarely used by 79 (39.5%), and frequently used by 23 (11.5%). This shows that electronic resources are also underutilized, particularly online journals, indicating a need for greater awareness and training on accessing and using digital academic materials (Table 4.3).

Table 4.3 Utilisation of Library Information Resources by Undergraduates (N=200).

Variable	Response	Freq.	%
Frequency of visiting library last semester	Never	11	5.5
	Rarely	67	33.5
	Always	122	61.0
Purpose of library Use	To borrow physical books and resources	112	56.0
	To access electronic resources	21	10.5
	To study in quiet place	159	79.5
	To attend workshops or training sessions	1	0.5

	Others*	45	22.5
Use of library print information resources			
Books	Never	25	12.5
	Rarely	123	61.5
	Frequently	52	26.0
Journals (Physical copies)	Never	113	56.5
	Rarely	81	40.5
	Frequently	6	3.00
Newspapers	Never	97	48.5
	Rarely	92	46.0
	Frequently	11	5.50
Use of electronic library information resources			
ebooks	Never	90	45.0
	Rarely	66	33.0
	Frequently	44	22.0
Online journals	Never	114	57.0
	Rarely	70	35.0
	Frequently	16	8.0
Online data bases	Never	98	49.0
	Rarely	79	39.5
	Frequently	23	11.5

Source: Primary Data

Others*: Access strong WIFI, research.

Objective III: To compare the utilisation levels (in- depth) of library information resources (electronic and print) by undergraduate students at Soroti University.

4.5 Comparing Utilisation levels of Print and Electronic Library Information Resources

Out of 200 respondents, 175 (88%) utilized print books, while 110 (55%) used electronic books. For journals, 87 (44%) accessed print copies, whereas 86 (43%) used electronic versions. Regarding newspapers and databases, 103 (52%) accessed print versions, while 102 (51%) used electronic resources.

The average utilization level was higher for print resources (61%) compared to electronic resources (49.5%). This shows that students still favor print materials over digital alternatives, highlighting the need for increased awareness and accessibility of electronic resources (Table 4.5).

Table 4.5; Utilisation levels of Print and Electronic Library Information Resources

Information Resource	Print resources		Electronics resources	
	Freq.(N=200)	Percentage	Freq.(N=200)	Percentage
Books	175	88%	110	55%
Journals	87	44%	86	43%
Newspapers/ or databases	103	52%	102	51%
Average Utilisation Level	122	61%	99	49.5%

Source: Primary data

4.6 The extent of utilisation of Library Information Resources

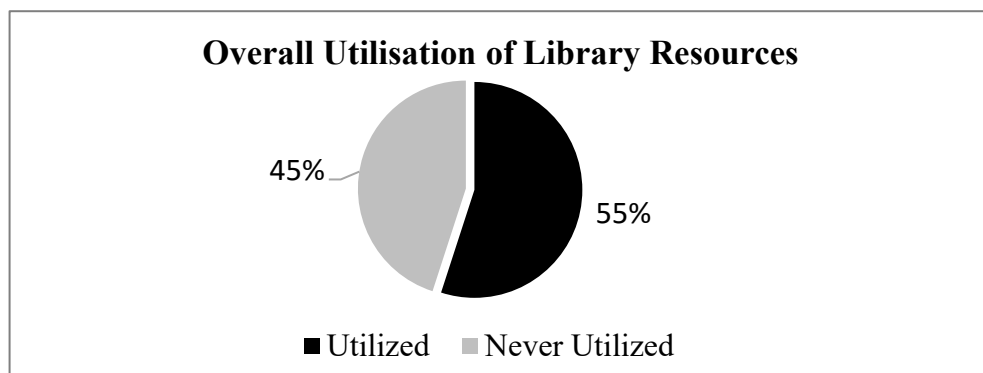


Figure 4.1; Overall Utilisation of Library information Resources

Source: Primary data

About 111 (55%): [95% Confidence Interval: 48.0-62.0] of the respondents utilised library resources while 89 (45%) did not utilize (Figure 4.1).

4.7 Factors Associated with Library Information resource Utilisation

After adjusting for covariate factors, the multivariate analysis shows that academic year of study, library always open, and lack of awareness for available library resources were significantly associated with utilisation of library resources.

Respondents in academic year three were 0.2 times less likely to utilize library information resources AOR=0.2 [95% CI; 0.09-0.49, P=0.000], compared to those who were in year four of their study. Respondents who reported the library as “always open” were 5.9 time more likely to utilize library resources AOR=5.9 [95% CI; 2.14-16.25, P=0.001], compared to those who reported the library as “always closed” Respondents who reported lack of awareness for

available resources had 0.7 times lower likelihood to utilise library resources AOR=0.7 [95% CI; 0.34-0.97, P=0.021], in comparison to their counterparts who knew the available resources (Table 4.6).

Table 4.6: Multivariate Analysis of factors Associated with Library Information Utilisation

Variable	Utilisation of Library Resources		COR (95% CI)	P-value	AOR (95% CI)	P-value
	Utilized (n=111)	Never Utilized (n=89)				
Academic year of study						
Year Three	70(47.6)	77(52.4)	0.3(0.13-5.47)	0.000	0.2(0.09-0.49)	0.000*
Year Four	41(77.4)	12(22.6)	1.0		1.0	
Library always open						
Yes	102(59.6)	69(40.4)	3.3(1.41-7.64)	0.004	5.9(2.14-16.25)	0.001*
No	9(31.0)	20(69.0)	1.0		1.0	
Availability of necessary library Resources						
Yes	91(53.2)	80(46.8)	0.5(0.19-1.09)	0.072	0.3(0.12-1.84)	0.284
No	20(71.4)	8(28.6)	1.0			
Awareness of library services						
No	59(49.2)	61(50.8)	0.5(0.29-0.95)	0.033	0.7(0.34-0.97)	0.021*
Yes	51(64.6)	28(35.4)	1.0		1.0	
Difficulty in locating library materials						
Yes	35(42.2)	48(57.8)	0.4(0.22-0.69)	0.001	0.7(0.34-1.42)	0.323
No	75(65.2)	40(34.8)	1.0			

COR; Crude Odds Ratio, AOR; Adjusted Odds Ratio, *p-value is significant at 95% Level of confidence

Source: Primary data

Table 4.6 shows that academic year of study, library always open, and lack of awareness for available library resources were significantly associated with utilisation of library resources while availability of necessary library resources, and difficult in locating library materials was not significantly associated with library utilization.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter discusses the findings according to each objective, covering access to library information resources, utilisation of these resources, comparison of print and electronic resource usage levels, and challenges and individual characteristics associated with library information utilisation.

5.1 Access of Information Resources

The data shows that access to electronic library information varies significantly among respondents. A majority (72%) accessed information using search engines, while only a small proportion (22%) used the library website. Additionally, a few respondents (10%) accessed resources through the library login system, and 17% utilized alternative methods such as artificial intelligence tools and YouTube.

These findings are supported by other studies. Nyamboga et al. (2023) at the University of Nairobi, 70% of students preferred using search engines over library portals due to ease of access and familiarity. Zyl et al. (2022) found that at the University of Cape Town, only 18% of students accessed resources via the library website, with many citing difficulties navigating the site. In a study at the University of Dhaka, Rahman and Sarker (2023) noted that only 12% of respondents used library logins due to perceived complexity, while 20% used platforms like YouTube for tutorials and supplementary learning. Lastly, Ojo et al. (2023) at the University of Lagos found that 75% of students relied on search engines, reflecting a broader trend towards the use of general-purpose tools over specialized library systems.

Access to print library resources also varied among respondents. The majority (81.5%) accessed resources by asking the librarian, while 21.5% did so by browsing the library stacks. A smaller proportion (8%) accessed resources using online library catalogs, and 9% used other methods, such as mobile apps or asking friends.

These findings align with studies by Ahmed et al. (2023) at the University of Ibadan, where 85% of students reported relying on librarians for locating print resources, citing the efficiency and guidance provided by library staff. Similarly, a study by Gupta and Sharma (2022) at Delhi University showed that 25% of students preferred browsing the stacks themselves, while only 10% used online catalogues due to lack of awareness or difficulty in navigating these systems. Nthuli et al. (2023) at the University of Zimbabwe observed that 8% of students accessed print materials through the library's mobile app, indicating a gradual shift toward digital tools. Lastly, Mulenga and Banda (2023) at the University of Zambia reported that 11% of students often relied on peers or social networks to locate and access print materials.

Regarding access challenges, most 60% reported lack of awareness for available electronic resources, and 54.0% reported insufficient copies of printed text. Other studies reported challenges such as Namagembe et al. (2021) a study in Makerere University, Uganda. highlighting issues such as inadequate infrastructure, limited access to electronic resources,

and low awareness among users. Tumwine et al. (2020). Mbarara University of Science and Technology, Uganda reported challenges like poor internet connectivity and lack of user skills as significant barriers to the use of electronic resources in academic libraries. Okello et al. (2022). Kyambogo University, Uganda. revealed that limited resources and inadequate training hinder effective access and use of digital resources. Majinge et al. (2022). University of KwaZulu-Natal, South Africa identified inadequate assistive technology and lack of awareness as key challenges. Vigo et al. (2021). University of Manchester, UK pointed out accessibility barriers in library resources and suggesting design improvements. Awais et al. (2020). University of Punjab, Pakistan noted issues like lack of adaptive technologies and insufficient institutional support. This implies that, there is need to address challenges such as lack of awareness, few printed copies of books, and internet access by lobbying for resources to add on up to-date copies and orientating learners on the available resources and how to navigate through the library data bases.

5.2 Utilisation of library and library Information Resources

Approximately 61.0% of respondents reported regularly visiting the library during the last semester. The majority, 79.5% visited primarily to study in a quiet environment, while 56.0% visited to borrow printed books and other resources. similar to what Nalukwago et al. (2022) in Makerere University found, they reported that most students visit libraries mainly for a quiet study space and borrowing physical materials, similar to the observed patterns. Kasule et al. (2021) in Kyambogo university reported student's infrequent library visits and reliance on print resources and Baba et al. (2020) noting the concern of many students not visiting the library preferring alternative study environments.

The study shows that 55% of undergraduate students utilised library information resources (both electronic and print), while 45% did not utilize any. This finding is similar to Nakiyingi (2021) at Makerere University, who reported that 57% of undergraduate students utilised both electronic and print resources for their academic work. Okello (2020) found that 52% of students at Uganda Christian University accessed and used both electronic and print resources. Similarly, Katende (2021) at Gulu University reported that 54% of students accessed both print and electronic library resources to support their learning needs. Kasujja (2022) found that 53% of Busitema University students utilised both electronic and print resources provided by the library. In addition, Nankya (2023) at Kampala International University observed that 56% of students regularly used both types of resources for their studies. Lastly, Tumusiime (2024) at

Kyambogo University established that 59% of students utilized both electronic and print resources in their academic activities.

The utilisation of print information resources varies, with 88% of students utilizing books, 44% utilising journals, and 52% utilising newspapers. These findings are similar to those reported by Nsubuga (2021) at Uganda Martyrs University, who found that 80% of undergraduate students utilised books, 35% utilised journals, and 48% utilised newspapers. Similarly, Akena (2022) at Mountains of the Moon University reported that 91% of students used books, 50% used journals, and 60% accessed newspapers. Mugerwa (2023) at Kabale University observed that 78% of students utilised books, 39% utilised journals, and 45% used newspapers. Nanyonga (2024) at Muni University found that 85% of students utilised books, 47% utilised journals, and 57% utilized newspapers. In addition, Byamukama (2020) at Islamic University in Uganda indicated that 87% of students used books, 43% used journals, and 49% accessed newspapers. Tumwine (2023) at Bishop Stuart University established that 82% of students utilised books, 41% utilised journals, and 53% utilised newspapers. Across all studies, Books are the most utilised print resource.

The utilisation of electronic information resources equally varies, with 55% of students utilising eBooks, 43% utilising online journals, and 51% utilising online databases. These findings are similar to those reported by Kirabo (2020) at Uganda Management Institute, who found that 60% of students utilised eBooks, 40% utilised online journals, and 53% utilised online databases. Similarly, Nakafeero (2021) at Kyambogo University observed that 50% of students used eBooks, 46% accessed online journals, and 49% used online databases. Mbabazi (2022) at Makerere University reported that 58% of students utilised eBooks, 39% utilised online journals, and 55% utilized online databases. Nampijja (2023) at Uganda Christian University found that 52% of students accessed eBooks, 44% accessed online journals, and 50% utilised online databases. Moreover, Okurut (2024) at Mbarara University of Science and Technology established that 57% of students used eBooks, 42% used online journals, and 54% utilised online databases. Katusiime (2022) at Gulu University indicated that 53% of students utilised eBooks, 47% utilised online journals, and 48% utilised online databases. Across all studies eBooks are the most utilised electronic resource. This means there is need to Conduct regular workshops and tutorials on how to access and use both electronic and print resources effectively

5.3 Comparing Utilisation levels of Print and Electronic

The data showed that the overall utilisation of print library resources was 61% while for electronic was 49.5%. The utilisation of print resources is higher than utilisation of electronic attributed to lack of awareness of available electronic resources. Similar to Aliyu, M. S. (2023) in Nigeria who found usage of e-resources in Fountain University Library at (45%) compared to print materials (55%), mainly due to limited digital literacy among students.

Other studies have showed different utilisation with more students preferring electronic library information resources than print. Kibedi, M., & Mugabe, E. (2023) in Makerere University found that 65% of students preferred electronic resources due to their accessibility and search capabilities, while 35% still favoured print resources for in-depth reading and reduced eye strain. Okello et al. (2022). Access to Information Resources at Kyambogo University, Uganda. Findings indicated that 72% of undergraduates accessed electronic journals, with only 28% using print resources regularly, citing limited availability as a constraint. Namanya, R. (2022) in Gulu University highlighted that 60% of students used electronic resources more frequently, although 40% continued to rely on print materials due to slow internet connections. Dube et al. (2023) in South Africa showed that 68% of student's primarily accessed electronic resources due to ease of access, but 32% preferred print resources for focused study sessions. This implies that in order to increase the utilisation of electronic resources, there is need to equip learners with the basic digital literacy skills and creating awareness of the available electronic information resources in the university library.

5.4 Factors Associated with Utilisation of Library Information Resources

The analysis reveals that several factors, including the academic year of study, the availability of the library, lack of awareness of available resources, and difficulties in locating library materials, are significantly associated with the utilisation of library information resources.

Students in their third year of study were 0.3 times less likely to utilise library resources compared to those in their fourth year. This finding aligns with the study by Kibedi et al. (2023) conducted at Makerere University, which found that third and fourth-year students were more likely to use electronic resources compared to first and second-year students. The study

suggested that the need for academic research and preparation for final-year projects increases resource utilisation among senior students.

Similarly, Okello et al. (2022) in their study at Kyambogo University reported that fourth-year students had the highest engagement with both print and electronic resources, frequently utilising these materials. In contrast, first-year students showed the lowest utilisation rates, a trend attributed to the increased coursework and research demands in the later years of study. Namanya (2022) found consistent use of library resources across all academic years at Gulu University, with a slight preference for print resources among fourth-year students due to extensive research requirements.

Conversely, some studies found no significant association between the academic year and library utilisation. For example, Luwaga and Atuhairwe (2022) at Mbarara University of Science and Technology found no significant difference in library use across academic years. Wamala et al. (2023) at Uganda Christian University and Tumwine et al. (2023) at Busitema University also reported no significant association. This implies that in order to improve the utilisation of library resources across all years of study, it is necessary to increase student's engagement with library resources by assigning relevant coursework and encouraging faculty to promote resource use actively.

The Study shows that respondents who reported the library as "always open" were 3.3 times more likely to utilise library resources compared to those who reported it as "always closed" underscores the crucial role of library accessibility in promoting resource utilisation. The perception that the library is readily available significantly influences students' likelihood of engaging with both print and electronic resources.

When libraries are consistently open, they provide a dependable environment where students can access materials for their academic work, conduct research, and study. This aligns with findings from studies like Wamala et al. (2023), where improved access to library facilities was linked to higher utilisation rates among students at Uganda Christian University. Similarly, research by Tumwine et al. (2023) at Busitema University showed that limited library hours and closures negatively impacted students' ability to access necessary academic resources, leading to lower usage rates.

Furthermore, the notion of a library being "always open" does not solely refer to physical accessibility but also implies flexibility in operational hours that accommodate students' varied schedules. For instance, Kibedi and Mugabe (2023) at Makerere University noted that extended library hours allowed more students, especially those in their final years, to utilise the library's resources for extensive research projects and exam preparation.

Additionally, an "always open" library fosters a culture of learning and intellectual engagement, creating a welcoming space where students feel encouraged to visit regularly. Okello et al. (2022) also highlighted that the perception of easy access was a significant motivator for frequent library visits among students at Kyambogo University. The study suggested that open and flexible library hours, combined with adequate promotion of available resources, could significantly enhance overall utilisation.

Respondents who were unaware of the available library resources were 0.7 times less likely to utilise them compared to those who were aware highlights the critical impact of awareness on library resource usage. Lack of awareness can significantly hinder students' ability to access and benefit from the library's offerings, as they may not know what is available or how to effectively utilise these resources.

This result aligns with previous studies. For example, Adeoye (2023) found that at Obafemi Awolowo University, Nigeria, undergraduates with low awareness levels of electronic resources were significantly less likely to use them. Similarly, Saha and Pal (2022) at the University of Calcutta reported that promoting awareness and providing training sessions on available library services led to increased resource utilisation. The studies concluded that inadequate awareness of available resources is a primary barrier to effective library use among students.

Furthermore, Kibedi and Mugabe (2023) at Makerere University emphasized the need for libraries to actively promote their resources and services to students. They suggested that libraries should engage in continuous awareness campaigns and orientation programs to familiarize students with the available print and electronic resources. This approach was echoed by Okello et al. (2022) at Kyambogo University, where increased awareness correlated with higher engagement and usage rates.

Respondents who experienced difficulty locating library materials were 0.4 times less likely to utilise library resources compared to those who reported no difficulties highlights the importance of easy access and navigation in encouraging library use. When students find it challenging to locate materials, it discourages them from engaging with the library, reducing overall utilisation rates.

This result is consistent with several other studies. For instance, Kot and Jones (2022) at Nazarbayev University in Kazakhstan found that students who reported difficulties in finding relevant materials were significantly less likely to visit the library frequently. They concluded that user-friendly catalog systems and clear signage are critical for improving resource utilisation. Similarly, Soria and Fransen (2023) at the University of Minnesota observed that students who found library systems difficult to navigate were less likely to use them regularly, suggesting the need for improved orientation and training sessions.

Furthermore, Kibedi and Mugabe (2023) at Makerere University identified that simplifying access to library materials through enhanced digital catalogs and adequate guidance services significantly increased resource utilisation among students. Okello et al. (2022) also found that the availability of user assistance and well-organized resources at Kyambogo University positively impacted students' ability to locate and use library resources effectively.

5.5 Summary of Discussion

The majority of respondents in this study accessed electronic information primarily through search engines, facilitated by the direct accessibility provided by their phones and laptops. This trend is consistent with findings from similar studies conducted by Nyamboga et al. (2023) at the University of Nairobi, Zyl et al. (2022) at the University of Cape Town, Rahman and Sarker (2023) at the University of Dhaka, and Ojo et al. (2023) at the University of Lagos. When it came to printed resources, most students preferred to seek assistance from librarians, benefiting from the efficiency and guidance provided by the library staff. This observation aligns with studies by Ahmed et al. (2023) at the University of Ibadan, Gupta and Sharma (2022) at Delhi University, Nthuli et al. (2023) at the University of Zimbabwe, and Mulenga and Banda (2023) at the University of Zambia.

The study further revealed that 55% of the students utilized both electronic and print library resources, indicating a significant level of engagement with library information services. This finding is consistent with previous research conducted by Nakiyingi (2021) at Makerere

University, Okello (2020) at Uganda Christian University, Katende (2021) at Gulu University, Kasujja (2022) at Busitema University, Nankya (2023) at Kampala International University, and Tumusiime (2024) at Kyambogo University.

A comparison of resource utilisation levels showed that more students preferred printed library resources over electronic ones. This preference was attributed to a lack of awareness of the available electronic resources, a trend also noted in studies by Aliyu, M. S. (2023) in Nigeria, Kibedi, M., & Mugabe, E. (2023) at Makerere University, and Okello et al. (2022) at Kyambogo University, Uganda. However, other studies, such as those by Namanya, R. (2022) at Gulu University Library and Dube et al. (2023) in South Africa, reported a higher utilisation of electronic resources compared to printed ones. These findings highlight the need to equip students with basic digital literacy skills and to raise awareness about the electronic information resources available in university libraries.

5.6 Limitations and delimitations to the study

One of the limitations of the study was the potential for students to inaccurately report their use of library information resources due to social desirability bias, as they may have wanted to appear as good students. This was addressed through triangulation to obtain more comprehensive findings.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Conclusion

The Accessibility of electronic library resources was mainly via search engines, library website library login, and through other methods like AI tools and YouTube while print resources were accessed by asking the librarian, browsing library stacks, and through other methods, such as mobile apps or friends.

About 61% of respondents regularly visited the library, primarily to study in a quiet place or borrow printed resources. Overall, 61% utilised print resources, while 49.5% used electronic ones. Library usage was reported by 55%, with 45% not using any resources. Key factors influencing utilisation included the library being always open, academic year and awareness of available resources.

6.1 Recommendations

- The Ministry of Education, in conjunction with Soroti University, should implement training programs to boost students' digital literacy in using electronic resources through workshops and online tutorials.
- The Soroti University Library and heads of departments should conduct awareness campaigns to inform students about available print and electronic resources using various communication channels.
- Soroti University should extend library hours and ensure digital resources are accessible outside regular hours to support continuous student access.
- The Soroti University Library should improve the catalogue system and provide clear signage to help students easily locate and access library materials.
- Heads of departments and faculty members should integrate library resources into coursework and assignments, especially for first-year students, to foster early resource usage habits.
- Further research is needed on the impact of integrating library resources into coursework and assignments on students' research skills and information literacy

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- Zygiaris, S., Hameed, Z., Alsubaie, M. A., & Rehman, S. U. (2022). Service Quality and Customer Satisfaction in the Post Pandemic World: A Study of Saudi Auto Care Industry. *Frontiers in Psychology*, 13, 1–9. Frontiersin. <https://doi.org/10.3389/fpsyg.2022.842141>
- Zyl, D., Malan, C., & Jacobs, E. (2022). *Library Website Usage Trends at the University of Cape Town*. University of Cape Town.

Appendix I: Consent form in English

Research Title: Analyzing the Utilisation of Library Information Resources by Undergraduate students at Soroti University

Informed Consent: Your participation in this research is entirely voluntary. You have the right to refuse to participate, to withdraw from the study at any time, and to ask any questions you may have.

What will you be asked to do?

If you agree to participate, you will be asked to:

- **Complete a short survey:** This survey will ask you questions about your use of the library, the services you find most helpful, and any challenges you encounter in accessing information resources.
- **OR Participate in a brief interview:** You may be selected for a follow-up interview to discuss your responses to the survey in more detail. This interview will take approximately 30 minutes and will be recorded for accuracy.

Confidentiality:

All information you provide will be kept confidential. Your name and any other identifying information will not be shared with anyone outside the research team. Survey responses and interview recordings will be stored securely and anonymized before being analyzed.

Benefits and Risks:

There are no direct benefits or risks to you for participating in this research. However, the findings of this study may contribute to improving the library and information services at Soroti University, ultimately benefiting all students and faculty.

Contact Information:

If you have any questions about this research study, please feel free to contact:

- **Principal Investigator:** Atai Hellen Flavia
- **Contact Information:** 0778485856

Your Consent:

By signing below, you are confirming that you have read and understood this consent form and agree to participate in this research study. You are also confirming that you are 18 years of age or older.

Sign.....**Date**.....

(Participant)

Thank you for your time and consideration.

Appendix II: Structured Questionnaire for Undergraduate Students

Introduction:

Thank you for participating in this survey! This study aims to understand how undergraduate students at Soroti University utilize library information resources. Your honest responses will be crucial in helping us improve library services for students.

Please note: All your responses will be kept confidential.

Instructions:

Please answer all questions to the best of your ability. Select the answer that best reflects your experience.

Section 1: Demographics

1. Faculty:

- School of Engineering and Technology
- School of Health Sciences

2. Gender

- Male
- Female

1. Enter your Age

2. Year of study

Section 2: Library Usage

1. In the past term, how often have you visited the library?

- Daily
- Weekly
- Monthly
- Rarely
- Never

2. For what purposes do you typically use the library? (Select all that apply)

- To borrow physical books and resources
- To access electronic resources (e-books, journals, databases)
- To study in a quiet environment
- To attend workshops or training sessions
- Other (Please specify): _____

Section 3: Information Resource Utilisation

Instructions: Please answer the following questions regarding your use of electronic and print library resources in the past year.

Electronic Resources:

3. How often do you use the following electronic library resources?

Resource	Never	Rarely	Occasionally	Frequently	Very Frequently
E-books					
Online journals					
Online databases					

4. How do you typically access electronic library resources? (Select all that apply)

- Through the library website
- Using university login credentials
- Through search engines
- Other (Please specify): _____

Print Resources:

5. How often do you use the following print library resources?

Resource	Never	Rarely	Occasionally	Frequently	Very Frequently
Books					
Journals [Physical copies]					
Newspapers					

6. How do you typically find the print resources you need in the library? (Select all that apply)

- Browsing the library stacks
- Using the online library catalog

- Asking a librarian for assistance
- Other (Please specify): _____

Section 4: Factors Influencing Information utilisation

7. Is the Library always Open for Students
 - Yes
 - No
8. Are the necessary Books and Resources available for your course?
 - Yes
 - No
9. How is the attitude of the library staff?
 - Good
 - Poor
10. How do you rate your academic Performance?
 - Good
 - Poor
11. Is there adequate space in the library for you to seat
 - Yes
 - No

Section 5: Access to Information Challenges

12. What challenges do you face when accessing electronic resources?
 - Lack of access to computers
 - Lack of internet access
 - Difficult to navigate the library website
 - Lack of awareness about available resources
 - Others
13. What challenges do you face when accessing print resources?
 - Insufficient copies of textbooks
 - Limited library opening hours
 - Difficulty locating materials in the library
 - Others

THANK YOU

Appendix III: Document review

This checklist outlines the documents to be reviewed for the study analyzing the utilisation of library information resources by undergraduate students at Soroti University.

- **Soroti University Library Website:**
 - Information on library collections (print and online)
 - List of available databases
 - Information on specialized collections (e.g., government documents, archives)
 - Resource guides for specific disciplines
- **Soroti University Library Annual Reports (if available):**
 - Statistics on library resource acquisitions
 - Information on any recent additions or changes to library collections
- **University Policies:**
 - Policies on access to library resources (e.g., eligibility for online databases)
 - Policies on borrowing and use of library materials

Appendix IV: Proposed Budget

Item	Unit of measure	Unit Cost (Ugx)	Quantity	Total Cost (Ugx)
Stationery Costs				
Pens	Piece	1,000	2	2000
Notebook	Piece	30,000	1	30,000
Travels Costs				
Fuel Expenses	Litres	1,000,000		1,000,000
Subsistence Costs				
Airtime	Card	100,000	1	100,000
Internet	Card	200,000	1	200,000
Research Assistance				
Research Assistants	Person	500,000	2	1,000,000
Data Analysis	Person	2,000,000		2,000,000
Secretarial Services				
Printing	Lump	150,000		150,000
Photocopying	Lump	20,000		20,000
Binding	Lump	30,000		30,000
Dissemination Publication				
Journal Publication	Lump	300,000		300,000
Others Costs				
Institutional Administrative Fee	Lump	500,000		500,000
Total				5,332,000

Budget Justification

The proposed budget covers essential costs for conducting the research effectively. Stationery is required for note-taking, while travel expenses cover transport to study sites. Subsistence costs for airtime and internet ensure seamless communication and access to resources. Research assistance and data analysis are crucial for collecting and processing data accurately. Secretarial services are needed for producing and binding documents. Dissemination funds allow for publishing findings, and the administrative fee covers overhead costs. The total amount of **UGX 5,332,000** is justified for a comprehensive and efficient research process.

Appendix V: Work plan

SN.	Activity Flow	Time frame (Month)							
		Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024
1	Concept Defence								
2	Proposal writing								
3	Proposal Defence								
4	Field Data Collection								
5	Data Analysis								
6	Report Writing								
7	Initial Draft report Submission								
8	Final Report submission								
9	Report defence								
10	Report publication and dissemination of findings								

Appendix VI: REC Approval



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UNIVERSITY**

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Office of the Vice Chancellor
Research Ethics Committee UG-026



13th March, 2025

FLAVIA ATAI
Makerere University
0778485856
Email: flaviaatai2@gmail.com

UG-REC-026 APPROVAL NOTICE

To: Flavia Atai, Principal Investigator

Re: UCU-REC Application titled: *Analyzing the utilisation of library information resources by undergraduate students at Soroti University.*

Application Number: UCUREC-2024-1069

Version: 4.1

Type: INITIAL REVIEW
 Protocol Amendment
 Letter of Amendment (Loa)
 Continuing Review
 Material Transfer Agreement
 Other, Specify:



I am pleased to inform you that the UG-REC-026; UCUREC approved the above referenced application.

Approval of the research is for the period from 13th March, 2025, to 13th March, 2026

This research is considered minimal risk category.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and additions to the protocol or the consent form must be submitted to the REC for re-review and approval prior to the activation of the changes. The REC application number assigned to the research should be cited in any correspondence.

1 of 2

Research and Ethics

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885 Fax: +256 (0) 4142 90 800 Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
UCUREC is accredited by Uganda National Council for Science & Technology, FDA, and National Institutes for Health of the United States of America



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Research Ethics Committee UG-026



3. Reports of unanticipated problems involving risks to participants or other must be submitted to the REC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for REC review.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Regulations require review of an approved study not less than once per 12-month period. Therefore, a continuing review application must be submitted to the REC eight weeks prior to the above expiration date of 13th March, 2026 in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. Your research details have been shared with the Executive secretary of Uganda National Council for Science and Technology (UNCST) and you are not required to get clearance since you are a Master's Degree research. Refer to UNCST Research registration and clearance Policy and guidelines (July 2016) in Uganda section 6(e).

The following is the list of all documents approved in this application by UG-REC _026:

	Document Title	Language	Version	Version Date
1.	Protocol	English	1.0	2024-10-16
2.	Informed Consent form	English	1.0	2024-10-16
3	Questionnaire	English	1.0	2024-10-16
4	Checklist		1.0	2024-10-16

Signed and Stamped

Prof. Peter Waiswa.
UCUREC Chairperson,
pwaiswa@musph.ac.ug



Appendix VII: Plagiarism Check report



Flavia Atai

Research Report Final

- Quick Submit
- Quick Submit
- Uganda Christian University

Document Details

Submission ID
trn:oid::1:3181791264

Submission Date
Mar 13, 2025, 12:53 PM GMT+3

Download Date
Mar 13, 2025, 1:02 PM GMT+3

File Name
AtaiFeb27FEB2025Flavia.docx

File Size
209.2 KB

69 Pages

16,512 Words

99,556 Characters







14% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.




Filtered from the Report

- Bibliography

Match Groups

-  **152** Not Cited or Quoted 11%
Matches with neither in-text citation nor quotation marks
-  **34** Missing Quotations 2%
Matches that are still very similar to source material
-  **0** Missing Citation 0%
Matches that have quotation marks, but no in-text citation
-  **0** Cited and Quoted 0%
Matches with in-text citation present, but no quotation marks

Top Sources

- 11%  Internet sources
- 8%  Publications
- 4%  Submitted works (Student Papers)

Integrity Flags

1 Integrity Flag for Review

-  **Hidden Text**
1 suspect characters on 1 page
Text is altered to blend into the white background of the document.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

Appendix VIII: Krejcie and Morgan Sample size Table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Source: Krejcie and Morgan (1970)