

ACCESSIBILITY AND USE OF RESEARCH4LIFE DATABASES BY PHARMACY UNDERGRADUATE STUDENTS OF NNAMDI AZIKIWE UNIVERSITY AWKA

OTUBELU, Blessing Nnenna (Ph.D)

Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

nb.otubelu@unizik.edu.ng

ORCID: 0000-0002-0090-2413

ANIKE, Angela Njideka (Ph.D)

Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

an.anike@unizik.edu.ng

ORCID: 0000-0002-7169-6792

and

OFFOR, Chimezie Cecilia

Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

cc.offor@unizik.edu.ng

ABSTRACT

The purpose of the study was to ascertain the accessibility and strategies to improve access and use of research4life databases by pharmacy undergraduate students of Nnamdi Azikiwe University Awka. Four research questions gave direction to the study. Survey research design was employed for the study. The sample size for the study consisted of 169 four hundred level undergraduate students of Pharmacy (2023/2024 session). Accessibility and Use of Research4life Databases by Pharmacy Undergraduate Students Questionnaire (AURDPUQ) was used to collect data. Data collected were analyzed using mean and standard deviation. The findings of the study revealed that Research4life platforms were accessible to undergraduate students of pharmacy. The findings of the study further indicated that research4life platforms were used to a low extent by undergraduate students of pharmacy. Based on the findings of the study, it was recommended that Universities authorities should sustain their efforts towards making research4life platforms accessible to pharmacy undergraduate students.

Keywords: Research4life, Database, Accessibility, Utilization, Undergraduate, Pharmacy

Introduction

Information is the communication or reception of knowledge or intelligence. It leads to knowledge, which leads to wisdom. Therefore, information is power. Sin and Kim (2013) noted that "information plays a significant role in our daily professional and personal lives and we are constantly challenged to take charge of the information that we need for work, fun and

everyday decisions and tasks. Advancements in technology have changed the way information is acquired, selected, stored, retrieved and disseminated. Adoption and use of information communication technologies in libraries have resulted in libraries subscribing to electronic databases that is made accessible to meet the research information needs of the users.

Pharmacy undergraduate students have a wide range of information needs related to their course work, research, projects, and future career. They need access to up-to-date information on drugs, including their indications, contraindications, side effects, interactions, and dosages. They may use online databases, textbooks, and other resources to find this information. However, they face challenges in finding and accessing such resources, which can negatively impact their academic performance and future professional development (Chelulei Kipkosgei, 2020). This can be accessed using databases.

Electronic databases are vital to granting researchers remote access to a broad spectrum of relevant information. Electronic database is a large, regularly updated files of digitized information (bibliographic records, abstracts, full-text documents, directory entries, images, statistics, and others) related to a specific subject or field, consisting of records of uniform format organized for ease and speed of search and retrieval and managed with the aid of database management system (DBMS) software. There are many, different types of electronic databases in the world today, including statistical databases, image databases, Pubmed database, Ebscohost, Research4life and others. These databases are becoming very important these days as they are more up-to-date, and can be accessed anywhere, crossing all geographical boundaries. Such electronic databases are very valuable and useful for time-saving while conducting research activities.

Research4life provides institutions in low-and middle-income countries with online access to academic and professional peer-reviewed content. It has provided online access to 203,000 leading journals and books in various fields of study. There are five content collections in Research4life: Health InterNetwork Access to Research Initiative (HINARI), Access to Global Online Research in Agriculture (AGORA), Online Access to Research (OARE), Access to Research for Development and Innovation (ARDI), and Global Online Access to Legal Information (GOAL). Research4life empowers universities, colleges, research institutes etc. with access to scientific and professional knowledge that was never before imagined and also improves teaching, research and policymaking in health, agriculture, the environment and other life, physical and social sciences. Emmasiegbu and Anaehobi (2021) noted that the access and use of databases within the academic setting had direct and indirect effects on students, academic staff efficiency. Additionally, it enables students to conduct quality research.

Accessibility means that users can identify and use information resources (Abdullahi & Aliyu, 2019). Accessibility could mean authorization, opportunity, or right to access records or retrieve information from different sources of information such as the Internet, databases, radio, posters, bulletins, newspapers, journals and libraries and information centers (Tukur, Ibrahim & Lawal,

2022). Accessibility of information resources is the ease of locating and retrieving a piece of information from the storage medium by the user. The availability of library resources does not guarantee accessibility. Yet, accessibility is a basic precursor to the use of library resources. Resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to lay hands on them (Agulu & Aguolu, 2002). Agulu and Aguolu (2002) further explained that accessibility is directly proportional to the use of information resources. This implies that it is those resources that are accessible with minimal efforts that can be used by library patron.

While Research4life have been developed to provide access to relevant and current information resources for students, the accessibility in meeting the information needs of pharmacy undergraduate students is not well understood. There is need to investigate the level of accessibility of Research4life platforms among pharmacy students, its use, problems of access as well as Strategies to improve the access and use of Research4life platform in meeting information needs. Understanding these issues can help to identify areas of improvement and recommend strategies to enhance the accessibility and use of these sources, ultimately improving the academic performance and professional development of pharmacy undergraduates.

Specifically, the study sought to ascertain:

1. Level of accessibility of Research4life information resources among pharmacy undergraduate students.
2. Extent of use of Research4life platform in meeting information needs.
3. Problems of accessing Research4life platform in meeting information needs.
4. Strategies to improve the access and use of Research4life platform in meeting information needs.

Research Questions

The following research questions were formulated to give direction to the study:

1. What is the level of accessibility of Resarch4life resources?
2. What is the extent of use of Resarch4life resources?
3. What are the problems of accessing Resarch4life resources?
4. What strategies can improve the access and use of Research4life resources in meeting the information needs of pharmacy undergraduates?

Literature Review

Pharmacology and therapeutics form a significant part of pharmacy education. Information about the mechanism of action, indications, contraindications, adverse effects, and drug interactions of various medications are desired and drug databases, textbooks, and reputable internet resources provide valuable drug information.

Mohiuddin (2020) is of the opinion that pharmacy students may require information about pharmacokinetic principles, dosage adjustment in special populations, interpreting drug concentration data, calculations for compounding medication, patient counseling and communication are crucial to pharmacists. Meeting information needs of pharmacy students are essential for several reasons; Enhanced learning and knowledge acquisition; Supporting evidenced-based practice; Fostering critical learning and analytical skills; Promoting lifelong learning; Stimulating Research and innovation; Professional development and competency. Provision of these needs empowers them to become knowledgeable, skilled and competent pharmacists who can deliver optimal patient care and contribute to the advancement of the pharmacy profession.

Research4Life is a multi-partner initiative that aims to reduce the knowledge gap between industrialized countries and lower and middle-income countries in the Global South. Founded in 2001, Research4Life now offers either completely free, or very low-cost, access to a huge collection of authoritative content from the world's leading publishers. Research4life contains a total of forty-three databases listed in alphabetical order. The Research4life programmes are accessible through an online platform that allows registered institutions in eligible countries access and download the resources. Since its inception, Research4life has made significant strides in expanding access to scientific knowledge. It has partnered with numerous publishers and institutions, continually adding new resources to its collections. Research4life has had a positive impact on scientific communities in low-income countries, empowering researchers and professionals to contribute to global knowledge and advance scientific research in their respective fields.

Research4Life platforms are important innovations providing access to millions of reliable, accurate, relevant and quality full-text databases, e-journal articles, books, needed for scientific research. They are available to researchers in many institutions in the fields of agriculture, environment, health and medical sciences both in the developed and developing countries of the world to support and empower research (Kumari and Pandey, 2023). Thus, Research4life databases and internet information resources facilitate an effective provision of information to all calibers of users, promote collaborative efforts in research; using communication network tools and encourages generation and dissemination of knowledge.

Access to information is essential for successful and efficient scholarly research. Aina (2014) found that electronic databases were not fully accessible. Similarly, Abdulganiyu, Peter and Rakiya (2019) observed a low level of accessibility to electronic databases in their study. In contrast, Yusuf and Farouk (2017) reported that accessing electronic databases in their research was easy. Abdulganiyu et al. (2019) identified several challenges impacting the use of electronic databases, including a lack of search skills, difficulty in locating relevant items, insufficient assistance from library personnel, and inaccessibility of usernames and passwords needed for some online databases. Similarly, Aina (2014) concluded that some databases were not fully

accessible due to inadequate internet facilities and unreliable electricity supply. Edesiri (2018) further highlighted challenges such as a lack of awareness of relevant electronic databases, inconsistent electricity supply, and insufficient information skills.

Uzuegbu, Chukwu, and Ibegwam (2012) reported that their respondents did not use electronic databases due to a lack of awareness of the resources. Conversely, In contrast, Basiru, Okwilagbe and Adebayo (2018) concluded that there was high utilization of electronic databases among respondents. The ultimate goal of the online databases is to meet the information needs of users and enhance their scholarly endeavors. Studies conducted revealed common findings that online databases offer several benefits to users. A study conducted by Adeleke and Nwalo (2017) established that access to relevant and current information from different subject areas was the main benefit students got from using online databases. They further endorsed that online database offer up-to-date information. For example, once a journal article is uploaded on the online database, it can be accessed globally the same time by many users. Additionally, the study established that online database increase timeliness among students in doing research. This means students can do their research in time since they will have information available to do literature review instead of wasting on searching for information. Chimsinde (2019) in a similar study, investigated use of electronic information resources among students at the African Bible College, Malawi Campus. The study revealed that the majority of students reported that they benefitted from online databases as they had access to a wide range of information. This enabled them access a lot of online journal articles. In addition to that, the study found out that students benefitted from online databases because they had quick access to current information.

Several factors can either hinder or enhance students' use of online resources. Obasuyi, Okwilagwe and Adebayo (2018) conducted a study investigating how institutional factors influenced the utilization of Research4Life databases by scientists at National Agricultural Research Institutes (NARIs) in Nigeria. The study found that students were more likely to use online databases due to the comprehensive training provided by library staff. This training is crucial as it equips students with knowledge about online databases in their field of study, enabling them to develop effective search strategies, critically evaluate information sources, and properly cite and reference these sources. Conversely, a lack of training may discourage students from using online databases. Awareness enhances usage.

Findings from various African scholars indicate that a significant barrier to the adoption and use of online databases in the continent is the lack of ICT infrastructure in African institutions (Chima, Chipeta & Chawinga, 2024; Ternenge & Kashimana, 2019). This includes essential technologies such as computers, telecommunications technologies, internet access, bandwidth, power supply, and peripheral devices like printers, copiers, and scanners. In addition to having the necessary equipment, there is also a need for skilled administrative and support personnel. Generally, inadequate ICT infrastructure poses a problem for accessing and using online databases. Conversely, the availability of ICT infrastructure can encourage students to use online

databases. Students may be more inclined to use online databases if their computers are set to remember passwords after the initial login. However, complicated passwords can deter students from using these resources. Knowledge acquisition, learning, and research rely on the availability and accessibility of relevant information resources (Unegbu, Lawal-Solarin, & Ladan, 2017).

METHOD

Survey research design was used for the current study. The sample size for the study was made up of all the 169 four hundred level students of pharmacy (2023/2024 session). The choice of four hundred level student is underlined by the fact that they have spent at least nine semesters in the school and are expected to be aware of Research4life Databases. Data were collected using Accessibility and Use of Research4life Databases by Pharmacy Undergraduate Students Questionnaire (AURDPUQ). AURDPUQ was developed by the researcher and contains 20 items. AURDPUQ was divided into four clusters, A, B, C and D in line with the specific purposes of the study. Cluster A sought information on level of accessibility of Research4life information resources among pharmacy undergraduate students and was developed in such a manner that the respondents responded in a four response options of Highly Accessible, (HA), Accessible (A), Fairly Accessible (FA), Not Accessible (NA) with numerical indices of 4, 3, 2 and 1 respectively. Cluster B sought information on extent of use of Research4life platform in meeting information needs with a four-point response options of Very High Extent, High Extent (HE), Low Extent (LE) and Very Low Extent (VLE). Cluster C sought information on problems of accessing Research4life platform in meeting information needs and Cluster D - sought information on strategies to improve the access and use of Research4life platform in meeting information needs. Clusters C and D response options are thus stated: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with numerical indices of 4, 3, 2 and 1 respectively. Data were collected from the respondents through the help of their course representative who served as research assistant. Out of the 169 copies of questionnaire administered, 142 was returned; signifying 84.02% return rate. Mean and standard deviation were used for data analysis. The decision rule for the research questions were based on item and cluster means relative to real limits of numbers as shown below:

Response	Rating Scale	Real Limit of Numbers
HA/SA/VHE	4	3.50 – 4.00
A/A/HE	3	2.50 – 3.49
FA/D/LE	2	1.50 – 2.49
NA/SD/VLE	1	1.00 – 1.49

Results

Table 1: Level of Accessibility to Research4life data bases Among Pharmacy Students.

I have access to the following research4life and internet sources:	Mean	SD	Remark
1. HINARI	3.62	.90	HA
2. AGORA	3.04	.87	A
3. OARE	3.59	.82	HA
4. ARDI	2.92	.77	A
5. GOAL	2.81	.85	A

Data in Table 1 show that items 1 and 3 have mean scores within the range of 3.50 – 4.00. This shows that HINARI and OARE are highly accessible to majority of the respondents. Other items such as AGORA, ARDI and GOAL have mean scores in the range of 2.50 – 3.49; indicating that they are accessible to the respondents. Overall, the Research4life data bases are accessible to undergraduate students of pharmacy.

Table 2: Extent of Use of Research4life Platform in meeting Information Needs.

I use the following research4life platforms:	Mean	SD	Remark
1. HINARI	2.60	.73	HE
2. AGORA	2.04	.47	LE
3. OARE	2.51	.71	HE
4. ARDI	2.25	.53	LE
5. GOAL	2.17	.50	LE

Data in Table 2 show that items 1 and 3 have mean scores within the range of 2.50 – 3.49. This shows that HINARI and OARE are used to a high extent by the majority of the respondents. Other items such as AGORA, ARDI and GOAL have mean scores in the range of 1.50 – 2.49; indicating that they are used to a low extent by the respondents. Overall, the Research4life platforms are used to a low extent by undergraduate students of pharmacy.

Table 3: Problems of Accessing Research4life Platform.

I have a problem accessing research4life platforms due to:	Mean	SD	Remark
1. Lack of training	3.01	.81	A
2. Poor telecommunication technologies	3.62	1.04	SA
3. Poor internet access	3.27	.87	A
4. Low bandwidth	3.55	.95	SA
5. Epileptic power supply	3.48	.90	A

Data in Table 3 show that items 2 and 4 have mean scores within the range of 3.50 – 4.00. This shows that majority of the respondents are in strong agreement that poor telecommunication technologies and low bandwidth constitute problems to their access to Research4life platforms. However, items 1, 3 and 5 have mean scores in the range of 2.50 – 3.49; indicating that a good number of respondents agree that lack of training, poor internet access and epileptic power supply constitute problems to their access to Research4life platforms. Overall, the undergraduate students of pharmacy are in of the problems of accessing Research4life platforms.

Table 4: Strategies to Improve the Access and Use of Research4life among Pharmacy Students.

The following are strategies to improve the access and use of research4life platforms:	Mean	SD	Remark
1. Adequate awareness of Research4life platforms.	3.51	.70	SA
2. Consistent training on the use of Research4life website and online databases.	3.60	.72	SA
3. Availability of password	3.22	.75	A
4. Fast internet access	3.12	.60	A
5. Acquisition of information retrieval skills	2.74	.58	A
6. Provision of stable power supply	2.85	.79	A
7. Adequate ICT Infrastructure	2.68	.71	A
8. Free download of article	3.73	.77	SA
9. Quick access to journal articles	3.87	.86	SA

Data in Table 4 show that items 1, 2, 8 and 9 have mean scores within the range of 3.50 – 4.00. This shows that the respondents strongly agree that adequate awareness of Research4life and Internet resources, consistent training on the use of Research4life website and online databases, free download of articles and quick access to journal articles are strategies to improve the access and use of research4life platforms. Meanwhile, the respondents agree that availability of password, fast internet access, acquisition of information retrieval skills, provision of stable power supply and adequate ICT infrastructure are strategies to improve the access and use of research4life platforms.

Discussion

In line with the findings of the study, discussions were made:

Level of Accessibility to Research4life Platforms among Pharmacy Students

The findings of the study showed that Research4life platforms are accessible to undergraduate students of pharmacy. This goes to show that the relevant stakeholders in university education are alive to their responsibility of making Research4life and Internet resources accessible to the students. Thus, accessibility will help to promote usage. The findings of the present study are in alignment with those of Adeleke and Nwalo (2017) who established that access to relevant and current information from different subject areas was the main benefit students got from using online databases. Apparently, access is expedient given that it enables students do their research in time since they have accessible information to do literature review instead of wasting on searching for information. Corroborating the findings of the present study further, Chimsinde (2019) found that the majority of students reported that they benefitted from online databases as they had access to a wide range of information. Put differently, access to online database guarantees optimum benefit to students in matters of research.

Extent of Use of Research4life Platform in meeting Information Needs

The findings of the study showed that research4life platforms are used to a low extent by undergraduate students of pharmacy. This is rather surprising given that the students already have access to research4life platforms. Thus, it stands to reason that the consequence of poor usage could be as a consequence of lack of awareness. In line with the findings of the current study, Uzuegbu, Chukwu, and Ibegwam (2012) reported that their respondents did not use electronic databases due to a lack of awareness of the resources. In contrast, Basiru, Okwilagbe and Adebayo (2018) concluded that there was high utilization of electronic databases among respondents. The contradictory findings may not be separated from disparities in sample characteristics.

Problems of accessing Research4life platform in meeting information needs among Pharmacy Students

The findings of the study showed that poor telecommunication technologies, low bandwidth, lack of training, poor internet access and epileptic power supply constitute problems to access to Research4life platforms among Pharmacy students. This obviously so given that the aforementioned problems appear to be prevalent within the country. For instance, if there is low bandwidth or epileptic power supply as it is usually the case, the access and subsequent use of Reserach4life resources among students become problematic as these resources need the aforementioned infrastructural facilities to thrive. In tandem with the findings of the current study, Aina (2014) concluded that some databases were not fully accessible due to inadequate internet facilities and unreliable electricity supply. Similarly, Edesiri (2018) further highlighted challenges such as a lack of awareness of relevant electronic databases, inconsistent electricity supply, and insufficient information skills. Awareness enhances usage. In other words, when students are not trained in the use of Research4life platforms, use becomes problematic. Chima, Chipeta and Chawinga (2024); Ternenge and Kashimana, (2019) found that a significant barrier to the adoption and use of online databases in the continent to be the lack of ICT infrastructure which includes computers, telecommunications technologies, internet access, bandwidth, power supply, and peripheral devices like printers, copiers, and scanners.

Strategies to Improve the Access and Use of Research4life platforms among Pharmacy Students

The findings of the study revealed that adequate awareness of Research4life platforms, consistent training on the use of Research4life website and online databases, free download of articles, quick access to journal articles, availability of password, fast internet access, acquisition of information retrieval skills, provision of stable power supply and adequate ICT infrastructure are strategies to improve the access and use of research4life platforms among undergraduate students of pharmacy. In line with the findings of the current study, Obasuyi, Okwilagwe and Adebayo (2018) found that students were encouraged to use online databases because of the adequate training given to them by the library staff. It is rather arguable that training is important because it makes students have knowledge of online databases in their field of study. Thus, they can be well-guided to construct effective search strategies, critically appraise information sources, use information sources appropriately by citing and creating references.

Conclusion

In view of the findings of the study, it was concluded that that much as Research4life platforms were accessible to undergraduate students of pharmacy, they were being used to a low extent by them. Again, poor telecommunication technologies, low bandwidth, lack of training, poor internet access and epileptic power supply constituted problems to access to Research4life

platforms among Pharmacy students Additionally, it was concluded that adequate awareness of Research4life, consistent training on the use of Research4life website and online databases, free download of articles, quick access to journal articles, among others are strategies to improve the access and use of research4life platforms among undergraduate students of pharmacy.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Universities management should sustain their efforts towards making research4life platforms subscription consistent and accessible to undergraduate students of pharmacy.
2. University management should ensure that challenges of epileptic power supply and low bandwidth are addressed to improve pharmacy students' access and use of variety of research4life platforms for effective researches.
3. University library management should, as a matter of urgency, organize seminars and workshops for pharmacy students on the need to use research4life platforms for their research works.
4. **Increase Awareness:**
 - **Information Campaigns:** Launch awareness campaigns within the university to inform students about the availability and benefits of Research4life.
 - **Orientation Programs:** Include detailed sessions about Research4life in orientation programs for new students.
5. **Consistent Training:**
 - **Workshops and Seminars:** Organize regular workshops and seminars on how to use Research4life and various online databases effectively.
 - **Online Tutorials:** Develop online tutorials and guides that students can access anytime to learn about using these resources.
6. **Free Access to Articles:**
 - **Subscription Services:** Ensure the university library subscribes to necessary journals and databases, allowing free downloads of articles for students.
7. **Quick and Reliable Access:**
 - **High-Speed Internet:** Invest in high-speed internet infrastructure within the university to facilitate quick access to online resources.
 - **User-Friendly Platforms:** Ensure that the platforms used for accessing Research4life are user-friendly and easily navigable.
8. **Availability of Passwords and Login Credentials:**

- **Centralized Access System:** Create a centralized system where students can easily obtain passwords and login credentials for accessing restricted resources.
- 9. Stable Power Supply:**
- **Backup Power Solutions:** Install backup power solutions like generators or inverters to ensure that there is no disruption in access to resources due to power outages.
- 10. Adequate ICT Infrastructure:**
- **Modernize Facilities:** Regularly update and maintain the ICT infrastructure within the university to support the needs of students.
 - **Access Points:** Increase the number of computer labs and access points across the campus.

References

- Abdulganiyu, O.H., Peter, Y.M. & Rakiya, A.B. (2019). Awareness, accessibility and use of library subscribed online electronic database by students of university of Maiduguri. *MAJAAS*, 18(1).
- Abdullahi, D. & Aliyu, I.A. (2019). Availability and use of information resources in Bauchi State public library. *Research Journal of Library and Information Science*, 3(4), 29-35.
- Adeleke, D. S., & Nwalo, K. I. N. (2017). Availability, use and constraints to use of electronic information resources by postgraduates students at the University of Ibadan. *International Journal of Knowledge Content Development & Technology*, 7(4), 51-69.
- Aina, R.F. (2014). Awareness, accessibility and use of electronic databases among academic staff of Babcock university business school. *Kwait Chapter of Arabian Journal of Business and Management Review*, 3(6).
- Agulu, C.C. & Aguolu, I.E. (2002). *Library and information management in Nigeria*. Maiduguri: Ed-Linform Services.
- Basiru, A., Okwilagbe, O.A. & Adebayo, E.L. (2018). Knowledge of electronic databases as predictors research productivity of academic staff in Nigerian public universities. *Library Philosophy and Practice (e-journal)*, 1780.
- Chelulei Kipkosgei, k. (2020). Relationship between Utilization of Online Electronic Resources And Academic Performance of Undergraduate Information Technology Students of Jomo Kanyatta University of Science and Technology (Doctoral dissertation, KeMU)
- Chima, T., Chawinga, W. D., & Chipeta, G. T. (2024). Use of online databases by undergraduate students at a health sciences college in Malawi. *International Information & Library Review*, 56(1), 1-18.

- Chimsinde-Maganga, M. A. (2019). *Use of electronic information resources by students at African Bible College, Malawi Campus* (Doctoral dissertation, Department of Library and Information Science, Mzuzu University, Malawi).
- Edesiri, O. (2018). Awareness and usage of online databases among postgraduate students in library and information programmes in universities in South-South, Nigeria. *Journal of Research in Education and Society*, 9(3).
- Emmasiegbu, M., & Anaehobi, S. E. (2021). Challenges to using electronic databases by lecturers in a government-owned university in Anambra state, Nigeria. Retrieved from <https://digitalcommons.unl.edu/libphilprac/5224>.
- Kumari, D., & Pandey, P. (2023). Enhancing scholarly access: Research 4 life resources utilization at the nepal health research council library.
- Mohiuddin, A. K. (2020). The excellence of pharmacy practice. *Innovations in pharmacy*, 11(1).
- Obasuyi, L., & Okwilagwe, O. A. (2018). Institutional factors influencing utilisation of Research4Life databases by National Agricultural Research Institutes scientists in Nigeria. *Information Development*, 34(2), 122-138.
- Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, 9(1), 4-11.
- Sin, S. C. J., & Kim, K. S. (2013). International students' everyday life information seeking: The informational value of social networking sites. *Library & Information Science Research*, 35(2), 107-116.
- Ternenge, T. S., & Kashimana, F. (2019). Availability, accessibility, and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice (e-journal)*, 2352(1), 1-41.
- Tukur, B., Ibrahim, N. & Lawal, M.M. (2022). Accessibility and utilization of information resources by academic staff of Federal University, Gusau amid telecommunication shutdown in Zamfara State. *Library Philosophy and Practice (e-journal)*. 7440.
- Unegbu, V. E., Lawal-Solarin, E., & Ladan, M. U. (2017). Library resources availability and accessibility as determinants of undergraduates' library use in Lagos State University, Nigeria. *Gateway Library Journal*.
- Uzuegbu, C.P., Chukwu, C.O. & Ibegwam, A. (2012). Creating universal resource locator links desktop: A panacea for students' utilization of subscribed electronic databases in academic institutions in Nigeria. *Annals of Information and Library Science*, 59(1), 97-105.

Yusuf, M. & Farouk, B. (2017). Awareness, access and use of academic databases by faculty members: A case study of Bayero University Library. *International Journal of Library and Information Science*, 6(3), 13-26.