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Information needs, Awareness and Utilization of Research4life Databases by Pharmacy Undergraduate students of Nnamdi Azikiwe University Awka, Nigeria

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Abstract

The purpose of the study was to examine the information needs, awareness and utilization of research4life databases by pharmacy undergraduate students of Nnamdi Azikiwe University Awka, Nigeria. Three research questions were posed to guide the study. Survey research design was used for the study. The sample size for the study comprised 169 four hundred level undergraduate students of Pharmacy (2023/2024 session). Information needs of Pharmacy Undergraduate Students Questionnaire (INPUSQ), Pharmacy Undergraduate Students' Awareness of Research4life Databases Questionnaire (PUSARDQ) and Utilization of Research4life Databases by Pharmacy Undergraduate Students Questionnaire (URDPUSQ) were used to collect data. Data collected were analyzed using frequencies, percentages, mean and standard deviation. The findings of the study revealed that drug chemistry, pharmacology, pharmacokinetics, pharmacodynamics, medications, therapeutics among others are the information needs of undergraduate students of pharmacy. The findings of the study further revealed that undergraduate students of pharmacy are not only aware of research4life and internet sources but utilize them. Based on the findings of the study, it was recommended that University library administrators should sustain their enlightenment of undergraduate students of pharmacy on research4life and internet sources.

Keywords: Research4life, Information Needs, Awareness, Utilization, Pharmacy, Undergraduate

1.1 Introduction

The desire and search for information arise from basic human need to meet physiological, cognitive, psychological needs that facilitate positive interactions with the environment. Yetunde and Ogunniyi (2020) defined information needs as the mental activity by which knowledge and skills, habits and attitudes, virtues and ideas are acquired, retained and utilized, resulting in the progressive adaptation and modification of

conduct and behaviour. Quadri, Adetimirin and Idowu (2014) pointed out that the undergraduates of university need information to satisfy their social and psychological needs to promote and enhance their academic pursuit during their course of study in the university. Their areas of needs can be the desire to seek information that they do not know, the desire to understand more of the information and the need to ascertain or

confirm the information held. An undergraduate student needs or seeks information to increase his knowledge, to confirm if the information held is true or false, and to complete a class work or prepare for examination.

Appropriate drug information is vital for the correct use of drugs and improves patient outcome. The International Pharmaceutical Federation (FIP, 2011) states that it is the responsibility of the pharmacist to ensure that the patient receives the required information for the quality use of medications. Pharmacy students are those enrolled in a pharmacy school or college, where they receive comprehensive instruction in pharmaceutical sciences, medication, management, patient care and pharmacy practice. Pharmacy students need a wide range of information on drug chemistry, pharmacology, pharmacokinetics, pharmacodynamics, Medications and therapeutics, pharmacy practice, patient care, disease state, clinical skills, research and evidence-based medicine etc. they need access to current and accurate information to stay updated on the latest research, guidelines, and best practices in pharmacy; to ensure patient safety, decision-making and professional growth. Thus, information is essential for pharmacy students and the need for information resources awareness to users in university libraries is a necessary service that cannot be overlooked.

University libraries across the world spend a lot of money to subscribe to electronic-resources to enhance the availability of e-resources to users with the aim of satisfying the teaching, learning and research needs of the university community (Majola & Jiyane, 2023). The emergence of electronic information resources has tremendously transformed information handling and management in academic environment and in university library. Thus, Uwandu (2022) defined electronic information resources as

information resources provided in electronic form and these includes resources available on the Internet such as e-books, e-journals, databases, and other computer based electronic networks, and among others. The most effective way to provide access to electronic books/journals in university libraries is through subscriptions to online databases which can be accessed through the internet. Online databases are a collection of organized electronic information or data, typically stored electronically in a computer system (Tella *et al.*, 2018). A database is usually controlled by a database management system (DBMS). Among such online databases is Research4life.

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. It is a platform and websites that provides free or low-cost access to academic and professional peer-reviewed content online. Research4life offers leading journals, books and databases in the field of health, agriculture, environment, applied sciences and legal information.

The Research4life consists of five programmes: HINARI, research for health; AGORA, research for agriculture; ARDI, research for development and Innovation; OARE, research for environment and GOALI, research for global justice. Since its inception, Research4life has made significant strides in expanding access to scientific knowledge. 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.

Nnamdi Azikiwe University, like other higher learning institutions in Nigeria, spend huge amounts of money to subscribe Research4life and other online databases. Therefore, it is important for the university to ensure the resources are optimally utilized by

faculties, students, and researchers to promote students' academic performance. Thus, understanding the students' information needs, awareness and usage of Research4life at Unizik provides valuable insights into the effectiveness, impact, and user experience of the initiative. It helps optimize resource allocation, identify areas for improvement, and advocate for continued support and investment in providing equitable access to scientific research for students in low-and middle-income countries. However, the researchers observed that a cursory look at the university libraries reveal that pharmacy students are found using print resources for their research purposes. This trend has raised the issues of information needs of pharmacy students and their awareness of research4life databases. It is against this backdrop that the researchers sought to investigate information needs, awareness and utilization of research4life databases by pharmacy undergraduate students of Nnamdi Azikiwe University Awka, Nigeria. Specifically, the study sought to:

1.2 Objectives of the Study

1. Identify information needs of pharmacy undergraduate students.
2. Level of awareness of Research4life information resources by pharmacy undergraduate students.
3. Identify the most used Research4life information resources by pharmacy undergraduate students.

1.3 Research Questions

The following research questions were posed to guide the study:

1. What is the information needs of pharmacy undergraduate students?
2. What is the level of awareness of Research4life resources?
3. What are the most used Research4life resources among pharmacy undergraduates?

2.1 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. Lending credence to the afore-mentioned assertion, Mohiuddin (2020) opined 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.

Oluwaseye, Akanni, and Busuyi (2017) investigated information needs and seeking behaviour of medical students at College of Medicine, University of Ibadan, Nigeria. The findings of the study revealed that information needs of medical students of the University of Ibadan have many facets. The first on the list being medical information, followed by assignment and academic projects, these are the main purposes students seek for information. More so, Wiche and Ray-Ogbonna (2021) investigated information needs and seeking behaviour of medical students of PAMO University of medical sciences Port Harcourt, Rivers State. The findings of the study revealed that the information needs of medical students of

PAMO University include academic information, like courses they are to study, assignment, examination timetable, what book to use for the course, departmental programs, personal health information, medical news and laboratory practicals.

Regarding awareness and utilization of Research4life platforms, being aware of Research4life databases can lead to its utilization to enhance ones academic and research pursuit. Access and utilization of Research4Life databases have impacted positively on the research productivity of institutions where the databases have been successfully installed and used. The use of online databases offers access to wide range of resources but it's important to note that not all resources are free for reading and downloading. Factors such as awareness, access, search skills, infrastructure, and lack of training have been pointed out as factors that influence usage of Online databases (Eiriemiokhale, 2020).

There have been inconsistencies in the findings of some researchers to understand the awareness and use of online databases by students. It is evident from the studies that awareness is an important aspect in the domain of adoption and use of online databases if they are to be utilized by students. Isibika and Kavishe (2018) conducted a study which investigated the utilisation of subscribed e-resources among 47 students and 13 lecturers at Mzumbe University library in Tanzania. The findings revealed that participants were moderately aware of the library-subscribed e-resources. Similarly, Okunoye (2020) found that postgraduate students had limited awareness of electronic databases. In contrast, Ansari (2020) observed the use and awareness of e-resources among research scholars at Banaras Hindu University. The findings of the study revealed that most respondents were aware of e-resources and used them to update their knowledge and acquire information for

teaching and research.

Studies conducted in Universities in Africa reported low levels of online databases access and usage by students. For instance, some studies (Joshua & King, 2020; Kwafoa, Imoro, & Afful-Arthur, 2019; Mollel, Mumitie, & Mwantimwa, 2019) conducted in Nigeria, Tanzania and Ghana respectively have reported low usage of online databases by scholars. In similar vein, Lawal (2021), and Obiamalu, Ogungbeni and Obuezie (2021) reported a declining trend in the usage of electronic academic database resources among postgraduate students who do not really use these electronic databases optimally in universities in Nigeria. In contrast, Katabalwa (2016) investigated the use of e-resources by postgraduate students at the University of Dar es Salaam. Findings showed that most of the students used e-journals for various purposes, including assignments, literature review, and research report writing, among others. The researcher mentioned issues such as frequent power outage, inadequate bandwidth, lack of training, lack of awareness, limited access to computers.

3.1 Research Method

The present study utilized survey research design. The sample size for the study comprised all the 169 four hundred level students of pharmacy (2023/2024 session). Information needs of Pharmacy Undergraduate Students Questionnaire (INPUSQ), Pharmacy Undergraduate Students' Awareness of Research4life Databases Questionnaire (PUSARDQ) and Utilization of Research4life Databases by Pharmacy Undergraduate Students Questionnaire (URDPUSQ) were constructed by researcher and used for data collection. The response options for INPUSQ and PUSARDQ are: Yes/No. PUSARDQ has 20 items. The response options for URDPUSQ are Highly Used (HU), Used (U), Fairly Used (FU), Not

Used (NU) with numerical indices of 4, 3, 2 and 1 respectively. Frequencies and percentages were used to analyze data for research questions one and two. The cut-off point for accepting any item is 50%. Thus the decision rule is that any percentage score of 50 or above was taken as yes while percentage scores below 50 were taken as No.

Descriptive statistics of mean and standard deviation were used to answer research question three to determine the homogeneity or otherwise of the respondents' views. The decision on the questionnaire items of research question three were based on item and cluster means relative to real limits of numbers as shown below:

Respos	Rating Scale	Real Limit of Numbers
HU	4	3.50 – 4.00
U	3	2.50 – 3.49
FU	2	1.50 – 2.49
NU	1	1.00 – 1.49

Decision on research question three was based on the grand mean in relations to the real limits of numbers. The analysis was carried out using SPSS version 23.0.

4.1 Results

Table 1: Information Needs of Pharmacy Undergraduate Students.

As a student of pharmacy, the following are my information needs:	Frequency	Remark	
		Percentage	
1. Drug chemistry	169	100	Yes
2. Pharmacology	169	100	Yes
3. Pharmacokinetics	165	97.6	Yes
4. Pharmacodynamics	163	96.4	Yes
5. Medications and therapeutics	169	100	Yes
6. Pharmacy practice	169	100	Yes
7. Patient care	169	100	Yes
8. Disease state	168	99.4	Yes
9. Clinical skills	169	100	Yes
10. Research and evidence- based medicine	167	98.8	Yes
11. Decision making	169	100	Yes
12. Professional growth	169	100	Yes
13. Classwork	161	95.3	Yes
14. Examination	167	98.8	Yes

Data in Table 1 show that all the items have percentage scores above the cut-off percentage of 50. This shows that all the respondents agree that drug chemistry, pharmacology, pharmacokinetics, pharmacodynamics, medications and therapeutics, pharmacy practice, patient care, disease state, clinical skills, research and evidence-based medicine, decision-making, professional growth, class work and examination were their information needs.

Table 2: Level of Awareness of Existence of Research4life and Internet resources Among Pharmacy Undergraduate Students.

As a student of pharmacy, I'm aware of the following research4life and internet sources:	Frequency	Percentage	Remark
1. HINARI	143	84.6	A
2. AGORA	125	74.0	A
3. OARE	103	60.9	A
4. ARDI	52	30.8	A
5. GOAL	97	57.4	A
6. Cochrane Library	74	43.8	NA
7. DOAJ	69	40.8	NA
8. JESTOR	138	81.7	A
9. Directory of Open Access Books	135	79.9	A
10. Emerald	127	75.1	A
11. JSTOR	167	98.8	A
12. Science Direct	162	95.9	A
13. TEEAL	81	47.9	NA
14. PUBMED	109	64.5	A
15. Biomed Central	114	67.5	A
16. Google Scholar	162	95.9	A
17. TRIP databases	137	81.1	A
18. British Medical Journal (BMJ)	161	95.3	A
19. England Journal of Medicine	153	90.5	A
20. Nature Journals	126	74.6	A

Data in Table 2 show that items 6, 7 and 13 have percentage scores below the cut-off percentage of 50. This shows that majority of the respondents are unaware of Cochrane Library, DOAJ and TEEAL as research4life and internet sources. Generally, the respondents are aware of research4life and internet sources.

Table 3: Most Used Research4life and Internet Resources Among Pharmacy Undergraduate Students.

As a student of pharmacy, I use the following research4life and internet sources:	Mean	Standard Deviation	Remark
1. HINARI	3.25	.72	U
2. AGORA	1.35	.86	U
3. OARE	2.23	.82	FU
4. ARDI	1.51	.83	FU
5. GOAL	1.14	.80	NU
6. Cochrane Library	1.29	.83	NU
7. DOAJ	1.38	.84	NU
8. JESTOR	2.55	.86	U
9. Directory of Open Access Books	2.42	.84	FU
10. Emerald	2.67	.86	U
11. JSTOR	2.92	.82	U
12. Science Direct	2.83	.83	U
13. TEEAL	2.99	.80	U

14. PUBMED	2.44	.83	FU
15. Biomed Central	2.62	.76	U
16. Google Scholar	2.97	.84	U
17. TRIP databases	2.13	.73	FU
18. British Medical Journal (BMJ)	3.11	.66	U
19. England Journal of Medicine	2.74	.53	U
20. Nature Journals	1.99	.73	FU

Data in Table 3 show that items 2, 5, 6 and 7 have mean scores within the range of 1.00 – 1.49. This shows that majority of the respondents do not utilize GOAL, Cochrane Library and DOAJ as research4life and internet sources. More so, Directory of Open Access Book, OARE, ARDI, PUBMED, TRIP databases and nature journals are fairly used by the respondents. Overall, the respondents utilize research4life and internet sources. However, item 1 indicates that the most used research4life and internet sources is HINARI among undergraduate students of pharmacy.

5.2 Information Needs of Pharmacy Undergraduate Students

The findings of the study revealed that drug chemistry, pharmacology, pharmacokinetics, pharmacodynamics, medications and therapeutics, pharmacy practice, patient care, disease state, clinical skills, research and evidence-based medicine, decision-making, professional growth, classwork and examination were their information needs. This is rather not surprising given the vitality of the afore-mentioned information needs for the success of students in the field of pharmacy. The findings of this study agree with Mohiuddin (2020) who opined 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. Thus, to have adequate knowledge that will advance the academic

pursuit of students of pharmacy, the foregoing pieces of information are needed. Corroborating the findings of the current study, Wiche and Ray-Ogbonna (2021) found that the information needs of medical students of PAMO University include academic information, like courses they are to study, assignment, examination timetable, what book to use for the course, departmental programs, personal health information, medical news and laboratory practical

5.3 Level of Awareness of Existence of Research 4life and Internet resources among Pharmacy Undergraduate Students

The findings of the study revealed that undergraduate students of pharmacy are aware of research4life and internet sources. This may be attributed to the fact the students are digital natives who have favourable dispositions towards emerging technology. More so, the trend could be linked to the ubiquity of research4life and internet sources. It could further be associated with the fact that in line with global trend, school administrators have made sufficient enlightenment campaign to keep students abreast of research4life and internet sources for students. The findings of this study are in consonance with Ansari (2020) that most respondents were aware of e-resources. The findings of the present study is however contradicted by the findings of Isibika and Kavishe (2018) that participants were moderately aware of the library-subscribed e-resources. Similarly, Okunoye (2020) found

that postgraduate students had limited awareness of electronic databases. The aforementioned contradictions may not be separated from the disparity in the sample characteristics in the areas of study.

5.4 Most Used Research4life and Internet Resources among Pharmacy Undergraduate Students

The findings of the study revealed that most of the students used research4life and internet sources while the most used research4life and internet sources is HINARI among undergraduate students of pharmacy. This is understandably so, given that most of the published science scholarly works are found in HINARI. The findings of this study align with the position of Katabalwa (2016) that most of the students used e-journals for various purposes, including assignments, literature review, and research report writing, among others. Contradicting the findings of the study, Lawal (2021), and Obiamalu, Ogungbeni and Obuezie (2021) reported a declining trend in the usage of electronic academic database resources among postgraduate students who do not really use these electronic databases optimally in universities in Nigeria.

Conclusion

The findings highlight the critical information needs of pharmacy students and the importance of awareness and utilization of Research4life databases. Based on the findings of the study, it was concluded that drug chemistry, pharmacology, pharmacokinetics, pharmacodynamics, medications, therapeutics among others are the information needs of undergraduate students of pharmacy. It was further concluded that undergraduate students of pharmacy are not only aware of research4life and internet sources but utilize them.

Recommendations

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

1. The curriculum planners should ensure a

holistic review of the curriculum of pharmacy in line with global trend, terms of contents and teaching approaches. That way, students would come to a better understanding of their information needs.

2. University Library Administrators should sustain their enlightenment of undergraduate students of pharmacy on research4life and internet sources.
3. Undergraduate students of Pharmacy should continually use variety of research4life and internet sources for effective research while enhancing their academic performance in their field.

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