

# AWARENESS, PERCEPTION, AND COMPLIANCE AS DETERMINANTS OF INFORMATION SECURITY AMONG LIBRARY AND INFORMATION SCIENCE UNDERGRADUATES IN UNIVERSITIES IN NIGERIA

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# Awareness, Perception, and Compliance as Determinants of Information Security Among Library and Information Science Undergraduates in Universities in Nigeria

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**Abstract**— Information serves as the cornerstone of all human pursuits and no individual can thrive without it. It is the 5th factor of production after land, labour, capital and entrepreneur, as technology advances, the volume of information at our disposal is increasing at an unprecedented rate. The study examines awareness, perception, and compliance as determinants of information security among library and information science undergraduates in universities in Kwara State. Descriptive survey research design was used. The population of the study comprises LIS undergraduates of the University of Ilorin, Kwara State University, and Al-Hikmah University. Therefore, the population for this study is 2157 students from the three (3) selected universities. The purposive sampling technique was adopted because Library and Information Science undergraduates are the target, and they serve the purpose for the study. The study used the Rao-soft calculator to get the sample size of 327. Descriptive statistics of simple percentage and frequency count were used as the method of data analysis owing to its simplicity and ease of understanding. The study found out there is a high level of awareness of information security among undergraduates in Library and Information Science in universities in Kwara State. This study also found out that undergraduates in Library and Information Science have positive perceptions towards information security. This study also found out that undergraduates in Library and Information Science strongly comply with information security practices. This study also found that difficulties with backing up, unstable power supply, insufficient storage capacity, and difficulties in navigating through devices are the challenges associated with the use of information security. The study concludes that library and information science students in universities in Kwara State have positive knowledge regarding awareness, perception, and compliance on information security. The study recommends that there should be continuous awareness campaigns among LIS undergraduates' to maintain the high level of awareness.

## I. INTRODUCTION

Information serves as the cornerstone of all human pursuits, and no individual can thrive without it. Information referred to the collection of data that has been processed, organized,

or structured in a meaningful way to convey knowledge or understanding. It is the 5th factor of production after land, labor, capital, and entrepreneur [1]. As technology advances, the volume of information at our disposal is increasing at an unprecedented rate. The rapid growth has introduced fresh hurdles in terms of how students can effectively access, process, and utilize this wealth of information. Nevertheless, employing suitable tools and tactics can leverage the potential of information to instigate beneficial transformations and realize our objectives. Information is an asset that is required by everyone for an effective and meaningful life. This asset (information) needed to be protected against unwanted force, especially human and artificial devices. With this force, security is required for information protection. Security is a key aspect of organizations' operations in today's digital age. Organizations are increasingly faced with complex challenges in explaining cyber threats, which emphasizes the necessity of implementing effective information security strategies. Effective data protection is the key to maintaining the trust of clients and partners, reducing financial losses, and preserving the organization's reputation. In addition, information security has a significant impact on maintaining a competitive advantage, allowing organizations to innovate without fear of data loss or privacy breaches. A secure infrastructure also provides a foundation for compliance with regulatory requirements, thereby reducing the risk of legal consequences [2]. Therefore, information security, which is also known as InfoSec, is designed and implemented to protect the print, electronic, and other private, sensitive, and personal data from unauthorized persons. Its purpose is to shield data from being used inappropriately, revealed without permission, intentionally damaged, altered, or interrupted [3]. More importantly, confidentiality, integrity, and availability are the key elements of information security. Information is said to be confidential when only authorized people access it,

so to ensure confidentiality, one needs to use all the techniques designed for security, such as strong passwords, encryption, and authentication. It is said to be available when authorized users access without interference or obstruction while integrity is when the information is complete and uncorrupted. However, in order to ensure the confidentiality, integrity, and availability of data in an organization, students around the world must have the awareness about information security to combat all their needs. Therefore, awareness is defined as the state of being conscious and cognizant of one's surroundings, thoughts, feelings, and experiences. It involves the ability to be able to perceive, understand, and interact with the world around us. The Information Security Forum [4] defined information security awareness as the degree or extent to which every member of staff understands the importance of information security, the levels of information security appropriate to the Organization, their individual security responsibilities, and acts accordingly. Perception is a major part of human intelligence and a key component to understanding human behavior [5]. It is the mechanism with which a person evaluates external inputs, which, in turn, determines the behavioral response [6]. Having a good perception towards information security, it is important to know how they comply with it; therefore, compliance refers to adhering to established policies or procedures. Information security compliance involves the proactive adoption of standards and policies to safeguard organizational data. It is a widely employed practice; it is a set of guidelines and procedures that must be followed to ensure the security of information resources and other technological devices [7]. The higher education workforce seems to perceive information security compliance as a protective measure preventing disastrous situations, loss of information, financial records, or private sensitive data. In any type of organization, each and every member of the organization should be convinced and taught to contribute and comply with information security rules and policies. Against this background, this study aims to investigate perception, awareness, and compliance as a determinant of information security among Library and Information Science undergraduates in universities in Kwara State.

#### A. Statement of the problem

Information is a pivot to human survival including students in higher institutions, when people are informed then they would have better understanding about information security, when they are informed it is expected that they have good perception towards information security and also comply so as not to go against the measures put in place. If everyone is taking information security into consideration, no one will fall victim to cyber threats. However, it is perceived that most students have low understanding of information security; they make use of information that is not meant for public consumption without considering the implication behind it; that is, they have poor awareness towards information security. Moreover, students that are aware have a poor perception towards information security; that is, their level of perception is low. Whereas the ones that understand what information security is do not comply with the measures or protocols to take in order to avoid information threats. [8]

indicated that lack of compliance with information security policies, regulations, or procedures by users led to financial losses, legal action, and reputation damage. This presumed that students with no or low compliance with information become victims of information in higher institutions. The information security problem became a major priority not just for the information security experts but also for a large community, including students and university staff. The universities concerned are related to the need to create the information security awareness among students and stimulate their thinking in regard to information security risks. Investigate perception, awareness, and compliance as a determinant of information security among Library and Information Science undergraduates in universities in Kwara State.

#### B. Objectives of the Study

The main objective of this study is to investigate perception, awareness, and compliance as a determinant of information security among Library and Information Science undergraduates in universities in Kwara State. The specific objectives are to:

1. Examine the level of awareness of information security among Library and Information Science undergraduates in universities in Kwara State;
2. Determine the perception of Library and Information Science undergraduates on information security in universities in Kwara State;
3. Examine the compliance of Library and Information Science undergraduates on information security in universities in Kwara State; and
4. Identify the challenges associated with the use of information security among Library and Information Science undergraduates in Kwara State.

## II. REVIEW OF RELATED LITERATURE

#### A. Awareness on Information Security among LIS Students

Awareness is paramount in ensuring that students understand the importance of information security, recognize potential threats, and are aware of best practices to mitigate risks [9]. It involves being cognizant of various security measures, such as password protection, encryption, and data backup, and understanding the consequences of security breaches. [10] defined information security awareness as “the degree of understanding of users about the importance of information security and their responsibilities and acts to exercise sufficient levels of information security control to protect the organization’s data and networks.”

[11] analyzed the information security awareness among undergraduate students in the Middle East; the result revealed that they do not have requisite knowledge and understanding of the importance of information security principles. [12] examined cyber security awareness among undergraduate students in Enugu university, the study used the simple random sampling technique. The result revealed that most of the participants have a basic knowledge of cybersecurity threats.

[13] investigated the information security awareness of Chinese university students during the COVID-19 pandemic. The study used a quantitative method. The findings revealed

that the vast majority of the college students know the significance of information security awareness and have basic information security awareness. [14] investigated information security awareness among undergraduate students at a higher education institution in Kenya. The study used a quantitative survey approach. The study found out that the majority of the students surveyed do not possess adequate understanding of information security awareness.

[15] investigated the cybersecurity awareness levels among undergraduate students at African higher education institutions, Sudan. In an exploratory research approach, the result showed that the undergraduate students in Sudan have low cybersecurity awareness levels, although the male students have slightly higher levels of understanding than the females. [16] Identified students' awareness and enthusiasm to learn cybersecurity in Nigerian universities, the study used a quantitative method. The result showed that the students claimed to have cybersecurity knowledge.

[17] investigated a study on cybersecurity awareness among students at Yobe State University, Nigeria: a quantitative approach. The study found out that the university students' cybersecurity awareness is at a satisfactory level, and more than average of the students are not well aware of how to protect their data. [18] survey analyzed Cyber Security awareness among female university students of The Maharaja Sayajirao University of Baroda, and it was found out that students were aware of password security and social media security, whereas they had less awareness about browser security. The awareness session was found effective in generating awareness about cybercrime and cybersecurity among the female university students. A smaller number of students attended the session; they should understand the importance of cybersecurity. The study concludes that there is a great need for generating awareness about cybersecurity among the students.

#### *B. Perception on Information Security by LIS Students*

Information security perception encompasses attitudes, beliefs, and perceptions of risk related to information security measures [9]. Information security perception is how people view the significance of information security, their understanding of potential threats, and the value of protecting confidential data. [19] examined the Turkish university students to know their perception towards information security, the study found that students feel insecure with regard to cybercrimes and most of them use multiple cautions in the cyberspace. [20] identify students' perception regarding cybersecurity; the research found that student perception was average. Thus, some programs, such as awareness seminars and courses, should be driven to take place in order to highlight the society's concern about cybersecurity.

[21] investigated the student's perception towards information security at Purdue University. The study found that students were both aware of cyber threats and participated in potentially unsafe internet activities. A variety of misconceptions regarding online security were exposed, highlighting the need for greater education for college students regarding staying safe during online activities. After analyzing the research data, it was discovered that a false

sense of cybersecurity amongst students at Purdue University exists.

[22] identified the information security perception among Generation Z university undergraduate students of public accounting and administration at two Mexican public universities. The study found that weak relationships were found between participants habits/routines and self-perception about cybersecurity. [23] examined students' perception towards information security; the study found that students appeared to perceive the cybersecurity taught at university is often theoretical. [24] believe stressing much on security can cost even more than they intend to secure and would be penny wise, pound foolish to affect. This belief sponsors the idea that security consciousness will cause so much limitation to our online activities.

[25] found out that individual believe that cyber threat is real but they can't be a victim, they believe other more sensitive institutions like banks, governments, and high-profile individuals should be more concerned about cyber security. Even with low knowledge on cybersecurity, some still believe they are well secured by their limited security practices. [26] examined the attitude, perception, and awareness of students on personal privacy and cybersecurity with the use of social media. Using a mixed-method approach, the results revealed that the students have a positive attitude towards the use of social media and perceive trust with social media providers.

#### *C. Compliance of Undergraduates on Information Security*

Information security compliance involves the proactive adoption of standards and policies to safeguard organizational data. It is a widely employed practice; it is a set of guidelines and procedures that must be followed to ensure the security of information resources and other technological devices [7]. The higher education workforce seems to perceive information security compliance as a protective measure preventing disastrous situations, loss of information, financial records, or private sensitive data.

Hina and Dominic [27] found out that students in higher institutions struggled to apply effective information security management practices and that they are the least concerned, motivated, and aware of potential threats that can harm their work. [28] examined the security compliance of students that were in their third year, using a questionnaire based on the KAD model, where an individual's knowledge, attitude, and behavior were considered; the result showed behavior regarding password sharing was considered low. A study conducted by Jones and Heinrichs [29] on students showed that the student's behavior toward information security practices is unsatisfactory. [30] examined the present state of cybersecurity behavior among higher education students in Malaysia, and it was found out that cybersecurity behavior among these students is generally unsatisfactory.

[31] examined the cyber security-related behaviors of the faculty of sport sciences students in terms of gender, age, frequency of internet usage, frequency of monthly purchases of products or services over the internet, and level of knowledge about cyber security. The result showed that students of the faculty of sport sciences have low compliance towards information security, and it is important for the



students to be informed about cybersecurity practices, what kind of precautions they should take in this regard, and how they can learn about improvements in this field.

[32] examined the relationship between cybersecurity awareness, knowledge, and behavior with protection tools among students in four countries. The results showed that they possess adequate cyber threat awareness but apply only minimal protective measures, usually relatively common and simple ones. A study conducted by [33] examined the information security awareness, knowledge, and behavior of university students in Hungary and Vietnam. The analysis was conducted using a questionnaire data collection method based on the answers of 313 university students in the two countries. The results showed that, regardless of the country, most students need more material knowledge about information security, and the practices used are also inadequate.

*D. Challenges Associated with the Use of Information Security*

Information security plays an important role in the field of information technology; securing the information has become one of the biggest challenges in the present day. Privacy and security of the data will always be top security measures that an organization takes care of. [34] examined information security threats to information systems in federal university libraries in Nigeria with the aim of uncovering the various threats militating against the smooth operations of the system. A cross-sectional survey was adopted. The study found that hardware equipment failure, unauthorized change of software settings, transmission error, data loss due to wrong procedure, power supply failure and employee’s misconducts as the major information security threat in the libraries.

[35] investigated the emerging issues in cybersecurity for institutions of higher education, the study found that Institutions of higher learning do not have enough funds in buying current security tools and changing their strategies in fighting latest cyber security attacks. [36] findings showed that lack of information and cybersecurity professionals,

whose core function is to protect organizations from cybercrime and other cyber-related threats, are one of the challenges facing the information security system. [37] findings showed that the academic, skills, and training fraternity do not merge strategies and actions that would be acceptable for industry and governmental sectors in a harmonized fashion.

**III. METHODOLOGY**

This study investigated the awareness, perception, and compliance as determinants of information security among library and information science undergraduates in universities in Kwara State. A descriptive survey was adopted to examine the awareness, perception, and compliance among library and information science undergraduates on information security. A descriptive survey is used to gather information about opinions, characteristics, or attitudes of a population or sample. The population of the study comprises LIS undergraduates of the University of Ilorin, Kwara State University, and Al-Hikmah University. Therefore, the population for this study is 2157 students from the three (3) selected universities. The purposive sampling technique was adopted because library and information science undergraduates are the target population, and they serve the purpose of this study. The study used the Rao-soft calculator to arrive at the actual sample size for this study.

Therefore, the sample size for this study at a 0.95% level of confidence for a population of 2,157 students was 327. The breakdown of the sample size selection is shown below. This study used a self-designed questionnaire titled “Awareness, Perception, and Compliance as Determinants to Information Security among Library and Information Science Undergraduates in Universities in Kwara State” (QAPCDISLIS) and was validated by experts in information security and cybersecurity. Descriptive statistics of simple percentage and frequency count were used as a method of data analysis owing to their simplicity and ease of understanding.

Table 1. Distribution of Population n= 2157

SN	Name of Universities	Population of Students
1	University of Ilorin, (Library school)	650
2	Kwara State University, (Library school)	1478
3	Al-Hikmah University, (Library school)	29
Total		2157

Table 2. Calculation of Sample Size

SN	Name of Universities	Population	Sample
1	University of Ilorin, Ilorin (Library School)	650	$327 * 650 / 2157 = 99$
2	Kwara State University, Malete (Library School)	1478	$327 * 1478 / 2157 = 224$
3	Al-Hikmah University, Ilorin (Library School)	29	$327 * 29 / 2157 = 4$
Total		2157	327

**A. Data Analysis and Presentation**

This section deals with result of data collected from the study; the result was based on the variables focused on the study.

327 copies of questionnaire were administered and only 301 copies of questionnaire were retrieved and found usable with 92% returned with as presented below.

Table 3. Demographic Information of Respondents

Gender	Frequency	Percentage
Male	123	40.9
Female	178	59.1
Total	301	100.0
Age Range	Frequency	Percentage
16-20 years	100	33.2
21-25years	163	54.2
26 years and above	38	12.6
Total	301	100.0
Educational level	Frequency	Percentage
100L	72	23.9
200L	52	17.3
300L	39	13.0
400L	138	45.8
Total	301	100.0

Source: Authors' Field work, (2024)

Table 3 shows the demographic information of library and information science students in Universities in Kwara State. It revealed that larger ratio of the Respondents were female 178(59.1%) while the remaining 123(40.9%) were male. The table also shows the distribution of the Respondents by their age. A total of 100(33.2%) of the respondents were between the age range of 16-20years, 163(54.2%) were of the age range of 21-25years, while 38(12.6%) of the Respondents were of the age range of 26years and above. A total of

72(23.9%) of the Respondents are in 100level, 52(17.3%) of the Respondents are in 200Level, 39(13.0%) of the Respondents are in 300level while 138(45.8%) of the Respondents are in 400level. essentially, the largest percentage of the Respondents for this study is 400Level followed by 100L and 200L counterparts.

**IV. DISCUSSION**

Table 4. Level of Awareness of Information Security among Library and Information Science Undergraduates in Universities in Kwara State

Items	FA	A	NA	FNA
Password Protection	183 (60.8%)	105 (34.9%)	7 (2.3%)	6 (2.0%)
Data Backup	182 (60.5%)	100 (33.2%)	16 (5.3%)	3 (1.0%)
Encryption	134 (44.5%)	117 (38.9%)	46 (15.3%)	4 (1.3%)
Security Breaches	129 (42.9%)	119 (39.5%)	38 (12.6%)	15 (5.0%)
Security Threat	161 (53.5%)	109 (36.2%)	23 (7.6%)	8 (2.7%)

Source: Authors Field work, (2024)

Keys: Fully Aware (FA), Aware (A), Not Aware (NA), and Fully Not Aware (FNA)

Table 4 shows the response on the Level of Awareness of information security among Library and information science Undergraduates in Universities in Kwara State with 183(60.8%) of respondents were Fully aware of Password protection, 105(34.9%) of Respondents were aware, 7(2.3%) of Respondents were Not aware, and 6(2.0%) of respondents revealed Fully not aware. Respondents 182(60.5%) were fully aware of data backup, 100(33.2%) of Respondents were aware, 16(5.3%) of Respondents were Not aware, while 3(1.0%) of Respondents were Fully not aware. Respondents 134(44.5%) were fully aware of Encryption, 117(38.9%) of

Respondents were aware, 46(15.3%) of Respondents were not aware, while 4(1.3%) of Respondents were fully not aware.

However, 129(42.9%) of Respondents are Fully aware of security breaches, 119(39.5%) of Respondents were aware, more so, 38(12.6%) of Respondents were Fully not aware, while 15(5.0%) of Respondents were fully not aware. Respondents 161(53.5%) were fully aware of security threat, 109(36.2%) of Respondents were aware, 23(7.6%) of Respondents were not aware, while 8(2.7%) of Respondents were fully not aware.

Table 5. Perception of Library and Information Science Undergraduates on Information Security in Universities in Kwara State

Items	HP	P	MP	LP
Password Protection	181 (60.1%)	110 (36.3%)	8 (2.7%)	2 (7%)
Data Backup	144 (47.8%)	126 (41.9%)	25 (8.3%)	6 (2.0%)
Encryption	102 (33.9%)	147 (48.8%)	44 (14.6%)	8 (2.7%)
Security Breaches	92 (30.6%)	126 (41.9%)	60 (19.9%)	23 (7.6%)
Security Threat	130 (43.2%)	101 (33.6%)	30 (10.0%)	40 (13.3%)

Source: Authors Field work, (2024)

Keys: Highly Positive (HP), Positive (P), Moderate Positive (MP) and Low Positive (LP)

Table 5 shows the response on the perception of Library and information science undergraduates on information security in Universities in Kwara state with 181(60.1%) of Respondents were Highly positive about Password protection, 110(36.3%) of Respondents were positive, 8(2.7%) of Respondent were Moderate positive, while 2(7%) of Respondents revealed low positive. Respondents 144(47.8%) were Highly positive about data backup, 126(41.9%) of Respondents were positive, 25(8.3%) of Respondents moderate positive, while 6(2.0%) of Respondents were low positive. Respondents 102(33.9%) were Highly positive about Encryption, 147(48.8%) of

Respondents were positive, 44(14.6%) of Respondents were moderate positive, while 8(2.7%) of Respondents were low positive.

However, 93(30.6%) of Respondents are highly positive about security breaches, 126(41.9%) of respondents were positive, more so, 60(19.9%) of Respondents were moderate positive, while 23(7.6%) of Respondents were low positive. Respondents 130(43.2%) were Highly positive about security threat, 101(33.6%) of Respondents were positive, 30(10.0%) of Respondents were moderate positive, while 40(13.3%) of Respondents were low positive.

Table 6. Compliance of Library and Information Science Undergraduates on Information Security in Universities in Kwara State

Items	HC	C	MC	LC
Password Protection	185 (61.5%)	102 (33.9%)	10 (3.3%)	4 (1.3%)
Data Backup	159 (52.8%)	114 (37.9%)	23 (7.6%)	5 (1.7%)
Encryption	120 (39.9%)	111 (36.9%)	63 (20.9%)	7 (2.3%)
Security Breaches	90 (29.9%)	107 (35.5%)	67 (22.3%)	37 (12.3%)
Security Threat	125 (41.5%)	99 (32.9%)	41 (13.6%)	36 (12.0%)

Source: Authors Field work, (2024)

Keys: Highly Comply (HC), Comply (C), Moderate Comply (MC), and Low Comply (LC)

Table 6 shows the response on compliance of Library and information science undergraduates on information security in Universities in Kwara state with 185(61.5%) of Respondents Highly comply with Password protection, 102(33.9%) of respondents comply, 10(3.3%) of Respondents Moderate comply, while 4(1.3%) of Respondents revealed low comply. Respondents 159(52.8%) Highly comply with data backup, 114(37.9%) of respondents comply, 23(7.6%) of Respondents moderate comply, while 5(1.7%) of respondents revealed low comply. Respondents 120(39.9%) Highly comply with Encryption, 111(36.9%) of

Respondents comply, 63(20.9%) of Respondents moderate comply, while 7(2.3%) of respondents revealed low comply.

However, 90(29.9%) of Respondents highly comply with security breaches, 107(35.5%) of Respondents comply, more so, 67(22.3%) of Respondents moderate comply, while 37(12.3%) of Respondents revealed low comply. Respondents 125(41.5%) Highly comply with security threat, 99(32.9%) of respondents comply, 41(13.6%) of Respondents moderate comply, while 36(12.0%) of Respondent revealed low comply.

Table 7. Challenges Associated with the Use of Information Security among Library and Information Science Undergraduates in Universities in Kwara State

Statements	SA	A	SD	D
Difficulties with Backing up	142 (47.2%)	109 (36.2%)	18 (6.0%)	32 (10.6%)
Keeping data from third party (data privacy)	133 (44.2%)	107 (35.5%)	26 (8.6%)	35 (11.6%)
Difficulty in navigating through device	106 (35.2%)	140 (46.5%)	31 (10.3%)	24 (8.0%)
Insufficient Storage capacity	143 (47.5%)	100 (33.2%)	30 (10.0%)	28 (9.3%)
Hacking of device (security threat)	133 (44.2%)	104 (34.6%)	29 (9.6%)	35 (11.6%)
Unstable Power Supply	191 (63.5%)	74 (24.6%)	15 (5.0%)	21 (7.0%)

**Source: Authors fieldwork (2024)**

Keys: Strongly Agree (SA), Agree (A), Strongly Disagree (SD), and Disagree (D)

Table 7 shows the response on the challenges associated with the use of information security among library and information science undergraduates in universities in Kwara State, with 142 (47.2%) of respondents strongly agreeing with difficulties with backing up, 109 (36.2%) of respondents agreeing, 18 (6.0%) of respondents strongly disagreeing, and 32 (10.6%) of respondents disagreeing. Respondents 133 (44.2%) strongly agreed with keeping data from third parties, 107 (35.5%) of respondents agreed, 26 (8.6%) of respondents disagreed, while 35 (11.6%) of respondents disagreed. Respondents: 106 (35.2%) of respondents strongly agreed with difficulty navigating through the device, 140 (46.5%) of respondents agreed, 31 (10.3%) of respondents strongly disagreed, while 24 (8.0%) of respondents disagreed.

However, 143 (47.5%) of respondents strongly agreed with insufficient space capacity, 100 (33.2%) of respondents agreed, 30 (10.0%) of respondents strongly disagreed, and 28 (9.3%) of respondents disagreed. Respondents 133 (44.2%) strongly agreed with hacking of the device (security threat), 104 (34.6%) of the respondents agreed, 29 (9.6%) of the respondents strongly disagreed, while 25 (11.6%) of the respondents disagreed. Respondents 191 (63.5%) strongly agreed with unstable power supply, 74 (24.6%) of respondents agreed, 15 (5.0%) of respondents strongly disagreed, while 21 (7.0%) of respondents disagreed.

#### A. Discussion of Findings

The study found out that undergraduate' students are fully aware of information security, such as password protection, data backup, encryption, security threats, and security breaches. This is similar to the findings of Al-Janabi and Al-Shourbaji [11], where most of the participants have a basic knowledge of cybersecurity threats. While this study is contrary to the findings of Kirwan et al. [38], which showed that more than 30% of students had been a victim of a social networking site scam, their level of awareness towards information security is low; most of the students were not aware of the presence of cyber threats, and they did not know the term information security.

The findings of this study on the perception of library and information science undergraduates on information security show that the majority of the respondents are highly positive about information security measures such as password protection, data backup, encryption, security threats, and security breaches, which is similar to [20], who identify students' perceptions regarding cybersecurity. The research found that student perception was positive. While this study is contrary to the finding of [22], whose results showed weak relationships were found between participants habits/routines and self-perception about cybersecurity.

The finding of the study on compliance of Library and Information Science undergraduates on information security in universities in Kwara State found that the majority of the respondents comply with information security measures such as password protection, data backup, encryption, security threats, and security breaches, which is similar to the findings of [22], where students from Jalisco have high compliance practices towards all information security measures. While this study is contrary to the findings of Slusky and Partow-Navid [39], which showed that the compliance with information security measures is lower than the understanding of it.

The findings of the study on challenges associated with the use of information security among Library and Information Science undergraduates in universities in Kwara State show that the majority of the students face challenges of unstable power supply, difficulties backing up, and hacking of devices (security threat), which is similar to the study by [34], which states that unauthorized changes of software settings, transmission error, and data loss due to wrong procedures, power supply failure, and employee misconduct are the major information security threats in the libraries.

#### V. CONCLUSION AND RECOMMENDATIONS

The study established that library and information science students in universities in Kwara State have positive knowledge regarding awareness, perception, compliance, and challenges related to information security. Based on the



findings of this study, which led to the conclusion reached, the following recommendations were made; since the library and information science undergraduates have a high level of awareness of information security, there is a need for continuous awareness campaigns among LIS students by university management. The study also recommends that LIS should be encouraged to adhere to security measures on the use of information security by policymakers. The study also recommends that LIS undergraduates should endeavour to comply with clear policies and guidelines regarding information security practices within university libraries and information science departments. Finally, the study recommends that alternative power supply solutions to backup issues should be in place by university management.

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