

**ATTITUDE OF NURSES TOWARDS THE USE OF INFORMATION
TECGNOLOGY ON DELIVERY OF CARE IN KWARA STATE GENERAL
HOSPITAL**

BY

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**A PROJECT SUBMITTED TO THE FACULTY OF NURING SCIENCE,
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**THOMAS ADEWUNMI UNIVERSITY, OKO-IRESE, KWARASTATE,
NIGERIA.**

**IN PARTIAL FUFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE BACHELOR OF NURSING SCIENCE DEGREE**

AUGUST, 2025

DECLARATION

This is to declare that this research project titled “**Attitude Of Nurses Towards The Use Of Information Technology On Delivery Of Care In Kwara State University Teaching Hospital**” was carried out by **Adesina Faith Korede** and is solely the result of my work except where acknowledged as being derived from other person(s) or resources.

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CERTIFICATION

This is to certify that this research project by **Adesina Faith Korede** with Matric Number **20/05NSS003** has been examined and approved for the award of Bachelor of Nursing Science Degree

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ABSTRACT

This study investigated the attitudes of nurses toward the use of information technology (IT) in healthcare delivery at General Hospital Ilorin, with a sample size of 146 participants. The demographic analysis revealed that the majority of respondents were female (62.2%) and married (54.1%), with qualifications ranging from diploma (13.5%) to master's degree (21.6%). The study found that nurses demonstrated a good level of IT knowledge, with 43.2% proficient in managing hospital inventories, 45.9% familiar with Electronic Health Records (EHRs), and 40.5% attributing their knowledge to formal training. Attitudes toward IT were largely positive—43.2% strongly agreed that IT enhances healthcare quality, and 50% believed it reduces time spent on routine tasks. However, concerns regarding increased workload and system complexity were noted. About 48.6% of respondents expressed interest in continuous IT training. Factors influencing attitudes included availability of technical support (52.7%) and personal motivation (51.4%), though 25.7% were discouraged by system complexity. A statistically significant relationship was identified between IT knowledge and positive attitudes, highlighting the need for ongoing training, support, and infrastructure to optimize IT integration in nursing care.

Keywords: Information technology, nursing practice, healthcare delivery, electronic health records.

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CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

Nurses in everyday work encounter with the application of new gadgets, instruments, and other modern technologies used for patients' care. The implementation of modern technology in nursing practices increases nurses' efficiency, also changing the way of care for patients. The use of Modern technology is one of the major components of basic competency areas in nursing practice. Previous studies has shown it has the potential to improve the health of patients and the performance of nurses, yielding improved quality, cost savings, and greater engagement by patients in their own health care (Jedwab et al., 2023).

With the advocacy for evidence-based practice in clinical area, application of information technology in nursing becomes imperative because of its widespread use in individual and family care setting. Knowledge and application of information communication technology among nurses have facilitated effective and efficient communication and documentation of nursing roles using standardized nursing terminologies. These include the North American Nursing Diagnosis Association, Nursing Intervention Classification, and Nursing Outcomes Classification, which have been identified as providing comprehensive information about patients within the hospital's Electronic Health Records (Shin et al., 2023).

Health information technology (HIT) has revolutionized the healthcare industry by presenting numerous opportunities for improving and transforming healthcare. One of the key benefits of health information technology is the reduction of human errors in medical practices. By digitizing health records and implementing electronic prescribing systems healthcare providers can minimize medication errors and improve patient safety (McLeod et al., 2021).

The use of Information Technology (IT) in healthcare delivery has gained global traction, with over 80% of high-income countries integrating systems like Electronic Health Records (EHRs), telemedicine, and clinical decision-support tools to enhance care quality and efficiency (World Health Organization [WHO], 2021). In Africa, adoption remains uneven, with only about 38% of countries having national digital health strategies, although nations such as South Africa, Kenya, and Rwanda have made significant progress through mobile health initiatives and public-private partnerships (WHO, 2022). In Nigeria, IT use in healthcare is growing, with

approximately 35% of health facilities, mostly in urban areas utilizing digital tools, while rural coverage remains low due to challenges like poor infrastructure, low digital literacy among health workers, and insufficient funding (Nigerian Health Watch, 2023). In Kwara State, IT integration is largely limited to a few tertiary and private hospitals in Ilorin, with fewer than 25% of facilities using structured digital systems; most still rely on paper-based records, underscoring the need for policy support, infrastructure investment, and workforce training to expand IT usage in healthcare delivery across the state (Adeniran et al., 2023).

Health information technology has been shown to improve clinical outcomes by providing healthcare professionals with real-time access to patient data enabling more accurate diagnoses and treatment decisions (Pyper et al., 2023). This technology also facilitates care coordination by allowing different healthcare providers to share patient information seamlessly resulting in better continuity of care and improved patient outcomes (Iorfino et al., 2021).

Nurses' attitudes towards ICT can vary significantly depending on various factors such as age, experience, education and organizational support. Younger nurses tend to have more positive attitudes towards ICT compared to older nurses. This difference can be attributed to the digital native status of younger nurses who are more comfortable with technology and its integration into their daily workflow (Brown et al., 2020).

The level of education and training plays a crucial role in shaping nurses' attitudes towards ICT. Nurses with higher levels of education and specialized training in informatics are more likely to embrace technology and recognize its benefits in improving patient outcomes. Nurses who received formal education on ICT demonstrated higher levels of confidence and competence in utilizing technology in their practice.

The successful implementation of computer systems in nursing practice is likely to be directly related to users' attitudes toward computerization. Thus, the attitudes nurses have toward the use of computers are very important and use of computers in healthcare requires that objective and comparative information on how nurses view the use of computers and the factors affecting these attitudes is available (Rababah et al., 2021). If attitudes of nurses are adequately assessed. Then implementation strategies can be developed to support nurses who are less willing to accept computerization (Wynn et al., 2022).

Numerous studies have examined the importance of nurses' attitudes toward how successfully computers are introduced into a nursing unit. Study designs ranged from one-time descriptive studies examining demographic variables influencing computer acceptance, to studies comparing users with nonusers, and measurement of attitudes before and after computerization.

Information and communication technologies (ICTs) embody all digital technologies that support the electronic capture, storage, processing, and exchange of information in order to promote health, prevent illness, treat disease, manage chronic illness, and so on. In the health sector, ICTs refer to a set of projects or services that allow for remote care (telehealth), interdisciplinary clinical support, as well as knowledge transfer (Tahsin et al., 2022).

The rapid advances in computer information technology have important implications for both nursing students and educators worldwide. These implications include but are not only limited to the teaching and learning technology but also must include the technology that nursing graduates will be expected to work on a daily basis (Tahsin et al., 2022).

Health sector is faced with constant changes as new approaches to tackle illnesses are unveiled through research.

Information, communication and technology have greatly transformed healthcare practice the world over. Nursing is continually exposed to a variety of changes. Variables including age, educational level, years worked in nursing, computer knowledge and experience have been found to influence the attitudes of nurses towards computerization and Information Technologies (Tsarfati et al., 2022).

A positive attitude could see a rapid adoption with accompanying realization of the benefits of computerization, less positive attitude or rejection is likely to retard attempts to modernize service delivery (Hadwer et al., 2021)

A study in Lagos states nurses generally have a positive attitude towards ICT recognizing its potential to improve patient care and streamline workflow. Although the study also highlighted some challenges faced by nurses in adopting ICT such as inadequate training, lack of access to technology and resistance to change. (Olorunfemi et al., 2020)

A study in Enugu found that some nurses lack adequate training in ICT skills leading to resistance towards adopting new technologies. Additionally, issues such as inadequate infrastructure, limited access to ICT resources and concerns about data

security can also impact nurses' willingness to use ICT in their practice. (Mobolaji-Olajide et al., 2020)

1.2. Statement of the problem

The world health organization has reported that most developing countries including Nigeria still use a wide range of data collection and analysis tools, some of which collect the same data. Most secondary healthcare facilities in developing countries still document their services on pen and paper despite the various breakthroughs in IT. This phenomenon could stem from the persisting issues encountered by numerous healthcare institutions concerning the understanding, accessibility, and effective implementation of ICT by the healthcare workforce, all of which impact the delivery of high-quality healthcare services. In the Nigerian healthcare system, knowledge of computers and ICT has remained poor (Jedwab et al., 2023)

An increasing volume of data is available, but coverage and quality are variable, thus linking information to policy-making at the national level creates a critical challenge. If the quality of information technology is highly variable, it's unlikely to be widely used as is observed in Nigeria.

In the Nigerian situation, most healthcare providers continue to lack knowledge to the information technology which is needed to deliver the best possible health care with available resources. They are poorly motivated with lower remuneration and poorer working conditions. This is further worsened with the extra uncompensated job of collecting data and entering registers electronically (Folami, 2020).

An uninterrupted power supply is a prerequisite for the administration of information technology and ensures avoidance of unintended shutdowns that could lead to loss of data or permanent system damage. Effective application of hospital information system requires broadband internet connectivity with high speed capability for data retrieval and transfer.

Hence this study becomes necessary to assess the Nurses knowledge and attitude towards the utilization of information technology on health service delivery in Kwara State University Teaching Hospital.

1.3. Objectives of the Study

The study is mainly aimed at determining the attitude of nurses to information technology in Kwara State University Teaching Hospital.

The specific objectives are:

1. To assess the level of knowledge of nurses of the use of information technology in the delivery of care at Kwara State University Teaching Hospital.
2. To explore the attitudes of nurses towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital.
3. To identify factors that influence nurses' attitudes towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital.

1.4. Research Questions

The research intended to address the following research questions;

1. What is the level of knowledge of nurses towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital?
2. What is the attitude of nurses towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital?
3. What are the factors influence nurses' attitudes towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital?

1.5 Research Hypothesis

H₀₁: There is no significant relationship between nurses' knowledge on information technology and their attitudes towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital.

H₀₂: There is no significant relationship between the attitude of nurses on the use of information technology in the delivery of care and the factors influencing nurse' attitude.

1.6. Significance of the Study

This research on the impact of marital status on nurses' health care delivery holds critical significance for various stakeholders in the healthcare system. These include hospital administrators, policymakers, nursing educators, nurses themselves, and patients. Each of these stakeholders can derive meaningful insights from the study, which can lead to improvements in healthcare delivery, workplace satisfaction, and patient outcomes.

1. Hospital Administrators

Hospital administrators are responsible for managing healthcare staff and ensuring optimal patient care. The findings from this research can help administrators in General Hospital Ilorin and other healthcare facilities understand the unique

challenges faced by nurses based on their marital status. By recognizing these challenges, administrators can:

Develop policies that address the work-life balance issues that affect both married and unmarried nurses, such as flexible scheduling, child care support, and mental health resources.

Implement targeted interventions to support nurses who may experience higher levels of stress due to family responsibilities or lack of social support.

Promote a healthier work environment that minimizes stress and burnout, leading to better staff retention and enhanced patient care.

Addressing these issues can directly improve nurses' job satisfaction and reduce turnover rates, which are often costly to healthcare institutions.

2. Policymakers

For policymakers in the healthcare sector, this research provides essential data to inform the development of labor laws and health policies that account for the diverse needs of nurses with different marital statuses. Policymakers can use the research to:

Advocate for nationwide or regional policies that promote better work-life balance for healthcare professionals, ensuring they can fulfill both personal and professional responsibilities.

Develop healthcare policies that promote the well-being of healthcare workers, recognizing that nurses' mental and emotional health directly influences patient care outcomes.

In the long term, policies informed by this research can contribute to more sustainable healthcare delivery systems by prioritizing the well-being of nurses, thus improving overall public health outcomes.

3. Nursing Educators

Nursing educators play a pivotal role in preparing future nurses for the demands of the profession. The research can help nursing schools and training programs in:

Curriculum development: Educators can incorporate lessons on work-life balance, stress management, and the impact of personal life factors (like marital status) on professional responsibilities.

Pre-service preparation: By understanding how marital status may influence nursing performance, educators can better prepare students for the emotional and social challenges they might face in their careers.

Professional development programs: For practicing nurses, training sessions on managing work-life conflicts, emotional health, and the role of family support systems can be designed based on the findings from this study.

By equipping nurses with these skills, educators can ensure that future generations of nurses are better prepared to manage the interplay between their personal and professional lives.

4. Nurses

The study directly benefits nurses by providing a deeper understanding of how marital status influences their emotional well-being, job satisfaction, and performance. For individual nurses, the research:

- Highlights the importance of self-awareness in managing work-related stress and recognizing how personal life circumstances, such as marital status, affect job performance.

- Encourages married and unmarried nurses alike to seek support systems and coping mechanisms that enhance their emotional resilience and professional competence.

- Advocates for open communication with hospital management to ensure that personal circumstances are considered in workforce policies, improving job satisfaction and overall well-being.

Nurses can use the findings from this research to advocate for better work conditions and support structures that enable them to deliver higher-quality care while maintaining a healthy work-life balance.

5. Patients

The quality of healthcare delivery is ultimately reflected in patient outcomes. The research indirectly benefits patients by contributing to the creation of a more supportive work environment for nurses. When nurses are well-supported emotionally and professionally, they are more likely to:

- Provide high-quality, compassionate care that meets patients' needs.

- Make fewer errors due to lower stress and burnout levels, enhancing patient safety.

- Maintain better patient-nurse relationships, leading to improved patient satisfaction and health outcomes.

Understanding the factors that influence nurses' performance, such as marital status, can help hospitals ensure that patients receive the best possible care from professionals who are emotionally and mentally healthy.

6. Health and Labor Unions

Healthcare and labor unions can use the findings from this research to strengthen their advocacy for nurses' rights and workplace well-being. By understanding the influence of marital status on nurses' job performance and satisfaction, unions can:

Lobby for workplace policies that address the diverse needs of married and unmarried nurses, ensuring fair treatment and support for all.

Advocate for work-life balance measures, such as paid leave, flexible scheduling, and childcare support for married nurses or those with family responsibilities.

Push for mental health services and emotional support programs tailored to the specific challenges that nurses face, depending on their marital status.

By improving the work conditions of nurses, unions contribute to a healthier workforce, which in turn improves the quality of care patients receive in hospitals like General Hospital Ilorin.

1.7. Scope of Study

This study on attitude of nurses on information technology in the delivery of healthcare will be confined to nurses in Kwara State University Teaching Hospital.

1.8. Operational Definition of Terms

Attitude of Nurses: Beliefs, feelings, and behavioral tendencies of nurses at General Hospital Ilorin towards the use of information technology in patient care.

Information Technology: Collection of tools, systems, and devices, such as computers, software applications, and electronic health records, used by nurses at General Hospital Ilorin to facilitate patient data management, communication, and healthcare delivery.

Use of Information Technology: The integration of digital tools such as electronic health records, clinical software, and other technological devices by nurses in General Hospital Ilorin to assist in providing healthcare services.

Delivery of Care: The way nurses at General Hospital Ilorin use information technology to improve the quality, efficiency, and accuracy of patient care.

General Hospital Ilorin: The healthcare facility where the study is conducted, focusing on nurses' perspectives regarding the adoption of information technology in their care practices.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter labels the effects of information technology application in nursing care and discuss on the factors that can affect health care delivery. This chapter also labels the attitude of nurse to information technology .The reader will get a clear perception of this swiftly developing information. This chapter will concentrate on the impact of information technology application in nursing profession and how information technology can shape the patient centered care as well as clinical practice.

2.1 Conceptual Review

Attitude of Nurses Towards the Use of Information Technology

The integration of information technology in healthcare has transformed nursing practices, enhancing efficiency and improving patient outcomes. Wang et al., (2021) reported that nurses have positive attitudes towards technology and this often correlate with higher levels of technology adoption. urses who perceive information technology as beneficial for enhancing patient care and streamlining processes are more likely to embrace it. Conversely, negative perceptions can hinder the implementation of new systems, as nurses may view technology as an additional burden rather than a tool for improving care (Boon et al., 2022).

Understanding the attitudes of nurses towards this technological shift is crucial, as their perspectives, feelings, and behaviors significantly influence the successful adoption and utilization of these technologies.

Feelings Towards Technology

Emotional responses also play a critical role in shaping nurses' attitudes. Feelings of anxiety or resistance may arise due to concerns about job security, inadequate training, or fears of obsolescence (Labrague et al., 2020). A study by Patrick & Butzlaff (2021) found that nurses who received comprehensive training and support exhibited greater confidence and lower anxiety levels regarding technology use. This suggests that addressing emotional barriers through training can positively influence attitudes.

Behaviors in Technology Adoption

The behaviors of nurses regarding technology use are closely tied to their attitudes. Positive attitudes lead to proactive behaviors, such as seeking out training opportunities and actively engaging with new technologies (Benson-Greenwald & Diekman, 2022). Conversely, negative attitudes may result in passive resistance,

where nurses avoid using available technological resources, potentially compromising care quality. For example, a study by Cajander et al. (2022) highlighted that nurses with negative attitudes were less likely to utilize electronic health records effectively, leading to incomplete documentation and communication errors.

Factors Influencing Attitudes

Several factors influence nurses' attitudes towards information technology. These include:

Training and Education: Adequate training is essential for fostering positive attitudes. Ongoing professional development in technology use leads to increased confidence and a greater willingness to adopt new systems (Phan et al., 2021).

Organizational Culture: A supportive organizational culture that values innovation and provides resources for technology integration positively impacts nurses' attitudes (Jedwabet al., 2023).

Peer Influence: The attitudes of colleagues can significantly affect individual nurses. Positive reinforcement from peers who embrace technology can encourage others to adopt similar behaviors (Coffetti et al., 2022).

Implications for Healthcare Delivery

The integration of information technology (IT) in healthcare settings has significant implications for nursing practice and the overall quality of healthcare delivery (Fadel et al., 2020). Nurses' attitudes towards these technologies play a critical role in their adoption, effectiveness, and the quality of patient care.

Nurses generally hold positive attitudes towards the use of IT in their practice, which supports its adoption and effective use. Many nurses recognize the usefulness and ease of use of health information technology, which encourages higher acceptance and utilization rates (Saab et al., 2021). These positive perceptions are crucial in driving the integration of technology into daily nursing tasks.

Nurses' involvement in the implementation of new technologies and their understanding of its impact on patient care are essential for maintaining job satisfaction and engagement (Shopo et al., 2020). When nurses feel empowered within their organizations through access to opportunities, support, and resources, their attitudes towards using technology improve. This empowerment enhances their work efficiency and overall job satisfaction, making IT adoption smoother.

Despite the generally positive outlook, there are barriers to technology adoption in nursing. Lack of access to computers and the internet, insufficient training, and poor

computer skills are common challenges (Bimerew & Chipps, 2022). Nurses with higher educational attainment tend to have more favorable attitudes towards IT, suggesting the need for targeted educational programs to address these gaps (Eusebio et al., 2023).

Health information technology can impact nursing tasks in both positive and negative ways. While it may increase documentation time, it can also allow nurses to spend more time on direct patient care and other value-adding activities (Moore et al., 2020). Clinical information systems, when designed to be user-friendly, can improve aspects of nursing practice such as documentation, patient safety, and communication, further enhancing the quality of care (Ferdousi et al., 2021).

For successful IT implementation, it is essential for nurses to be well-informed about the rationale behind new technologies and to possess the necessary skills for their use. Continuous education and training are critical to fostering positive attitudes and ensuring that nurses can effectively apply technology in clinical practice, leading to improved healthcare outcomes.

Use of Information Technology in Nursing Practices

The integration of information technology in healthcare has revolutionized nursing practices, enhancing the quality of care, improving communication, and increasing operational efficiency.

Electronic health records are digital versions of patients' paper charts, allowing for the real-time collection, storage, and retrieval of patient information (Ta'an et al., 2020). The use of EHRs has been widely adopted in healthcare settings, providing nurses with immediate access to comprehensive patient data.

Impact on Patient Care: Research by Tapuria et al., (2021) indicates that EHRs significantly enhance the accuracy and completeness of patient records, leading to improved decision-making and care coordination. Nurses can quickly access vital signs, medication histories, and lab results, enabling timely interventions.

Reduction of Errors: EHRs have been shown to reduce medication errors and improve patient safety. A study by Neves et al. (2020) found that nurses using EHRs reported a decrease in medication administration errors due to built-in alerts and reminders about potential drug interactions.

Interdisciplinary Communication: EHRs facilitate better communication among healthcare providers. According to a study by Poon et al. (2022), effective use of

EHRs promotes interdisciplinary collaboration, allowing nurses to share critical patient information with physicians and other healthcare team members seamlessly.

Clinical Software

Clinical software encompasses a range of applications designed to assist nurses in various aspects of patient care, including assessment, documentation, and monitoring.

Patient Assessment Tools: Clinical software enables nurses to conduct standardized assessments, improving the consistency and quality of data collection. For instance, structured assessment forms within clinical software can guide nurses in evaluating patients systematically (Wiseman et al., 2023).

Documentation Efficiency: Digital documentation through clinical software reduces the time nurses spend on paperwork, allowing them to focus more on patient care. A study by Hosseini et al. (2021) highlighted that nurses who utilized clinical software reported higher satisfaction levels and perceived efficiency in their workflows.

Data Analytics: Clinical software can also leverage data analytics to identify trends and improve patient outcomes. Data collected can be analyzed to monitor patient progress and evaluate the effectiveness of care plans (Gibbons et al., 2021).

Telemedicine

Telemedicine has emerged as a vital component of healthcare delivery, particularly in the context of the COVID-19 pandemic. It enables healthcare providers, including nurses, to deliver care remotely, breaking down geographical barriers.

Access to Care: Telemedicine increases access to healthcare services, especially for patients in rural or underserved areas. Research by Lee et al. (2022) found that telehealth services offered by nurses improved access to care for chronic disease management, leading to better health outcomes for patients who otherwise might have faced barriers to in-person visits.

Patient Education and Follow-Up: Nurses can utilize telemedicine to provide education and follow-up care. A study by Mair et al. (2021) indicated that telehealth interventions led by nurses significantly improved patient adherence to treatment plans and increased overall satisfaction with care.

Enhanced Monitoring: Telemedicine allows for remote monitoring of patients with chronic conditions, enabling nurses to track patient health metrics and intervene as necessary. This proactive approach to patient care can help prevent complications and reduce hospital re-admissions (Bashshur et al., 2022).

Challenges in Implementing Information Technology

Despite the numerous benefits, the integration of information technology in nursing practices also presents challenges.

Training and Competency: Effective use of information technology requires adequate training. A study by Kinsella et al. (2020) found that insufficient training can lead to frustration among nurses and underutilization of available technologies.

Resistance to Change: Resistance to adopting new technologies is a common barrier in healthcare settings. According to McGowan et al. (2021), nurses may be hesitant to embrace information technology due to concerns about increased workloads or disruptions to established routines.

Privacy and Security Concerns: The digitization of patient records raises concerns about data privacy and security. Nurses must navigate complex regulations and ensure that patient information is protected from unauthorized access (Alharbi et al., 2023).

Delivery of Care in Nursing

The delivery of care is a foundational aspect of nursing, encompassing the systematic process of providing healthcare services to patients. This includes diagnosis, treatment, and follow-up care. The integration of information technology (IT) into these processes has revolutionized how healthcare is delivered, enhancing the quality of care and improving patient outcomes (Meygawaty et al., 2023).

Delivery of Care

Definition and Importance: Delivery of care involves a series of actions taken by healthcare professionals to meet the needs of patients. This process is crucial as it not only affects the immediate health outcomes of patients but also their overall experience with the healthcare system. According to Agarwal et al. (2020), effective care delivery ensures that patients receive timely and appropriate interventions, contributing to their recovery and well-being.

Role of Information Technology: Information technology has become integral to modern healthcare delivery. It enables healthcare providers to access and share patient information in real time, facilitating collaborative care among interdisciplinary teams. For instance, clinical decision support systems can provide evidence-based recommendations, which help nurses make informed decisions regarding patient care (Davis et al., 2021).

Patient Outcomes: The relationship between effective care delivery and patient outcomes is well-established. Research has shown that facilities employing advanced

information technology experience lower readmission rates, improved medication management, and enhanced patient satisfaction (Davis & Chang, 2022). These outcomes not only benefit patients but also reduce the overall burden on healthcare systems.

Barriers to Information Technology

Lack of Training: One of the most significant barriers to effective IT use in nursing is the lack of adequate training. Kinsella et al. (2021) found that many nurses report feeling unprepared to utilize new technologies, which can lead to underutilization or incorrect usage. Training programs that focus on hands-on practice and real-world scenarios can help alleviate this issue.

Resistance to Change: Cultural and organizational resistance to adopting new technologies can impede progress. Nurses often have established workflows and may view new technologies as disruptions. A qualitative study by McGowan et al. (2022) highlighted that many nursing professionals prefer traditional methods, which can hinder the successful implementation of technological advancements.

Inadequate Infrastructure: The successful integration of information technology requires reliable infrastructure, including sufficient hardware, software, and internet connectivity. Rojas et al. (2023) emphasize that healthcare facilities with outdated systems or inadequate technical support struggle to implement new technologies effectively, resulting in suboptimal care delivery.

Electronic Health Records (EHR)

Definition: Electronic health records are comprehensive digital systems that store patient health information, including medical history, medications, allergies, and test results. These systems are designed to enhance the efficiency and accuracy of documentation processes within healthcare settings (Borycki et al., 2021).

Impact on Care Documentation: The introduction of EHRs has significantly improved the quality and accessibility of patient records. Nurses can quickly retrieve patient information, leading to better-informed clinical decisions. Poon et al. (2022) noted that the use of EHRs contributes to reducing documentation errors and improving compliance with clinical guidelines.

Communication Enhancement: EHRs facilitate seamless communication between nurses and other healthcare providers, ensuring that all team members have access to the same up-to-date patient information. This collaborative approach enhances care coordination and minimizes the risk of adverse events (Wang et al., 2021).

Nurse-Patient Communication

Technology's Role: The integration of information technology into nursing practice has transformed the way nurses communicate with patients. Telehealth platforms and patient portals allow for more efficient information exchange, which can enhance patient engagement and satisfaction (Mair et al., 2021).

Impact on Patient Satisfaction: Effective communication is crucial for patient satisfaction. Research indicates that patients who receive timely information and updates about their care through digital platforms report higher levels of satisfaction (Gentry et al., 2020). This enhanced communication fosters a sense of partnership in care.

Patient Education: Information technology enables nurses to provide timely and relevant educational materials to patients, empowering them to take an active role in their healthcare. Alharbi et al. (2023) found that patients who receive education through digital tools are more likely to adhere to treatment plans and understand their health conditions.

Technological Acceptance

Technological acceptance refers to the willingness and readiness of healthcare professionals, including nurses, to adopt and effectively utilize information technology in their work (Davis, 2020).

Factors Influencing Acceptance: Several factors can influence nurses' acceptance of technology, including perceived ease of use, perceived usefulness, and organizational support. Studies show that when nurses believe that technology will enhance their efficiency and effectiveness, they are more likely to embrace it (Kinsella et al., 2021).

Enhancing Acceptance: Strategies to enhance acceptance include providing robust training programs, offering ongoing support, and fostering a culture of innovation within healthcare organizations. McGowan et al. (2022) suggest that leadership plays a crucial role in promoting technological acceptance by encouraging staff engagement and feedback.

Training and Education

Importance of Training: Continuous training is essential for equipping nurses with the skills needed to navigate the rapidly evolving technological landscape in healthcare. Comprehensive training programs that focus on both technical skills and soft skills, such as communication, are crucial (Cameron et al., 2023).

Program Effectiveness: Effective training programs have been shown to not only enhance technological competencies but also improve job satisfaction among nursing staff. Research indicates that when nurses feel confident in their technology use, they are more likely to deliver high-quality care (Borycki et al., 2021).

Ongoing Education: Continuous professional development is vital to keep nurses updated on new technologies and best practices in healthcare delivery. Rojas et al. (2023) emphasize the need for ongoing education to ensure that nurses can adapt to technological advancements and maintain high standards of care.

Efficiency in Care Delivery

Definition: Efficiency in care delivery refers to the extent to which information technology improves the speed, accuracy, and effectiveness of nursing care (Agarwal et al., 2020). Efficient care delivery minimizes delays and optimizes resource utilization.

Impact on Workflow: The integration of information technology can streamline nursing workflows by automating administrative tasks and facilitating faster access to patient information. This allows nurses to focus more on direct patient care rather than paperwork (Davis & Chang, 2022).

Quality of Care: Enhanced efficiency through technology contributes to improved quality of care. Studies indicate that when nurses can respond more quickly to patient needs and coordinate care effectively, patient outcomes improve significantly (Gentry et al., 2020).

2.2 Theoretical Framework

2.2.1. The Health Belief Model

Introduction

The Health Belief Model (HBM), developed in the 1950s by social psychologists Hochbaum, Rosenstock, and Kegels, is a widely applied theoretical framework in health behavior research. Originally designed to explain why people fail to adopt preventive health measures, it is now commonly used to predict and explain health-related behaviors. The model suggests that individuals' actions regarding health are driven by their beliefs about susceptibility to a condition, the perceived severity of the condition, the perceived benefits of taking action, and the perceived barriers to taking that action.

In the context of assessing nurses' knowledge and attitude toward the utilization of information technology (IT) in health service delivery, the HBM provides a

framework to explore how nurses' perceptions affect their acceptance and use of health information technology. The model helps to identify the factors that influence nurses' decisions to integrate IT into their practice and can offer strategies for improving the adoption of such technologies.

Assumptions

The HBM is built on several key assumptions about human behavior and decision-making processes related to health. These assumptions can be adapted to the context of IT adoption in health service delivery by nurses:

Health-related behavior is influenced by personal beliefs: Nurses' adoption of IT in health service delivery is shaped by their beliefs about its relevance and effectiveness in improving patient care.

Perceived susceptibility: Nurses will be more likely to utilize IT if they believe they are susceptible to the challenges associated with outdated methods, such as inefficient patient management.

Perceived severity: Nurses' attitudes toward IT may be influenced by their belief in the severity of the impact that inefficient practices (without IT) have on healthcare outcomes.

Perceived benefits: Nurses will be more inclined to use IT if they perceive the benefits of improved patient care, increased efficiency, and better data management.

Perceived barriers: Potential barriers, such as lack of training, technical difficulties, or resistance to change, may affect the adoption of IT. Nurses' knowledge and attitude towards IT can be shaped by how significant they perceive these barriers to be.

Cue to action: External factors, such as hospital policies, training programs, or peer influence, may trigger the decision to use IT in health service delivery.

Self-efficacy: The belief in one's ability to successfully use IT tools is critical. If nurses feel confident in their ability to learn and effectively use IT, they are more likely to adopt it in practice.

Critics

Despite its wide application, the Health Belief Model has received criticism, especially in modern contexts:

Lack of emphasis on emotional factors: Critics argue that the HBM focuses too much on rational decision-making processes and neglects emotional factors that can influence behavior. In the context of IT adoption, emotions such as fear of failure or frustration with technology are not accounted for in the model.

Limited social influence: The HBM underemphasizes the role of social and organizational dynamics, such as peer pressure, team culture, or leadership support, all of which can significantly influence nurses' use of IT.

Static nature: The model assumes that individuals' health beliefs are relatively stable, whereas in reality, beliefs about technology, for example, can change rapidly based on new information, training, or experiences.

Focus on individual decision-making: Critics argue that the HBM is overly focused on the individual and does not sufficiently consider environmental and institutional factors, such as hospital infrastructure or IT support, that affect IT adoption.

Supports

Despite these critiques, the HBM remains widely supported for several reasons:

Simplicity and clarity: The model is straightforward and easy to apply, making it useful for understanding and predicting behavior, including technology adoption.

Focus on beliefs and behavior: By linking beliefs to behavior, the model provides practical insights into how nurses' attitudes toward IT can be influenced by addressing their perceptions of barriers and benefits.

Extensive empirical support: The HBM has been validated by numerous studies across a range of health behaviors, including technology use in healthcare settings.

Flexibility: The model can be adapted to various contexts, such as understanding the adoption of information technology, by incorporating elements like training, organizational support, and the perceived utility of IT in nursing practice.

Application to the Study

The Health Belief Model can be applied effectively to assess nurses' knowledge and attitudes toward the utilization of IT in health service delivery in General Hospital Ilorin. By using the core components of the HBM, this study can explore the following aspects:

Perceived Susceptibility: Nurses may perceive that not utilizing IT increases their risk of errors, inefficiency, and delays in patient care. Understanding how nurses perceive these risks can help in assessing their willingness to adopt IT.

Perceived Severity: The perceived severity of the consequences of not using IT, such as reduced quality of care or patient safety concerns, can influence nurses' motivation to embrace IT.

Perceived Benefits: Nurses' knowledge of the benefits of IT, such as real-time patient data access, improved decision-making, and enhanced communication, is

crucial. The study can explore how well nurses understand these benefits and how it affects their attitudes.

Perceived Barriers: The study can identify barriers such as lack of technical skills, fear of technology, or limited infrastructure. These barriers may discourage nurses from utilizing IT. Addressing these barriers through training and support can improve IT adoption.

Cue to Action: Institutional factors like policy mandates, training sessions, or incentives can serve as cues to action, motivating nurses to adopt IT in their practice. The study can explore what cues prompt nurses to use IT more frequently.

Self-efficacy: Nurses' confidence in their ability to use IT tools effectively is a key determinant of their attitude. The study can measure how self-efficacy relates to the actual utilization of IT in their work.

2.2.2 The Diffusion Innovation Theory

The Diffusion of Innovations Theory developed by Everett Rogers in 1962 is a widely used framework in the fields of health medicine and nursing to understand the adoption and spread of new ideas technologies and practices.

The theory has profound implications for healthcare professionals as they strive to introduce and implement innovations that can improve patient outcomes and healthcare delivery.

Key Concepts of Diffusion of Innovations Theory

Rogers' Diffusion of Innovations Theory revolves around the idea that the adoption of innovations follows a predictable pattern among individuals and groups within a social system.

The theory identifies five main stages in the diffusion process:

- knowledge
- persuasion
- decision
- implementation and
- confirmation.

Innovations are typically adopted by different segments of the population at different rates with innovators and early adopters leading the way followed by the early

Assumptions of Diffusion of Innovations Theory

The Diffusion of Innovations (DOI) theory is based on several key assumptions regarding the adoption and spread of innovations within a community or organization:

Innovation Decision Process:

Individuals go through a process involving several stages (knowledge, persuasion, decision, implementation, and confirmation) before fully adopting an innovation. It assumes that adoption is not immediate but gradual.

Communication Channels:

Innovations are communicated through specific channels over time. Interpersonal and mass communication channels play a critical role in influencing the rate of adoption.

Social System Influence:

The diffusion of an innovation takes place within a social system, which can be an organization, community, or country. Individuals' behavior is influenced by their social network, peers, and organizational culture.

Heterogeneity of Adopters:

People within a population are not uniform in their willingness to adopt innovations. The theory categorizes them as innovators, early adopters, early majority, late majority, and laggards. It assumes that people adopt innovations at different rates based on their individual characteristics and positions in the social system.

Perceived Attributes of the Innovation:

The rate of adoption depends on how potential adopters perceive five key attributes of the innovation:

Relative Advantage: The perceived benefit of the innovation over the current practice.

Compatibility: The innovation's alignment with existing values and needs.

Complexity: The perceived difficulty of understanding or using the innovation.

Trialability: The ability to experiment with the innovation before fully committing.

Observability: The extent to which the results of the innovation are visible to others.

Critics of Diffusion of Innovations Theory

Despite its widespread use, the Diffusion of Innovations theory has faced several criticisms:

Overemphasis on Individual Decision-Making:

Critics argue that the theory places too much focus on individual behavior and decision-making, often overlooking the role of structural factors such as

organizational policies, financial constraints, and institutional regulations. This makes it less applicable in complex organizational settings where individual choices are constrained.

Innovation Bias:

The theory assumes that innovations are inherently positive and desirable, but not all innovations result in positive outcomes. It does not fully account for innovations that may have negative impacts, or cases where non-adoption is a rational choice.

Lack of Consideration for Power Dynamics:

Diffusion of Innovations tends to downplay the role of power and authority in decision-making. In many organizations, the adoption of innovations is driven by leadership or top-down directives, and not simply by individual choice.

Neglect of Socio-Cultural Context:

The theory is often criticized for not paying enough attention to the socio-cultural context in which an innovation is introduced. Factors such as cultural values, political influence, and social norms can heavily impact the adoption process but are not thoroughly addressed in the theory.

Underrepresentation of "Reinvention":

The theory does not adequately emphasize the idea that innovations are often adapted or modified by users to fit their unique needs or circumstances. This concept of "reinvention" is a significant part of the innovation process, especially in settings where full adoption of a technology might be impractical without modification.

Support for Diffusion of Innovations Theory

Despite its critiques, the Diffusion of Innovations theory has been widely supported and validated in various fields, especially in health, technology, education, and business:

Broad Applicability:

The theory has been applied in numerous fields, from healthcare and technology to agriculture and education, demonstrating its flexibility and relevance across different sectors. It provides a useful framework for understanding how new ideas and practices spread within a group or community.

Empirical Evidence:

Numerous studies have validated the diffusion process described by Rogers, particularly the five categories of adopters (innovators, early adopters, early majority,

late majority, and laggards). The theory's ability to explain the varying rates of adoption among different groups has been supported in many empirical studies.

Insight into Adoption Barriers:

One of the strengths of the theory is its focus on the perceived characteristics of the innovation itself (relative advantage, compatibility, complexity, trialability, and observability). These factors have proven to be critical in determining the likelihood and speed of adoption, and they provide actionable insights for policymakers, managers, and innovators seeking to increase adoption rates.

Innovation Decision Process:

The five-stage innovation-decision process (knowledge, persuasion, decision, implementation, and confirmation) offers a clear, logical progression of how individuals adopt new technologies or practices. This has been useful in designing interventions that move potential adopters through each stage of adoption more effectively.

Social System and Communication Networks:

The theory's emphasis on communication channels and social systems highlights the importance of peer influence, opinion leaders, and social networks in promoting innovation. This aspect has been supported by studies showing that people are more likely to adopt new ideas when they see others within their social system successfully using the innovation.

Focus on Adoption Categories:

The identification of different adopter categories (innovators, early adopters, early majority, late majority, laggards) is a practical tool for targeting interventions. By recognizing that different groups respond differently to innovation, strategies can be tailored to encourage adoption in a more focused manner. majority late majority and laggards.

Application in Healthcare

The theory is instrumental in understanding how new medical treatments technologies and practices are adopted and integrated into clinical practice. For example the implementation of electronic health records (EHRs) in hospitals and clinics can be analyzed through the lens of Rogers' theory.

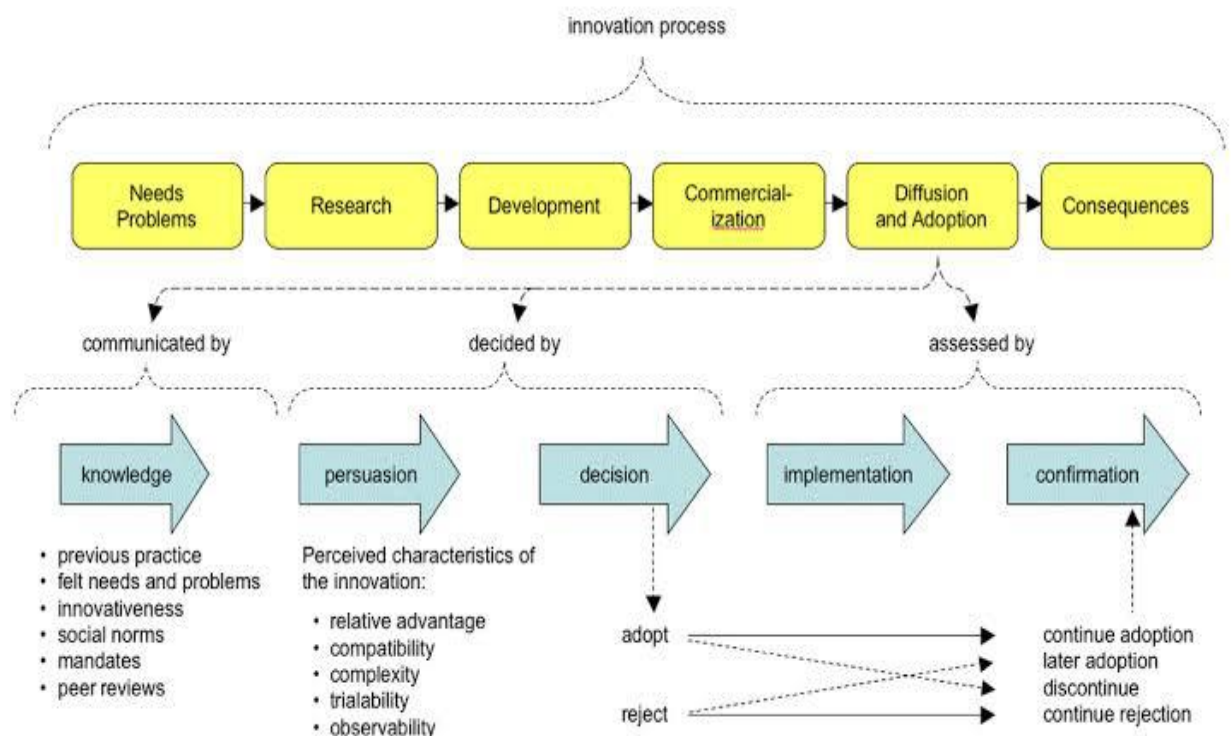
Healthcare organizations must identify key opinion leaders and change agents who can champion the adoption of EHRs among healthcare providers and staff. By

targeting early adopters and utilizing effective communication strategies the diffusion of EHRs can be accelerated and sustained over time.

Challenges and Future Directions

The Diffusion of Innovations Theory provides valuable insights into the adoption of healthcare innovations challenges remain in translating theory into practice. Healthcare professionals must navigate complex organizational structures resistance to change and barriers to innovation adoption. By leveraging the principles of Rogers' theory healthcare organizations can enhance their capacity to innovate and improve patient care.

The diffusion of innovations theory will prove this study with useful framework in explaining how far the nurses in General hospital Ilorin have acquired the knowledge of information technology and their attitude towards the application in nursing care delivery.



2.2.3 Technology Acceptance Model

Introduction

The Technology Acceptance Model (TAM) was first introduced by Fred Davis in 1989 as a theoretical framework to explain and predict user acceptance of technology. TAM is an adaptation of the Theory of Reasoned Action (TRA) and seeks to identify the factors influencing individuals' decisions to use technology in various fields. The model posits that two primary factors—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)—determine an individual's intention to use technology. The intention to use, in turn, directly affects the actual usage of the technology.

In healthcare settings, particularly among nurses, the utilization of information technology (IT) is increasingly important for effective service delivery. TAM provides a valuable framework to assess nurses' knowledge, attitudes, and acceptance of IT tools and systems in hospitals such as General Hospital Ilorin, Kwara State. Understanding the factors that influence nurses' acceptance of technology can improve implementation strategies, ensuring better healthcare delivery.

Assumptions of the Technology Acceptance Model

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) drive behavior: TAM assumes that individuals' attitudes towards using technology are mainly influenced by how useful they perceive the technology to be (PU) and how easy it is to use (PEOU). In the context of healthcare, nurses will be more likely to adopt IT if they believe it enhances their job performance and is easy to operate.

Behavioral intention leads to actual technology use: The model assumes that behavioral intention is the strongest predictor of actual usage of technology. Nurses who develop a favorable attitude towards IT (due to perceived usefulness and ease of use) are more likely to use it in their daily tasks.

External factors indirectly influence technology acceptance: External variables such as training, system quality, organizational support, and demographic characteristics (like marital status, which can affect work-life balance) are assumed to have indirect effects on the acceptance of technology. These factors influence perceived usefulness and ease of use, which in turn affect the intention to use the technology.

Minimal effect of social influence: Unlike other models, such as the Theory of Planned Behavior (TPB), TAM assumes that social influence plays a minimal role in the acceptance of technology. Instead, it emphasizes internal motivations like perceived usefulness and ease of use.

Critics of the Technology Acceptance Model

Limited external factors: Critics argue that TAM focuses too narrowly on perceived usefulness and ease of use, while overlooking other significant factors such as cultural norms, organizational constraints, or social influences that can impact technology acceptance. For example, in a healthcare setting like General Hospital Ilorin, organizational policies and team dynamics may play a vital role in determining IT adoption among nurses.

Oversimplification of technology acceptance: Some researchers suggest that TAM oversimplifies the complex process of technology adoption. Nurses' decisions to use IT are likely influenced by a wide range of personal, organizational, and situational factors beyond just perceived usefulness and ease of use.

Assumption of rational behavior: TAM assumes that individuals make rational decisions based solely on the perceived benefits and ease of using technology. However, human behavior is often influenced by emotions, biases, or resistance to change, which the model fails to account for. In the case of nurses, factors like fear of technology, work overload, or anxiety about using IT systems can hinder adoption.

Static nature of the model: Critics argue that TAM is static and doesn't account for changes in technology over time. As technology evolves, so do users' experiences and attitudes towards it. In the healthcare sector, ongoing advancements in health information systems and telemedicine tools may require a more dynamic approach to understanding technology acceptance among nurses.

Supports for the Technology Acceptance Model

Empirical validation: Numerous studies have supported TAM's predictive power in various fields, including healthcare. Research has consistently shown that perceived usefulness and ease of use are key determinants of technology adoption. In nursing, TAM has been successfully applied to study the acceptance of electronic health records (EHRs), mobile health applications, and telemedicine technologies.

Simplicity and generalizability: One of TAM's strengths is its simplicity and ease of application across different settings. The model has been applied in various industries, including healthcare, education, and business, to study the acceptance of diverse technologies. This generalizability makes TAM a popular choice for researchers studying technology adoption in specific contexts, such as the use of IT by nurses in hospitals.

Extension and adaptation: Despite its limitations, TAM has been extended to account for additional variables, such as subjective norms, facilitating conditions, and trust in technology, through models like TAM2 and the Unified Theory of Acceptance and Use of Technology (UTAUT). These extensions have helped address some of the criticisms, providing a more comprehensive understanding of technology acceptance.

Healthcare-specific applications: In healthcare, TAM has been instrumental in explaining technology acceptance among healthcare providers. Studies have shown that nurses' acceptance of IT systems is crucial for improving service delivery, reducing errors, and enhancing patient care. By highlighting the importance of perceived usefulness and ease of use, TAM helps healthcare administrators design training programs and interventions that encourage IT adoption among nurses.

Application of the Technology Acceptance Model to the Study

The Technology Acceptance Model can be effectively applied to assess nurses' knowledge and attitudes towards the utilization of information technology in General Hospital Ilorin, Kwara State. Given the increasing role of IT in healthcare service delivery, understanding nurses' acceptance of these technologies is crucial for improving healthcare outcomes.

Perceived Usefulness (PU): In the context of this research, PU relates to how nurses perceive the utility of IT systems in improving their work efficiency and patient care. The study could assess whether nurses believe IT enhances the accuracy of diagnoses, streamlines administrative tasks, or facilitates communication between healthcare teams. If nurses find IT systems useful in achieving these outcomes, they are more likely to adopt them in their daily practice.

Perceived Ease of Use (PEOU): PEOU examines how nurses perceive the complexity of using IT tools in their work environment. The study could investigate whether nurses find hospital information systems intuitive, whether they experience any technical difficulties, and whether sufficient training and support are provided. A higher perception of ease of use will likely increase IT adoption among nurses.

Behavioral Intention to Use IT: This study can use TAM to measure nurses' intention to use IT systems based on their perceptions of usefulness and ease of use. Understanding the behavioral intentions of nurses provides insight into their likelihood of adopting IT solutions in their daily tasks. For instance, if nurses believe that the IT systems used in General Hospital Ilorin are both useful and easy to operate, they are more likely to incorporate them into their workflow.

External Variables: While TAM focuses primarily on PU and PEOU, external factors like organizational support, training, and even nurses' marital status may influence their acceptance of IT. The study could explore how these external factors, such as the availability of user support or work-life balance challenges faced by married nurses, indirectly affect their perceptions of IT.

Impact on Health Service Delivery: By applying TAM, the study will reveal how nurses' acceptance of IT can lead to better health service delivery. For example, nurses who perceive IT systems as useful and easy to use are more likely to engage with them effectively, which can enhance patient outcomes, improve clinical decision-making, and reduce errors.

2.3 Empirical Review

Knowledge of Nurses on the Use of Information Technology in Care Delivery

Information technology encompasses a wide range of digital tools and systems used in healthcare, including electronic health records (EHR), clinical decision support systems, telehealth, and mobile health applications. These tools are designed to improve communication, streamline workflows, and enhance patient care (Tzeng et al., 2022). The importance of IT knowledge cannot be overstated; nurses are at the frontline of patient care, and their proficiency in IT systems directly influences care quality. Knowledge of IT enables nurses to document patient information accurately, access relevant clinical data, and communicate effectively with healthcare professionals (Alharthi et al., 2023).

Studies have assessed the general knowledge levels of nurses regarding IT in clinical settings. A cross-sectional study by Feroz et al. (2022) found that while many nurses possess basic IT skills, significant gaps exist in advanced competencies such as data analysis and the use of specialized software applications. Research indicates that educational programs play a crucial role in enhancing nurses' IT knowledge. A study by East et al. (2023) highlighted that nurses participating in targeted training programs exhibited higher proficiency in using EHR systems compared to those without formal training. Ongoing education is essential to keep nurses updated with emerging technologies (Sari et al., 2021).

The knowledge of IT among nurses varies significantly based on factors such as age, years of experience, and workplace setting. A study by Kline et al. (2023) found that younger nurses and those with more years of experience reported greater confidence in their IT skills. Conversely, nurses in rural settings often reported lower levels of IT

knowledge due to limited access to training resources. Common barriers to acquiring knowledge of IT include inadequate training programs, lack of institutional support, and resistance to change among staff. Research by Boulware et al. (2022) identified that many nurses felt overwhelmed by the rapid pace of technological advancements, leading to anxiety and reluctance to engage with new systems.

Numerous studies have shown a positive correlation between nurses' knowledge of IT and the quality of patient care. A systematic review by Zarif et al. (2023) revealed that nurses with higher IT competency levels were more effective in monitoring patient conditions, documenting care processes, and coordinating with interdisciplinary teams. Proficient use of IT tools contributes to enhanced patient safety. Understanding how to effectively use clinical decision support systems can reduce medication errors and improve clinical outcomes (Feroz et al., 2021). Knowledgeable nurses are better equipped to leverage IT for patient safety initiatives.

Moreover, the integration of IT in nursing workflows can significantly enhance efficiency. A study by Alabi et al. (2023) demonstrated that nurses knowledgeable about EHR systems reported reduced documentation time, allowing them to dedicate more time to direct patient care.

To address knowledge gaps, healthcare organizations must invest in comprehensive training programs that cater to the diverse needs of nurses. Such programs should include hands-on training, mentorship opportunities, and ongoing support (East et al., 2023). Creating a supportive work environment that encourages continuous learning and adaptation to new technologies is essential. Healthcare leaders should promote a culture that values innovation and provides resources for skill development (Kline et al., 2023). Future research should focus on longitudinal studies that track the development of IT knowledge among nurses over time and the long-term impact of improved IT competency on patient outcomes and healthcare efficiency.

The Attitude of Nurses Towards the use of Information Technology in care Delivery

Nurses' attitudes toward the use of information technology (IT) play a critical role in shaping the effectiveness of care delivery, as highlighted by Ameen et al. (2023). Their systematic review investigated the intricate relationship between nurses' attitudes toward technology and patient outcomes, revealing that positive attitudes are associated with enhanced care quality, increased efficiency, and better overall patient experiences. The review underscored the importance of fostering a positive technological environment in nursing settings to optimize care delivery.

In a complementary study, Alharbi et al. (2022) explored nurses' perceptions of electronic health records through a qualitative approach, which provided deeper insights into their experiences and feelings regarding IT. This research identified a duality in nurses' attitudes, showcasing enthusiasm for the potential benefits of electronic health records, such as improved data management and communication. However, it also revealed significant concerns about increased workload and the complexity of new systems, which may hinder their willingness to fully engage with technology.

Kaczmarek et al. (2021) focused on the barriers that impede the adoption of IT in nursing practice, utilizing a mixed-methods design to gather comprehensive data. Their findings indicated that anxiety related to learning new technologies and resistance to change within the organizational culture were significant barriers affecting nurses' attitudes. This resistance not only impacts individual nurses but can also create an environment that stifles innovation and improvement in care delivery.

Furthermore, Khalil et al. (2023) emphasized the critical role of organizational support in shaping nurses' attitudes toward IT. Their research utilized a mixed-methods approach to illustrate how a supportive work environment—characterized by adequate training, resources, and encouragement—can foster positive perceptions of technology. The study concluded that when nurses feel supported by their institutions, they are more likely to embrace new technologies and integrate them into their clinical practice.

The research by Hsieh et al. (2023) further corroborated these findings, indicating that positive attitudes toward IT are closely linked to improved patient safety and quality of care. Their systematic review highlighted the necessity for effective training and ongoing support for nurses, suggesting that enhancing nurses' confidence and competence in using IT can lead to better clinical outcomes.

2.3.2 Factors Influencing the attitude of nurses towards the use of information technologies in care delivery.

Several factors significantly influence nurses' attitudes toward the use of information technologies in care delivery. A study by Alharbi et al. (2022) explored how demographic variables, including age and experience, shape nurses' perceptions of technology. The findings indicated that younger nurses typically exhibit more positive attitudes toward information technology, likely due to their familiarity with digital tools, while older nurses often express apprehension and resistance to adopting new

technologies. This generational gap underscores the need for targeted training programs tailored to various age groups to foster a more uniform attitude toward IT in nursing practice.

Kaczmarek et al. (2021) examined the impact of organizational culture on nurses' attitudes toward technology through a mixed-methods approach. Their research revealed that a culture supportive of innovation and change positively influences nurses' willingness to embrace new technologies. In contrast, an organizational culture that resists change contributes to negative attitudes and a reluctance to adopt IT. This highlights the crucial role of leadership in creating an environment that encourages technological integration and supports nurses in navigating these changes. Training and educational opportunities also play a vital role in shaping nurses' attitudes. Khalil et al. (2023) conducted a study that emphasized the importance of continuous education in technology use, demonstrating that comprehensive training programs enhance nurses' confidence and competence. Their findings indicated that when nurses feel adequately trained, they are more likely to develop positive attitudes toward using information technology, ultimately leading to better patient care.

Furthermore, Hsieh et al. (2023) identified the influence of perceived ease of use and perceived usefulness as critical factors affecting nurses' attitudes toward IT. Their research showed that when nurses perceive technology as user-friendly and beneficial to their practice, they are more inclined to adopt it. Conversely, if they view technology as complex or ineffective, their attitudes become negative, impacting their willingness to engage with these tools.

Lastly, the role of peer influence and social support was highlighted in a study by Yu et al. (2023), which explored how colleagues' attitudes toward technology impact individual nurses' perceptions. The study found that positive peer attitudes can enhance individual nurses' willingness to adopt IT, while negative peer perceptions can reinforce resistance and skepticism. This suggests that fostering a collaborative and supportive team environment can significantly influence attitudes toward technology adoption.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter will focus on the explanation of the method of the study. It provides an overview of; Research design, Study setting, Target population, Sample and sampling techniques, Instrument for data collection, Validity of instrument, Reliability of instrument, Method of data collection, Method of data analysis, Ethical consideration.

3.1 Research Design

A descriptive cross-sectional design will be utilized to determine the knowledge, attitude and perception of information technology on nursing care delivery among nurses at General Hospital, Ilorin.

3.2 Study Setting

This study will be carried out at General Hospital Ilorin. General Hospital Ilorin is a state health institution having about 1000 employees. The hospital is situated at Ibrahim Taiwo road, Ilorin Kwara State. It was established on the 1/6/2014. The Hospital comprises of different health specialties such as; medicine, Obstetrics & Gynecology, Anesthesia, physiotherapy, surgery, dentistry, radiology, paediatrics, ambulance special clinics, dental, mortuary onsite imaging, onsite pharmacy etc.

3.3 Target Population

The study population is nurses working in GHI. The target population is about 200 registered nurses. However, nurses who were on leave during the study will be excluded from this research.

3.4 Sample and Sampling Technique

The sample size will be determined using Yamnane formular

$$n = \frac{N}{1+N(e)^2}$$

$$n = \frac{200}{1+200(0.5)^2}$$

$$n = \frac{200}{1+200(0.0025)}$$

$$n = \frac{200}{1+0.5}$$

$$n = \frac{200}{1}$$

$$1.5$$

$$n = 133$$

Attrition rate of 10%

Attrition = 10% of calculated sample size + calculated sample size

$$\begin{aligned}\text{Attrition} &= 10\% (133) + 133 \\ &= 13.3 + 133 \\ &= 146\end{aligned}$$

Therefore the final sample size to be utilized for this research will be 146.

3.5 sampling technique

Stratified random sampling technique was utilized for the purpose of this study until the sample size was achieved.

3.6 Instrument for Data collection

A self-administered, structured questionnaire with close ended questions was used after obtaining consent from participants. This will enable us gather as much information as possible. The questionnaires will have predetermined questions grouped together to address the study objectives. Questions will be drawn to comprises of 4 sections according to the objectives of the study.

Section A: Demographic data

Section B: Knowledge of nurses on information technology in the delivery of care

Section C: Attitude of nurses to information technology in the delivery of care

Section D: factors that influence nurses' attitudes towards the use of information technology in the delivery of care

3.7 Validity of Instrument

The instrument will be developed from a structured and standard questionnaires from online and will be given to my supervisor for proof reading and corrections, so as to establish fact and content validity.

3.7.1 Pilot Study

The pilot study will be carried out in general hospital Ilorin west local government in order to assess the accuracy and feasibility of the research instrument. The total number of questionnaire that will be administered for the purpose of the pilot study will be 10% of the sample population.

3.8 Reliability of instrument

Reliability in this study will be enhanced by pre- testing of the questionnaire. Prior to the administration of the questionnaire, it will be pre- tested a week before the actual data collection using nurses from another hospital who are not included in the study but who have the same characteristics with the study population but the findings will not be included in the final data. The score obtained was compared to see internal consistency reliability.

3.9 Method of Data Collection

The questionnaire will be distributed to nurses who meet up with the inclusion criteria. The participants will also be informed on the anonymity of the questionnaire to encourage them in providing honest answers. The questionnaires will be collected back from the respondents immediately after completion in order to avoid mutilation and to record high response rate of respondents. The questionnaires will be collected at the spot.

Inclusion criteria; this involves all the nurses working in various department, wards and unit of General Hospital Ilorin, who are present on duty at the time of data collection and those who will voluntarily give their consents to participate in the study.

3.10 Method of Data Analysis

Data collected from the respondent will be analyzed using IBM SPSS Statistics version 25 and the result was be presented in frequency tables.

3.11 Ethical considerations

Letter of introduction will be taken from the HOD, Nursing Department of College of Health Science Thomas Adewumi University. It will be presented to the CMD General Hospital Ilorin. Each participant provided oral informed consent after being informed about the study's aim and procedures. They will be told they could say no at any time. The respondents will be informed of the benefits and reason for the research. During and after the collection of data, the authority and confidentiality of the respondents was ensured that all records was used purely for the purpose of the research.

Confidentiality and Anonymity: The purpose of the research and the extent to which the participant will be involved in the research will be explained to all the participants. The researcher will protect the rights of participant by informing them that their participation is voluntary, they will remain anonymous, free to withdraw from the study at any time and all information provided will be kept confidential and used for

research purpose only. Beneficence: The findings of this study will help to sensitize the public especially mothers on how to care for the umbilical cord stump of newly delivered infants.

Non-maleficence: The study will not employ any invasive procedure. Each participant will be protected from physical harm and unnecessary psychological trauma or embarrassment. No one will be harmed during the period of data collection.

Informed consent: Oral/ written informed consent will be obtained from willing participants before their participation in the study. Participants will be assured of no risks involved in answering the questions and no one will be deceived or coerced to participate in the study.

CHAPTER FOUR

RESULTS

4.0 Introduction

In this chapter, the results of the analysis of data obtained are presented. The data were analyzed using both descriptive and inferential statistics. For the demographic data, percentage was employed while, PPMC statistical tools were employed to analyze the null hypotheses. A total of 146 questionnaires were administered and returned. Hence, the analysis is conducted on 146 respondents.

4.1 Demographic Data

The data presented in table 1 included demographic characteristics of the respondents' and percentages. The moderating variables used were age, gender, marital status, highest educational qualification, years of working experience, department or unit.

Table 1: Socio-demographic data of Respondents

Demographic Variables	Frequency	Percentage (%)
Age		
18–25 years	24	16.22
26–35 years	39	27.03
36–45 years	36	24.32
46–55 years	28	18.92
Above 55 years	19	13.51
Gender		
Male	55	37.84
Female	91	62.16
Marital Status		
Single	49	33.78
Married	79	54.05
Divorced	10	6.76
Widowed	8	5.41
Highest Educational Qualification		
Diploma	20	13.51
B.Sc. Nursing	59	40.54
Postgraduate Diploma	36	24.32
Master's Degree	31	21.62
Years of Working Experience		
Less than 1 year	12	8.11
1–5 years	47	32.43
6–10 years	36	24.32
11–15 years	28	18.92
Above 15 years	24	16.22

Department/Unit		
General Ward	31	21.62
Accident and Emergency Unit	20	13.51
Outpatient Department (OPD)	24	16.22
Intensive Care Unit (ICU)	16	10.81
Maternity Unit	12	8.11
Surgical Unit	24	16.22
Medical Unit	20	13.51

Table 1 reports the demographics of the 146 respondents. Regarding age distribution, 16.2% (n=24) were between 18–25 years, 27.0% (n=39) were aged 26–35 years, 24.3% (n=36) were 36–45 years, 18.9% (n=28) were 46–55 years, and 13.5% (n=19) were above 55 years. In terms of gender, 37.8% (n=55) were male, while 62.2% (n=91) were female. Marital status revealed that 33.8% (n=49) were single, 54.1% (n=79) were married, 6.8% (n=10) were divorced, and 5.4% (n=8) were widowed. Educational qualification data showed that 13.5% (n=20) held a diploma, 40.5% (n=59) had a Bachelor of Nursing Science (B.Sc. Nursing), 24.3% (n=36) held a postgraduate diploma, and 21.6% (n=31) had a master's degree in nursing. Regarding working experience, 8.1% (n=12) had less than one year, 32.4% (n=47) had 1–5 years, 24.3% (n=36) had 6–10 years, 18.9% (n=28) had 11–15 years, and 16.2% (n=24) had over 15 years of experience. Finally, distribution across departments showed 21.6% (n=31) worked in the General Ward, 13.5% (n=20) in the Accident and Emergency Unit, 16.2% (n=24) in the Outpatient Department (OPD), 10.8% (n=16) in the Intensive Care Unit (ICU), 8.1% (n=12) in the Maternity Unit, 16.2% (n=24) in the Surgical Unit, and 13.5% (n=20) in the Medical Unit.

4.2 Research Questions

Research Question One: *What is the level of knowledge of nurses towards the use of information technology in the delivery of care at Kwara State University Teaching Hospital.*

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Table 2: Frequency and Percentage on Level of Knowledge of Nurses towards on the Use of Information Technology.

Statement	SD (F%)	D (F%)	A (F%)	SA (F%)
I have sufficient knowledge of how to use software applications for managing hospital inventories and supplies.	10 (6.8%)	20 (13.5%)	63 (43.2%)	53 (36.5%)
I am familiar with the most commonly used IT systems in healthcare, such as Electronic Health Records (EHR).	6 (4.1%)	24 (16.2%)	67 (45.9%)	49 (33.8%)
I am aware of the importance of IT in enhancing communication between healthcare providers.	8 (5.4%)	16 (10.8%)	69 (47.3%)	53 (36.5%)
I understand the role of IT in reducing medical errors and enhancing patient safety.	4 (2.7%)	18 (12.2%)	71 (48.6%)	53 (36.5%)
I know how IT improves the quality of healthcare services.	8 (5.4%)	20 (13.5%)	65 (44.6%)	53 (36.5%)
My knowledge of IT in healthcare comes from formal training.	16 (10.8%)	30 (20.3%)	59 (40.5%)	41 (28.4%)
I know how to access and update patient records using hospital IT systems.	6 (4.1%)	24 (16.2%)	67 (45.9%)	49 (33.8%)
I understand how telemedicine works and its role in healthcare delivery.	10 (6.8%)	26 (17.6%)	63 (43.2%)	47 (32.4%)
I am confident in my ability to educate patients on using healthcare apps and online health tools.	12 (8.1%)	28 (18.9%)	61 (41.9%)	45 (31.1%)

The data in Table 2 shows that a significant majority of respondents demonstrated strong knowledge of IT in healthcare. Specifically, 63 (43.2%) agreed and 53 (36.5%) strongly agreed that they have sufficient knowledge of software applications for managing hospital inventories. For familiarity with IT systems like Electronic Health Records (EHR), 67 (45.9%) agreed and 49 (33.8%) strongly agreed. Similarly, 69 (47.3%) agreed and 53 (36.5%) strongly agreed that IT enhances communication among healthcare professionals. In understanding IT's role in reducing medical errors and improving safety, 71 (48.6%) agreed and 53 (36.5%) strongly agreed. About 65 (44.6%) agreed and 53 (36.5%) strongly agreed that IT enhances healthcare quality. When asked about the source of their IT knowledge, 59 (40.5%) agreed and 41 (28.4%) strongly agreed it came from formal training. Additionally, 67 (45.9%) agreed and 49 (33.8%) strongly agreed they could update patient records using hospital IT systems. Understanding of telemedicine was affirmed by 63 (43.2%)

agreeing and 47 (32.4%) strongly agreeing. Lastly, 61 (41.9%) agreed and 45 (31.1%) strongly agreed that they are confident in educating patients about healthcare apps. These findings suggest a high level of IT literacy and readiness among nurses, positioning them well to use digital tools for enhancing patient outcomes.

Research Question Two: *What is the attitude of nurses towards the use of information technology in the delivery of care at General Hospital Ilorin?*

Table 3: Frequency and Percentage on Attitude of Nurses towards the Use of Information Technology.

Statement	SD (%)	D F (%)	A F(%)	SA F(%)
I believe IT enhances the quality of healthcare services provided to patients.	6 (4.1%)	16 (10.8%)	61 (41.9%)	63 (43.2%)
I think IT helps reduce the time spent on routine nursing tasks.	4 (2.7%)	12 (8.1%)	57 (39.2%)	73 (50.0%)
I feel confident using IT systems for managing patient records.	8 (5.4%)	20 (13.5%)	59 (40.5%)	59 (40.5%)
I believe that using IT can increase my workload as a nurse.	24 (16.2%)	51 (35.1%)	51 (35.1%)	20 (13.5%)
I am willing to embrace more IT solutions in the healthcare services I provide.	10 (6.8%)	12 (8.1%)	59 (40.5%)	65 (44.6%)
I support the idea of continuous training and education on healthcare IT systems for nurses.	4 (2.7%)	10 (6.8%)	61 (41.9%)	71 (48.6%)
I believe IT systems can improve collaboration between nurses and other healthcare professionals.	6 (4.1%)	14 (9.5%)	59 (40.5%)	67 (45.9%)
I feel that IT systems can sometimes create a barrier between nurses and patients.	16 (10.8%)	41 (28.4%)	67 (45.9%)	22 (14.9%)
I am concerned that IT systems may compromise patient privacy and confidentiality.	12 (8.1%)	30 (20.3%)	71 (48.6%)	33 (23.0%)
I think that reliance on IT can lead to reduced critical thinking in nursing care.	18 (12.2%)	41 (28.4%)	59 (40.5%)	28 (18.9%)
I feel that IT systems help me make more informed clinical decisions.	4 (2.7%)	12 (8.1%)	61 (41.9%)	69 (47.3%)

The results in Table 3 highlight the attitudes of 146 nurses towards Information Technology (IT) in healthcare. A strong majority, 61 (41.9%) agreed and 63 (43.2%) strongly agreed that IT enhances healthcare quality. Also, 57 (39.2%) agreed and 73 (50.0%) strongly agreed that IT reduces the time spent on routine tasks. Confidence in using IT for patient record management was shared by 59 (40.5%) who agreed and

another 59 (40.5%) who strongly agreed. However, 24 (16.2%) strongly disagreed and 51 (35.1%) disagreed that IT reduces workload, suggesting concerns about the burden of digital tools. A positive attitude toward embracing more IT solutions was shown by 59 (40.5%) agreeing and 65 (44.6%) strongly agreeing. Support for continuous training was even higher, with 71 (48.6%) strongly agreeing. Collaboration improvements via IT were endorsed by 59 (40.5%) agreeing and 67 (45.9%) strongly agreeing. Still, 67 (45.9%) agreed and 22 (14.9%) strongly agreed that IT could create barriers between nurses and patients. Privacy concerns were also prominent, with 71 (48.6%) agreeing and 33 (23.0%) strongly agreeing that IT may compromise confidentiality. Lastly, 61 (41.9%) agreed and 69 (47.3%) strongly agreed that IT supports more informed clinical decisions. These insights reflect an overall positive attitude toward IT among nurses, tempered by practical concerns regarding workload, privacy, and patient connection.

Research Question Three: *What are the factors influence nurses' attitudes towards the use of information technology in the delivery of care at General Hospital Ilorin?*

Table 4: Frequency and Percentage on Factors Influencing Nurses' Attitude towards Use of Information Technology.

Statement	SA (F%)	A (F%)	D (F%)	SD (F%)
The availability and accessibility of IT systems in my hospital positively influences my attitude towards using them.	57 (39.2%)	59 (40.5%)	20 (13.5%)	10 (6.8%)
Adequate training on the use of IT systems improves my confidence in using them.	63 (43.2%)	63 (43.2%)	12 (8.1%)	8 (5.4%)
The availability of technical support when using IT systems influences my attitude towards adopting them.	77 (52.7%)	47 (32.4%)	16 (10.8%)	6 (4.1%)
The complexity of some IT systems discourages me from fully adopting them in my nursing duties.	38 (25.7%)	36 (24.3%)	30 (20.3%)	24 (16.2%)
My work environment supports the integration of IT in healthcare delivery, which positively influences my attitude towards its use.	71 (48.6%)	57 (39.2%)	10 (6.8%)	4 (2.7%)
My personal belief and motivation to stay updated with technological advances positively influence my attitude towards	75 (51.4%)	51 (35.1%)	14 (9.5%)	6 (4.1%)

using IT in healthcare.				
The ease of use of IT systems influences my willingness to adopt them in my daily nursing activities.	67 (45.9%)	55 (37.8%)	16 (10.8%)	8 (5.4%)
The perceived benefits of IT systems in improving patient outcomes influence my attitude towards using them.	65 (44.6%)	65 (44.6%)	12 (8.1%)	4 (2.7%)
The workload or time demands of learning new IT systems affect my motivation to use them effectively.	63 (43.2%)	43 (29.7%)	24 (16.2%)	16 (10.8%)

Table 4 summarizes the factors that influence nurses' attitudes toward using Information Technology (IT) in healthcare among 146 respondents. A prominent factor was technical support availability, with 77 nurses (52.7%) strongly agreeing it positively affects their attitude. Similarly, 75 nurses (51.4%) strongly agreed that personal motivation to stay updated with technology plays a key role. The availability and accessibility of IT systems also received strong support, with 57 (39.2%) strongly agreeing and 59 (40.5%) agreeing. Adequate training was another influential factor, with 63 (43.2%) each strongly agreeing and agreeing. Work environment support and ease of use were also noted as positive influencers, with 71 (48.6%) and 67 (45.9%) strongly agreeing respectively. The perceived benefits of IT systems in improving patient outcomes were affirmed equally by 65 respondents (44.6%) in both agreement categories. Conversely, complexity remains a barrier, 38 (25.7%) strongly agreed and 36 (24.3%) agreed that it discourages IT adoption. Lastly, 63 (43.2%) strongly agreed that workload and time demands can affect their motivation to use IT effectively. In sum, the findings suggest that supportive infrastructure, training, and motivation strongly influence nurses' positive attitudes, while complexity and time-related pressures may hinder full adoption of IT in nursing practice.

4.3 Hypotheses Testing

Two null hypotheses were formulated and tested for this study. The hypotheses were tested using PPMC statistical methods at 0.05 level of significance. The results are presented as follows:

Hypothesis One: *There is no significant relationship between nurses' knowledge on information technology and their attitudes towards the use of information technology in the delivery of care at General Hospital Ilorin.*

Table 5: PPMC result showing relationship between Knowledge and Attitude of Nurses on Use of Information Technology .

Variables	Number	Mean	S.D	Pearson Correlation	Sig. value	Decision
Attitude	146	3.36	0.75	0.58	0.05	Rejected
Knowledge		3.00	0.86			

Table 5 shows a pearson r-value of 0.58 and a significant value of 0.05. The pearson r-value of 0.58 is greater than the significant value of 0.05. Hence, the hypothesis is rejected. This mean that there is statistically significant relationship in knowledge of nurses on the use of IT and their attitude towards the use of IT. This indicates that as knowledge of nurses on the use of Information Technology in healthcare delivery increases, the attitude of nurses towards the use of Information Technology in healthcare delivery

Hypothesis Two: *There is no significant relationship between the attitude of nurses on the use of information technology in the delivery of care and the factors influencing nurse' attitude.*

Table 6: PPMC result showing relationship between Attitude of Nurses on Use of Information Technology and Factors Influencing Nurses' Attitude .

Variables	Number	Mean	S.D	Pearson Correlation	Sig. value	Decision
Attitude	146	3.36	0.75	0.71	0.05	Rejected
Knowledge		3.05	0.69			

Table 6 shows a pearson r-value of 0.71 and a significant value of 0.05. The pearson r-value of 0.71 is greater than the significant value of 0.05. Hence, the

hypothesis is rejected. This mean that there is statistically significant relationship between attitude of nurses on the use of IT and the factors influencing the attitude of Nurses towards the use of IT. This indicates that as factors influencing the attitude of nurses is significantly tied to their attitude towards the use of Information Technology for healthcare delivery.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter comprises of the discussion of findings based on the results of the studies, summary of this research work, conclusion, recommendation as well as suggestion of further studies.

5.1 DISCUSSION OF FINDINGS

Demographics of Respondents

The demographic data reveal a diverse group of respondents, with a majority aged between 26 and 35 years, suggesting a relatively young workforce. This age distribution is significant as it may indicate a generation more accustomed to integrating technology into their daily lives, potentially leading to a higher acceptance and utilization of IT in healthcare settings. The gender distribution shows a predominance of females (62.2%), which aligns with trends in nursing, where women are traditionally overrepresented. The marital status of the respondents indicates that a majority (54.1%) are married, which may influence their perspectives on work-life balance and technology use in nursing.

Educational qualifications indicate a well-educated workforce, with a majority holding a Bachelor of Nursing Science (B.Sc. Nursing) and many having postgraduate degrees. This educational background may correlate with the nurses' level of confidence and knowledge in using IT in healthcare delivery. Experience levels also vary, with a considerable percentage (32.4%) having 1-5 years of experience, which may suggest a group that is still developing their skills and familiarity with IT systems.

Knowledge of Information Technology in Healthcare

The findings from Table 2 highlight a strong knowledge base among nurses regarding IT applications in healthcare. A significant majority of respondents reported familiarity with software applications for managing hospital inventories, Electronic Health Records (EHR), and the role of IT in enhancing communication and patient safety. This suggests that nurses feel well-equipped to leverage technology to improve care delivery, which is crucial in today's healthcare landscape where efficiency and accuracy are paramount.

Moreover, the acknowledgment of IT's role in reducing medical errors aligns with broader healthcare objectives to enhance patient safety and quality of care. Notably, the data indicating that a considerable portion of nurses (40.5%) derives their IT

knowledge from formal training emphasizes the importance of structured educational programs in fostering IT competency among healthcare professionals.

Attitudes Towards Information Technology

Table 3 presents insights into nurses' attitudes towards IT, revealing a general belief in its benefits for enhancing healthcare quality and efficiency. The majority agreed that IT improves the quality of services and reduces time spent on routine tasks. However, the presence of concerns regarding increased workload and potential barriers between nurses and patients suggests a nuanced view. It highlights the need for careful implementation and support systems to mitigate these challenges.

The strong support for ongoing training and education indicates a recognition of the necessity for continuous learning in an ever-evolving technological landscape. The concerns about patient privacy and confidentiality also point to the ethical dilemmas nurses face in integrating IT into practice, underscoring the importance of addressing these issues to foster trust among patients and healthcare providers.

Factors Influencing Attitudes Towards IT

The factors influencing nurses' attitudes toward IT, as summarized in Table 4, reveal significant insights. The strong agreement on the importance of technical support and motivation for staying updated underscores that adequate resources and personal commitment are crucial for positive attitudes toward IT adoption. Conversely, the acknowledgment of complexity as a barrier indicates that IT systems must be user-friendly to encourage full integration into nursing practice.

Relationship Between Knowledge, Attitude, and Influencing Factors

The statistical findings suggest a significant relationship between the knowledge nurses possess regarding IT and their attitudes towards its use. This correlation implies that as nurses' knowledge of IT improves, so too does their confidence and willingness to utilize these technologies in their practice. Similarly, the relationship between attitudes and the factors influencing these attitudes indicates that supportive environments and ongoing education play vital roles in shaping how nurses perceive and engage with IT.

5.2 IMPLICATIONS OF STUDY TO NURSING

The following are the nursing implications of this study

Implications for Nursing Practice

In terms of nursing practice, the high level of knowledge among nurses regarding IT applications suggests that healthcare organizations should continue to invest in training programs. Comprehensive training on new IT systems and software is essential to ensure that nurses are well-prepared to leverage technology effectively in patient care. Additionally, the positive attitudes towards IT indicate that nurses are open to using technology in their practice. However, concerns about increased workload and complexity highlight the need for adequate support systems. Implementing user-friendly technologies and offering technical assistance can help nurses integrate IT into their workflows more seamlessly. Furthermore, the findings underscore the critical role of IT in enhancing communication, reducing medical errors, and improving patient safety. Therefore, nursing practice should prioritize the adoption of IT solutions that facilitate better information sharing and decision-making among healthcare providers. Moreover, ethical concerns regarding patient privacy and confidentiality necessitate that nurses receive training on data protection and ethical practices in the use of IT, which can alleviate fears and build trust with patients.

Implications for Nursing Administration

From a nursing administration perspective, the findings suggest that administrators should strategically invest in IT resources to support nursing staff effectively. This includes not only technology but also training and development opportunities that foster a culture of continuous learning. Furthermore, creating supportive environments that encourage open communication about IT use can enhance job satisfaction and retention among nursing staff. The findings also indicate that IT can enhance collaboration among healthcare professionals, which highlights the need for nursing administration to promote the use of collaborative IT tools to improve interdisciplinary communication and teamwork. Finally, regular assessments of IT systems should be implemented to ensure they meet the needs of nursing staff and patients. Gathering feedback from nurses on their experiences with technology can guide improvements and identify areas for further training.

Implications for Nursing Research

In the realm of nursing research, the significant relationship between nurses' knowledge of IT and their attitudes towards its use points to the necessity for further

research into how these factors impact patient outcomes. Future studies could investigate the direct effects of IT integration on care quality, patient safety, and nursing efficiency. Additionally, research should explore the barriers that nurses face in adopting IT, such as concerns about workload and system complexity. Understanding these challenges can inform the development of targeted interventions to promote successful IT implementation in nursing practice. Longitudinal studies could assess how nurses' knowledge and attitudes towards IT evolve over time, particularly with the introduction of new technologies, providing valuable insights into the effectiveness of training programs and the overall adaptability of the nursing workforce. Finally, further research is warranted to examine the ethical implications of IT use in nursing, especially concerning patient privacy and confidentiality, which could explore the effectiveness of existing guidelines and the perceptions of nurses regarding ethical challenges in technology use.

5.3 SUMMARY

The findings of the study provide a comprehensive overview of the demographics, knowledge, attitudes, and factors influencing the use of Information Technology (IT) among nurses.

Demographics: The respondents' age distribution varied, with 16.2% aged 18-25, 27.0% aged 26-35, and 24.3% aged 36-45. A significant majority (62.2%) were female, and most respondents were married (54.1%). The educational qualifications showed that 40.5% held a Bachelor of Nursing Science, while 21.6% had a master's degree. Experience levels varied, with 32.4% having 1-5 years of experience. Respondents worked in various departments, with the General Ward being the most common (21.6%).

Knowledge of IT: A majority of nurses reported sufficient knowledge of IT applications, with 43.2% agreeing on their capability to manage hospital inventories and 45.9% being familiar with Electronic Health Records (EHR). Many recognized the importance of IT in enhancing communication (47.3%) and reducing medical errors (48.6%). Additionally, 40.5% felt their knowledge stemmed from formal training.

Attitudes Towards IT: Nurses generally held positive attitudes towards IT's role in healthcare, with 41.9% agreeing that it enhances service quality. However, some concerns about increased workload and complexity of systems were noted. A strong interest in continuous training (48.6%) was also reported.

Influencing Factors: Factors influencing attitudes included the availability of technical support (52.7% strongly agreed) and personal motivation to stay updated with technology (51.4%). However, 25.7% expressed discouragement due to IT system complexity.

Statistical Relationships: There was a statistically significant relationship between nurses' knowledge of IT and their attitudes towards its use, indicating that a positive attitude is associated with a higher level of knowledge.

5.4 CONCLUSION

In conclusion, the findings suggest a well-informed nursing workforce that recognizes the benefits of IT in healthcare delivery. However, challenges related to workload, privacy concerns, and the complexity of IT systems must be addressed to optimize the integration of technology into nursing practice. By focusing on education, support, and user-friendly systems, healthcare organizations can enhance nurses' confidence and effectiveness in utilizing IT, ultimately improving patient care outcomes.

5.5 LIMITATION OF THE STUDY

One of the limitations of the study is the sample size and diversity. The sample size may not fully represent the broader nursing population, particularly if the respondents were drawn from a limited number of healthcare facilities.

The reliance on self-reported data is another limitation of the study. Participants provided information about their stress levels and academic performance based on personal perceptions, which may be subject to bias.

5.6 RECOMMENDATIONS

Based on the findings and limitations of the study, the following recommendations are made to relevant stakeholders in nursing and healthcare:

1. Nursing Administration

Invest in Training Programs: Develop and implement ongoing training programs that focus on IT competencies and emerging technologies to enhance nurses' skills and confidence in using IT systems.

Simplify IT Systems: Ensure that IT systems are user-friendly and designed with input from nursing staff to reduce perceived complexity and improve usability.

Enhance Technical Support: Provide robust technical support to assist nurses in navigating IT systems and troubleshooting issues, fostering a supportive environment for IT adoption.

2. Healthcare Organizations

Encourage a Culture of Collaboration: Foster an organizational culture that promotes collaboration and open communication among healthcare professionals regarding IT usage and best practices.

Conduct Regular Assessments: Regularly assess the effectiveness and usability of IT systems to ensure they meet the needs of nursing staff and support high-quality patient care.

Promote Ethical Practices: Implement policies and training focused on patient privacy and data protection to address concerns related to confidentiality when using IT systems.

3. Nursing Education Institutions

Integrate IT Training in Curricula: Incorporate comprehensive IT training into nursing education programs to ensure that new graduates are well-prepared to utilize technology in their practice.

Facilitate Simulated IT Experiences: Provide nursing students with opportunities to engage in simulated IT scenarios to enhance their practical skills and confidence before entering the workforce.

4. Policy Makers and Healthcare Regulators

Support Research Initiatives: Encourage and fund research that explores the barriers to IT adoption in nursing and the impact of IT on patient outcomes, which can inform policy development.

Standardize IT Training: Advocate for the establishment of standardized IT training requirements across healthcare organizations to ensure all nurses receive adequate preparation in using technology effectively.

5. Professional Nursing Organizations

Develop Best Practice Guidelines: Create guidelines and resources that outline best practices for integrating IT into nursing practice, emphasizing the importance of ongoing education and training.

Foster Networking Opportunities: Facilitate networking and sharing of experiences among nurses regarding IT use, allowing for the exchange of ideas and solutions to common challenges.

6. Healthcare IT Vendors

Engage with End Users: Collaborate with nursing professionals during the design and development of IT systems to ensure they meet the practical needs of healthcare providers.

Provide User-Friendly Solutions: Focus on creating intuitive interfaces and support resources that enhance the user experience and reduce the learning curve for nursing staff.

5.7 Suggestion for Further Research:

1. The Impact of Information Technology Use on Patient Outcomes in Nursing
2. Barriers to Information Technology Integration in Nursing Practice
3. Effects of Information Technology Training on Nurses' Knowledge and Attitudes

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APPENDIX
QUESTIONNAIRE ON ASSESSMENT OF NURSES KNOWLEDGE AND
ATTITUDE TOWARDS THE UTILIZATION OF INFORMATION
TECHNOLOGY ON HEALTH SERVICE DELIVERY IN GENERAL
HOSPITAL ILORIN KWARA STATE.

DEPARTMENT OF NURSING
FACULTY OF HEALTH SCIENCE
THOMAS ADEWUMI UNIVERSITY, OKO. KWARA STATE

Dear Respondents,

I am a nursing student of the above University, in the Faculty of Health Sciences. I am interested in assessing the Nurses knowledge and attitude towards the utilization of information technology on health service delivery in General Hospital Ilorin, Kwara State. I am using this medium to request your participation in the study. All information given will be treated with utmost confidentiality; your name is not required on the questionnaire. No harm will come to you as a result of your participation in the study. The questionnaire will take between 5-10mins to fill. Participation in the study is voluntary. You are free to pull out of the study any time you feel like pulling out.

Kindly read each statement and tick, circle or answer as appropriate.

Thanks for your willingness to participate in the study.

CONSENT

The researcher explained my roles to me in this study before my participation.

Signature

SECTION A: DEMOGRAPHIC DATA

1. Age: 18-25 years () 26-35 years () 36-45 years () 46-55 years () Above 55 years ().
2. Gender: Male () Female ()
3. Outpatient Department (OPD) () Intensive Care Unit (ICU) () Maternity Unit () Surgical Unit () Medical Unit ()
4. Marital Status: Single () Married () Divorced () Widowed ()
5. Highest Educational Qualification: Diploma () Bachelor of Nursing Science (B.Sc. Nursing) () Postgraduate Diploma in Nursing () Master's Degree in Nursing ()
6. Years of Experience as a Nurse: Less than 1 year () 1-5 years () 6-10 years () 11-15 years () Above 15 years ()
7. Department/Unit of Work: General Ward () Accident and Emergency Unit ()

SECTION B: THE LEVEL OF KNOWLEDGE OF NURSES ON INFORMATION TECHNOLOGY ON HEALTH CARE DELIVERY

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
I have sufficient knowledge of how to use software applications for managing hospital inventories and supplies.				
I am familiar with the most commonly used IT systems in healthcare, such as Electronic Health Records (EHR).				
I am aware of the importance of IT in enhancing communication between healthcare providers.				
I understand the role of IT in reducing medical errors and enhancing patient safety.				
I know how IT improves the quality of healthcare services.				
My knowledge of IT in healthcare comes from formal training.				
I know how to access and update patient records using hospital IT systems.				
I understand how telemedicine works and its role in healthcare delivery.				
I am confident in my ability to educate patients on using healthcare apps and online health tools.				

SECTION C: THE ATTITUDE OF NURSES TOWARDS INFORMATION TECHNOLOGY ON HEALTH CARE DELIVERY

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
I believe IT enhances the quality of healthcare services provided to patients.				
I think IT helps reduce the time spent on routine nursing tasks.				
I feel confident using IT systems for managing patient records.				
I believe that using IT can increase my workload as a nurse.				
I am willing to embrace more IT solutions in the healthcare services I provide.				
I support the idea of continuous training and education on healthcare IT systems for nurses.				
I believe IT systems can improve collaboration between nurses and other healthcare professionals.				
I feel that IT systems can sometimes create a barrier between nurses and patients.				
I am concerned that IT systems may compromise patient privacy and confidentiality.				
I think that reliance on IT can lead to reduced critical thinking in nursing care.				
I feel that IT systems help me make more informed clinical decisions.				

SECTION D: THE FACTORS THAT INFLUENCE NURSES' ATTITUDES TOWARDS THE USE OF INFORMATION TECHNOLOGY ON HEALTH CARE DELIVERY

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
The availability and assessability of IT systems in my hospital positively influences my attitude towards using them.				
Adequate training on the use of IT systems improves my confidence in using them.				
The availability of technical support when using IT systems influences my attitude towards adopting them.				
The complexity of some IT systems discourages me from fully adopting them in my nursing duties.				
My work environment supports the integration of IT in healthcare delivery, which positively influences my attitude towards its use.				
My personal belief motivation to stay updated with technological advances positively influences my attitude towards using IT in healthcare.				
The ease of use of IT systems influences my willingness to adopt them in my daily nursing activities.				
The perceived benefits of IT systems in improving patient outcomes influence my attitude towards using them.				
The workload or time demands of learning new IT systems affect my motivation to use them effectively.				