Internship Training
at

KareXpert Technologies Pvt. Ltd.

Nurses' Knowledge, Attitude and Perceived Barriers towards Electronic Health Record

Ms. Sanya Gaur

PG/20/066

Under the Guidance of
Dr. Sukesh Bhardwaj
Assistant Professor, IIHMR, New Delhi

PGDM (Hospital and Health Management)

2020-22

International Institute of Health Management Research, New Delhi

IIHMR DELHI

KareXpert

+91-90691 13330/+91-124-4084453
www.kareXpert.com
contactus@karexpert.com

The certificate is awarded to

Ms. Sanya Gaur

in recognition of having successfully completed her internship in the department of

Product Delivery

and has successfully completed her Project on

Nurses' Knowledge, Attitude and Perceived Barriers towards Electronic Health Record

3rd Feb to 30th April 2022

KareXpert Technologies Pvt. Ltd.

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavors.

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Block A, Unit No.809,08th floor, Arcadia-I, South City II, Gurugram- 122018, Haryana, India
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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Sanya Gaur** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **KareXpert Technologies Pvt. Ltd.** From **3rd Feb 22** to **30th April 22.**

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

Dr. Sumesh Kumar
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Mentor
IIHMR, New Delhi

IIHMR DELHI

Certificate of Approval

The following dissertation titled **Nurses' Knowledge, Attitude towards Electronic Health Record and Perceived Barriers** at **KareXpert Technologies Pvt. Ltd.** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr. Pankaj Gupta	Pankaj
Dr. Sumant Swain	
Dr. Mukesh Rai Ranchan	Ranchan

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Certificate from Dissertation Advisory Committee

This is to certify that **Ms. Sanya Gaur**, a graduate student of **the PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled **Nurses' Knowledge, Attitude and Perceived Barriers towards Electronic Health Record** at **KareXpert Technologies Pvt. Ltd.** in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Sukesh Bhardwaj
Assistant Professor & IT-Incharge
IIHMR, New Delhi

Ms. Rajni Singh
Healthcare Product Specialist
KareXpert Technologies

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,
NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Nurses' Knowledge, Attitude and Perceived Barriers towards Electronic Health Record and submitted by Ms. Sanya Gaur Enrollment No. PG/20/066 under the supervision of Dr. Sukesh Bhardwaj for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 3rd Feb 22 to 30th April 22.

embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

FEEDBACK FORM

Name of the Student: Ms. Sanya Gaur

Name of the Organisation in Which Dissertation has been completed: KareXpert Technologies Pvt. Ltd

Area of Dissertation: Product Delivery

Attendance: 100 %

Objectives achieved: She worked hard and smartly to achieve the client satisfaction. Went extra miles to support clients and adhered to timelines.

1. Successfully handled client alone, with day-to-day technical issues and new enhancements

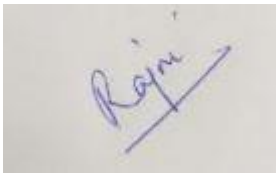
2. Successfully implemented the new modules at client site

Deliverables: She perfectly handled the clients, worked closely with the various team to deliver it with in timeline

Strengths: Leadership, Ownership, Fast learner, needs minimum support

Suggestions for Improvement: No suggestion on improvement, adding suggestion for career growth- make your technical part stronger in respect to product

Suggestions for Institute (course curriculum, industry interaction, placement, alumni): Nil



Ms. Rajni Singh
Senior Manager Product Delivery

Date: 12th Aug 2022

Place: Gurugram

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH (IIHMR)
Plot No. 3, Sector 18A, Phase- II, Dwarka, New Delhi-110075

Ph. +91-11-30418900,

CERTIFICATE ON PLAGIARISM CHECK

Enrollment/Roll No.	PG/20/066	**Batch Year**	2020-22
Course Specialization (Choose one)			Healthcare IT
Name of Guide/Supervisor	Dr. Sukesh Bharadwaj		
Title of the Dissertation/Summer Assignment	Nurses' Knowledge, Attitude and Perceived Barriers towards Electronic Health Record		
Plagiarism detects software used	"**TURNITIN**"		
Similar contents acceptable (%)	Up to **15** Percent as per policy		
Total words and % of similar contents Identified	**3%** of similar contents identified		
Date of validation (DD/MM/YYYY)	19 August 2022		

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Introduction

Computer use in the healthcare sector is increasingly prevalent. The goal of using electronic documentation systems in healthcare settings is to increase productivity, safety, and patient care quality. Evaluating the variables that influence the adoption of EMR is crucial for the success of this effort. For the ease of healthcare professionals and a better patient experience, hospital information management systems (HIMS) are being deployed more often in many hospitals in India. However, there are several difficulties when switching from the current system to HIMS. The adoption and use of EMR in healthcare organizations is impacted by a variety of factors, including difficulties for nurses. Evaluating the variables that influence the adoption of EMR is crucial for the success of this effort. The adoption and use of EMR in healthcare organizations is impacted by a variety of factors, including difficulties for nurses. The development of electronic documentation systems aimed at assisting nurses grew dramatically in the 1980s. In health care businesses, nurses are the largest group of technology users, according to research. The use of computers by nurses to enter orders and obtain test data has become commonplace. The incorporation of computers as documentation tools has been difficult because nurses are focused on patient care. While maintaining high standards of patient care, nurses must become skilled in more 2 areas of technology use. Organizational and behavioral issues can have an impact on nurses' technological aptitude. Concerns regarding education, hardware, software, design, and end user input are a few examples of organizational problems. The attitude, perception, and contentment with information technology—more specifically, computerized documentation systems—can be linked to behavioral problems.

Due to the ambition to use a national health information network to improve everyone's health and well-being, the identification of characteristics that contribute to effective implementation of EMRs continues to be a crucial topic of research.

Owing to the rapid global adoption of EHRs in the healthcare delivery system, it is imperative to give nurses and other healthcare professionals the proper education and training so that they can adopt a more positive attitude toward EHRs and gain more knowledge of the newest technology before being asked to use it in the field. This is especially crucial in light of recent studies that indicate a lack of knowledge of EHRs among healthcare professionals as well as a

negative attitude may result in poor interactions between them, patients, and technology, which may ultimately result in poor implementation, poor adoption, and medical errors. Successful implementation of EHRs in the health care system demands of providing health professional (nurses) proper education and training which make its important to:

- Investigate nurse's knowledge
- Understand their attitude
- Identifying factors influencing their attitude
- Recognize the perceived barriers that hinder the successful implementation of EHRs

Background

➢ Industry

In supporting financial and administrative tasks, information technology systems were first introduced to the healthcare industry in the 1960s. Order input and patient laboratory results were later added to the list of uses for computers. Programs to help nurses with charting and care planning were developed as computerization in hospitals grew. Nursing research has a chance to learn how to make technology use and efficacy more effective. The successful adoption of the system depended on nurses' acceptance of computer technology. Early research compared nurses' attitudes about computers with their degree and nursing experience levels. The findings showed that nurses with greater education had better attitudes toward technology. Longer-tenured nurses also had a more positive attitude toward computers. In attempt to pinpoint the factors influencing attitude, several researchers looked examined nurses' perceptions of computers. The study's findings compared factors like educational background, time spent working as a nurse, and positive views toward computers. He observed that there were no demographic indicators to pinpoint nurses who were more likely to have a favourable attitude toward computers.

➢ Company

KareXpert a Reliance funded start-up founded in 2018 *specialized in* artificial intelligence and cloud-based digital healthcare platform for healthcare setup. Aimed to digitally transform 1 lac healthcare setup by 2026. Amid the COVID-19 pandemic, healthcare setups are bound to shift digitally. Since 2018, **KareXpert is** digitalizing hospitals by providing a **SaaS-based digital healthcare platform** to fulfil its mission.

Besides disruptive technology and SaaS-based commercial model, KareXpert has also built the holistic managed service models for the healthcare setups and providing both onsite and offsite services and support to make the setups completely digital.

With 50+ modules and 450+ applications, KareXpert is the first Indian company to offer a most exhaustive portfolio for hospitals. The services include advanced HIMS, EMR/EHR, LIMS, RIS/PACS, pharmacy, connected ambulance, advanced BI, MIS, e-Claim, telemedicine, inventory & SCM, queue management, counselling, and branded mobile apps as a pre-integrated stack.

Using its Patient-First and Mobile-first approach, the digital healthcare platform will revolutionize the Hospital IT as it brings the speed of business with innovation using most modern software technologies at a justifiable cost. The platform is already in use in many healthcare setups across India.

Rationale of the Study

Any information on a client that was produced in writing or electronically and details the treatment or services they received is considered documentation (College of Licensed Practical Nurses of British Columbia). Medical records, faxes, and emails are just a few examples of electronic or paper-based health records. It is essential for a variety of reasons, including the quality of patient care, caregiver protection, evaluation of the results of the treatment given, and quality improvement. Effective documentation reduces the chance of errors, saves time, and guarantees the quality of care.. The ability of the caregiver to communicate through documentation as part of the continuum of care has a growing impact on how well patients are

cared for. Computerized medical information systems that gather, store, and display patient data are known as electronic health records (EHRs). EHRs have been the dominant piece of information technology in the health care systems over the past 20 years. Governments and local health care administrators are implementing electronic health records throughout the world in an effort to update and enhance the standard, effectiveness, and safety of health care delivery systems. Both the number of EHR implementations and the number of health professionals using EHRs in healthcare facilities have increased exponentially on a global scale.

To ensure safe, ethical, and efficient nursing practice in clinical settings, documentation is extremely important in the nursing profession. The promotion and adoption of evidence-based nursing practices, as well as continuity of patient care, planning, and accountability, all depend on effective documentation in nursing practice. Whether it is on paper, electronic, audio, or visual media, nursing documentation enables and provides an account of the critical thinking and judgement applied during the nursing process. Accurate, timely, and effective documentation reflects the standard of care delivered, saves time, reduces the chance of errors, complies with professional, statutory, and agency standards, and makes it easier for nurses to communicate with other healthcare professionals. The quality of nursing practises and patient care can be significantly improved by using documentation as a valuable source of information for decision-making on funding and resource management as well as to support nursing research. For a better understanding of the system, nurses' expertise must be taken into account. Any HIMS's foundation is the data (master) that the stakeholder, in this case, the nurses, got. if all components of the system and paperwork are known to the nurses. She will be able to provide accurate information regarding the hospital's requirements and the system. The stakeholders' attitudes determined how the system will turn out. Positive attitudes have a tendency to improve data consistency and correctness, which in turn improves system efficiency and lowers the number of errors in the future. The study's findings will help researchers develop interventions that will encourage participants, broaden their knowledge, or alter their perspectives.

Aims and objectives

The purpose of this study is to evaluate nurses:

1. To analyze the **Knowledge of nurses**' regarding the use of Electronic Health Record System
2. To **Identifying factors** influencing their attitude towards electronic record documentation
3. To find out the **barriers** they perceive in transition from paper record entry to electronic health record system

Review of literature

Computerized medical information systems that gather, store, and display patient data are known as electronic health records (EHRs). EHRs have been the dominant piece of information technology in the health care systems over the past 20 years. Governments and local health care administrators are implementing electronic health records throughout the world in an effort to update and enhance the standard, effectiveness, and safety of health care delivery systems. Both the number of EHR implementations and the number of health professionals using EHRs in healthcare facilities have increased exponentially throughout the world (WHO). EHRs will be the main technology platform utilized in controlling and recording citizen and patient health and health, according to a variety of international health organizations, including WHO. The development and implementation of EHRs is a widespread phenomenon within nations and health care systems that will have an effect on all facets of health care settings (WHO). Computerization is used in various health care systems around the world, especially in industrialized nations. For instance, in 1990, the Japanese government offered hospitals generous incentives to adopt electronic medical records into its infrastructure (Devkota and Devkota, 2018, Jones et al, 2010). The national health information system has constantly received support through the economic action plan, while the health systems in the UK and Canada had made significant investments in information technology. In contrast, all hospitals

and healthcare facilities in the USA receive federal incentive payments for the adoption and meaningful use of EHRs; over the course of ten years, these payments might total billions of dollars. These initiatives are all aimed at integrating electronic information systems into the delivery of healthcare (Sood, et al, 2020). The bulk of Saudi health organizations keep patient records manually using a paper-based system, according to published literature about Arabic countries like Saudi Arabia. Although there is no national system in place in Saudi Arabia, some significant hospitals, such King Fasial Specialist Hospital and National Guard Health Affairs, have installed full EHRs (Hasanain and Cooper, 2020). Technology integration into the healthcare system is fast becoming a crucial component of healthcare in Egypt. It is cited by plans as a way to achieve long-term improvement in healthcare outcomes (Ebrahem et al, 2020). Egypt has been implementing a health sector reform strategy since 1996 with the goal of obtaining universal access to a basic package of Primary Health Care (PHC) services with a focus on women, children, and the disadvantaged In five of Egypt's 27 governorates, there are currently electronic documentation (ED) in PHC units, and the programmer is being implemented nationwide. With a performance-based incentive programmer for staff and an accreditation programmer to guarantee quality is maintained, PHC units in Egypt provide curative and preventive care services. To enhance the caliber and accuracy of documentation, PHC units have established an electronic records system (Lie et al, 2004, Ward, 2010, Nour eldin et al, 2020). The panorama of social change within the healthcare sector will be significantly impacted by the adaptation of EHRs. EHRs can fulfil demographic and public health information demands and help shape government health policies and funding (Daniel et al, 2018). The cumulative data kept in EHRS can be used to encourage population healthy lifestyles and surroundings, show the incidence of diseases, underlying risk factors, and other information that influences policy changes (Daniel et al, 2018).

The nursing profession is subject to a range of changes, including quick technical advancements like the introduction of EHRs. Nurses' reactions to these changes can range from complete acceptance to complete rejection. According to the research, nurses' attitudes regarding computerization were equally split between those who did not acquire attitudes and those who did (Kaya, 2010). A person's attitude is their ingrained propensity to regularly respond favorably or unfavorably to a particular subject. Any person's intention to act in a certain way toward a certain thing might be affected by his attitude.

Stronge and Brodt (2011) claim that nurses' attitudes toward computers reflect the complexity of their internal conditions, which influence their decisions and behaviour when it comes to utilising and adapting computers. The attitude of nurses toward computerization has been found to be influenced by a variety of factors. Age, education, years of experience, computer experience, training, and sufficient computer understanding are some of these characteristics. (Stronge and Brodt, 2011; Kaya, 2010)

Methodology

Study design	Cross sectional study design
Sample size	76
Sampling technique	Convenience sampling
Total no. of targeted Population	230
Data collection medium	Social Media (Questionnaire)

Table 1-Methodology

Inclusion criteria:

- Nurses who work in HIMS.
- Nurses who have used HIMS in past, they may not use currently

Ethical Consideration

After adequately explaining the study's goal and the nature of the research, informed written agreement was obtained from each nurse. Volunteer engagement, the right to decline taking part in the study, and the confidentiality and anonymity of individual responses were highlighted. There are no personally identifiable information in the Questionnaire.

Tools

Google form questionnaire containing 4 sections with 21 Question was used to perform the study. The 4 sections were as followed - Socio-Demographic Characteristics, Knowledge regarding Electronic Documentation, Attitude regarding Electronic Documentation, Electronic Documentation Barriers Assessment. The Questionnaire doesn't contain any personal identifier & due consent was taken from each participant before participating in the survey.

Personal identifier -Not Available

Tool 1: Electronic documentation and socio-demographic data Questionnaire for Structured Interview with the Researched Nurses. This was among its contents: Age, marital status, education, occupation, and years of experience of nurses are among their sociodemographic features.

Tool II: Electronic Documentation Assessment Tool for Nurses' Knowledge This instrument was used to evaluate the nurses' ED knowledge. The test consists of ten questions (10 questions), which are separated into three primary categories. The first domain asks about the nurses' understanding of data security and password usage. The nurse's understanding of legible data access documentation was the subject of the second domain. The third domain emphasizes the nurse's understanding of the advantages of ED.

Tool III: the nurse's attitude toward electronic documentation, is a self-rating scale that is used to describe the attitude of the nurse toward the usage of ED. It includes both positive and negative remarks, totaling 5 statements. Negatively stated comments were scored on a 4-point Likert scale with 0 being strongly disagree and 4 being strongly agree..

Tool IV: Questionnaire to Assess Electronic Documentation Barriers It was consisted of fifteen questions (15 questions) to evaluate the barriers in the ED from the perspective of the nurses. There are seven categories covered: three are technical, three are personal, three are time, two are organizational, three are privacy-related, and one is computer-related (1 barriers).

Data Analysis

The data analysis was done through MS Excel.

Scoring system

- Nurse's understanding of the scoring methodology for the electronic documentation assessment tool: At first, the right response was already known based on the literature. Ten questions were posed to each nurse (10 questions). The correct response received a score of "1," while the incorrect or missed response (don't know) received a score of "0." The median percent score was defined after each participant's overall knowledge score had been determined. Last but not least, the overall knowledge score was divided into two categories: poor level of knowledge (less than median percent score), and good level of knowledge (equal to or greater than the median percent score).

- Self-Rating Scale Scoring System for Electronic Documentation and the Nurse's Attitude: On a 4-point Likert self-rating scale, from 4 (strongly agree) to 0, each nurse was asked to reply to five statements (strongly disagree). The scoring scale for the negative phrases was inverted, going from 0 (strongly agree) to 4. (Strongly disagree). Last but not least, the overall nursing attitude score, which varied from 0 to 20, was separated into two levels: negative attitude (less than the median percent score) and positive attitude (equal to or greater than the median percent score).

Result

Socio-Demographic Characteristics

(Following figures shows that around one fourth of the studied nurses aged 25 to less than 35

years, 35 to less than 40 years (28.9%, 27.6% respectively). More than half of them were had diploma or certificate and 39.8% were having bachelor's degree. Additionally (39.2%) of nurses have 10 to less than 20 years of experience.)

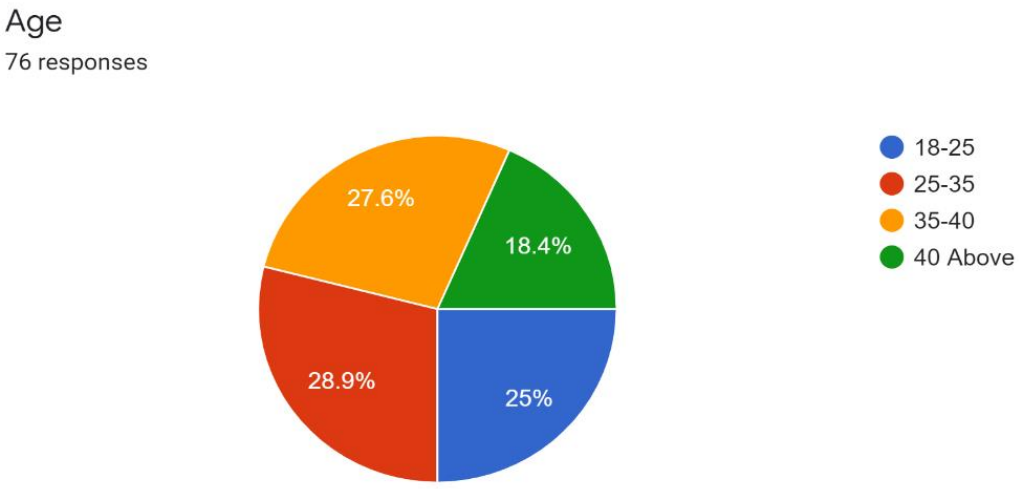


Figure 1- Age

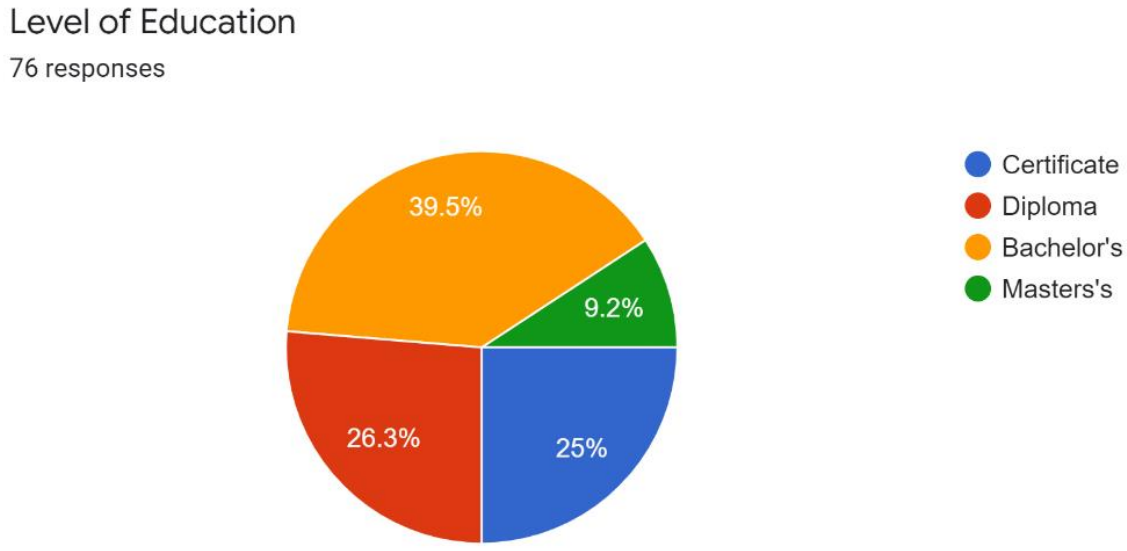


Figure 2-Level of education

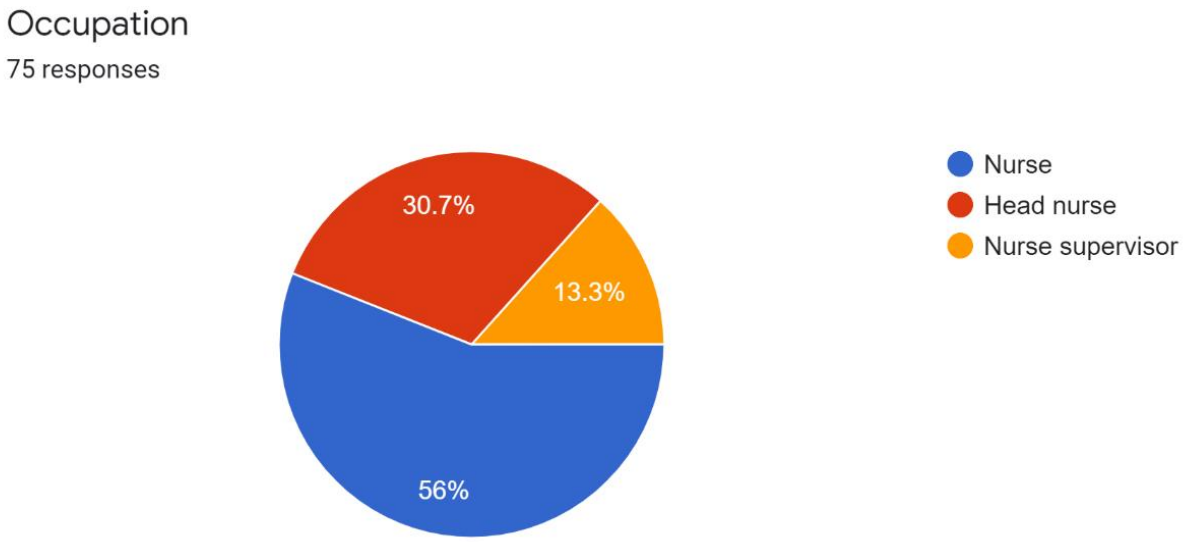


Figure 3-Occupation

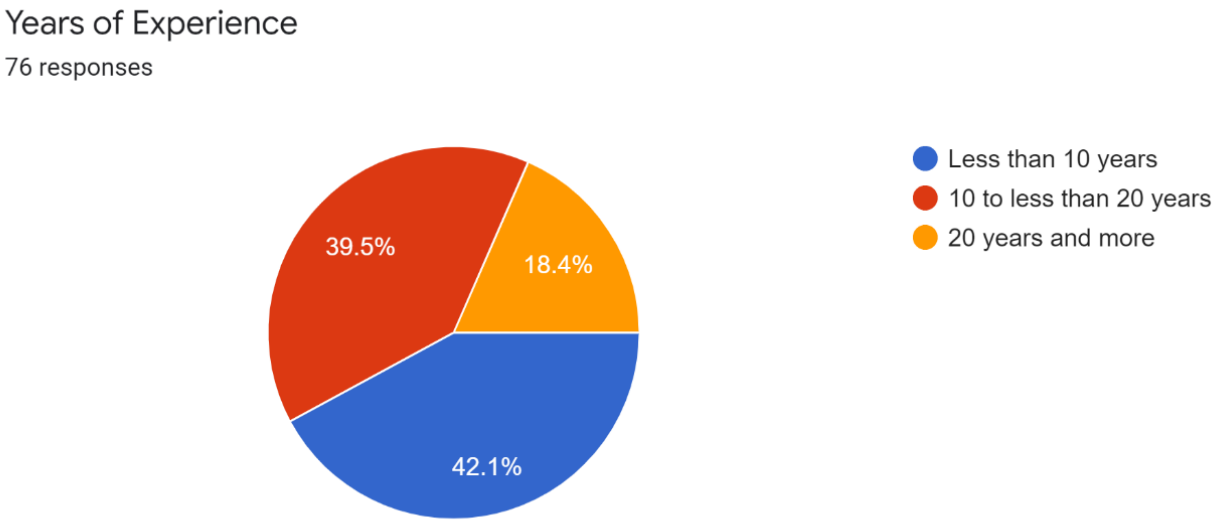


Figure 4- Years of Experience

Knowledge regarding Electronic Documentation

The total 76 total participants following chart shows the distribution of marks scored against 10 Questions.

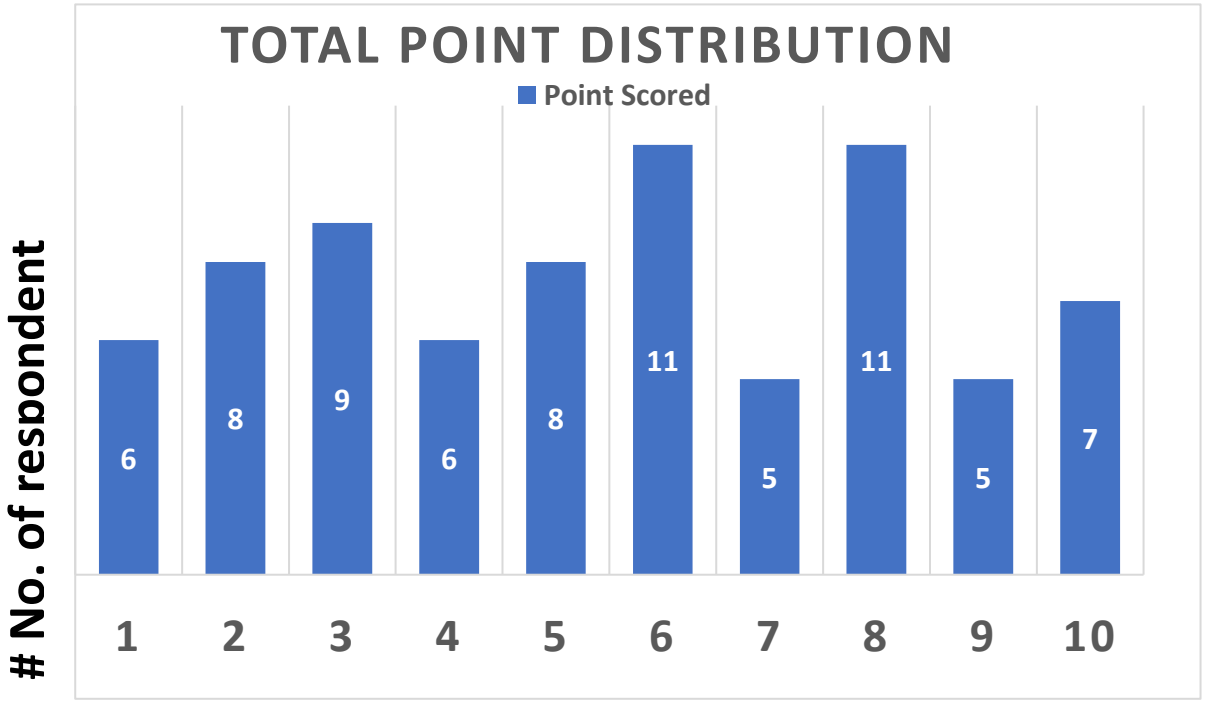


Figure 5- Total Point Distribution-Knowledge regarding electronic documentation

Average: 5.29/10 Marks

Median: 6/10 Marks

Knowledge regarding Electronic Documentation	True %	False %
1. Personal ID and password are electronic signature.	51.3	48.7
2. Log off when not using the system is important	55.3	44.7
3. Electronic mail is cost effective method in data transmission	51.3	48.7
4. Client written consent is not needed when transmit information by e-mail	43.4	56.6
5. Employed nurse is the legal owner of the records	56.6	43.4
6. Students and trainees have an access to electronic records under trainer's supervision.	57.9	42.1
7. Health records need to be kept for two years	48.7	51.3
8. Any discarded print information containing client ID must be shred	52.6	47.4
9. Electronic documentation provides more organized information about the clients	55.3	44.7
10. Electronic documentation helps to access information easily at any time and place	56.6	43.4

Table 2-Knowledge regarding electronic documentation

Knowledge regarding Electronic Documentation with respect to level of education

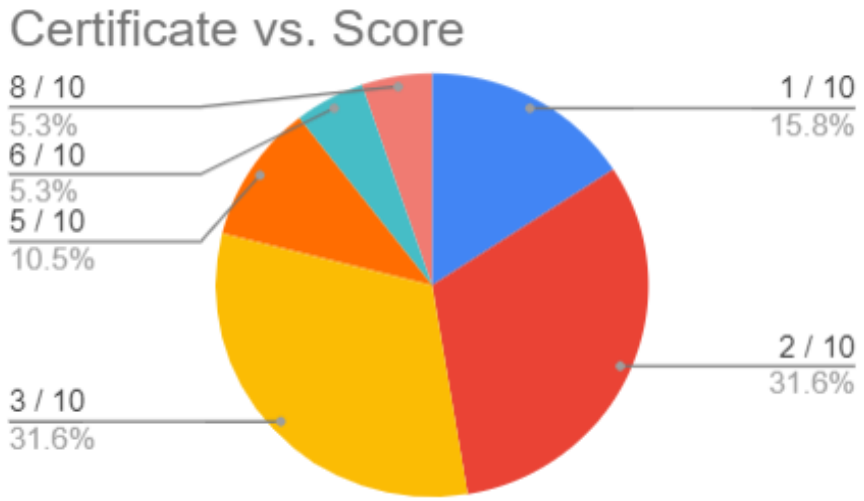


Figure 6- Result Knowledge regarding ED w.r.t to Education 1

It was observed 31.6% of certificate holder score 2 out of 10, 31.6% scored 3/10, 15.8% score 1/10 and 10.5% scored 5/10

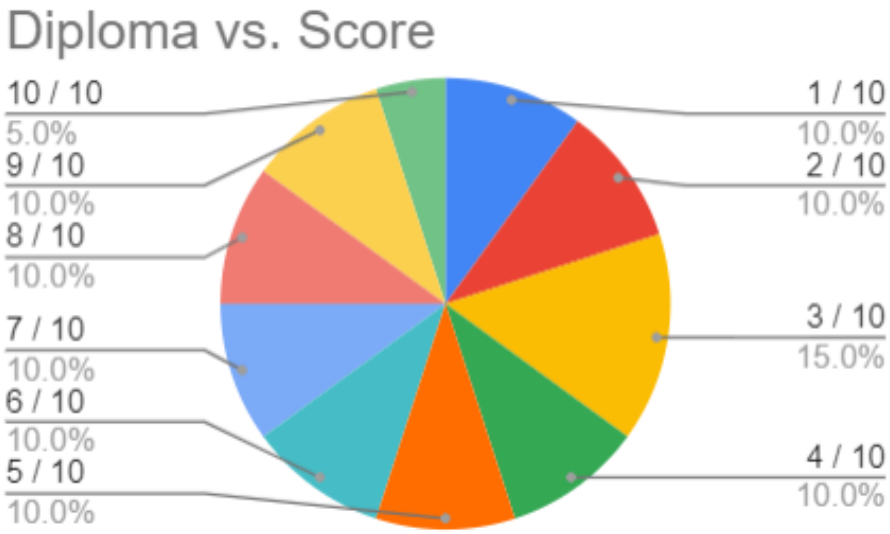


Figure 7- Result Knowledge regarding ED w.r.t to Education 2

It was observed 15.0% of diploma holder score 3 out of 10, 10.0% scored 2/10, 10.0% score 1/10 and 10.5% scored 5/10, 5% scored 10/10

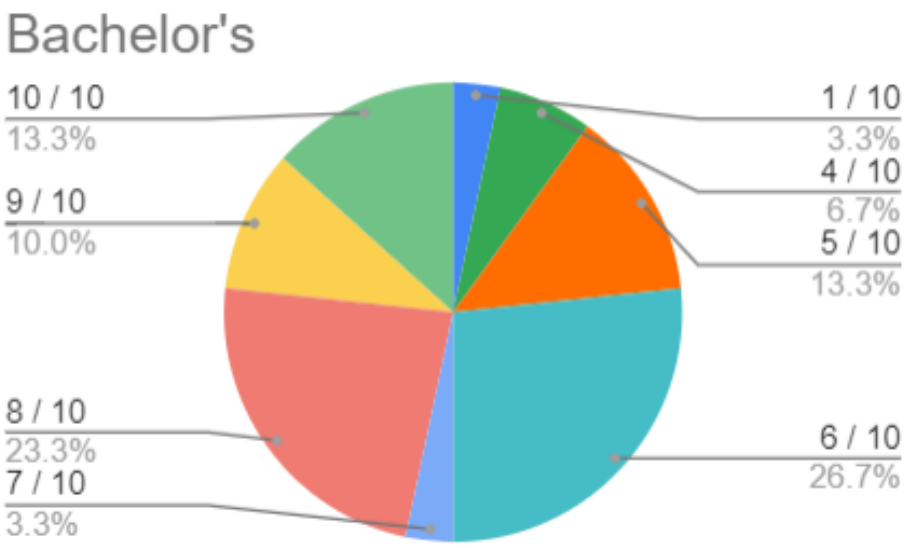


Figure 8- Result Knowledge regarding ED w.r.t to Education 3

It was observed 26.7% of bachelor's holder score 6 out of 10, 23.3% scored 8/10, 10.0% score 9/10 and 13.3% scored 10/10, 13.3% scored 5/10

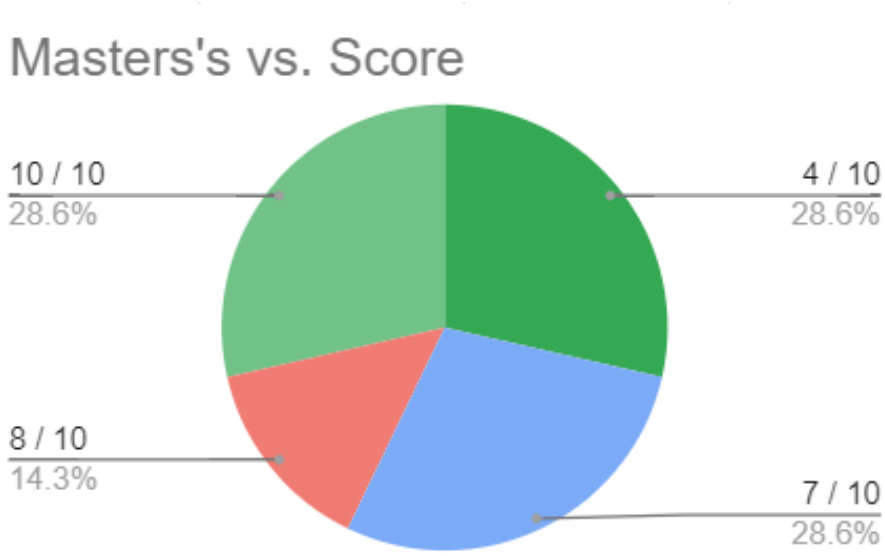


Figure 9- Result Knowledge regarding ED w.r.t to Education 4

It was observed 28.6 % of Master's holder score 7 out of 10, 14.3% scored 8/10, 28.3% score 4/10 and 28.3% scored 7/10

Knowledge regarding Electronic Documentation with respect to Age

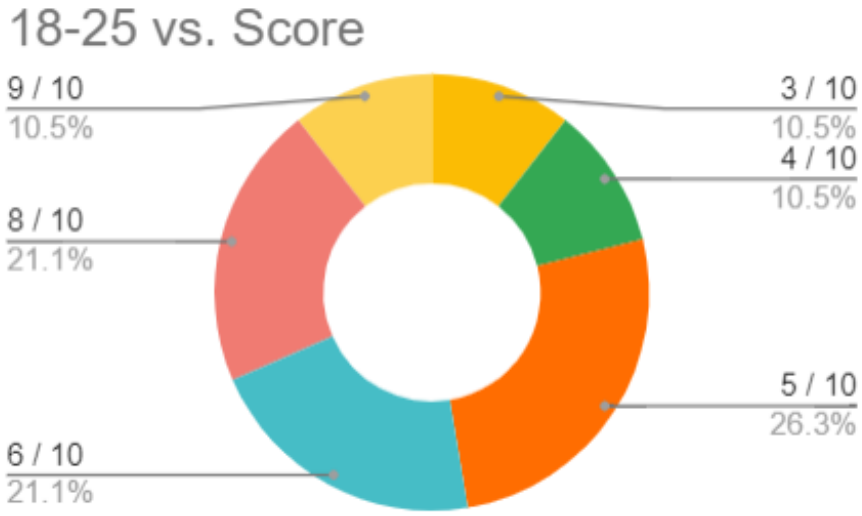


Figure 10- Result Knowledge regarding ED w.r.t to Age 1

It was observed 26.3 % of 18-25yrs old nurses score 5 out of 10, 21.1% scored 8/10, 21.1% score 6/10 and 10.5% scored 4/10

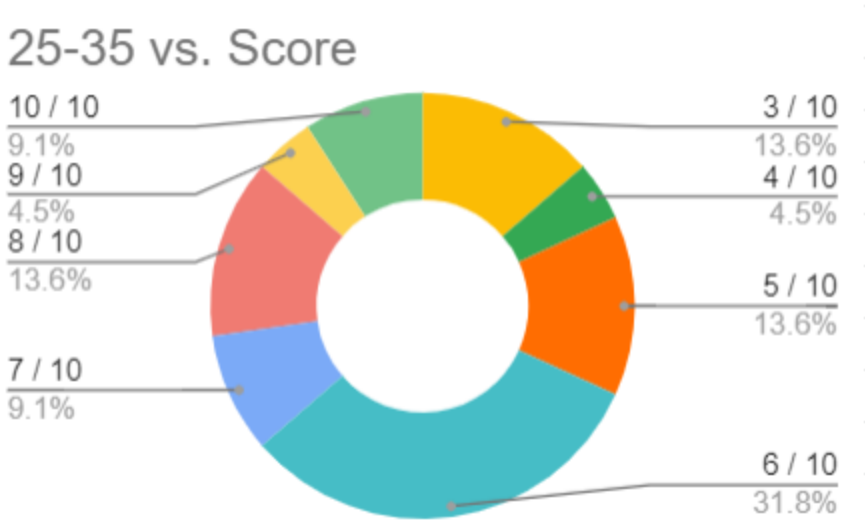


Figure 11- Result Knowledge regarding ED w.r.t to Age 2

It was observed 31.8 % of 25-35yrs old nurses score 6 out of 10, 13.1% scored 5/10, 13.6% score 8/10 and 13.6% scored 3/10

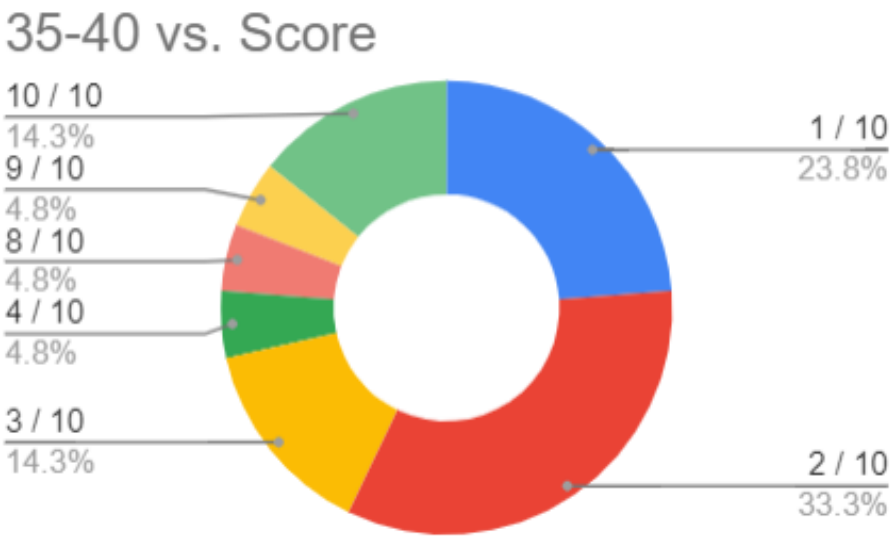


Figure 12- Result Knowledge regarding ED w.r.t to Age 3

It was observed 33.3 % of 35-40yrs old nurses score 2 out of 10, 23.8% scored 1/10, 14.3% score 3/10 and 14.3% scored 10/10

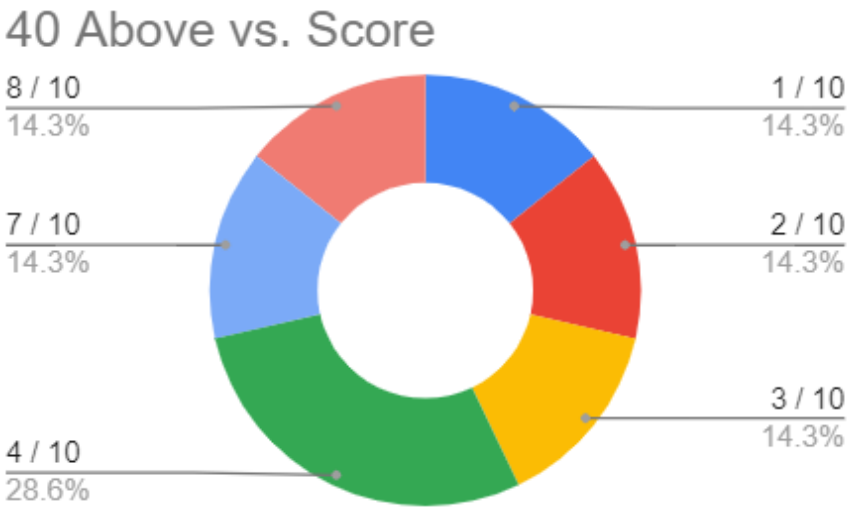


Figure 13- Result Knowledge regarding ED w.r.t to Age 4

It was observed 28.6 % of 40yrs and above old nurses score 4 out of 10, 14.3% scored 7/10, 14.3% score 8/10 and 14.3% scored 1/10

Attitude regarding Electronic Documentation

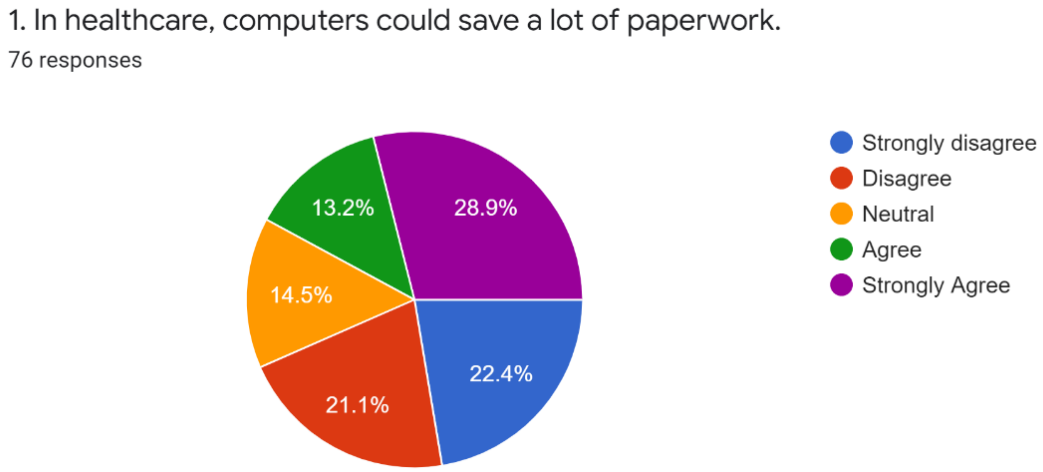


Figure 14-Analysis attitude regarding ED-1

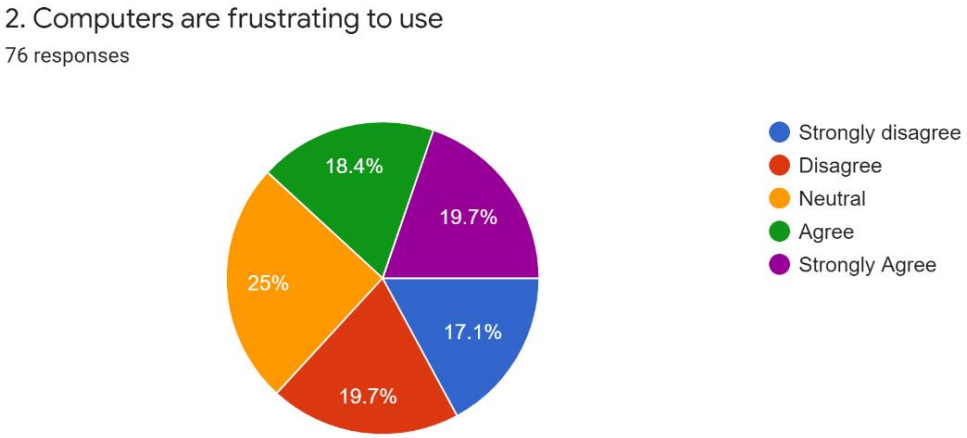


Figure 15-Analysis attitude regarding ED-2

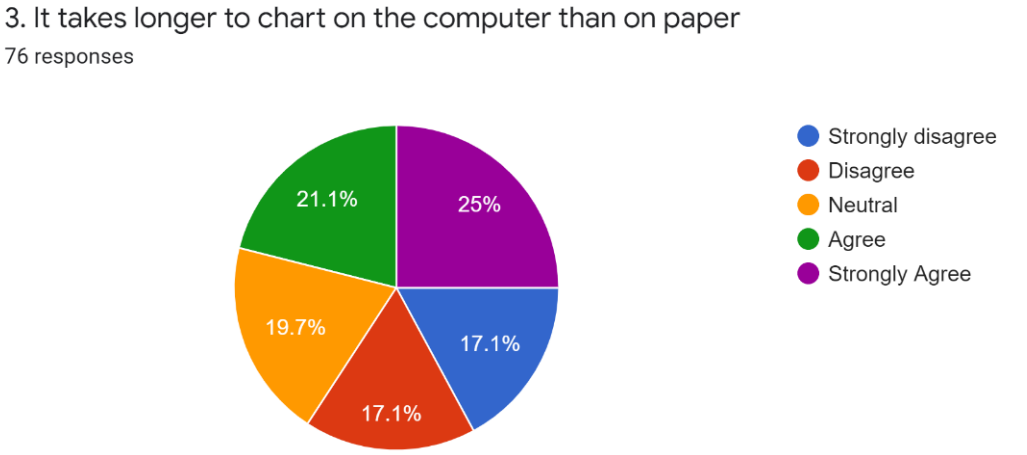


Figure 16-Analysis attitude regarding ED-3

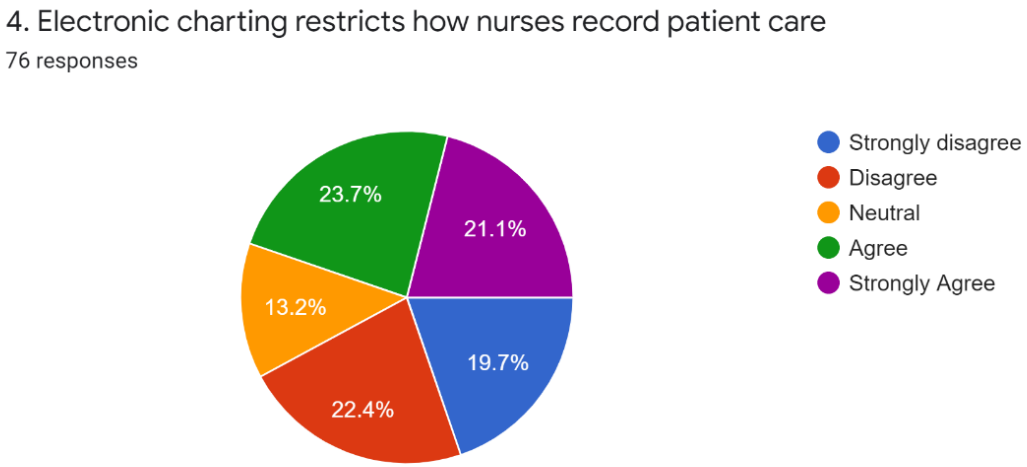


Figure 17-Analysis attitude regarding ED-4

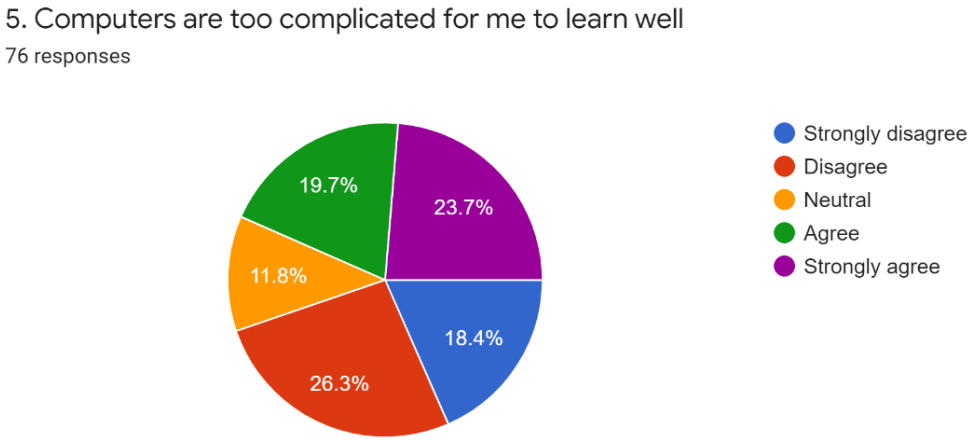


Figure 18-Analysis attitude regarding ED-5

Attitude regarding Electronic Documentation with respect to level of education

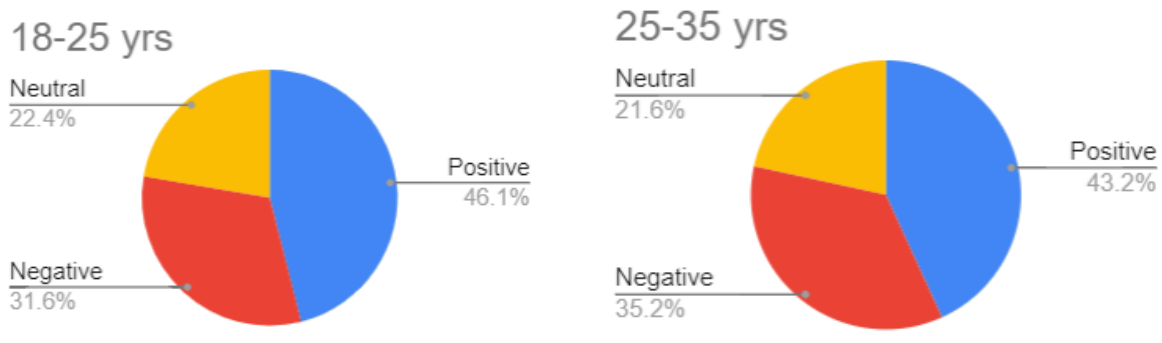
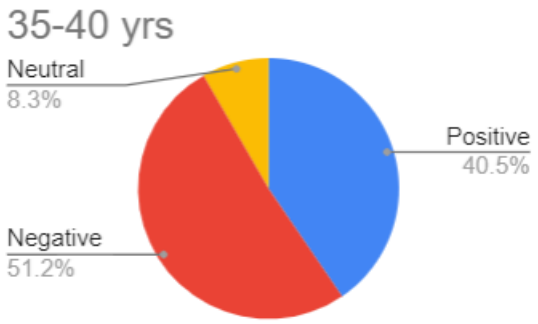


Figure 19- Result Attitude regarding ED w.r.t to Age 1

It was observed 46.1 % of 18-25yrs old nurses have positive attitude, 31.6% have negative attitude, 22.4% are neutral



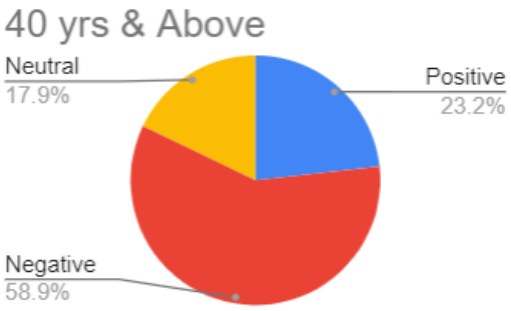
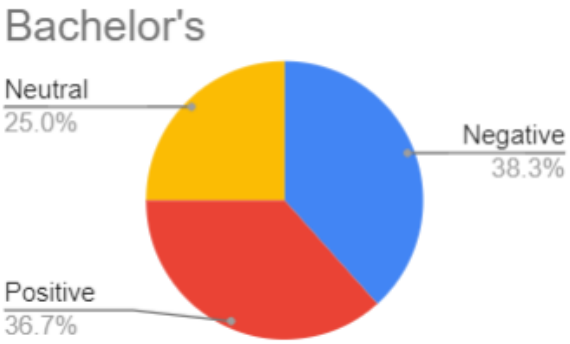


Figure 20- Result Attitude regarding ED w.r.t to Age 2

It was observed 40.5 % of 35-40yrs old nurses have positive attitude, 51.2% have negative attitude, 8.3% are neutral

Attitude regarding Electronic Documentation with respect to level of education



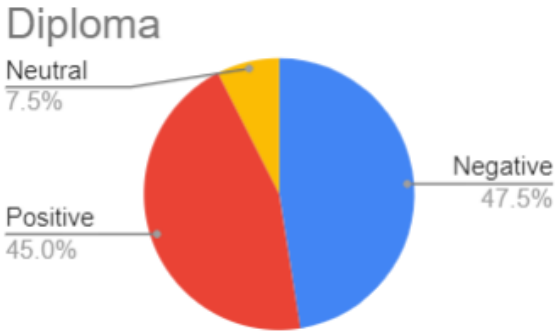


Figure 21- Result Attitude regarding ED w.r.t to Education 1

It was observed 36.7 % of bachelor's holder nurses have positive attitude, 38.3% have negative attitude, 25% are neutral

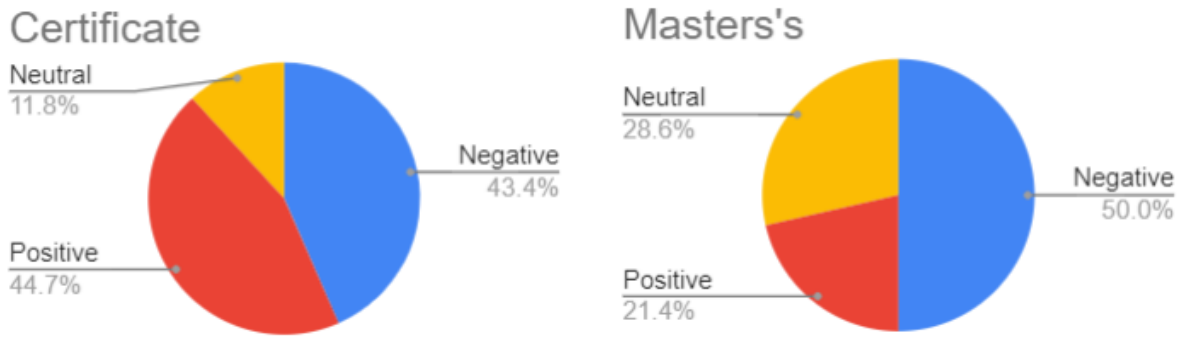


Figure 22- Result Attitude regarding ED w.r.t to Education 2

It was observed 44.7 % of Certificate holder nurses have positive attitude, 43.4% have negative attitude, 11.8% are neutral

Attitude regarding Electronic Documentation	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
In healthcare, computers could save a lot of paperwork.	22.7	21.3	13.3	13.3	29.3
Computers are frustrating to use	17.3	18.7	25.3	18.7	20
It takes longer to chart on the computer than on paper	17.3	17.3	18.7	21.3	25.3
Electronic charting restricts how nurses record patient care	20	22.7	13.3	22.7	21.3
Computers are too complicated for me to learn well	18.7	25.3	12	20	24

Table 3-Attitude regarding Electronic Documentation

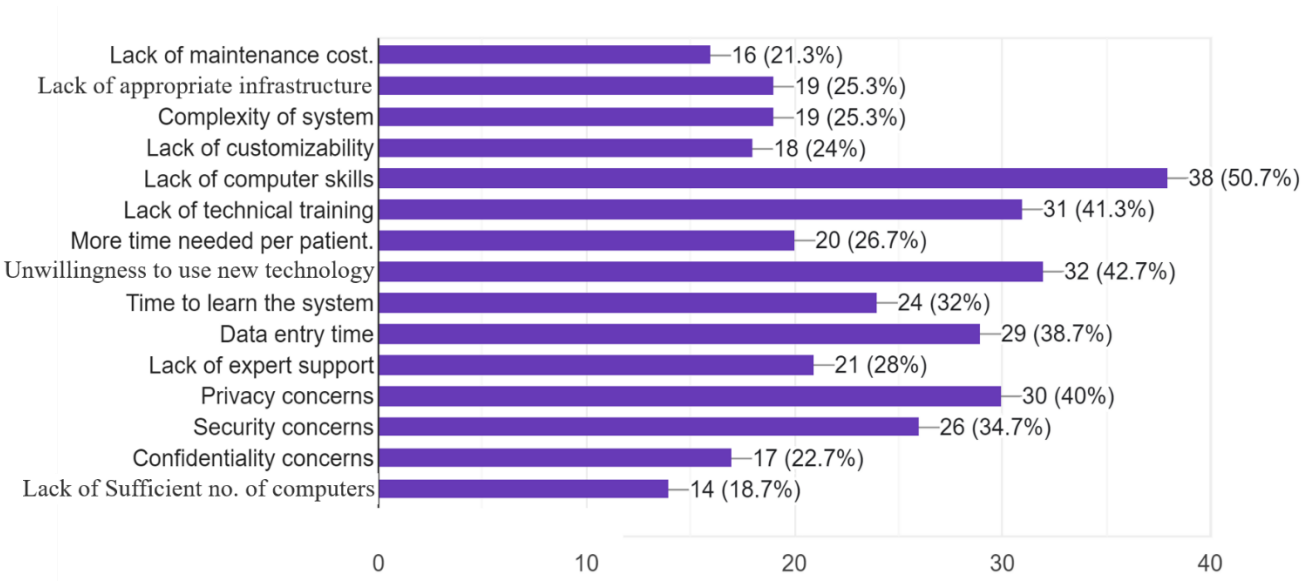


Figure 23-Electronic Documentation Barriers Assessment

Discussion

Although nurses in particular confront numerous obstacles in the implementation process, electronic health records are an essential tool for delivering quality care and enhancing patient safety. In the study, it was found that more than 35% of nurses encounter barriers, whether they are personal, technological, or privacy-related.

Regarding the personal/individual, the study reveals that the majority of participants (50.7 percent) claimed a lack of knowledge and computer proficiency, while 41.3 percent of participants cited a lack of technical training as a barrier to HIMS implementation. Participants who admitted their unwillingness to adopt modern technologies were 42.7% of the total. This result was consistent with several research, including that by Hasanain and Cooper (2020), who found that 52% of participants said that the primary obstacles to the use of EHRs were a lack of computer knowledge and experience.

Concerning the technical barriers, the present study shows that more than two third of the nurses reported that complexity of the system, lack of standardized terminology, lack Of customization were the common faced barrier for EHRs, In the study it was observed that 25.3% of participants feel complexity of system, 25.3% nurses feel lack of customizability and 28% of participants believes lack of expert support. This outcome was consistent with that reported by Hasanain and Cooper in 2014 who claimed that about two fifths of the nurses cited technical obstacles and a lack of adapting a standardized and uniform system as barriers. Furthermore, according to Boonstra and Broekhuis' systematic review from 2010, the second most prevalent barrier in the literatures was the lack of consistent language, lack of customizability, and complexity of the system.

Concerning the time barrier 26.7% of nurses claims that more time s needed per patient while using HIMS. About 32% participants feel it’s take time to learn to system which they don’t have. 38.7% of participants feels that HIMS consumes more data entry time. Compromising the Patient care. These findings concur with several research, including Boonstra and Broekhuis' systematic review from 2010 which noted that the time barrier was the third retrieved barrier among the 22 analyzed articles. Adams also reported similar results. Additionally, a 2015 study by Taiye found that 41.7% of the nurses in his study cited a lack of time as a hurdle. In the present research

If we talk about Privacy barrier, according to the study conducted major no. Of participants consider it as barrier in adoption of HIMS. In the study among the participating nurse 40% privacy as barrier in the adoption of electronic health record system. While 34.7% feel security concerns regarding usage of HIMS. According to the study 22.7% of nurses feel risk to confidentiality of data while using HIMS. According to Boonstra and Broekhuis in 2010, a survey of the literature revealed that legal obstacles such worries over privacy and security were portrayed as prevalent obstacles. This outcome corroborated their findings.

Other barrier was also reported by participants including Lack of maintenance cost (21.3%), lack of appropriate infrastructure (25.3%), lack of sufficient numbers of computer (18.7%).

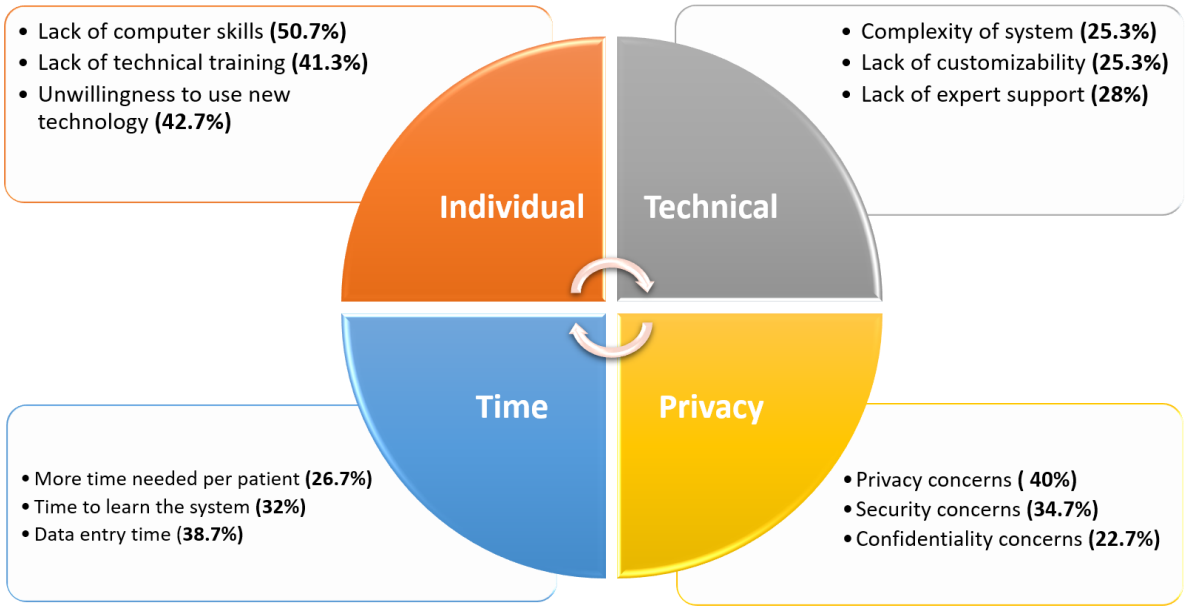


Figure 24-Analysis Electronic Documentation Barriers Assessment

More than 50% of nurses are found to lack knowledge of electronic health records, according to the study's findings and those of other supported studies. The current survey shows that whereas 53 percent of nurses lacked information of the electronic health record, 47 percent of nurse participants had good knowledge of electronic documents. This outcome was consistent with a Taiye study from 2015, which found that 45% of individuals had strong understanding.

Referencing the study of ED and Nakate et al. (2015) that roughly one-third of the nurses had adequate knowledge of documentation. However, compared to the lower mean score of 3.75 reported by Abell et al in 2015, the mean score of nurses' knowledge in the current study was 5.44. More over one-third of the nurses in the current study were under 30 years old, which is associated with greater accessibility to modern technology and electronic information, and could account for this discrepancy.

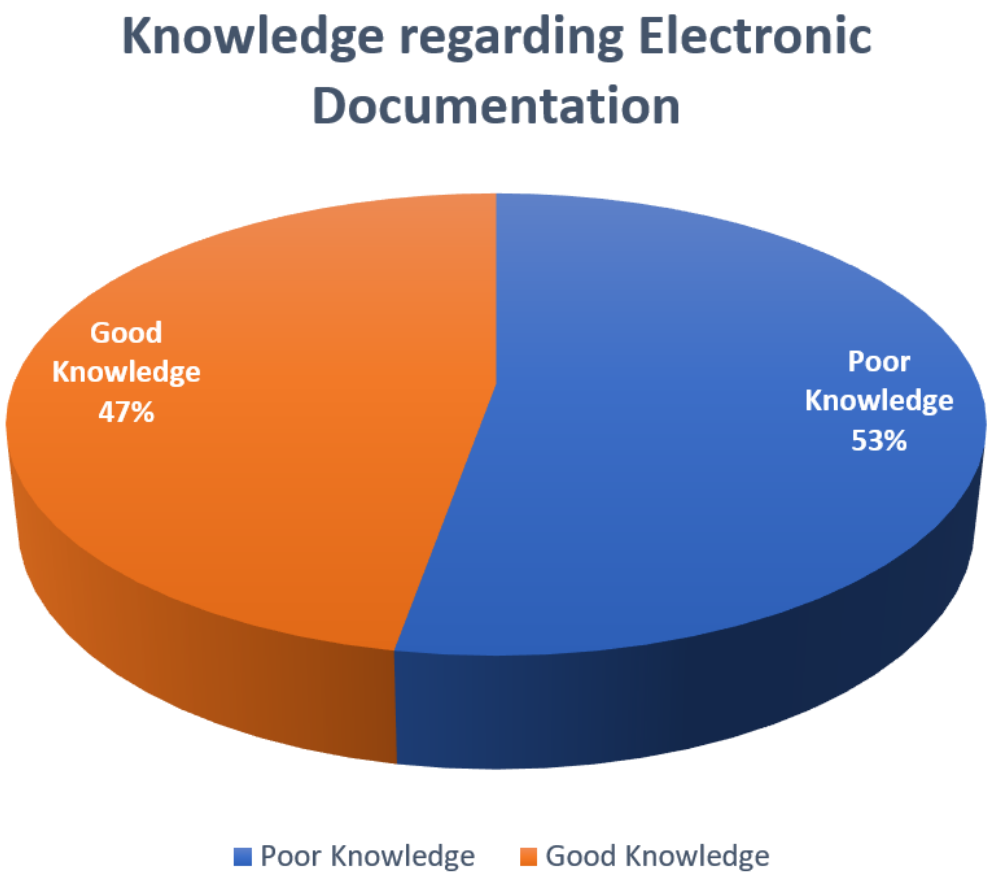


Figure 25-Discusssion knowledge regarding electronic health records

The data collected through questionnaire states that out 10 questions (1 marks each) asked related to the knowledge regarding electronic health records average score achieved was 5.29 whereas Median score was 6.

Regarding the Attitude of nurses towards ED, the study reveals that 39% of nurses have positive attitude towards the use and adoption of HIMS, 43% participants have negative attitude to usage and adoption of electronic health record system where as 18% nurses has neutral attitude towards the adoption of ED in healthcare system. Since 60% of the nurses felt that the ED had a good impact on the standard of care for patients, this result was consistent with DE Veer and Francke's (2010) nearly identical findings. Since 81 percent of nurses said that using an emergency department was useful in providing patient care, a study by Moody et al. in 2004 suggested more higher parentage. Yontz et al stated in 2015 that overall,

respondents believed the EHR was advantageous, did not increase the burden, enhanced documentation, and would not destroy any nursing positions (Yontz et al, 2015)

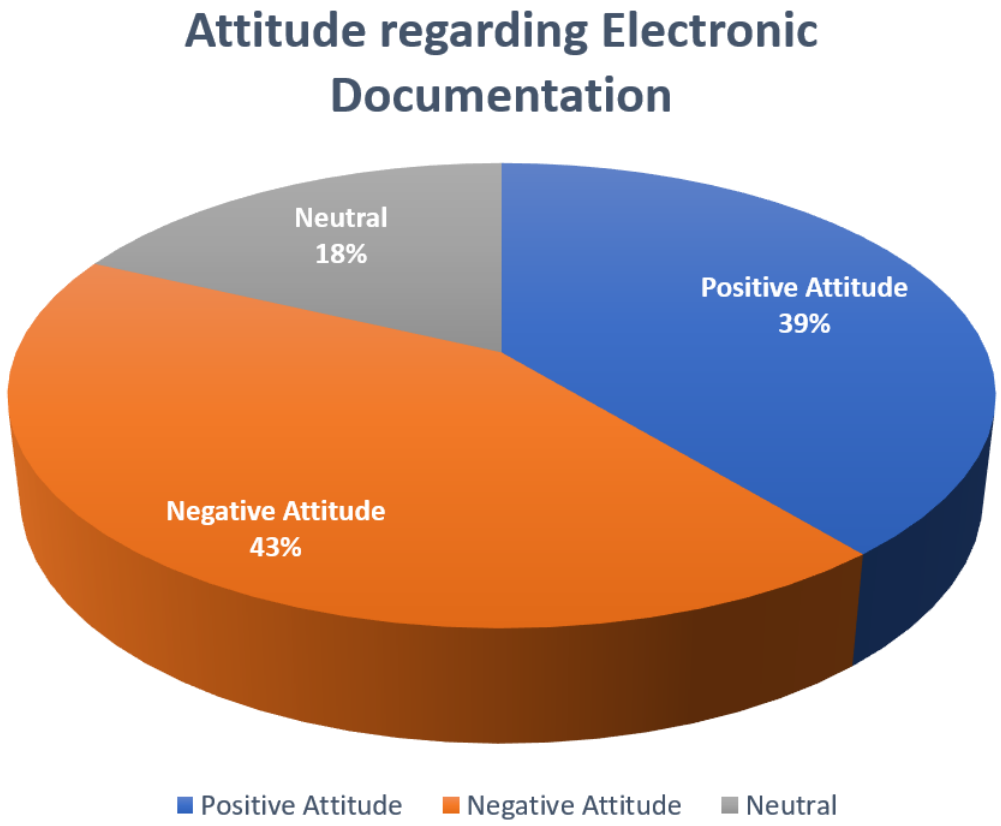


Figure 26-Discussion attitude regarding electronic health records

Among 5 questions asked related to attitude of nurses regards electronic health records system. The 4 statements were negative and 1 was positive. It was observed that 20% of nurses feel the usage of computer as frustrating and as a load of work where as 25% have neutral feelings regarding it. Since they lack in terms of knowledge and skill it takes them more time to chart on the HIMS than on paper. 20% of nurses feels restrictions in charting on EHR system than on paper. Major % also feels, computers as very complicated thing thus doesn't want to work or learn it Since 60% of the nurses felt that the ED had a good impact on the standard of care for patients, this result was consistent with DE Veer and Francke's (2010) nearly identical results. Since 81 percent of nurses said that using an emergency department was useful in providing patient care, a study by Moody et al. in 2004 suggested more higher parentage.

Yontz et al stated in 2015 that overall, respondents believed the EHR was advantageous, did not increase the burden, enhanced documentation, and would not destroy any nursing positions (Yontz et al, 2015), It was observed that in comparison, Participant with age 25-35yrs and with Master's Degree has good knowledge of ED. It was observed that in comparison, Participant with age 35-40yrs & 40yrs above and Certificate holders with has Negative attitude regarding knowledge of ED

Conclusion

The current study's findings lead us to the conclusion that nurses' understanding of and attitudes about emergency departments can be crucial to the successful implementation of EHRs in healthcare settings. In the current study, more than half of the nurses were found to have unfavorable attitudes regarding EHRs as well as low understanding, with a substantial correlation between the two. Nurses' interest in and attitudes toward electronic documentation systems are affected by their insufficient knowledge of ED. A hostile attitude toward the electronic documentation system is also something that has been noticed among nurses. They find it annoying, time-consuming, an extra chore, and difficult to utilise. We can also draw the conclusion that, despite the fact that adoption of EHRs in healthcare facilities was hindered by numerous obstacles, as revealed by the study's nurses, despite the fact that the participants nurses perceived multiple benefits of ED as improving work flow, promoting patient care, lowering costs, and facilitating communication. But personal obstacles like a lack of computer literacy, a lack of technical expertise, an unwillingness to change, and an increase in workload rank first, followed by privacy obstacles including privacy worries, security issues, and confidentiality. However, time barriers are 3th ranked followed by technical, organizational and computer related barrier. It was observed that in comparison, Participant with age 35-40yrs & 40yrs above and Certificate holders with has Negative attitude regarding knowledge of ED. It was observed that in comparison, Participant with age 25-35yrs and with Masters Degree has good knowledge of ED

Recommendations

The following recommendations were made based on the study's findings:

- Government and management of healthcare facilities must pay attention to nurses' needs, educate them about the advantages of using electronic health records (EHRs) in the healthcare system, and give them regular training sessions to sharpen their computer skills and increase their proficiency with the chosen software.

- Choosing and evaluating software before ED installation should be seen as a vital step for the successful adoption of EHRs in the healthcare system.

- Change Management strategies and process should be adopted by management fro better adoption of HIMS into hospital environment

Supplementary

Appendix

(Consent Form)

Greetings of the day!

Hope you are doing well.

My name is Sanya Gaur and I am conducting this study on the Knowledge, Attitude and Challenges faced by Nursing staff to the Adoption of Electronic Health Record System For understanding, I have compiled a set of questions that will take about 5 minutes to answer.

Your participation, in this study, is purely voluntary. You have the right to choose not to take part in this study. If you choose to take part, you can stop the interview at any time. The information that you provide will be kept confidential and will not be disclosed to anyone. It will only be used for study purposes. Your name, and other personal information will be removed from the analysis.

By filling out this survey, you are providing your consent and willing to participate in this survey.

Questionnaire

(Digital Health Records Documentation in Nursing: Knowledge, Attitude and Challenges to the Adoption of Electronic Health Record System)

1. Socio-Demographic Characteristics

1. Age
    - 18-25
    - 25-35
    - 35-40
    - 40 Above

2. Marital status
    - Single
    - Married

3. Level of Education
    - Certificate
    - Diploma
    - Bachelor's
    - Masters'

4. Occupation
    - Nurse
    - Head nurse
    - Nurse supervisor

5. Years of Experience
    - Less than 10 years
    - 10 to less than 20 years
    - 20 years and more

2. Knowledge regarding Electronic Documentation

1. Personal ID and password are electronic signature.
    - True
    - False

2. Log off when not using the system is important
    - True
    - False
3. Electronic mail is cost effective method in data transmission
    - True
    - False

4. Client written consent is not needed when transmit information by e-mail
    - True
    - False

5. Employed nurse is the legal owner of the records
    - True
    - False

6. Students and trainees have an access to electronic records under trainer's supervision.
    - True
    - False

7. Health records need to be kept for two years
    - True
    - False

8. Any discarded print information containing client ID must be shred
    - True
    - False

9. Electronic documentation provides more organized information about the clients
    - True
    - False

10. Electronic documentation helps to access information easily at any time and place
    - True
    - False

3. Attitude regarding Electronic Documentation

1. In healthcare, computers could save a lot of paperwork.
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
2. Computers are frustrating to use
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
3. It takes longer to chart on the computer than on paper
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
4. Electronic charting restricts how nurses record patient care
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

5. Computers are too complicated for me to learn well

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

4. Electronic Documentation Barriers Assessment

Tick on the Barrier which you feel creates challenge to Adoption of Electronic Health Documentation

- ☐ Lack of maintenance cost.
- ☐ Lack of appropriate infrastructure
- ☐ Complexity of system
- ☐ Lack of customizability
- ☐ Lack of computer skills
- ☐ Lack of technical training
- ☐ More time needed per patient.
- ☐ Unwillingness to use new technology
- ☐ Time to learn the system
- ☐ Data entry time
- ☐ Lack of expert support
- ☐ Privacy concerns
- ☐ Security concerns
- ☐ Confidentiality concerns
- ☐ Lack of sufficient numbers of computers
- ☐ Other: _____

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Sanya Gaur

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