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UTILIZATION OF RESEARCH FOR EVIDENCE BASED PRACTICE AMONG NURSES IN THE MAIN CRITICAL CARE UNIT, KENYATTA NATIONAL HOSPITAL, NAIROBI COUNTY.

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ABSTRACT

This study was carried out to determine the utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital, Nairobi County. A quantitative cross-sectional study design was used to determine level of utilization of research among nurses in main CCU, relationship between research utilization and nurse characteristics and to determine the facilitators and barriers to research utilization among nurses in main CCU at KNH. Convenience sampling technique was used to select participants because of the different shifts and workload. A sample size of 82 nurses was used and a self-administered questionnaire. Data was coded into electronic form using statistical package for social science (SPSS) version 28.0. Analysis of data was done using both descriptive and inferential statistics. Level of significance was evaluated at p<0.05. The findings showed that, 35.4% (n =29) of the respondents had utilized the findings of the studies they read from the websites. Age (>40 years) (AOR =6.11, 95%CI:4.38 – 17.11, p<0.001), MScN educational qualification (AOR=5.55, 95%CI:1.86 – 19.22, p=0.025), trained in computer packages (AOR=9.81, 95%CI:2.26 – 25.11, p =0.012) and high level of awareness on research (AOR=14.75, 95%CI:1.88 – 55.46, p=0.010) were significantly associated with utilization of research for evidence-based practice. 50% (n =41) of the respondents disagreed that nurses have access to research evidence, 68.3% (n =56) of the respondents disagreed with the statement that nurses have enough training on research while 64.6% (n =53) were unsure on whether research agents are needed to spearhead research utilization. Major barriers to research utilization were 78% (n =64) of the respondents cited lack of resources, 64.6% (n =53) cited resistance to change and 54.9% (n =45) stated that negative attitude among care providers were major barriers to research utilization. The findings showed that the practice of research utilization in nursing is poor hence the need for multi-disciplinary integration to help improve the level of awareness as well as improve overall understanding of nurses on the importance of research in clinical practice.

Key Words: *Critical Care, Nurse Characteristics, Health Care*

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INTRODUCTION

Research utilization is the use of findings from a single study (Aljezawi & Qadire, 2018). Evidence based practice is the use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based practice (EBP) means integrating individual clinical expertise with the best available external clinical evidence from systematic research. Research utilization is defined as the use of findings from scientific research or other types of knowledge with a research base to guide practice (Florin et al., 2011).

Evidence based practice nursing is the process by which nurses make clinical decisions using the best available research results, their clinical expertise and patient preferences (Mohsen et al., 2016). It is crucial for nurses, who constitute the majority group of health professionals to embrace evidence-based practices, choose the best evidence and adopt it in their practice. Decision making based on scientific knowledge is key in improving healthcare service delivery. It is because of this that nurses should base their care practices on scientific evidence (Dikmen et al., 2018).

Nurses need to use research and evidence based practice to sharpen their assessment skills, develop and implement policies and procedures, execute effective nursing interventions and formulate plans of care to improve patient outcomes (Kyalo, 2015). (Harper et al., 2017), carried out a study on evidence-based practice in United States among nursing professional development practitioners who rated themselves in the low to moderate scale in EBP implementation which they attributed to lack of EBP competency.

(Giang, 2020), acknowledged that the progress of adopting EBP in the nursing profession is slow since it is greatly influenced by individual or organizational readiness for EBP coupled with a number of barriers. In Saudi Arabia (Omer, 2018) acknowledged that there is a gap between available research evidence and the use of the evidence in practice. The said gap is attributed to lack of time by nurses to access, locate, read and evaluate research reports in order to incorporate the findings into practice and also lack of education and training among nurses to enable them to locate, appraise, synthesize and apply research findings into practice with confidence.

In a baseline survey conducted by (Kyalo, 2015), the findings revealed that there is low levels of research participation and in cooperation of research findings into practice by nurses working in six departments at Kenyatta national hospital namely; intensive care unit, cardiology, burns unit, theatre, renal unit and accident and emergency unit.

Problem Statement

Evidence based practice is currently one of the most important underlying principles in modern healthcare since it has the potential to increase the quality of care by standardizing the care process. Since nurses constitute a large group of health professionals in healthcare organizations, they are at a position to impact the care provided and subsequently the outcome of care. For the nurses to do this, they need to have a basic ability to evaluate research findings, reflect over current practice and incorporate research based knowledge into their clinical practice (Dikmen et al., 2018).

Determining the utilization of research for evidence-based practice by nurses in main critical care unit will help address the challenges that hinder them from embracing research utilization, increase utilization hence improve care outcomes. The researcher therefore aimed to determine the level of utilization of research by nurses, relationship between utilization of research and nurse characteristics and finally to determine facilitators and barriers to utilization of research for evidence-based practice by nurses in the main critical care unit, Kenyatta National Hospital.

Study Objectives

This study was carried out to determine the utilization of research for evidence-based practice among nurses in the main critical care unit at Kenyatta national hospital. The study was guided by the following specific objectives:

- To establish the practice of utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital.
- To determine the relationship between utilization of research for evidence-based practice and nurse characteristics in the main critical care unit, Kenyatta National Hospital.
- To determine the barriers and facilitators of utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital.

Theoretical Framework

The Academic Center for Evidence- Based Practice (ACE) star model for knowledge transformation will be used to illustrate how the discovered knowledge will be moved into practice. It is a framework used for systematic integration of research evidence into practice. This model was developed by Dr. Kathleen Stevens in 2004 (Stevens, 2004). It assists in understanding the cycles, nature and characteristics of knowledge that is utilized in various aspects of evidence- based practice. Knowledge transformation is the conversion of research findings from primary research results, through a series of stages and forms to impact on health outcomes. The process of knowledge transformation involves summarizing research results into a single statement about the state of the science, translating the state of science into clinical recommendations, adding clinical expertise as well as considering client preferences. The process also involves integrating recommendations through organizational and individual actions then finally the process is completed by evaluating the impact of actions on targeted outcomes.

The model has five major stages which begins from discovery research whereby scientific inquiry is done and knowledge is generated followed by summary of evidence where knowledge is synthesized into a single meaningful statement after which the statement is translated into guidelines which suits the care standards. The fourth stage involves changing both individual and organizational practice through formal and informal channels and in this stage both the facilitators and barriers will be addressed as factors that affect the rate of adoption of the innovation. In the last stage the impact of evidence-based practice on patients' outcome is evaluated (Stevens, 2004).

Utilization of research for evidence- based practice by nurses in the main CCU is key for improved patient outcome. ACE star model will be appropriate for this study since its stages relate with the objectives of this study like looking at facilitators and barriers, it looks at how research is utilized and impact on patient care hence the relationship of the model to the study.

Conceptual Framework

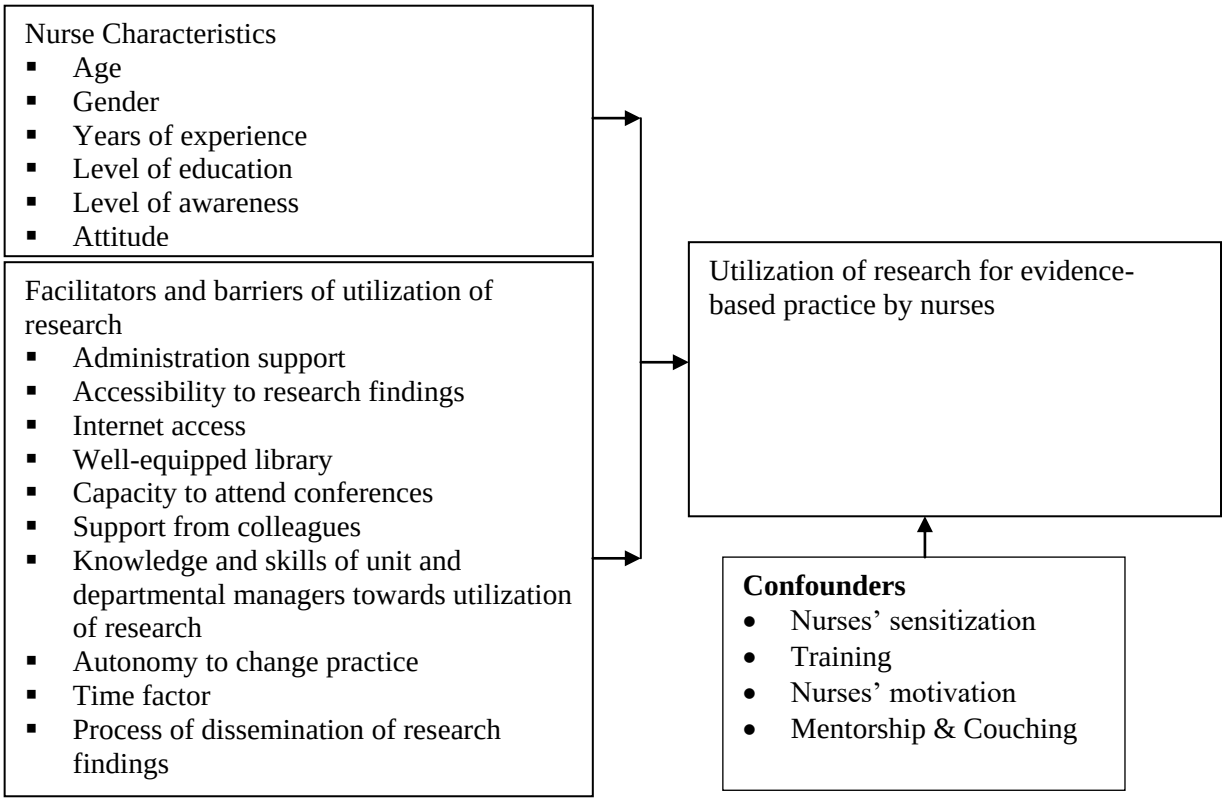

Figure 1: Conceptual Framework

LITERATURE REVIEW

Evidence based practice obtains highest level of care in patients, reduces cost of healthcare and promotes individual as well as professional progress of nurses and other health personnel. Nurses who base their practice on scientific evidence are capable of making better decisions in care provision (Mahmoud et al., 2019).

Nurses require time to access, locate, read and evaluate research reports and finally incorporate research findings into practice (Omer, 2018). Nurse practitioners must acquire evidence based practice competencies through ongoing personal professional development in formulating clinical questions and searching for evidence to ensure patients receive care based on latest and best evidence (Harper et al., 2017).

Majority of participants base their practice on knowledge gained during nursing school and quite a number based their practice on experience gained at work place while only a quarter of the participants reported basing their practice on research findings (Kyalo, 2015)

Education at bachelor's level would be helpful in minimizing barriers to research utilization thus increase adoption of evidence based practice (Jackson et al., n.d.). Higher levels of education and certification may empower nurses to act as autonomous practitioners who advocate for evidence based innovations and allow a spirit of enquiry to flourish (Wilson et al., 2015). Nurses who have masters and doctorate degrees are at better place to assist staff nurses utilize research to facilitate evidence based practice (Yoder, n.d.)

In USA ,(Wilson et al., 2015) carried out a study on empowering nurses with evidence based practice environment and concluded that higher levels of education and certification may empower nurses to act as autonomous practitioners who advocate for evidence based innovations and allow spirit of inquiry to flourish. Nurses who have worked for many years have efficacy to implement new ideas thus more competent to adopt

evidence based practice (Jackson et al., n.d.). Nurses who have worked for more years tend to be more mature and confident to apply evidence in clinical practice (Omer, 2018).

(Naderkhah et al., 2016) carried out a study to evaluate the level of knowledge, attitude and practice of evidence-based practice and its barriers among nurses working in Iranian hospitals and revealed that knowledge and practice plays an important role in the success of evidence-based practice implementation.

In Kenya, (Kyalo, 2015) conducted a comprehensive survey to assess research activities among 183 nurses in six departments in KNH namely: intensive care unit, renal unit, burns unit, cardiology, theatre and accident and emergency unit. The findings of the baseline survey revealed inadequate research knowledge and skills which was attributed to the low levels of research utilization. The findings of the intervention survey revealed increased utilization of research among the sixty-seven trained nurses hence the conclusion that training programs in nursing research is key for evidence-based practice success.

Determining the attitude of nurses regarding evidence-based practice help in developing strategies towards implementation of evidence-based practice. Nurses who follow occupational journals and view results of scientific studies have relatively positive attitude towards evidence-based practice. There is generally a partial positive attitude of nurses towards evidence (Dikmen et al., 2018).

In Egypt, (Mohsen et al., 2016) conducted a study on nurses perception regarding evidence based practice and revealed that nurses have a positive attitude towards evidence based practice but several barriers hinder them from practicing evidence based practice.

Facilitators of utilization of research for evidence-based practice

Administration support is very key for nurses to utilize research and ensure clinical decision making is pegged on current evidence (Omer, 2018). Educational opportunities to learn about evidence based practice, favorable nurses attitudes and availability of time to work on evidence based practice projects are essential facilitators to research utilization (Yoder, n.d.).

Education and mentored participation in research is an important facilitator of evidence based practice since nurses value the need for education and mentors in research. Participants also reported importance of online basic research classes and training on critiquing and analyzing the findings of research study and how findings are beneficial to practice (Cline et al., 2017). Improved communication and collaboration with interdisciplinary team, Education and mentorship, organizational infrastructure, research friendly environment and regular events for dissemination of findings are viewed by nurses as important facilitators to research utilization (Cline et al., 2017). Nurse's value having regular events for dissemination of findings. The findings should be communicated in simple understandable terms (Cline et al., 2017)

Barriers to utilization of research for evidence-based practice

Practicing nurses have a duty to determine whether or not their actions are of any benefit to the patients and researchers on the other hand have a duty to demonstrate this. Clinical practice should be based upon a fusion of knowledge derived from clinical experience. Lack of skills and knowledge perceived as a barrier to research utilization since for nurses to be able to utilize research findings, the must poses a broad and complex set of skills (Sitzia, 2002).

Nurses in Saudi National Guard hospital viewed most barriers as moderate to strong enough to hinder evidence-based practice. These barriers included organizational factors, communication factors and lack of time and education. In view of the barriers, participants felt that increasing organizational support and creating organizational culture based on evidence based practice would enhance utilization of research findings in nursing practice (Omer, 2018).

Clinical setting factors are mostly perceived by nurses as barriers to integrating research into practice. Nurses should be involved in planning and multidisciplinary team responsible for research utilization (Aljezawi &

Qadire, 2018). Most common barriers for adoption of evidence-based practice include difficulty in judging the quality of research articles and reports, lack of time to read research articles and inadequate resources for implementation of EBP. Research reports should be presented in a simple, clear and concise manner to facilitate understanding and easy transfer to practice (Mohsen et al., 2016).

In a study conducted in Kenyatta National Hospital, nurses viewed research as difficult, cited lack of mentorship and support, unavailability of research reports and lack of dissemination of findings as the main barriers to research utilization. They also pointed out lack of emphasis of research and evidence based practice during training as a barrier (Kyalo, 2015).

METHODOLOGY

The study was conducted using quantitative cross-sectional design. The study was conducted at the main critical care unit of Kenyatta National Hospital in Nairobi County. The study targeted all nurses working in the main CCU of KNH. There is a total of 105 nurses working in the unit.

A sample size of 82 nurses was used. The sample size was determined using the formula as designed by Fisher et al. (1998) as cited by Mugenda and Mugenda (2003).

A self-administered questionnaire was used to collect data. Data was collected for a period of one month to ensure the sample size was attained. Data was then coded into electronic form using statistical package for social science (SPSS) version 28.0. Analysis of data was done using both descriptive and inferential statistics.

Fischer's exact test was conducted to investigate factors associated with utilization of evidence-based practice in clinical care among participants. Significant variables from bivariate analysis were subjected to multivariable analysis using binary logistic regression. Level of significance was investigated at 95% confidence level. Findings were then presented in form of frequency tables, and charts.

RESULTS

Response rate

Table 1: Response rate

	Frequency	Percent
Sample size	82	
Response	82	100

A total of 82 respondents were enrolled into the study. All the questionnaires were returned and analysed representing a 100% response rate.

Nurse Level of Awareness on evidence-based practice

Nurse level of awareness was measured using a five-point Likert scale where strongly agree was rated at 5 while strongly disagree was rated as 1.

Table 2: Nurse Level of Awareness on evidence-based practice

Statement	Strongly disagree n (%)	Disagree n (%)	Not sure n (%)	Agree n (%)	Strongly agree n (%)	Mean	Std. Deviation
Have the ability to formulate a clearly answerable research question	4(4.9)	11(13.4)	7(8.5)	41(50.0)	19(23.2)	3.73	1.1
Have knowledge of how to retrieve evidence from research articles	4(4.9)	13(15.9)	7(8.5)	39(47.6)	19(23.2)	3.68	1.1
Aware that clinical practice should be based on evidence from research	4(4.9)	6(7.3)	1(1.2)	30(36.6)	41(50.0)	4.20	1.1
Nurse are incapable of evaluating research quality	30(36.6)	29(35.4)	7(8.5)	8(9.8)	8(9.8)	2.21	1.3
Have adequate knowledge to do research	3(3.7)	13(15.9)	10(12.2)	34(41.5)	22(26.8)	3.72	1.1
Am competent enough to implement research findings	4(4.9)	11(13.4)	9(11.0)	33(40.2)	25(30.5)	3.78	1.2
Have ability to apply information to individual cases	3(3.7)	8(9.8)	11(13.4)	36(43.9)	24(29.3)	3.85	1.1
Have ability to determine how useful research findings are	3(3.7)	8(9.8)	3(3.7)	38(46.3)	30(36.6)	4.02	1.1

The findings showed that half of the participants, 50%(n =41) agreed with the statement that they have the ability to formulate a clearly answerable research question with a mean of 3.73 (SD±1.1), 50%(n =41) of the participants also strongly agreed that they are aware that clinical practice should be based on evidence from research with mean of 4.20 (SD±1.1), 50%(n =41) while 36.6%(n =30) strongly disagreed with the statement that nurses are incapable of evaluating research quality with a mean of 2.21 (SD±1.3) as shown in Table 2.

To obtain level of awareness, negative statements were transformed into positive statements. The scores for each statement were then summed up and mean calculated out of a total of 40 scores. The mean score was calculated and those who scored less than the mean was considered to have low level of awareness. The mean awareness score was 30.8 with standard deviation of 6.9. The proportion of those with high level of awareness was 70%.

Respondents' Attitude towards research utilization

The attitude was assessed using a five-point Likert scale where strongly agree was rated at 5 while strongly disagree was rated as 1.

Table 3: Attitude towards research utilization

Statement	Strongly disagree n (%)	Disagree n (%)	Not sure n (%)	Agree n (%)	Strongly agree n (%)	Mean	Std. Dev
I like new ideas in the management of patients	2(2.4)	2(2.4)	32(39.0)	46(56.1)	0	3.49	0.7
Research utilization can improve patient outcome	3(3.7)		28(34.1)	50(61.0)	1(1.2)	3.56	0.7
I am always willing to try new ideas in management of patients	2(2.4)	2(2.4)	35(42.7)	43(52.4)	0	3.45	0.7
New ideas in the management of patients are better than usual practice	4(4.9)	9(11.0)	35(42.7)	33(40.2)	1(1.2)	3.22	0.8
Research based practice is not useful	47(57.3)	21(25.6)	8(9.8)	6(7.3)	0	1.67	0.9
Agents are needed to spearhead research utilization	9(11.0)	16(19.5)	36(43.9)	19(23.2)	2(2.4)	2.87	1.0
Research makes sense in the management of patients.	4(4.9)	4(4.9)	38(46.3)	34(41.5)	2(2.4)	3.32	0.8
Clinical experience is more important than research in the management of patients	13(15.9)	36(43.9)	24(29.3)	7(8.5)	2(2.4)	2.38	0.9
Findings cannot change practice	32(39.0)	37(45.1)	7(8.5)	5(6.1)	1(1.2)	1.85	0.9
It is impossible to utilize research findings done by people not directly involved in patient care	16(19.5)	33(40.2)	25(30.5)	7(8.5)	1(1.2)	2.32	0.9
It is better to stick to tried and tested methods of clinical practice	6(7.3)	32(39.0)	28(34.1)	14(17.1)	2(2.4)	2.68	0.9
I resent having my clinical practice questioned	19(23.2)	43(52.4)	16(19.5)	4(4.9)	0	2.06	0.8
My workload is too much for me to keep up-to-date with all the new evidence	21(25.6)	33(40.2)	22(268)	6(7.3)	0	2.16	0.9
Research is not relevant to nursing practice	50(61.0)	28(34.1)	3(3.7)	1(1.2)	0	1.45	0.6
I have nothing to benefit from research utilization	49(59.8)	30(36.6)	2(2.4)	1(1.2)	0	1.45	0.6

The results showed that 61% (n =50) of the participants agreed that research utilization can improve patient outcome having a mean of 3.56 (SD±0.7), 52.4% (n =43) of them agreed that they are always willing to try new ideas in the management of patients with a mean of 3.45(SD±0.7). Further, 61% (n =50) of the participants strongly agreed with the statement that research is not relevant to nursing practice with mean of 1.45 (SD±0.6) which showed that most of the patients disagreed with the statement. In addition, 59.8% (n =49) strongly disagreed with the statement that they have nothing to benefit from research utilization with mean of 1.45 (SD±0.6) as shown in Table 3.

Ten of the questions were negative statements which were transformed prior to summing up the scores to obtain total scores. The maximum score was 75 and minimum score of 15. The average scores were calculated where scores below the mean were considered to show poor attitude towards evidence-based practice.

The practice of utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital

Table 4: Practice of utilization of research for evidence-based practice

Utilization	Frequency	Percent
Accessed KNH website or any other websites that are scientific		
Yes	26	31.7
No	56	68.3
How often one accesses the KNH or any other research website (n =26)		
Everyday	3	11.5
Once a week	2	7.7
Once a month	5	19.2
After every few months	12	46.2
I can't remember the last time I did	4	15.4
Ever utilized any of the findings of the studies you read from the website		
Yes	29	35.4
No	53	64.6
Scientific websites utilized to obtain EBP		
PubMed	23	28.0
Hinari	18	22.0
CINAHL	15	18.3
Google scholar	14	17.1
Others	12	14.6
Frequency of utilizing findings from website		
Yearly	6	20.7
After two years	2	6.9
Rarely	21	72.4
Basis of nursing practice		
Knowledge from nursing school	62	75.6
Experience	62	75.6
Reading journals	24	29.3
Knowledge from research (audits and reports)	27	32.9
Others*		
Review nursing care guidelines using research findings		
Yes	35	42.7
No	47	57.3
Frequency of review of nursing care guidelines		
After every 6 months		
Yearly	12	34.3
After two years	4	11.4
Rarely	19	54.3
Methods used to review nursing care guidelines		
Journal reviews	31	37.8
SOP	23	28.0
Feedback from audits	22	26.8
WHO guidelines	6	7.4

Other basis of nursing practice: CMES (n =3), workshops and trainings (n =2)

Utilization of research for evidence-based practice was also investigated which showed that, 26 (31.7%) had accessed the KNH website or any other website that is scientific to read published researches. Among those who were accessing websites to read published researches, 12 (46.2%) accessed the sites after every few months. The findings showed that, 29 (35.4%) of the respondents had utilized the findings of the studies they read from the websites in their clinical practice although 21 (72.4%) of them rarely utilized these findings from the website. From the findings it was established that 35 (42.7%) of the respondents asserted that nursing care guidelines are reviewed using research findings as shown in Table 4.

A total of nine questions were used to assess utilization of evidence-based practice. Each correct score was scored 1 while incorrect score was scored zero. The scores were then summed. The highest score was nine while the lowest score was zero. The scores were then converted into percentages where a score of less than

50% was considered poor practice and ≥50% were considered good practice. The findings showed that 26% (n =21) of the respondents had good practice.

The relationship between utilization of research for evidence-based practice and nurse characteristics in the main critical care unit, Kenyatta National Hospital

Table 5: The relationship between utilization of research for evidence-based practice

	Evidence based practice		
Characteristics	**Good Practice n (%)**	**Poor Practice n (%)**	**P value**
Gender			0.566
Male	4(19.0)	17(27.9)	
Female	17(81.0)	44(72.1)	
Age			0.009
≤40 years	3(14.3)	29(47.5)	
>40 years	18(85.7)	32(52.5)	
Highest level of qualification			0.157
Diploma	1(4.8)	3(4.9)	
Higher diploma	9(42.9)	38(62.3)	
BScN	9(42.9)	17(27.9)	
MScN	2(9.5)	3(4.9)	
Years of experience			0;010
≤10 years	6(28.6)	39(63.9)	
>10 years	15(71.4)	22(36.1)	
Training on computer packages			0.002
Yes	20(95.2)	36(59.0)	
No	1(4.8)	25(41.0)	
Level of awareness			0.015
High level	19(90.5)	38(62.3)	
Low level	2(9.5)	23(37.7)	
Level of attitude			0.018
Good attitude	18(85.7)	34(55.7)	
Poor attitude	3(14.3)	27(44.3)	

Fischer's exact test was conducted to investigate factors associated with utilization of evidence-based practice in clinical care among participants. This was mainly because the frequency in each of the variable cells was less than five. The factors established that age (p =0.009), years of experience (p =0.010), training on computer packages (p =0.002), level of awareness (p =0.015) and attitude (p =0.018) were significantly associated with evidence-based practice.

Multivariable analysis on factors associated with utilization of research for evidence-based practice

Table 6: Multivariable analysis on factors associated with utilization of research for evidence-based practice

Characteristics	AOR (95%CI)	P-value
Age		
≤40 years	0.29(0.06 - 1.33)	0.110
>40 years	Ref	
Years of experience		
≤10 years	0.41(0.11 - 1.51)	0.181
>10 years	Ref	
Training on computer packages		
Yes	12.03(1.38 - 104.56)	0.024
No	Ref	
Level of awareness		
High level	3.72(1.66 - 20.92)	0.013
Low level	Ref	
Level of attitude		
Good attitude	1.37(1.12 - 6.67)	0.006
Poor attitude	Ref	

Significant variables from bivariate analysis were subjected to multivariable analysis using binary logistic regression. The findings showed that training in computer packages, high level of awareness and good attitude were significantly associated with good evidence-based practice. Those who had trained on computer packages were 12 times likely to have good utilization of evidence-based practice, adjusted odds ratio (AOR) = 12.03, 95%Confidence Interval (CI): 1.38 – 56.11, p =0.024). Those who had high level of awareness were four times likely to have good utilization of evidence-based practice, AOR =3.72, 95%CI: 1.66 – 20.92, p - 0.013). The participants who had good attitude were 1.4 times likely to have good utilization of evidence-based practice, AOR = 1.37, 95%CI: 1.12 – 6.67, p = 0.006.

The barriers and facilitators of utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital

Table 7: Facilitators and barriers of research utilization among critical care nurses

	Strongly disagree n (%)	Disagree n (%)	Not sure n (%)	Agree n (%)	Strongly agree n (%)	Mean	Std. Deviation
Nurses have access to research evidence	8(9.8)	33(40.2)	32(39.0)	9(11.0)	0	2.51	0.8
Nurses have enough training on research	9(11.0)	47(57.3)	19(23.2)	7(8.5)	0	2.29	0.8
Nurses lack time to do research or read articles	10(12.2)	31(37.8)	35(42.7)	6(7.3)	0	2.45	0.8
Research agents are needed to spearhead research utilization	2(2.4)	7(8.5)	53(64.6)	19(23.2)	1(1.2)	3.12	0.7

Some of the facilitators and barriers of research utilization among critical care nurses were established using a Likert scale, 41 (50%) of the respondents disagreed that nurses have access to research evidence, 56 (68.3%) of the respondents disagreed with the statement that nurses have enough training on research while 53 (64.6%) were unsure on whether research agents are needed to spearhead research utilization as shown in Table 7.

Table 8: Additional facilitators and barriers to research utilization among critical care nurses

	Frequency	Percent
Do you have access to internet to enable you access databases where research		
Yes	46	56.1
No	36	43.9
Have you ever been trained on how to access research articles		
Yes	33	40.2
No	49	59.8
Training facilitators (n =33)		
The unit in-charge	2	6.1
The departmental in-charge	3	9.1
Other institutions	28	84.8
Attended a scientific conference where research findings are disseminated		
Yes	31	37.8
No	51	62.2
How often (n =31)		
Monthly	2	6.4
Once in six months	1	3.3
Once a year	28	90.3
Whether one has the autonomy to change practice as per research evidence		
Yes	38	46.3
No	44	53.7
Team players affecting level of research utilization		
Fellow nurses	59	72.0
Anaesthesiologists	40	48.8
In-charge	46	56.1
Administration	46	56.1

The results showed that, 46 (56.1%) of the respondents had access to internet, 49 (59.8%) had not been trained on how to access research articles where 28 (84.8%) had been trained by other institutions of learning. The respondents were asked whether they had attended a scientific conference, 31 (37.8%) had attended of which 28 (90.3%) of them attend scientific conferences once a year as shown in Table 8.

Identified barriers to research utilization by critical care nurses

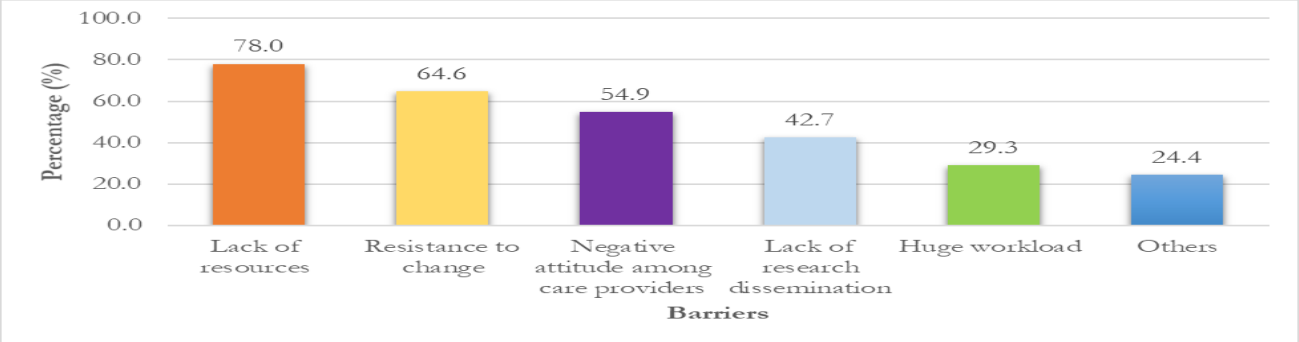

Figure 2: Other Identified barriers to research utilization by critical care nurses

Others = lack of training, lack of funding on research, restricted access to research articles, few hospitals based published articles on KNH website, laid down protocols*

The results showed that 64 (78%) of the respondents cited lack of resources, 53 (64.6%) cited resistance to change and 45 (54.9%) stated that negative attitude among care providers were major barriers to research utilization. Others included lack of research dissemination, 35 (42.7%), huge workload 24 (29.3%). (Figure 9)

DISCUSSION

The practice of utilization of research for evidence-based practice among nurses in the main critical care unit

The present study investigated utilization of research for evidence-based practice among nurses in critical care unit. The findings from this study established that 26% of respondents reported using evidence-based practice in their nursing practice. These findings are comparable to a study by Kyallo which revealed that majority of nurses base their practice on knowledge gained during their nursing school with only a quarter of the participants basing their practice on research findings (Kyalo, 2015). In a study conducted in Ethiopia, the level of evidence-based practice utilization among nurses was higher at 55%. However, this was still low considering the increasing reliance on evidence-based practice in care. Thus, suggestion to improve utilization included use of evidence-based guidelines in the workplace, making it easier for facilities to connect to the internet, and teaching nurses how to use evidence-based practice either as a different course or as part of the curriculum (Aynalem et al., 2021).

The findings from present study had low level of utilization compared to those from a study in Southern Ethiopia which found that utilization of evidence based practice was high at 81% in care of patients (Dawit et al., 2018). This inconsistency could be due to lack of training and knowledge differences. In this study, only 23% of nurses received EBP training. The low level of utilization of evidence-based practice in the present study could be attributed to limited number of nurses who have had access to scientific websites (31.7%) making it difficult to integrate in care concepts they rarely understand. However, findings from this study revealed higher utilization level compared to those from a study in Ghana which revealed that only 25.3% utilized evidence-based practice in care. These findings illustrated the need for improved focus on evidence-based care. The findings of the study indicated that there is a need to build institutional support to facilitate and encourage the engagement of nurses in research. At the same time, nurses' continual professional growth should be formalized. This, could affect nurses' attitudes towards research, which in turn could lead to the improvement of health care quality because it would boost nurses' position as agents of evidence-based clinical practice (Nkrumah, 2018). By promoting the utilization of EBP among nurses in critical care units, hospitals can improve patient outcomes, reduce complications, and enhance the overall quality of care provided in the critical care setting.

Majority of nurses in the present study indicated that they utilize knowledge from nursing school and experience. This explains the less commitment and focus on evidence-based practice. These findings are in line with those from a study conducted in Saudi Arabia which found that most of nurses utilize knowledge from their nursing school and experience rather than evidence based practice in patient care (Almalki et al., 2022). Nurses should continue to seek out ongoing education and professional development opportunities to stay current with evidence-based practice and advances in healthcare. Continuing education can take many forms, including attending conferences, taking courses, reading journals, and participating in in-house training programs (Zhou et al., 2015). In addition, healthcare institutions should encourage and support nurses in their ongoing education and professional development efforts. This can include offering tuition reimbursement, providing access to online resources, and allowing time off for educational activities.

The relationship between utilization of research for evidence-based practice and nurse characteristics in the main critical care unit, Kenyatta National Hospital

The findings from this study established that nurses who were aged 40 years and above were six times more likely to use evidence-based practice in patient care compared to those aged less than 40 years. These

findings illustrate a high level of awareness among older nurses. The findings also revealed that nurses with high level of awareness were more likely to utilize evidence-based practice in their care. These findings are consistent with those from Omer (2018) who found that older nurses have higher level of experience and thus are more confident in applying evidence-based practice while taking care of their patients. Similarly, another study conducted in Ethiopia established that older respondents were five times more likely to utilize evidence based practice in patient care (Dagne et al., 2021). Further, a cross sectional survey among nurses in Norway revealed that nurses age was a significant factor associated with evidence based practice (Dalheim et al., 2012). Thus, these findings illustrate that, older nurses have a wealth of experience and knowledge that enables them to apply EBP effectively in-patient care. They have a sense of professional confidence and a commitment to lifelong learning, which allows them to stay current with the latest advances in healthcare and provide the best possible care for their patients.

Level of education has been established to influence utilization of evidence-based practice. The findings in this study also revealed that nurses who have higher diploma, degree in nursing and masters in nursing are more likely to utilize research unlike their counterparts with basic diploma. These findings are in line with those from Wilson et al (2015) who found out that attaining higher levels of education and certification may enable nurses to take on the role of independent practitioners who advocate for evidence-based innovations and foster a culture of inquiry. Yoder et al. (2020) also found that nurses who have masters and doctorate degrees are at better place to assist staff nurses utilize research to facilitate evidence-based practice. Pursuing higher education requires a commitment to professional development and lifelong learning. Nurses who have pursued higher education are more likely to continue seeking out professional development opportunities and stay up-to-date with the latest advances in healthcare. Further, nurses with higher levels of education have typically received more training in research methods and statistical analysis. This allows them to better understand research studies and evaluate the quality of evidence.

The current findings also revealed that nurses who had trained in computer knowledge were more likely to utilize evidence-based practice in their care. These findings were comparable to those from a study in the United Kingdom which revealed that majority of the nurses were using evidence based practice in their care with 96% using computer in their workplace (Griffiths & Riddington, 2001). Moreover, computer-based decision support systems can provide healthcare professionals with real-time recommendations based on the latest research evidence, helping them to make informed decisions about patient care. In this way, computer knowledge and EBP can work together to improve the quality of healthcare and patient outcomes.

The findings from present study showed that attitude and awareness were significantly associated with evidence-based practice utilization. A positive attitude towards EBP can act as a motivator. When individuals believe that evidence-based practices are valuable and effective, they are more likely to be motivated to incorporate them into their decision-making and actions. This motivation can drive them to seek out relevant evidence and try to understand and implement EBP. Awareness of what EBP is and how it works is a crucial precursor to its utilization. If individuals are not aware of the existence and importance of evidence-based practices, they are unlikely to use them. Awareness serves as the foundation upon which EBP utilization is built. Awareness includes not only knowing about EBP but also having the knowledge and skills necessary to access, evaluate, and apply evidence. These skills are essential for EBP utilization. Individuals with higher levels of awareness are better equipped to acquire and use evidence effectively.

The facilitators of utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital

The findings from the study revealed that common facilitators to evidence-based practice among nurses included access to internet, training on evidence-based practice and attending conferences on dissemination of research studies within their respective fields and areas of specialization. These findings are consistent with those from Cline et al. (2017) who found that due to the fact that nurses place a high value on the need for

education and mentors in research, one of the most essential factors in the development of evidence-based practice is participation in educational and supervised research. The participants also highlighted the importance of attending online basic research classes and receiving training on evaluating and assessing the results of research studies, as well as understanding how the results may be applied in practice. Further, Cline (2017) also revealed that dissemination of findings to nurses is essential in cultivating positive learning knowledge on evidence-based research and its utilization in nursing practice.

Nurses need access to up-to-date research and evidence-based guidelines to inform their clinical decision-making. This can be facilitated through the provision of electronic databases, access to online journals, and regular training on how to search for and critically appraise evidence (Davis et al., 2021). Further, healthcare organizations play a crucial role in facilitating EBP by providing resources and support to nurses. This includes creating a culture that values and encourages EBP, allocating time and resources for nurses to engage in EBP activities, and providing opportunities for continuing education (Duncombe, 2018). The use of clinical decision-making tools, such as evidence-based practice guidelines, algorithms, and decision trees, can facilitate EBP by providing nurses with a structured approach to decision-making based on the best available evidence.

The barriers to utilization of research for evidence-based practice among nurses in the main critical care unit, Kenyatta National Hospital

The current study established that lack of resources and resistance to change were leading barriers to utilization of evidence-based practice. Additional barriers included negative attitude on research among nurses, lack of steady dissemination and huge workload which define limited use of evidence-based practice. These findings are consistent with those from a study in Egypt which established that organizational limitations are perceived as the greatest barriers to research utilization for example inadequate facilities, lack of access to research evidence, restricted internet access to databases. Nurses also had the impression that they were never given the authority to make changes in the care offered to patients. In addition, the participants expressed the opinion that the benefits of evidence-based practice are hazy and unclear, with majority of researches being unrelated to clinical settings. Individual factors, such as nurses who are afraid to experiment with new concepts, were ranked as the least significant barrier to the utilization of research (Mahmoud et al., 2019).

Similarly, other studies have also established that most of barriers were institutional based such as lack of resources, poor communication and dissemination of research,lack of time and limited resources. In view of these barriers, it was understood that increasing organizational support and creating organizational culture based on evidence based practice would enhance utilization of research findings in nursing practice (Omer, 2018) (Atakro et al., 2020). Further, one of the significant barriers to the utilization of research for EBP among nurses is the limited access to research evidence. Nurses may not have access to the latest research evidence due to limited access to journals, databases, or other sources of information. The cost of accessing research articles can be high, and some nurses may not have the resources to pay for them. Additionally, some nurses may not have access to online databases or journals due to technical issues or lack of training on how to use them (Li et al., 2019).

CONCLUSIONS AND RECOMMENDATIONS

The practice of evidence-based practice utilization is significantly poor at (35.4%) among critical care nurses with most of the nurses relying on their nursing school knowledge and experience.

Age (≥40years), Masters level education qualification, high level of awareness on evidence-based practice and training in computer packages were significantly associated with utilization of research for evidence-based practice among nurses in critical care unit.

Common facilitators to evidence-based practice among nurses included access to internet, training on evidence-based practice and attending conferences. The barriers identified included lack of resources, resistance to change, negative attitude on research among nurses, lack of steady dissemination and huge workload which defined limited use of evidence-based practice.

To develop and integrate evidence-based guidelines in the critical care unit to motivate nurses on importance of evidence-based practice. Train nurses on searching for evidence-based research studies through ensuring regular strong internet connection Equip all nurses with specialty skills in computer for ease of searching the internet for evidence based published studies to improve their practice.

Incorporate evidence-based practice in nursing curriculum to help nurses understand the importance of integrating it in their patient care. Improve nurses' autonomy to impact practice guidelines as a measure to promote their participation in research and utilization of evidence in nursing practice.

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