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Pauline Muthoni and Faith Cherotich Mutai

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[1*]Pauline Muthoni
Dedan Kimathi University of Technology

Faith Cherotich Mutai
Dedan Kimathi University of Technology

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Abstract

Purpose: Evidence-based practice (EBP) is a crucial approach in healthcare that combines research evidence, clinical expertise, and patient preferences to guide decision-making. There is often a gap between knowledge of and implementation of EBP dependent on the nurses' ability to acquire and apply knowledge in managing patients and decision-making. This study aimed to assess the self-perceived EBP competency and identify associated factors among nurses at a County Referral Hospital in Kenya.

Methodology: A descriptive cross-sectional approach was used. A total of 75 nurses were recruited through stratified sampling. Semi-structured questionnaire was used to collect data on individual factors while validated tools were used to collect data on institutional factors and EBP competency. Data was presented in frequency tables and inferential statistics such as chi-square used to show associations. P value < 0.05 was considered significant.

Results: The study showed that 52% of nurses who participated in the study had a moderate level of self-perceived EBP competency and 32% showcased a high level of competency. There was a significant association between self-perceived EBP competency and education level (p=0.04), clinical experience (p<0.001), frequency of inter-professional collaboration (p=0.009), and availability of continuing professional development (p=0.003). This study showed that most nurses at the hospital had moderate levels of EBP competency. Self-perceived EBP is significantly associated with the level of education, clinical experience, inter-professional collaboration, and availability of continuing professional development.

Unique Contribution to Theory, Practice and Policy: This study applied the diffusion theory guided by Rogers' five elements. Using this theory in relation to EBP shows that the theory can be used to break down and understand nursing practice principles and factors surrounding their adoption by practitioners. This in turn can inform the restructuring of health care practices, policies formulation and intervention to enhance practice for quality care and improved health outcomes. The findings of this study can inform policy and practice development to facilitate EBP, and education for staff to equip nurses with the knowledge and tools needed to deliver high-quality, safe, and effective patient-centered care.

Keywords: *Evidence-Based Practice, Evidence-Based Practice Competency, Self-Perceived Competency, Nursing Practice*

JEL Codes: *I10, I19, M53*

INTRODUCTION

Evidence-based practice (EBP) is an approach that utilizes the best available research evidence and clinical expertise in healthcare personnel's decision-making (Chien, 2019). It is aimed at improving healthcare outcomes and quality as well as empowering healthcare professionals in their respective roles (Melnyk et al., 2015). EBP competency as a professional standard aids healthcare professionals, including nurses in the decision-making process (Lam & Schubert, 2019). Studies have demonstrated the importance of EBP in improving the quality of care provided, and reducing healthcare costs whilst enhancing the clinician's and patient's outcomes (Melnyk et al., 2015, 2018). EBP is also noted to help hospitals in achieving highly reliable organization status (Oster & Braaten, 2017). Therefore, EBP is considered an essential element to meeting the quadruple aim in healthcare (Gallagher-Ford et al., 2020) by reducing practical variability, enhancing quality of care, streamlining healthcare system, improving patients' outcomes and cutting costs (Gallagher-Ford et al., 2020; Tucker et al., 2021). In nursing, EBP is an important key indicator of high-quality patient care (Lehane et al., 2019), and as such acquisition of EBP competency is important for the provision of quality and safe nursing care (Orta et al., 2016).

In Kenya, nursing education programs have been working to incorporate EBP principles into their curricula. This includes teaching nurses how to appraise research evidence and apply it to clinical practice critically (Aynalem et al., 2021). However, research output by nurses as well as their involvement in the publication and dissemination of research findings in Kenya is low, limiting their ability to translate research into EBP (Nzengya et al., 2023). In addition, although there is progress towards EBP, challenges such as lack of research skills, limited access to up-to-date research materials and related resources, and the influence of organizational culture are a barrier to EBP (Kimani & Gatimu, 2023) particularly in rural areas. Further, workload and staffing issues in some healthcare settings may limit the time nurses can devote to EBP activities (Nzengya et al., 2023).

With increasing research and growing evidence to support practice, the integration of evidence into daily nursing practice is important in enhancing and improving the quality of care and patient outcomes (Saunders et al., 2019). However, EBP is not routinely applied in most healthcare contexts leading to high inconsistency in patient-centered care provided and poor health outcomes (Ritchie et al., 2018). This is partly because EBP is dependent on the nurses' ability to acquire and apply knowledge in managing individual patients and in decision-making (Fiset et al., 2017). In routine practice, nurses tend to rely on tradition rather than scientific evidence (Duncombe, 2018). Hence EBP competency is generally low across multiple contexts. For example, a study in the USA reported major shortcomings in EBP competency that negatively affected healthcare quality, safety, and patient outcomes (Melnyk et al., 2018). Another study in public hospitals in China reported low levels of EBP competency among the nurses (Fu et al., 2020), while a study in Finland reported a fifth of the nurses did not have EBP knowledge while 62% rated themselves at beginner level of EBP competency (Saunders & Vehviläinen-Julkunen, 2017). In Sub-Saharan Africa, EBP competency levels vary. In Ghana, one study reported moderate levels of EBP competency (Atakro et al., 2020) while another reported 52% of nurses demonstrated low competence (Bam et al., 2020). Similarly, a study in Nigeria found that only 68% of nurses exhibited low competency levels in EBP (Adejumo et al., 2021). However, a study in South Africa reported 55% of nurses demonstrated high

competency in EBP which was attributed to higher educational qualifications, previous EBP training, and supportive work environments(Wubante & Tegegne, 2022).

Various factors contribute to and influence the level of EBP competency including educational qualification, training on EBP, and the availability of resources. At an individual level, the level of education of nurses plays a major role in determining the level of EBP competency. Nurses with higher levels of education such as a master's or bachelor's degree demonstrate significantly higher levels of EBP competency compared to those with a diploma Age has also been identified as a determinant of EBP competency with older nurses exhibiting lower competency while younger nurses demonstrate higher competency (Adejumo et al., 2021; Connor et al., 2014). Other individual factors include gender (Dolezel et al., 2021; Labrague et al., 2019), clinical experience (Adejumo et al., 2021; Asiimwe et al., 2023; Rezayi et al., 2022), and job seniority. Institutional factors affecting EBP competency include the effectiveness of inter-professional collaboration between nurses and other healthcare professionals. Nurses must understand the roles of other healthcare professionals and have positive attitudes towards inter-professional collaboration to improve EBP competency and patient outcomes (Oikarainen et al., 2019). Additionally, ongoing targeted education and professional development to stay abreast with current research and development in EBP is an important determinant of EBP competency (Moyimane et al., 2017; Negussie & Oliksa, 2020). Institutional support and a culture for implementing EBP help to shape the attitudes and performance of nurses (Harper et al., 2017). Nurses working in a supportive organizational culture have significantly higher competency levels in EBP compared to those in non-supportive environments (Adejumo et al., 2021).

The need for EBP in the healthcare setting has increased significantly in low- and middle-income countries due to the high and costly burden of disease as it improves the quality of care provided while reducing hospital costs (Kaseka & Mbakaya, 2022). In some African countries, nurses have limited access to up-to-date research materials, journals, and databases necessary for practicing evidence-based nursing. This can be a barrier to developing EBP competencies and there may be limited research and data collection related to nursing and healthcare practices, making it challenging to establish evidence-based guidelines and protocols (Atakro et al., 2020). Despite some progress toward EBP, Kenyan nurses face challenges such as access to up-to-date research materials and resources, high workload and staffing that neatively impact the implementation of EBP. As a result, nurses are not well-equipped or prepared for EBP and the lack of adequate knowledge and low competencies abound (Skela-Savič et al., 2017).

Although the importance of EBP has been emphasized and some nurses may possess positive attitude toward EBP, most nurses are not confident in their ability to implement EBP in daily patient care (Oh & Yang, 2019; Patelarou et al., 2020). This threatens the quality and safety of healthcare and hinders the efforts to ensure positive outcomes for patients (Melnyk et al., 2018). Currently, only 25% of clinical decisions are evidence-based with clinical delivery care having a high association with the use of traditions, routines, and customs or opinions rather than being research evidence-based (Gallagher-Ford et al., 2020; Melnyk et al., 2018; Saunders & Vehviläinen-Julkunen, 2017). A few studies in Africa have investigated EBP competency and associated factors (Adejumo et al., 2021; Atakro et al., 2020; Bam et al., 2020; Degu et al., 2022; Wubante & Tegegne, 2022). However, in Kenya, few studies have been done on EBP in general and to the best of our knowledge no study has assessed nurses' self-perceived

competency for EBP. Therefore, this study seeks to assess the level of EBP competency and associated factors among nurses at a county referral hospital in central Kenya.

Statement of the Problem

The need for EBP in the healthcare setting has increased significantly in low- and middle-income countries due to the high and costly burden of disease as it improves the quality of care provided while reducing hospital costs (Kaseka & Mbakaya, 2022). In some African countries, nurses have limited access to up-to-date research materials, journals, and databases necessary for practicing evidence-based nursing. This can be a barrier to developing EBP competencies and there may be limited research and data collection related to nursing and healthcare practices, making it challenging to establish evidence-based guidelines and protocols (Atakro et al., 2020). In Kenya, nursing education programs have been working to incorporate EBP principles into their curricula. This includes teaching nurses how to critically appraise research evidence and apply it to clinical practice (Aynalem et al., 2021). Despite progress, challenges such as access to up-to-date research materials and resources can be a barrier, particularly in rural areas. Additionally, workload and staffing issues in some healthcare settings may limit the time nurses can devote to EBP activities.

As a result, nurses are not well-equipped or prepared for EBP and the lack of adequate knowledge and low competencies abound (Skela-Savič et al., 2017). Although the importance of EBP has been emphasized and some nurses may possess positive attitude toward EBP, most nurses are not confident in their ability to implement EBP in daily patient care (Oh & Yang, 2019; Patelarou et al., 2020). This threatens the quality and safety of healthcare and hinders the efforts to ensure positive outcomes for patients (Melnyk et al., 2018). Currently, only 25% of clinical decisions are evidence-based with clinical delivery care having a high association with the use of traditions, routines, and customs or opinions rather than being research evidence-based (Gallagher-Ford et al., 2020; Melnyk et al., 2018; Saunders & Vehviläinen-Julkunen, 2017). Therefore, this study seeks to assess the level of EBP competency and associated factors among nurses at a county referral hospital in central Kenya.

LITERATURE REVIEW

Theoretical Framework

Innovation Diffusion Theory

The Diffusion Innovation Theory by Rogers (1962) explains how an idea grows and spreads through a specific population leading to the people within that population adopting the idea. Diffusion is the "process by which an innovation is communicated through certain channels over some time among the members of a social system". An innovation is "an idea, practice, or object that is perceived to be new by an individual or other unit of adoption" (Rogers, 1983)). In this study, self-perceived EBP competency was viewed as an innovation with the theory application guided by Rogers' five elements which are: i) Innovation characteristic ii) The decision-making process of practice or new ideas adoption, iii) The characteristics of adopters, iv) Innovation consequences, and v) Communication channels are used in the adoption process.

In the context of this study, three of the five elements of diffusion theory were utilized.

i. Innovations consequences- EBP competency levels and willingness to apply EBP were the innovation consequences.

ii. Characteristics of the adopters: nurses' characteristics such as age, gender, experience, level of education and job position which are also independent variables. As well as colleagues and management support.

iii. Characteristics of the innovation: attitudes, skills, knowledge and Utilization of scientific evidence by nurses in the provision of nursing care.

Diffusion theory can be used as the basis for competency of EBP to restructure health care practices, policies formulation and intervention for quality care outcomes in the various departments within the hospital

Empirical Review

With increasing research and growing evidence to support practice, the integration of evidence into daily nursing practice is important in enhancing and improving the quality of care and patient outcomes (Saunders et al., 2019). However, EBP is not routinely applied in most healthcare contexts leading to high inconsistency in patient-centred care provided and poor health outcomes (Ritchie et al., 2018). This is partly because EBP is dependent on the nurses' ability to acquire and apply knowledge in managing individual patients and in decision-making (Fiset et al., 2017). In routine practice, nurses tend to rely on tradition rather than scientific evidence (Duncombe, 2018). Hence EBP competency is generally low across multiple contexts. For example, a study in the USA reported major shortcomings in EBP competency that negatively affected healthcare quality, safety, and patient outcomes (Melnyk et al., 2018). Another study in public hospitals in China reported low levels of EBP competency among the nurses (Fu et al., 2020), while a study in Finland reported a fifth of the nurses did not have EBP knowledge while 62% rated themselves at beginner level of EBP competency (Saunders & Vehviläinen-Julkunen, 2017). In Sub-Saharan Africa, EBP competency levels vary. In Ghana, one study reported moderate levels of EBP competency (Atakro et al., 2020) while another reported 52% of nurses demonstrated low competence (Bam et al., 2020). Similarly, a study in Nigeria found that only 68% of nurses exhibited low competency levels in EBP (Adejumo et al., 2021). However, a South African study reported that 55% of nurses demonstrated high competency in EBP, attributed to higher educational qualifications, previous EBP training, and supportive work environments(Wubante & Tegegne, 2022).

METHODOLOGY

A cross-sectional descriptive study design was employed in this study. The study was carried out at a public County Referral Hospital in central Kenya. The facility serves about 700 clients each day providing a wide range of services, including promotive, preventive, curative, and rehabilitative care. It is the primary referral hospital for Level II and Level III facilities across the County serving a catchment population of 667,248.

Measurement Tools

Individual factors -age, gender, education level, job position and clinical experience, were measured using a researcher-generated questionnaire. Institutional factors affecting EBP measured included inter-professional collaboration, organization culture and support, and continuing professional development. Organizational culture and support were measured using the Organizational Culture and Readiness for System-wide Integration of EBP Survey (OCRSIEP©) utilizing a 5-point Likert scale. The validity of OCRSIEP© is 0.96 and reliability is 0.97. The overall scores ranged between 5- 25 with scores of 15-25 categorized as a "greater

extent of Organization culture and support" for EBP (Melnyk et al., 2015). Inter-professional collaboration frequency was measured using the nurse-physician collaborative scale (NPCS) which was developed by (Ushiro, 2009) with a validity of 0.8 and the reliability is 0.7. A score of ≥14 out of 20 was considered "frequent inter-professional collaboration". Availability of Continuous professional development was measured using Questionnaire – Professional Development for Nurses (Q-PDN) utilizing a 5-point Likert scale. The validity of the questionnaire is 0.89 reliability is 0.7. The overall scores ranged between 5- 25 with scores of 15-25 categorized as "available continuous professional development" (Brekelmans et al., 2015).

EBP competency level was measured using version 3 of the 35-item Evidence-Based Practice Evaluation Competency Questionnaire for Professionals (EBP-COQ Prof©.) with a reliability of 0.81 and a validity is 0.86 (Ruzafa-Martínez et al., 2022). The overall points were between 35 and 175 points The EBP level measurability was low (35-126 Points/1-25 %) moderate, (127-141 points /26-75 %), and high (142-175 points/76-100%).

Sample

The study adapted Slovin's formula (1960) in determining sample size from a finite population size. The total number of nurses working at the County Referral Hospital at the time of study was 91 from which a sample size of 75 was derived. Stratified sampling was employed to ensure representation form all the departments within the hospital

RESULTS

Most of the respondents were females (73.3%,), aged less than 30 years of age (53.3%), and attained a diploma and certificate level of education (73.3%). In terms of clinical experience, 34.7% of respondents had been practicing for 4-6 years, and a majority (80%) were grade 1-3 nurses. See Table 1.

Table 1: Characteristics of Study Participants

Characteristics	Categories	Frequencies (n)	Percentages
Age in years	Less than 30	40	53.3%
	More than 30	35	46.7%
Gender	Male	20	26.7%
	Female	55	73.3%
Education level	Diploma	44	58.6%
	certificate	11	14.7%
	Degree and masters	20	26.7%
Clinical experience	<1 year	7	9.3%
	1-3 years	21	28%
	4-6 Years	26	34.7%
	>6 years	21	28%
Direct service provider	Nurse grade 1-3	60	80%
	Nurse grade 4-5	15	20%

Out of the 75 participants, 16% had a low level of EBP competency, 52% had moderate competency, and 32% had a high level of competency. With regards to institutional factors, 53.3% of respondents reported frequent inter-professional collaboration (score of ≥14), 52%

reported a lesser extent of organization culture and support for EBP, and 68% reported unavailability of activities for continuous professional development. See Table 2

Table 2: Institutional Factors for EBP Competency

Characteristics	Categories	Frequencies (n)	Percentages
Inter-professional collaboration frequency of the nurses.	Frequent collaboration Infrequent collaboration	40 35	53.3% 46.7%
Availability of Organization culture and support for EBP	Availability Unavailability	36 39	48% 52%
Availability of activities for Continuing professional development	Availability Availability	24 51	32% 68%

Association between Individual Factors and Self-Perceived EBP Competency

There was a significant association between self-perceived EBP competency and education level (p=0.04; CI = 95%) as well as clinical experience (p=<0.001; CI = 95%). No association was found between EBP competency and age (p=0.626), gender (p=0.0.138), or job position (p=0.122).

Association between Institutional Factors and Self-perceived EBP Competency

The frequency of inter-professional collaboration among the nurses and availability of continuing professional development activities were found to be significantly associated with self-perceived EBP competency, p=0.009 and p=0.003 respectively. However, there is no association between the availability of organizational culture and support for EBP (p =0.435).

Discussion

This study sought to assess the level of EBP competency and associated factors among nurses at a county referral hospital in central Kenya. The findings showed 52% of the nurses had a moderate level of self-EBP competency. The findings are similar to those of a study among Spanish and Latin-American nurses active in internet forums (Pérez-Campos et al., 2014). On the other hand, a study in Oman reported high EBP competency among a majority (79%) of nurses (Labrague et al., 2019). This could be attributed to the fact that the nurses in our study may not have had sufficient opportunities for training in EBP. Comprehensive training programs, workshops, or continuing education courses are essential for building the skills necessary for critically appraising and applying evidence to practice (Wubante & Tegegne, 2022). Another reason is that nurses often face time constraints in their demanding work schedules. Engaging in EBP requires dedicated time for literature review, critical appraisal, and application to patient care. If nurses are overloaded with other responsibilities, they may find it challenging to invest time in EBP activities (Koslo, 2020).

Education level was significantly associated with self-perceived EBP competency level. These findings are similar to a study done on and its associated factors among point-of-care nurses in Ethiopia (Degu et al., 2022) and another study in the USA (Melnyk et al., 2018). However, Fu Liang and colleagues reported no significant association between education level and self-perceived EBP competency level (Fu et al., 2020). This may be due to variations in educational

preparation and the depth of research training which equips nurses of higher education with equips them with the skills needed to critically appraise evidence and apply it to clinical practice (Mkonyi et al., 2021).

In our study, there was a significant association between clinical experience and self-perceived EBP competency level. This is consistent with findings of a study in Taiwan which showed that years of experience in clinical nursing was significantly associated with EBP competency level (Tomotaki et al., 2020). However, the findings are contradictory to those of a study a study by Fu Liang and colleagues which reported no significant association between clinical experience and self-perceived EBP competency (Fu et al., 2020). Clinical experience allows healthcare professionals to apply theoretical knowledge gained through education to patient care practices (Persellin & Daniels, 2023). The practical application of knowledge reinforces and deepens their understanding of evidence-based principles.

Inter-professional collaboration frequency was significantly associated with self-perceived EBP competency. These findings are similar to a study in Iran (Rezayi et al., 2022), Ethiopia (Alqahtani et al., 2020) and Oman (Labrague et al., 2019) that reported a strong significant relationship between inter- professional collaboration and self-perceived EBP competency level. Inter-professional collaboration facilitates the exchange of knowledge and expertise among healthcare professionals. Nurses involved in frequent collaboration with professionals from different disciplines are likely to be exposed to diverse perspectives and information relevant to EBP (Koslo, 2020).

Availability of activities for Continuing professional development was significantly associated with self-perceived EBP competency level which is consistent with a study in Taiwan are which showed that experience with conducting nursing research as a part of continuing education, was significantly associated with self-perceived EBP competency level (Tomotaki et al., 2020). These findings are also consistent with findings from a study in the USA which reported that participation in research as part of continuing professional development in a large academic medical center is directly related to self-perceived EBP competency level (White-Williams et al., 2013). This may be because Continuing professional development provides healthcare professionals with opportunities to update their knowledge and skills. EBP competency involves the ability to critically appraise evidence, integrate it into clinical decision-making, and stay up-to-date with the latest research. Continuing professional development activities, such as workshops and courses, help professionals gain the knowledge and skills necessary for EBP (Connor et al., 2014).

CONCLUSION AND RECOMMENDATIONS

This study showed that most nurses at the County referral hospital had moderate levels of self-perceived EBP competency. In addition, self-perceived EBP is significantly associated with the level of education, clinical experience, inter-professional collaboration, and availability of continuing professional development.

Implication for Policy and Practice

EBP is the key indicator of high-quality patient care. This study assessed the level of EBP competency and associated factors among nurses at a county referral hospital in Kenya. Assessment of self-perceived EBP competency among nurses will help in understanding the factors that are affecting their EBP competency during the provision of care. The findings of

this study can inform policy and practice development for to facilitate EBP, ensure Competency-based education for staff, mentors, and managers, and ensure that nursing professionals are provided with the knowledge and tools needed to deliver high-quality, safe, and effective patient-centered care. By understanding the factors associated with EBP competency, healthcare administrators and policymakers can create supportive environments, allocate resources effectively, and provide necessary training and education for nurses. This, in turn, will enhance the overall quality of nursing care and contribute to the advancement of healthcare practices in Kenya and beyond.

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