Arab American University
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The Relationship Between Evidence-Based Practice And Quality Improvement Among Nurses In Private Hospitals In Ramallah, Palestine: A Cross-Sectional Study

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This thesis was submitted in partial fulfilment of the requirements for the Master's degree in Management in Nursing

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Thesis Approval

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This thesis was defended successfully on 18/09/2025 and approved by:

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Declaration

I, the undersigned, declare that I submitted the thesis entitled:

The Relationship Between Evidence-Based Practice And Quality Improvement Among Nurses In Private Hospitals In Ramallah, Palestine: A Cross-Sectional Study

I declare that the work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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Dedication

This thesis is dedicated to Allah and His Messenger, Prophet Muhammad, who taught us the true meaning and purpose of life.

May my dear Palestine always be strong and free.

To my special parents, whose unconditional love, sacrifices, and unwavering support have influenced every success of mine, thank you for instilling in me persistence and integrity, as well as your continual prayers and encouragement during this road.

To my wife, I am genuinely thankful for your patience, love, and unfailing emotional support, which saw me through every stage.

This work is dedicated to my dear friends and everyone who has touched and supported me along the journey.

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Finally, please accept my heartfelt appreciation to everyone who provided their support, whether via words, acts, or prayers. Your warmth and encouragement have meant more than words can say.

Abstract

Background: Evidence-based practice (EBP) is a cornerstone of modern healthcare, emphasizing the integration of the best available evidence from scientific research with clinical expertise and patient preferences to inform decision-making and improve patient outcomes. In the context of nursing, EBP plays a crucial role in guiding clinical practice and ensuring the delivery of high-quality, evidence-based care.

Quality improvement (QI) initiatives are essential for enhancing healthcare delivery and patient outcomes. These efforts aim to systematically monitor, evaluate, and improve the processes and outcomes of care, with the overarching goal of delivering safe, effective, and patient-centered services.

Purpose***:*** This main aim of the study is to assess nurses' perception of knowledge, skills, and attitude in evidence-based practice and quality improvement, and investigate the relationship between EBP and QI among nurse in private hospitals, Ramallah, Palestine

Material and method***:*** Quantitative cross-sectional research design, convenience sampling method will conduct in private hospital. A convenience sample of nurses present during the data collection period was recruited. Data collected by self-administered questionnaire and will analyze by using SPSS version 22.

Result**:** Among 362 nurses, most were young (22–30 years), held bachelor's degrees, and worked mainly in surgical, emergency, and ICU departments. EBP and QI practices scored highest compared to knowledge and attitudes, with over 70% achieving strong practice levels. Male nurses, senior staff, those with higher education, and longer experience showed significantly better performance across both EBP and QI domains. Correlation and regression analyses confirmed strong positive associations, with QI knowledge emerging as the strongest predictor of EBP implementation (R^2=.619, p<.001).

Conclusion**:** our study demonstrated a significant positive relationship between Evidence-Based Practice (EBP) and Quality Improvement (QI) among nurses. Higher education, professional experience, and access to scientific resources were associated with stronger knowledge, attitudes, and practices. Regression analysis identified QI knowledge as the strongest predictor of EBP implementation, emphasizing the importance of theoretical and practical integration. Overall, the findings highlight the synergistic role of EBP and QI in enhancing clinical practice and patient outcomes, and call for structured educational programs and organizational support to strengthen their adoption.

Key words***:*** Evidence-Based Practice, Cross-sectional study, Hospitals, Nurses, Quality improvement, private hospital.

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List of Definitions of Abbreviation

Abbreviation	Full Form	Definition / Explanation
EBP	Evidence-Based Practice	A systematic problem-solving approach that integrates the best available research evidence, clinical expertise, and patient preferences to guide decision-making and improve healthcare outcomes.
QI	Quality Improvement	A systematic, data-driven process used in healthcare to evaluate and enhance the quality, efficiency, and safety of care delivery, often through continuous cycles such as Plan-Do-Study-Act (PDSA).
ICN	International Council of Nurses	A federation of national nurses' associations that promotes the development of nursing and supports evidence-based professional knowledge globally.
WHO	World Health Organization	A specialized agency of the United Nations responsible for international public health, setting global health standards, and supporting evidence-based healthcare policies.
IRB	Institutional Review Board	A committee that reviews and monitors research involving human participants to ensure ethical standards and participant safety.
ACE	Academic Center for Evidence-Based Practice	The center that developed the ACE Star Model of Knowledge Transformation, which illustrates how research is systematically translated into evidence-based practice.
PDSA	Plan-Do-Study-Act	A cyclic model used in Quality Improvement to plan a change, implement it, study the results, and act based on findings for continuous improvement.
LMICs	Low- and Middle-Income Countries	Countries classified by the World Bank based on gross national income (GNI) per capita, often characterized by limited healthcare resources and infrastructure.

Chapter one

Introduction

1.1 Background

Healthcare policy makers, healthcare professionals, researchers, and regulators increasingly acknowledge evidence-based practice (EBP) as the gold standard for delivering safe and understanding healthcare (Brown et al., 2009; Malik et al., 2015). EBP is known as an essential part for reaching excellence in patient care and raising the standards of health services (AbuRuz et al, 2017).

EBP is characterized as a process for making decisions about patient care combining the knowledge presented by the most recent available evidence, a practitioner's clinical judgment and experience, and the patient's personal values and preferences (Sackett et al,1996).In order to ensure that their clients receive consistent, high-quality care, registered nurse play an essential part (Adib-Hajbaghery et al., 2009).

The international Council of Nurses (ICN) has demonstrated a commitment to nurses being active in developing a core of research-based professional knowledge that supports evidence-based practice (EBP) (International Council of Nurses, 2012).

Earlier research shows that using research findings in clinical practice leads to better patient outcomes, higher patient satisfaction, shorter hospital stays, more efficient use of resources, fewer unnecessary treatments, and better cost-effectiveness (Melnyk et al., 2014; Kim et al., 2017; Hansen et al, 2009). For example, Hansen and Severinsson (2009) demonstrated that by promoting the use of the most effective interventions, Evidence-Based Practice (EBP) helped nurses stay updated with healthcare trends and improve patient care, benefiting patients, nurses, and hospitals. Additionally, it has been found that nurses involved in EBP improve their roles in multi-professional teams and develop a stronger sense of professionalism, which enhances their self-esteem as healthcare professionals (Newhouse, 2006).

Because of the high prevalence of diseases and illnesses, low- and middle-income countries now require a great deal more evidence when making healthcare decisions. Countries in the sub-Saharan region of Africa can increase their efforts to improve health outcomes if they take into account the local context when implementing measures to prevent death and disability and if the interventions and policies they choose are supported by substantial scientific evidence, claim Oxman, Lavis, Lewin, and Fretheim (Oxman et al., 2009).

This is in accordance with the World Health Organization's (WHO) recommendations that the best available research evidence should underpin nursing practice in particular and health and social services in general. Implementing an evidence-based oncology outpatient staffing system based on patients' acuity, according to Vortherms et al, (2015), enhanced staff productivity, decreased workload, and raised patient and staff satisfaction in just six months. In the same way, , evidence-based practice can be employed as a tool to enhance health care in a low-resource setting, as demonstrated by their enhanced health care worker hand hygiene project in Uganda (Muhumuza et al., 2015)

1.2 Problem statement

Private hospitals in many countries, including Palestine, may face challenges with staff training, hospital facilities, and support from leadership. These issues can make it harder to include EBP and QI in everyday nursing work. The problem is made worse by the difficulty of turning theoretical knowledge into practical actions, as nurses often find it hard to apply evidence-based guidelines in their daily tasks. Overcoming these challenges and better connecting EBP and QI could lead to better patient outcomes, greater safety, and improved overall care in healthcare settings.

The effective implementation of EBP and QI in modern healthcare settings is crucial for improving patient outcomes and optimizing care delivery. Nevertheless, a low and weak perception of one's own knowledge, skills, and attitudes regarding EBP and QI is a

common finding among nurses, and it can undermine the successful application of these practices and impede efforts to improve patient care (Melnyk & Fineout-Overholt, 2018).

Low confidence and perceived competence in EBP and QI among nurses are concerning as they may lead to suboptimal utilization of best practices and inefficient quality improvement processes. Factors contributing to these perceptions could include insufficient training, lack of resources, and barriers in applying theoretical knowledge to clinical settings (Melnyk et al, 2017). Understanding these gaps is crucial for developing strategies to enhance nursing practice.

1.3 Significance of the Study

For Practice: This study is crucial for improving nursing practice in private hospitals in Ramallah by examining the relationship between Evidence-Based Practice (EBP) and Quality Improvement (QI) initiatives. By identifying how EBP is applied in clinical settings and its impact on QI, this study can guide nursing practice to be more data-driven, improving clinical decision-making, reducing errors, and enhancing patient outcomes. Nurses' knowledge, skills, attitudes, and implementation of evidence-based practices can directly influence the quality of care delivered, which is essential for fostering a culture of safety and continuous improvement within healthcare institutions (Melnyk et al., 2018).

The findings of this study will help healthcare providers, particularly in private hospitals, to recognize the gaps in their current EBP and QI practices and address them. This could lead to the creation of new strategies, protocols, or frameworks for better integration of EBP and QI into daily nursing routines, ensuring that patient care is both effective and up to the highest standards.

For Research: This study adds to the growing body of research on EBP and QI in nursing, especially within the context of Palestinian healthcare. While research on EBP is widely available from Western contexts, there is a paucity of studies from the Middle East, particularly Palestine. By focusing on private hospitals in Ramallah, this research

provides critical insights into the barriers and facilitators that influence the implementation of EBP and its role in QI efforts. Additionally, the study will highlight how the unique healthcare challenges in Palestine, such as resource limitations and staff education, affect the uptake of evidence-based interventions and quality initiatives.

The findings could provide valuable data for future comparative studies and contribute to the development of tailored interventions for improving nursing practices in low-resource settings. Furthermore, it could spark further investigations into how EBP can be integrated into different healthcare environments across the Middle East and similar regions.

For Education: From an educational perspective, this study is valuable for nursing educators and institutions in Palestine and other regions. Understanding the current knowledge, skills, and attitudes toward evidence-based practice (EBP) among nurses helps identify gaps in nursing education and professional development. Nursing programs can then incorporate more focused education on EBP and quality improvement (QI) to ensure that future nurses are well-prepared to implement evidence-based interventions in their clinical practice.

Moreover, the study may highlight the need for continuous professional development and the importance of fostering an evidence-based culture within healthcare organizations. Nursing educators can use the findings to develop training programs that bridge the gap between theoretical knowledge and practical implementation, preparing nurses to play an active role in improving healthcare quality through evidence-based initiatives.

For Healthcare: On a broader scale, the study contributes to healthcare development by providing insights into how evidence-based nursing practices can support quality improvement initiatives in healthcare institutions. The study can serve as a foundation for hospital administrators and policymakers to design and implement

strategic plans that support the adoption of evidence-based practices in private healthcare settings.

Additionally, the study's findings could help in the development of healthcare policies that prioritize both EBP and QI, fostering a systemic shift towards data-driven, patient-centered care in private hospitals. The evidence gathered could influence healthcare reforms, promote the establishment of clinical guidelines based on the best available evidence, and ultimately enhance the overall quality of healthcare in the region.

1.4 Aim of the study:

The study was examined the relationship between Evidence-Based Practice (EBP) and Quality Improvement (QI) among nurses in private hospitals in Ramallah, Palestine.

1.5 Objectives of the study:

1. The study will assess the prevalence of knowledge, attitudes, and skills related to EBP and QI among nurses in private hospitals in Ramallah, Palestine.
2. This study will investigate whether there is an effect of educational background on the implementation of EBP and QI among among nurses in private hospitals in Ramallah, Palestine.
3. This study will investigate the effect of demographic variables on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine.
4. This study will investigate the relationship between EBP and QI among nurse in private hospitals, Ramallah.
5. Explore how can nurses' Quality Improvement (QI) knowledge, attitude, and skills predict their Evidence-Based Practice (EBP) implementation.

1.6 Research Questions

Evidence-Based Practice (EBP) and Quality Improvement (QI) are essential components of modern nursing, contributing to enhanced patient outcomes and healthcare efficiency. However, the extent to which nurses in private hospitals in Ramallah, Palestine, are knowledgeable, skilled, and positively inclined toward EBP and QI remains unclear. Additionally, demographic characteristics may influence their implementation, as these are a standard structural component in the Donabedian model. This study seeks to explore these aspects through the following research questions:

1. What is the prevalence of knowledge, attitudes, and skills related to EBP and QI among nurses in private hospitals in Ramallah, Palestine?
2. Does the educational background of nurses have an effect on the implementation of EBP and QI among in private hospitals in Ramallah, Palestine?
3. What is the effect of demographic variables (e.g., age, gender, years of experience) on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine?
4. What is the relationship between EBP and QI among nurses in private hospitals in Ramallah, Palestine?
5. To what extent can nurses' Quality Improvement (QI) knowledge, attitude, and skills predict their Evidence-Based Practice (EBP) implementation?

1.7 Hypotheses

Evidence-Based Practice (EBP) and Quality Improvement (QI) are critical to advancing nursing care, yet their adoption may vary based on nurses' knowledge, education, and demographic factors. To systematically examine these relationships, this study tests the following null hypotheses:

1. H_1: There is no significant prevalence of knowledge, attitudes, and skills related to EBP and QI among nurses in private hospitals in Ramallah, Palestine.
2. H_2: Educational background has no significant effect on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine.
3. H_3: Demographic variables (e.g., age, gender, years of experience) have no significant effect on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine.
4. H_4: There is no significant relationship between EBP and QI among nurses in private hospitals in Ramallah, Palestine.
5. H_5: QI knowledge, attitude, and skills do not significantly predict EBP implementation.

1.8 Concepts and Definitions

Conceptual definition:

Evidence-based practice is a systematic problem-solving approach that is evidence-driven and translates new knowledge into clinical, administrative, and educational practice. Institutional Review Board (IRB) approval is usually not required unless outcomes are intended for publication, or the project could potentially expose individuals to harm (Brunt et al, 2023).

Quality improvement (QI) is a process of approaching systemic problems in healthcare. The healthcare system comprises many people with different scopes of training and expertise functioning in social hierarchies that use many pieces of technology, such as the electronic medical record (Berman et al, 2016).

Operation definition:

Evidence-based practice: the process by which nurses or healthcare providers apply a standardized tool, such as the Johns Hopkins Nursing Evidence-Based Practice Model, to identify research evidence, critically appraise it, and integrate it into clinical decision-making processes to improve patient care outcomes (Dearholt et al, 2012).

Quality improvement (QI): in healthcare is the systematic process of evaluating and improving the quality of care delivered to patients. It is typically defined by the use of specific methods such as Plan-Do-Study-Act (PDSA) cycles to identify areas for improvement, implement changes, monitor outcomes, and make adjustments to processes based on data. In practice, QI might involve improving patient safety, reducing hospital re-admissions, or enhancing the efficiency of healthcare services (Batalden et al, 2007).

1.9. Conceptual Framework

The ACE Star Model of Knowledge Transformation, developed by Stevens at the Academic Center for Evidence-Based Practice (ACE), illustrates how research is systematically transformed into evidence-based practice. The acronym ACE stands for the Academic Center for Evidence-Based Practice (Stevens, 2004). The model uses a five-point star to represent the stages of knowledge transformation: discovery research, evidence summary, translation into guidelines, practice integration, and process/outcome evaluation. Through this framework, educators and practitioners can better understand how evidence moves from generation to practical application, ultimately improving patient outcomes and advancing nursing education (Stevens, 2013).

The conceptual framework of this study combines the ACE Star Model of Knowledge Transformation (Stevens, 2004) and Donabedian's Structure-Process-Outcome model (1988) to investigate the relationship between Quality Improvement (QI) and Evidence-Based Practice (EBP) in nursing practice in private hospitals in Ramallah, Palestine. The framework is based on earlier studies showing that evidence-based

procedures and systemic structures (e.g., hospital resources, nurse training) are necessary for efficient healthcare delivery (Melnyk et al., 2014; Sackett et al., 1996).

Based on Donabedian's model, the structural component highlights the ways in which hospital resources, nurse demographics (such as education and experience), and institutional support affect the adoption of EBP (Adib-Hajbaghery et al., 2009; AbuRuz et al., 2017). Higher educated nurses are more likely to use EBP, which improves QI efforts like PDSA cycles and patient safety procedures, according to research (Batalden et al., 2007; Melnyk & Fineout-Overholt, 2018). However, obstacles such as scarce resources, which are typical in LMICs, can make this process more difficult (Oxman et al., 2009; Muhumuza et al., 2015).

The process element demonstrates how research findings are applied in practice and is consistent with the ACE Star Model. Research demonstrates that nurses' capacity to participate in QI is directly impacted by their EBP knowledge, attitudes, and abilities (Kim et al., 2017; Hansen & Severinsson, 2009). For instance, Malik et al. (2015) emphasized the role of EBP in lowering unnecessary treatments, while Vortherms et al. (2015) discovered that evidence-based staffing models increased efficiency and satisfaction.

These components are linked to quantifiable enhancements in the quality of care, such as decreased errors, increased patient satisfaction, and cost-effectiveness, by the outcome component (Newhouse, 2006; ICN, 2012). The framework indicates a reciprocal relationship in which QI methodologies support EBP by integrating it into workflows, and EBP supplies the evidence base for QI (Berman et al., 2016).

The framework explains how systemic processes, nurse competencies, and structural supports work together to improve healthcare in Palestine's private hospitals by combining these theories and empirical data. It provides a roadmap for upcoming interventions and identifies gaps, such as the requirement for customized training to get around resource limitations (Melnyk et al., 2017).

Figure1: conceptual framework

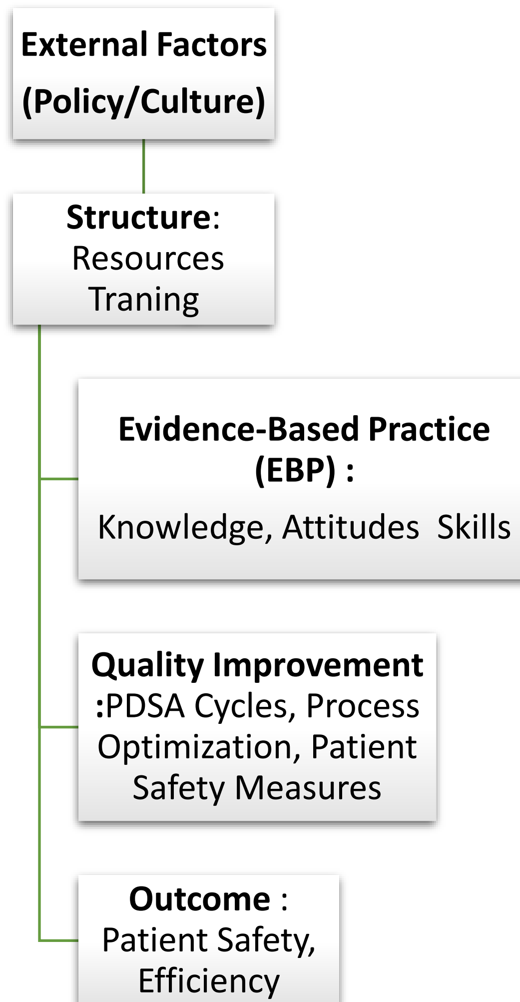


Figure 1: conceptual framework

Chapter Two

Literature Review

2.1 Introduction

In this literature review, published research articles on the topic The Relationship Between Evidence-Based Practice and Quality Improvement Among Nurses in Private Hospitals in Ramallah, Palestine: A Cross-Sectional Study have been reviewed. Searches were conducted in electronic databases such as Google Scholar, PubMed, and HINARI. Keywords including evidence-based practice, cross-sectional study, hospitals, nurses, quality improvement, and private hospitals were used to identify relevant literature.

2.2 Evidence Based Practice: definition, development, models and the shift from traditional to evidence-based decision-making

EBP is defined as a problem-solving approach to clinical decision-making that integrates the best available scientific evidence with clinical expertise and patient preferences (Melnyk & Fineout-Overholt, 2019). It represents a paradigm shift from traditional methods of care delivery, which were often based on routine practices, intuition, or authority-based decisions, to an approach grounded in empirical evidence and measurable outcomes (Sackett et al., 1996).

The development of EBP can be traced back to the early 1990s when it first emerged in the field of medicine, particularly at McMaster University in Canada, before gradually expanding into nursing and other healthcare disciplines (Sackett et al., 1996). As EBP gained prominence, several models were developed to facilitate its implementation across diverse healthcare settings. These models were designed to provide structured guidance for clinicians in adopting evidence into practice, ensuring a systematic and replicable process (Titler, 2008).

One such model that has been widely adopted in nursing is the Iowa Model of Evidence-Based Practice. Through a preliminary literature search conducted using databases such as PubMed and Google Scholar, the Iowa Model was identified as a

foundational framework. It emphasizes problem-focused and knowledge-focused triggers as the starting point for change, followed by critical steps including forming a team, reviewing and critiquing the literature, piloting the change in practice, and evaluating outcomes before full implementation (Iowa Model Collaborative, 2017). The model is particularly valuable in nursing environments because it encourages collaboration among clinical staff and promotes sustainable practice change based on real-world clinical questions (Buckwalter et al., 2017).

The application of such frameworks has played a central role in guiding the transition from traditional decision-making processes largely reliant on personal experience or institutional norms to a more rigorous and transparent method grounded in evidence (Melnyk & Fineout-Overholt, 2019). This evolution has enhanced the quality, safety, and consistency of care provided by nurses and has positioned EBP as a cornerstone of modern healthcare delivery. In addition to the Iowa Model, other frameworks and models also exist and will be explored further to provide a comparative understanding of how EBP is operationalized in clinical nursing practice.

2.3 Quality Improvement in Healthcare: Definitions, Models, and Applications in Nursing

Quality improvement (QI) in healthcare refers to the systematic, data-guided activities designed to bring about immediate improvements in health care delivery in particular settings. It involves the continuous study and adaptation of health care processes with the aim of achieving better patient outcomes, improving system performance, and enhancing professional development (Batalden & Davidoff, 2007). The overarching goals of QI are to improve the safety, effectiveness, efficiency, equity, timeliness, and patient-centeredness of care, as outlined by the Institute of Medicine (IOM, 2001).

Unlike traditional research, which seeks to generate generalizable knowledge, QI focuses on local system improvements using iterative cycles of testing and learning. It requires a team-based approach, active engagement of frontline healthcare workers (especially nurses), and a culture that supports change and accountability (Berwick, 1989).

The quality movement in healthcare was heavily influenced by post-World War II industrial practices. Pioneers such as W. Edwards Deming and Joseph Juran introduced principles of quality control and statistical process management that transformed manufacturing and later informed health system reforms (Deming, 1986). In the 1960s, Avedis Donabedian introduced a framework for assessing quality in healthcare services, setting the foundation for clinical quality evaluation.

In the late 20th century, growing concerns about medical errors, inefficiencies, and patient harm led to a stronger focus on QI. The landmark report To Err is Human (IOM, 1999) revealed that as many as 98,000 Americans died annually due to preventable medical errors. This catalyzed widespread efforts to implement evidence-based quality and safety programs across healthcare organizations. Today, QI is embedded in clinical governance, accreditation standards, and nursing practice worldwide.

Numerous models and methodologies have been developed to guide the implementation of quality improvement (QI) in healthcare settings. Each provides a structured framework for identifying problems, testing solutions, and evaluating outcomes. These models are essential in nursing practice, where systematic approaches to improving patient care and safety are critical.

One of the foundational frameworks in healthcare quality is the Donabedian Model, developed by Avedis Donabedian in 1988. This model conceptualizes quality of care through three interrelated domains: structure, process, and outcomes. Structure refers to the attributes of the settings where care occurs, including facilities, equipment, and human resources. Process involves the interactions between healthcare providers and patients, including diagnosis, treatment, and patient education. Outcomes refer to the effects of healthcare on the health status of patients and populations. The Donabedian Model remains widely used in evaluating and improving healthcare services by linking system inputs and clinical processes to patient outcomes (Donabedian, 1988).

Another widely applied model is the Plan–Do–Study–Act (PDSA) cycle, which originates from the work of W. Edwards Deming. The PDSA model is an iterative, four-step approach that allows healthcare teams to plan a change, implement it on a small

scale, study the results, and act on what is learned. It encourages rapid-cycle testing and continuous refinement of interventions. In nursing, the PDSA model has proven effective for improving practices such as medication safety, infection control, and patient education (Taylor et al., 2014).

The Six Sigma methodology offers a data-driven approach to minimizing variability and errors in healthcare processes. Originally developed in the manufacturing industry, Six Sigma has been adapted for healthcare to improve service quality and efficiency. It follows a five-phase process known as DMAIC: Define, Measure, Analyze, Improve, and Control. Six Sigma relies heavily on statistical tools to identify root causes of problems and guide decision-making. In clinical settings, this methodology has been used to reduce hospital-acquired infections, improve patient flow, and enhance care standardization (Gonçalves et al., 2019).

Complementary to Six Sigma is the Lean philosophy, which focuses on reducing waste and optimizing value from the patient's perspective. Derived from the Toyota Production System, Lean emphasizes key principles such as respect for people, continuous improvement (Kaizen), and value stream mapping. In healthcare, Lean tools help streamline workflows, eliminate inefficiencies, and improve patient satisfaction. Lean has been particularly effective in nursing units for reducing wait times, improving discharge processes, and standardizing supply management (D'Andreamatteo et al., 2015).

Lastly, Continuous Quality Improvement (CQI) represents a broader philosophy that emphasizes the ongoing improvement of processes through systematic data collection, stakeholder involvement, and incremental change. Unlike one-time interventions, CQI promotes a culture of learning and accountability. It supports healthcare teams, including nurses, in consistently monitoring outcomes, engaging in reflective practice, and sustaining long-term change. CQI serves as the foundation for many accreditation standards and institutional quality programs in hospitals and community health settings (Sollecito & Johnson, 2013).

Case Studies from Nursing Practice Demonstrating QI Success

Numerous studies have demonstrated the successful application of QI initiatives in the nursing profession. Below are a few examples:

A. Hand Hygiene Compliance Improvement

In a pediatric hospital in Hong Kong, a QI initiative led by nurses used the PDSA model and real-time observation to improve hand hygiene. Through education, visual cues, and performance feedback, compliance rates increased from 62% to over 90% within nine months (Cheng et al., 2011).

B. Pressure Ulcer Prevention

A medical-surgical unit implemented evidence-based protocols including regular skin assessments, repositioning schedules, and staff training. The initiative, driven by nursing staff and based on Lean and CQI principles, resulted in a 60% reduction in pressure ulcers (Padula et al., 2017).

C. Catheter-Associated Urinary Tract Infections (CAUTIs)

A nurse-led initiative applied Six Sigma principles to reduce CAUTIs in a hospital setting. Standardized catheter care, staff training, and daily necessity checks were introduced. This resulted in a significant drop in CAUTI rates over 12 months (Meddings et al., 2014).

D. Sepsis Protocols in Emergency Nursing

Emergency nurses used early warning systems and standardized screening tools to identify sepsis patients rapidly. By applying CQI and PDSA cycles, they improved time-to-treatment and reduced sepsis-related mortality by 25% (Moore et al., 2009).

2.4 The Relationship Between Evidence-Based Practice and Quality Improvement

Evidence-Based Practice (EBP) and Quality Improvement (QI) are closely intertwined concepts that collectively drive improvements in healthcare delivery. EBP involves the conscientious integration of the best current research evidence with clinical expertise and patient preferences to guide healthcare decisions (Melnyk & Fineout-Overholt, 2019). QI, on the other hand, focuses on systematic, continuous efforts to enhance healthcare processes and outcomes through iterative testing and refinement (Batalden & Davidoff, 2007). The integration of EBP within QI initiatives represents a synergistic approach that leverages research evidence to inform improvement strategies, thereby bridging the gap between knowledge generation and practical application.

In many healthcare organizations, evidence-based guidelines and protocols serve as foundational elements within QI projects. By incorporating validated research findings into improvement efforts, healthcare teams ensure that changes are scientifically justified and more likely to yield positive patient outcomes (Titler, 2008). For example, an EBP-informed QI initiative targeting infection control might implement best practices identified in systematic reviews, monitor adherence through continuous audits, and iteratively refine processes using QI methodologies such as Plan–Do–Study–Act cycles (Taylor et al., 2014). This integration facilitates a more structured and effective pathway from evidence generation to practice change.

The benefits of integrating EBP and QI are multifaceted. Combining these approaches enhances patient safety by promoting interventions grounded in robust evidence while simultaneously fostering an environment of ongoing performance evaluation and adaptation (Melnyk et al., 2014). The integration improves the effectiveness of care delivery by ensuring that clinical decisions are consistently aligned with the most current knowledge, reducing practice variability and unwarranted clinical errors. Efficiency is also increased, as QI methodologies help streamline processes and eliminate wasteful practices that do not add value to patient care (Solomons & Spross, 2011).

Several studies have demonstrated the positive impact of EBP-QI integration on clinical outcomes. For instance, Melnyk et al. (2014) conducted a large multisite study showing that hospitals with high implementation of evidence-based protocols combined with structured QI initiatives reported lower rates of hospital-acquired infections, reduced length of stay, and improved patient satisfaction. Similarly, Titler et al. (2009) highlighted that integrating evidence-based interventions into continuous quality improvement processes significantly enhanced adherence to pressure ulcer prevention guidelines, thereby reducing incidence rates.

Moreover, the integration of EBP and QI is essential for fostering a culture of safety and accountability. When nurses and healthcare professionals engage in both critically appraising evidence and applying QI principles, they develop competencies in translating knowledge into measurable improvements (Balas & Boren, 2000). This alignment supports organizational goals and meets accreditation requirements focused on quality and safety standards.

2.5 Previous studies

International studies

According to Bashar (2019) conducted a study among 265 nurses in a Kuala Lumpur teaching hospital. The results showed that despite having positive attitude and perception of good knowledge/skill regarding EBP; nurses did not incorporate evidence into practice. Application of EBP in clinical setting increases the quality of patient care, clients' outcome and nurses' job satisfaction and retention. In this regard, nursing managers and authorities have an important role in providing supports, facilities and persuading environment to focus nurses on evidence-based practice (Bashar, 2019).

The study found that while nurses had a positive attitude and perceived themselves as having good knowledge and skills regarding evidence-based practice (EBP), they did not effectively incorporate evidence into their clinical practice. This highlights the critical role of nursing managers and authorities in providing the necessary support, facilities, and a conducive environment to encourage the application of EBP,

which can improve patient care quality, outcomes, and nurse job satisfaction. However, the study's reliance on self-reported data may introduce bias, and the single-center design in Kuala Lumpur limits the generalizability of the findings.

Another, a Kaseka and Mbakaya (2022) study aimed to assess how EBP was perceived and used by the RNMs practicing in central hospitals among 183 nurses in Malawai, the study showed The study found that nurse-midwives demonstrated positive attitudes toward evidence-based practice (EBP), with varying levels of knowledge and use. Higher educational qualifications were linked to better knowledge, while research experience was associated with greater use of EBP and higher overall EBP scores. Clinical experience and the hospital setting influenced nurse-midwives' attitudes toward EBP. However, factors such as gender and administrative roles did not significantly affect EBP scores. These findings highlight the importance of advanced education and research experience in promoting EBP among nurse-midwives, as well as the need for supportive clinical environments to enhance EBP implementation. (Kaseka & Mbakaya, 2022)

The study found that nurse-midwives had positive attitudes toward evidence-based practice (EBP), but their knowledge and use of EBP varied. Higher educational qualifications and research experience were linked to better EBP knowledge, use, and overall scores. Clinical experience and hospital settings also influenced attitudes toward EBP. These findings emphasize the importance of advanced education, research training, and supportive clinical environments to enhance EBP implementation among nurse-midwives. However, the cross-sectional design and reliance on self-reported data limit the ability to establish causality or confirm actual practice behaviors.

Another, a Luo et al. (2024) study aimed to assess the impact of Evidence-based medicine (EBM) training on healthcare workers knowledge, attitude, and practice (KAP) related to EBM among 64 healthcare workers in China, the study showed slight improvements in practice scores after training, with specific areas remaining lower. Attitudes toward EBM significantly improved after training, with notable increases in positive perceptions of EBM's value and relevance. Knowledge of EBM also increased post-training, some areas continued to show lower scores, indicating persistent gaps in

understanding. The findings indicate that while EBM training positively influences attitudes and knowledge, targeted efforts are needed to address weaker areas and ensure comprehensive EBM integration into practice (Luo et al., 2024).

The study demonstrated that EBM training improved healthcare workers' attitudes and knowledge, with significant increases in positive perceptions of EBM's value and relevance. However, improvements in practice were limited, and some areas of knowledge and practice remained weak, highlighting the need for targeted training to address persistent gaps and ensure effective EBM integration. Nevertheless, the small sample size, short-term evaluation, and single-region focus in China limit the generalizability of the findings.

Another, a Rahman et al. (2024) study aimed to assess the knowledge, attitude, and practice (KAP) regarding evidence based practice EBP among undergraduate nursing students and to explore the relationship between demographic variables and students' attitudes and practices toward EBP among 111 nurse students in Pakistan, the study analysis revealed that 70.2% of students exhibited a moderate level of EBP, with 48.4% demonstrating a highly positive attitude towards EBP. While no significant association was found between demographic variables and practice scores, the religious group variable was significantly associated with attitude scores ($p = 0.006$). Gender, though not significant, approached the significance threshold ($p = 0.078$) (Rahman et al., 2024).

The study found that a majority of undergraduate nursing students demonstrated a moderate level of evidence-based practice (EBP) knowledge, with nearly half showing a highly positive attitude toward EBP. While demographic variables like gender and religious background showed some association with attitudes, they did not significantly influence EBP practice. This highlights the need for targeted educational interventions to strengthen EBP knowledge and practice among nursing students, regardless of demographic differences. However, the use of self-reported data may overestimate true knowledge levels, and the findings are limited to a single group of students in Pakistan.

According to a Brown et al. (2008) study aimed to describe nurses' practices, knowledge, and attitudes related to evidence-based nursing, and the relation of perceived

barriers to and facilitators of evidence-based practice among 458 nurses in California, the result show Organizational barriers (lack of time and lack of nursing autonomy) was the top perceived barriers. Facilitators were learning opportunities, culture building, and availability and simplicity of resources. Statistically significant correlations was found between barriers and practice, knowledge and attitudes related to evidence-based practice (Brown et al., 2008).

The study identified organizational barriers, such as lack of time and nursing autonomy, as the primary obstacles to evidence-based practice (EBP) among nurses. Facilitators included learning opportunities, a supportive culture, and accessible resources. Significant correlations were found between perceived barriers and nurses' practices, knowledge, and attitudes toward EBP, emphasizing the importance of addressing organizational challenges and providing resources to promote EBP implementation. However, as with other studies, reliance on self-reported data may introduce bias, and the findings are context-specific to one U.S. state.

Regional studies

According to Hashish and Alsayed (2020), a study aimed to assess the attitudes, knowledge, and skills of nurses in Evidence-Based Practice (EBP) and Quality Improvement (QI) and their relationship among 300 nurses in Egypt. The study found that nurses displayed positive attitudes toward both EBP and QI. However, they perceived themselves as lacking sufficient knowledge in EBP and needing to improve their QI skills. A strong positive correlation was found between EBP and QI, with QI demonstrating predictive power over EBP ($r = 0.485$, $R^2 = 0.273$, $p < 0.001$). The study concluded that nurses require educational support to enhance their attitudes, knowledge, and skills related to EBP and QI. To prepare for such educational programs, hospitals and nursing administrators should consider nurses' characteristics, work schedules, and obstacles in implementing EBP. Hospital managers should also implement effective strategies to address barriers and strengthen facilitators to promote the use of EBP and QI among nurses (Hashish & Alsayed, 2020).

The study found that nurses in Egypt displayed positive attitudes toward both evidence-based practice (EBP) and quality improvement (QI), but perceived themselves as lacking sufficient EBP knowledge and needing to improve QI skills. A strong positive correlation was found between EBP and QI, indicateing that enhancing QI skills can significantly improve engagement in EBP. Hospitals and nursing administrators were recommended to consider nurses' characteristics, work schedules, and potential obstacles when implementing educational programs. However, the reliance on self-reported data may introduce bias, and the findings are limited to nurses in Egypt, restricting broader generalizability.

Another, Mohamed et al. (2024) study aimed to explore nurses' experiences and perspectives about evidence-based practice (EBP) implementation in the healthcare context among 64 nurses in Saudi Arabia. The study identified two main themes: (1) experiences with EBP and (2) perspectives toward EBP. Experiences included familiarity with EBP concepts, steps, dissemination sources, and knowledge sources. Perspectives covered EBP application in practice, barriers, facilitators, and application methods. Nurses reported working in a non-supportive environment due to a lack of organizational commitment, which hindered EBP implementation. They faced challenges such as insufficient knowledge and skills in formulating research questions, retrieving evidence, and applying EBP in clinical decision-making. Barriers included individual, organizational, and patient-related factors (Mohamed et al., 2024).

The study explored nurses' experiences and perspectives regarding EBP implementation in Saudi Arabia, identifying familiarity with EBP concepts, steps, and sources as well as challenges in applying EBP in practice. Nurses reported insufficient organizational support, limited knowledge and skills in formulating research questions, and barriers at individual, organizational, and patient levels. The findings highlight the importance of professional development, continuous training, and organizational support to facilitate EBP. However, the qualitative design and reliance on self-reported experiences limit the generalizability and objectivity of the results.

According to Omar et al. (2024) study aimed to assess undergraduate nursing students' knowledge about QI, and experience of patient safety situation; and examine the relationship between obtaining information on healthcare quality and knowledge about QI among 147 undergraduate nurse in Jordan. The study found a mean score of 57.7 indicated moderate QI knowledge. The private university students' scores were much higher than those of the public university students. In terms of patient safety, 74.8% of students reported seeing medical mistakes in clinical settings. Only 57.1% of the students, however, told a faculty member about a medical error. Additionally, the results demonstrated a significant positive correlation ($p \leq .001$) between the level of QI knowledge and the information obtained about QI, healthcare quality, and patient safety from sources other than university undergraduate nursing programs. This study raises the potential of a QI education gap. In order to prepare future nurses for healthcare quality improvement, it might be necessary to incorporate QI concepts into nursing curricula (Omar et al., 2024).

The study assessed undergraduate nursing students' knowledge of QI and experiences with patient safety in Jordan, finding moderate QI knowledge (mean score = 57.7). Private university students scored higher than public university students, and 74.8% reported witnessing medical errors, though only 57.1% disclosed these to faculty. A significant positive correlation was found between QI knowledge and information obtained outside formal nursing programs, indicateing a gap in the curriculum. However, the study is limited by its focus on a single country and reliance on self-reported data, which may not accurately reflect actual knowledge or behaviors.

Another, Saleh (2023) study aimed to evaluate knowledge about evidenced based practice among 120 nurse in Jordan. The study showed that the level of EBP awareness among graduated nurses was low, and it appeared that they knew little about the fundamentals of critical appraisal, 75 (75%) nurses were female and average age of 26±2 years. The average score of knowledge regarding evidenced based practice was low at 1.2±1 out of 10. Knowledge of nurses regarding evidenced based practice was low. An evaluation is needed, in order to improve knowledge and skills of nurses. The study revealed that EBP is not well understood by undergraduate nurses. An evaluation of EBP-

related content in nursing school curricula is necessary to establish and test the effectiveness of implementing an EBP in boosting knowledge and competencies. The theoretical and clinical courses must also be taught using the EBP approach (Saleh, 2023).

The study evaluated EBP knowledge among 120 nurses in Jordan and found low awareness, with an average score of 1.2 ± 1 out of 10. Findings revealed limited understanding of EBP fundamentals and underscored the need to revise nursing curricula to include EBP content in both theoretical and clinical training. The study highlights the urgent need for educational interventions to improve nurses' competencies. However, reliance on self-reported measures may overestimate actual knowledge and skills, and the results are specific to Jordanian nurses, limiting generalizability.

2.6 Summary

This chapter examines the relationship between evidence-based practice (EBP) and quality improvement (QI) among nurses in private hospitals in Ramallah, Palestine, by reviewing relevant literature sourced from databases such as Google Scholar, PubMed, and HINARI using keywords including evidence-based practice, quality improvement, cross-sectional studies, and nursing. The review highlights that EBP, defined as the integration of the best available research evidence with clinical expertise and patient preferences (Melnyk & Fineout-Overholt, 2019), represents a shift from traditional, experience-based decision-making to a more systematic, evidence-driven approach. The development of EBP traces back to the 1990s, with models like the Iowa Model providing structured frameworks for implementation in nursing practice (Titler, 2008). Meanwhile, QI focuses on continuous, data-driven enhancements in healthcare delivery through methodologies such as the Donabedian model, PDSA cycles, Six Sigma, and Lean (Batalden & Davidoff, 2007), with studies demonstrating that nurse-led QI initiatives significantly improve patient outcomes, including reductions in hospital-acquired infections and pressure ulcers (Padula et al., 2017). The interplay between EBP and QI is critical, as EBP supplies the evidence base for QI interventions, while QI ensures their practical application and sustainability in clinical settings (Melnyk et al., 2014). However, barriers such as time constraints, insufficient training, and lack of organizational support hinder effective implementation, whereas facilitators like education, accessible resources,

and leadership commitment enhance adoption (Brown et al., 2008; Hashish & Alsayed, 2020). International and regional studies further reveal gaps in nurses' knowledge and application of EBP and QI, underscoring the need for enhanced education, supportive workplace cultures, and curriculum reforms to bridge these gaps (Bashar, 2019; Omar et al., 2024). Ultimately, fostering a strong EBP-QI connection in nursing requires structured training programs, policy support, and systemic changes to ensure high-quality, evidence-based patient care.

Chapter Three

Methodology

3.1 Study design

The study was conducted used descriptive cross-sectional design. It is suitable for the study aims, as it can investigate for multiple independent variables, and it is time and cost-efficient. Moreover, it helps in investigating the correlation between independent and dependent variables to test the hypotheses.

3.2 Sample Population and Sampling

The study population included all full-time nurses working in private hospitals in Ramallah who had at least six months of professional experience. A non-probability convenience sampling technique was used due to the practical difficulty of reaching all eligible nurses for questionnaire administration. While the sample size was calculated using the standard formula for cross-sectional studies, the use of convenience sampling represents a significant methodological limitation. This approach introduces a high risk of selection bias and severely limits the generalizability of the findings to the broader population of nurses.

Given data:

n = required sample size

Z = Z-score (1.96 for 95% confidence level)

p = 62% (from previous study held by Upton 2017).

E = margin of error (e.g., 0.05 for ±5%)

Sample size formula:

$$n = \frac{Z^2 \times \text{p} \times (1 - \text{p})}{E^2}$$

Calculation:

$$n = \frac{1.96^2 \times 0.62 \times (1 - 0.62)}{0.05^2}$$

$$n = \frac{(3.8416) \times 0.235}{0.0025} \approx 362$$

3.3 Data Collection Tool and Process:

Data collection tool contain 3 components:

- **Demographic characteristic**: which include nurse gender, age, department, education level, years of experience, previous information with EBP and source of this information.
- **EBP Questionnaire (EBPQ):** The twenty-four items of the EBPQ are divided into three subscales: attitudes (four items), use/skills (six items), and knowledge (14 items). A seven-point Likert scale, with 1 denoting "strongly disagree" and 7 denoting "strongly agreed," used to calculate the responses. A higher score indicates more proficiency with EBP as well as an improved perspective on it.
- **Quality Improvement Questionnaire (QIQ):** The seventeen items in the QIQ relate to three subscales: attitude (five items), skills (nine items), and knowledge (three items). The Likert scale, with 1 denoting minimum or strongly disagree and 5 meaning excellent or strongly agree, used to grade the responses. A higher score reflects a higher QI subscale level.

Process: Official approval from the administrators of the chosen hospitals obtained in order to gather the necessary data. The researcher was personally delivering

the self-administer questionnaires in paper format with specific instructions for nurses after getting their approval.

3.4 Inclusion and Exclusion Criteria

Inclusion Criteria: Full-time nurses who are employed in the targeted private hospitals in Ramallah and have at least six months of professional experience were included in the study.

Exclusion Criteria: Nurses who were on leave during the study period or had less than six months of professional experience were excluded from the study.

3.5 Site and setting

This study was conducted in private Ramallah hospitals as:

- Istishari Arab Hospital
- H-clinic
- Yaffa Surgical Hospital

3.6 Study Variables

Independent Variable

The independent variable includes demographic characteristics of nurses: gender, age, department, education level, years of experience, prior exposure to evidence-based practice (EBP), and the source of EBP-related information.

Dependent Variables

The dependent variables are:

- EBP Knowledge
- EBP Attitudes
- EBP practices

- Quality improvement (QI) practices among nurses

3.7 Validity and Reliability

The EBPQ was developed by (Upton & Upton, 2006) and adapted to assess the perceptions of EBP among nurses. (Hwang & Park, 2015) developed the QIQ questionnaire to assess the perception of QI by nurses. For reliability, Cronbach's Alpha using Statistical Package for Social Sciences (SPSS) was calculated for reliability.

3.8 Pilot Study

A convenience sub-sample representing 10% of the total sample size was selected for pilot testing. These participants were asked to complete the questionnaire and provide feedback on its clarity, consistency, and ease of completion. Their responses were excluded from the final study sample. Feedback was incorporated to refine the questionnaire, making it more straightforward and user-friendly. In addition, the instrument was reviewed by thesis supervisors and subject matter experts to assess content validity, ensuring that all items were clear, relevant, and aligned with the study objectives. The internal consistency of the questionnaire was also assessed using Cronbach's alpha, which demonstrated excellent reliability for the demographic data, the EBP and QI domains showed (α = .941), indicating excellent reliability across the instrument.

3.9 Statistical Analysis

Data analysis was done with IBM SPSS version 22. Using Cronbach's alpha coefficients, the internal consistencies of the EBPQ and QI scales was ascertained. By using descriptive statistics of means, standard deviations, and frequencies, the normality of the data was ascertained. The general characteristics of nurses, EBP, and QI levels was summarized using standard deviations (SDs), frequencies, and percentages. The mean scores for each subscale of QI and EBP. Mann-Whitney U and Kruskal-Wallis tests used to examine differences in EBPQ and QI scores with participant personal and professional characteristics. Spearman correlation test used to evaluate the association between EBP and QI. The independent variable's (QI) predictive power over the dependent variable

(EBP) was tested used regression analysis (R2). F-test was used to test the R2 change. The statistical significance point was set at $p \leq 0.05$.

3.10 Ethical Consideration

First, the approval for this study to start was gained from the Institutional Review Board (IRB) in the Faculty of Medicine and Health Sciences at Arab American University. After the approval, the questionnaire was distributed on staff with the inclusion of an informed consent that explains the purpose of the study, inclusion and exclusion criteria, as well as ensuring confidentiality and anonymity of data, and they were collected from staff for research purpose only, and that participation is totally voluntary. Also, it was explained that participants can withdraw from the study at any time without the need to explain the reason, and can access results of the study when completed.

Chapter Four

Result

5.1 Introduction

This chapter presents the key findings from a study examining Evidence-Based Practice (EBP) and Quality Improvement (QI) competencies among 362 nurses, with results structured into four main analytical components: demographic characteristics of participants (age, gender, department, education, and experience), competency levels across knowledge, attitudes and practice domains (categorized as low, moderate or high), statistical comparisons using non-parametric tests (Mann-Whitney U and Kruskal-Wallis) to identify significant differences across demographic groups, and relationship analyses including Spearman correlations between EBP and QI domains along with regression models evaluating how QI factors predict EBP implementation, with all analyses conducted at $p<0.05$ significance level to provide comprehensive insights into nurses' evidence-based practice capabilities and areas for improvement.

5.2 Data reliability and distribution

Data reliability

The study's measurement instruments demonstrated strong reliability, with demographic data showing excellent internal consistency ($\alpha=0.941$) and both EBP and QI domains exhibiting robust reliability, confirming the tools effectively captured the intended constructs and supporting the validity of subsequent analyses examining EBP-QI competency relationships across nurse demographics and practice settings.

Table 1:The result of data reliability test

Variable	Cronbach's Alpha
Demographic data	.941
EBP Domains	
QI Domain	

Normality Distribution

The Kolmogorov-Smirnov test indicated that all variables significantly deviated from a normal distribution ($p < .001$ for all), justifying the use of non-parametric tests for all subsequent analyses.

Table 2 The result normality distribution test

Variable	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
EBPKSCORE	.391	362	.000
EBPASCORE	.308	362	.000
EBPPSCORE	.451	362	.000
QIKSCORE	.351	362	.000
QIASCORE	.311	362	.000
QISSCORE	.450	362	.000

5.3 Demographic characteristics

362 people participated in the study, with a nearly equal gender distribution (46.4% female, 53.6% male). The majority of respondents (53.9%) were between the ages of 22 and 30, with those between the ages of 30 and 40 coming in second (35.6%). While participants came from a variety of clinical departments, the largest percentages came from intensive care units (16.9%), emergency departments (19.3%), and surgical departments (26.2%).

39.0% of them had five to ten years of clinical experience, and the majority (56.6%) had a bachelor's degree in nursing. Staff nurses made up more than half (56.9%), and senior positions accounted for 35.9%. There were differences in the prior exposure to evidence-based practice (EBP): 33.4% reported limited familiarity, 32.0% reported

moderate familiarity, and 34.5% reported extensive familiarity. The two main sources of EBP knowledge were workshops/seminars (29.0%) and research articles/journals (30.7%) (Table 3).

Table 3 The distribution of participants' demographic characteristics (n = 362)

Variable	Value	Frequency (n)	Percent (%)
Gender	**Male**	194	53.6%
	Female	168	46.4%
Age	**< 22 years**	12	3.3%
	22 - < 30 years	195	53.9%
	30 - < 40 years	129	35.6%
	40 – < 50 years	26	7.2%
	≥ 50 years		
Department	**Medical**	41	11.3%
	Surgical	95	26.2%
	Emergency	70	19.3%
	Operation	49	13.5%
	Oncology	18	5.0%
	Endoscopy	5	1.4%
	Intensive care unit	61	16.9%
	Cardiac care unit	23	6.4%
Education	**Diploma degree of Nursing**	29	8.0%
	Bachelor's degree of Nursing	205	56.6%
	Master degree of Nursing	128	35.4%
Years of experience	**<5 years**	114	31.5%
	5 – <10 years	141	39.0%
	10 - <15 years	66	18.2%
	15 - <20 years	31	8.6%
	≥ 20 years	10	2.8%
Job Position	**Staff**	206	56.9%
	Senior	130	35.9%
	Head Nurse of Department	16	4.4%
	Supervisor	7	1.9%
	Chief nurse	3	.8%
Previous Information with Evidence-Based Practice (EBP):	**Limited experience (e.g., heard about it, attended a basic workshop)**	121	33.4%

	Moderate experience (e.g., implemented in some areas)	116	32.0%
	Extensive experience (e.g., actively used EBP in work settings)	125	34.5%
Source of Information about Evidence-Based Practice (EBP)	**Education/training**	83	22.9%
	Online resources (websites, webinars, etc.)	63	17.4%
	Research articles/journals	111	30.7%
	Workshops or seminars	105	29.0%

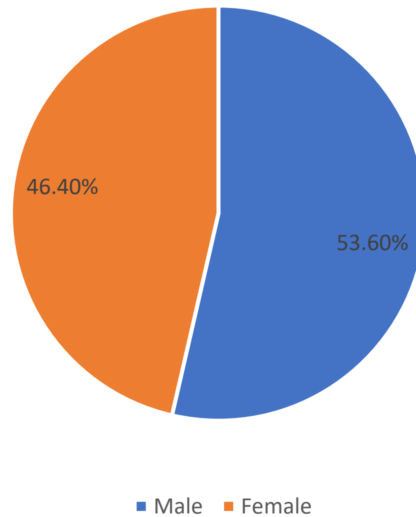


Figure 2 The Percent of Gender

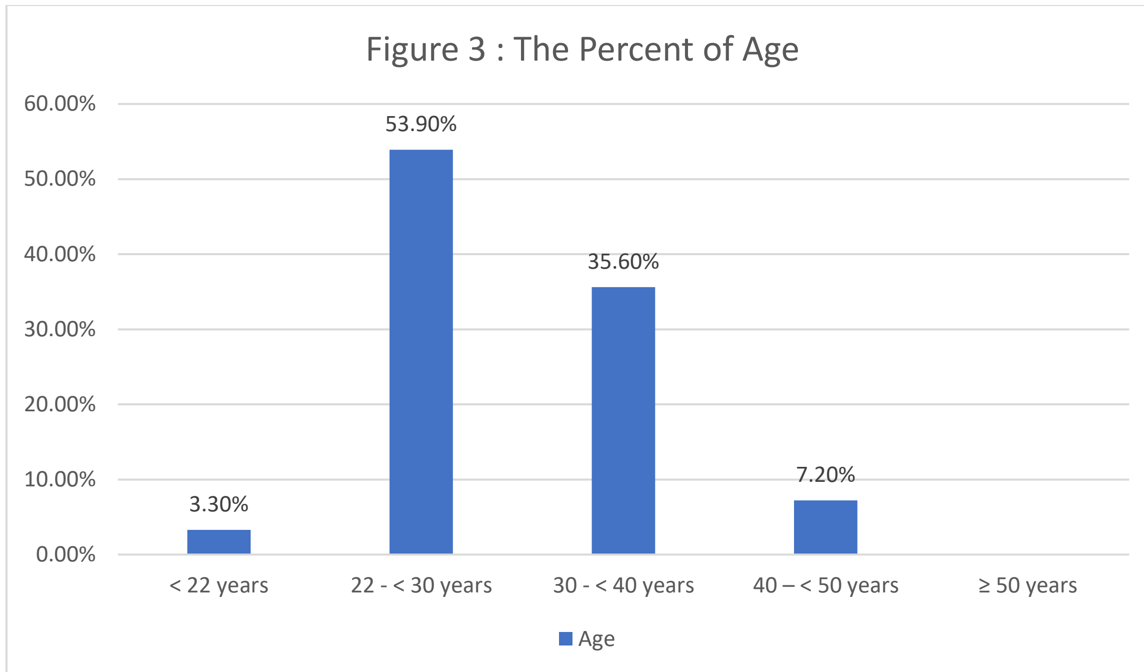


Figure 3 The Percent of Age

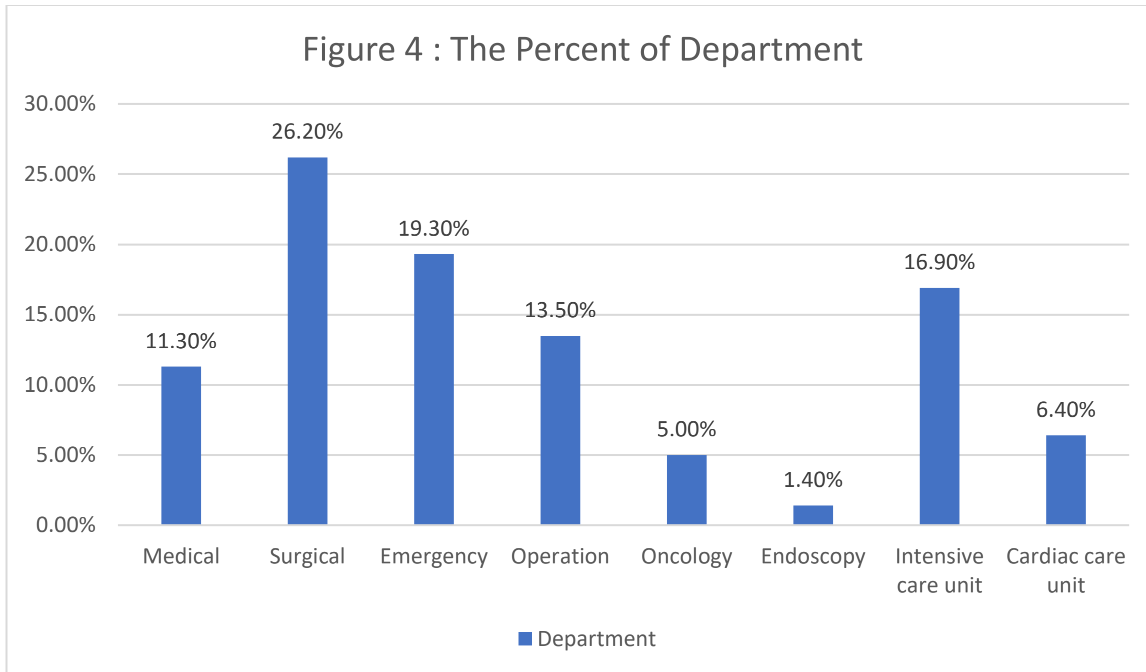


Figure 4 The Percent of Department

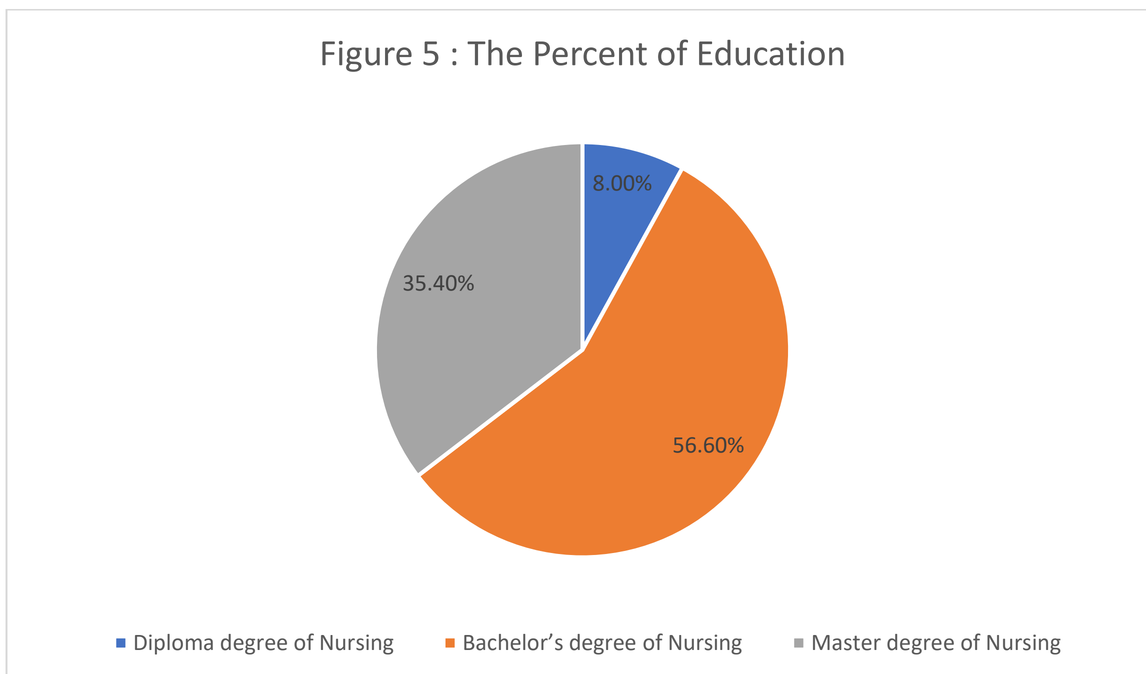


Figure 5 The Percent of Education

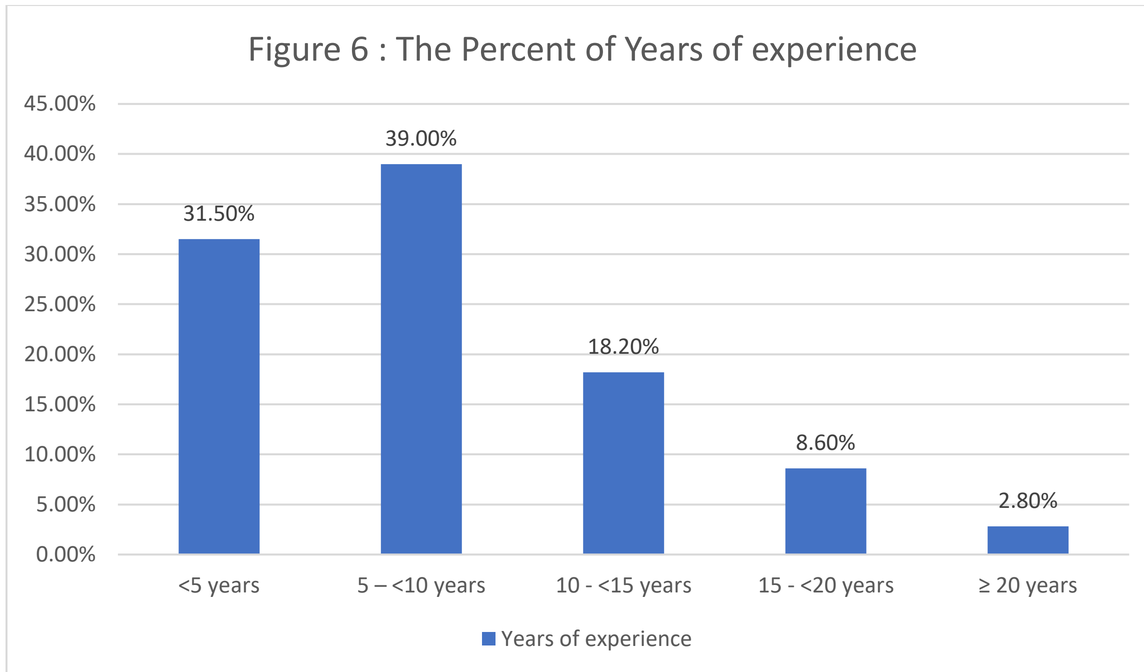


Figure 6 The Percent of Years of experience

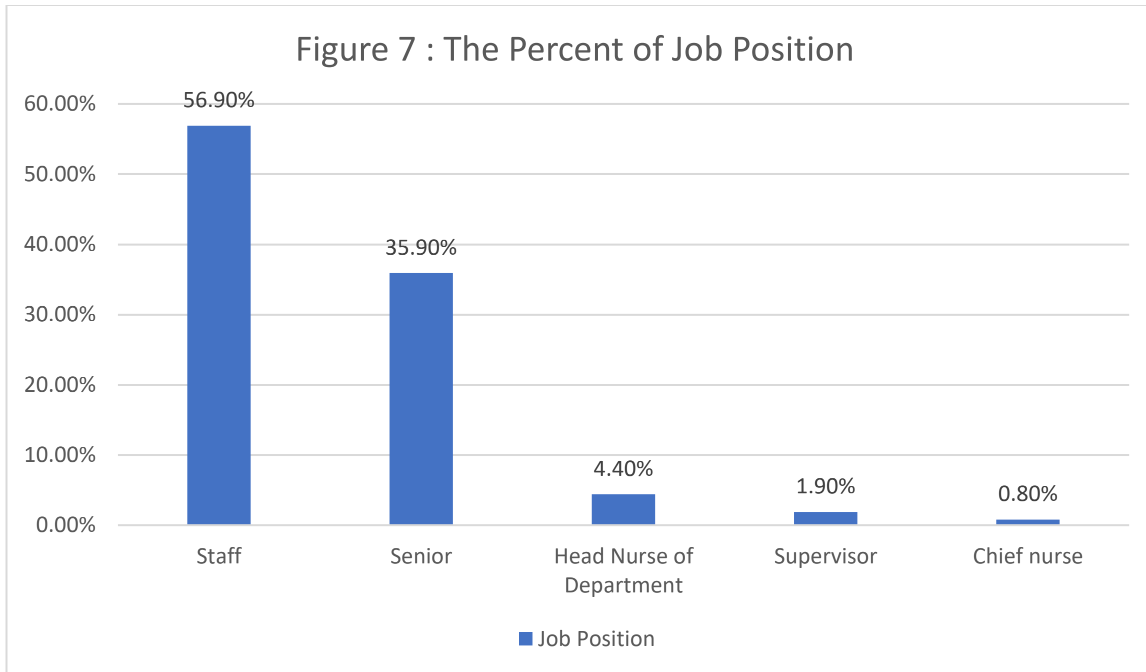


Figure 7 The Percent of Job Position

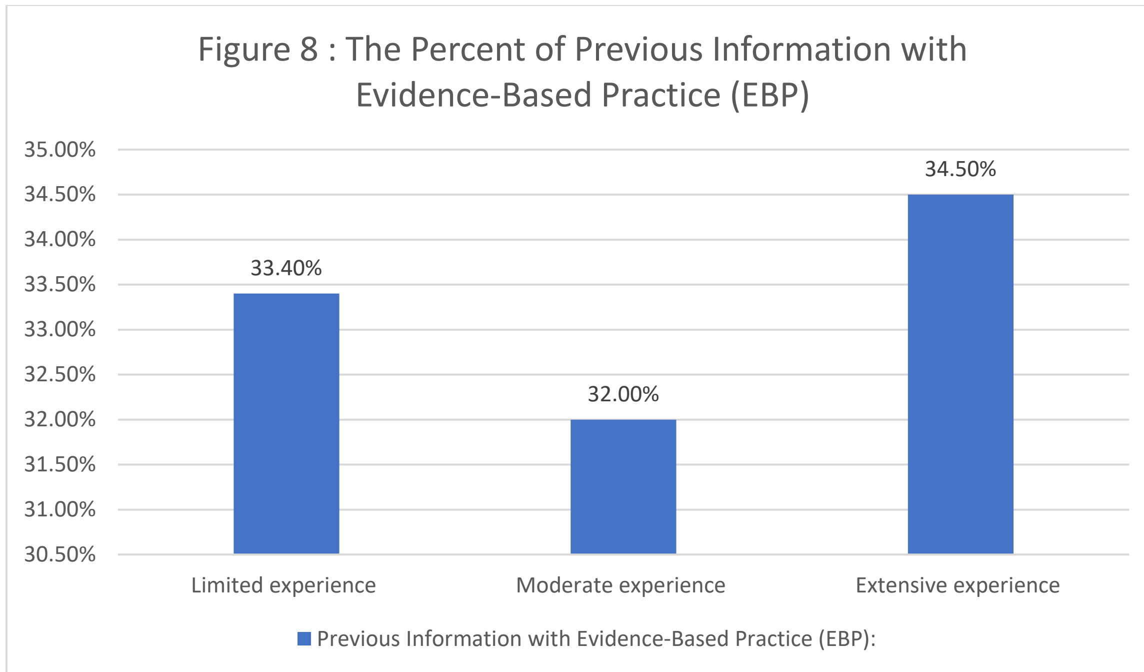


Figure 8 The Percent of Previous Information with Evidence-Based Practice (EBP)

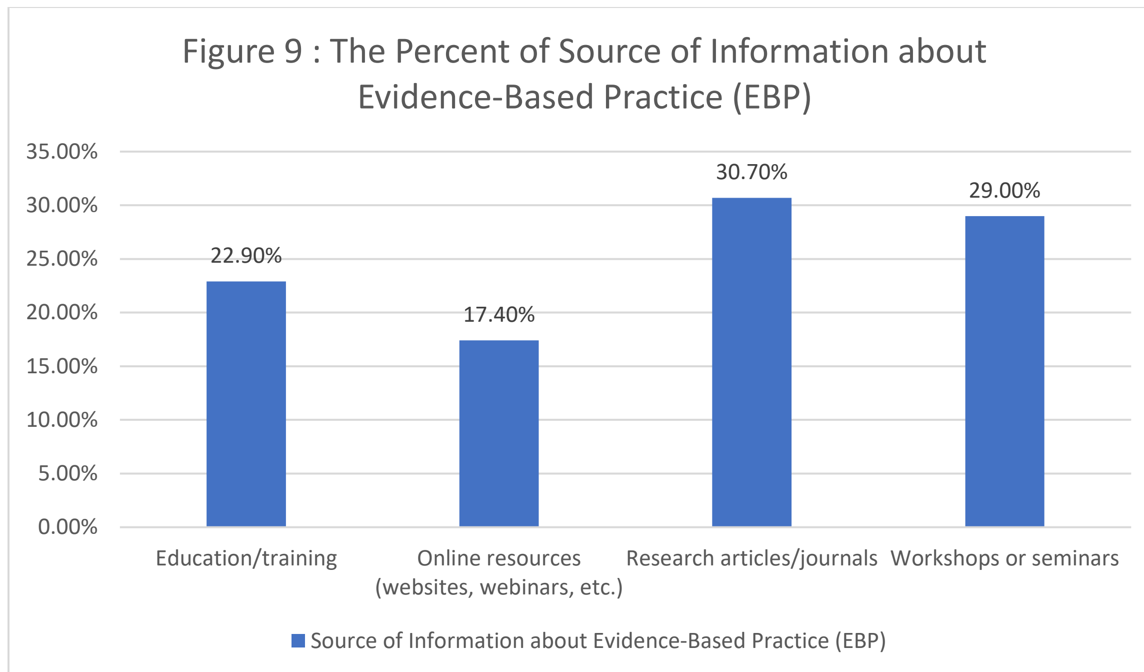


Figure 9 The Percent of Source of Information about Evidence-Based Practice (EBP)

4.4 Participants' knowledge, attitudes and practices of EBP

Participants' knowledge of EBP

The majority of nurses acknowledged the value of systematic reviews over individual studies (Statement 7: 48.6% agree/strongly agree, mean=3.43±0.81) and the significance of critically evaluating research for clinical decision-making (Statement 1: 48.4% agree/strongly agree, mean=3.63±0.99). However, there was some misunderstanding regarding EBP's exclusive reliance on meta-analyses (Statement 5: 39% agreed, despite this being inaccurate) and significant ambiguity regarding its role in

healthcare policy development (Statement 3: 50.3% agreed it's more suited for patient care decisions).

Regarding the elements of practical EBP, the strongest agreement was found. According to the majority of nurses, research summaries make it easier to implement EBP (Statement 12: 81.8% agreement, mean=3.83±0.68), and PICO-formatted questions improve evidence searches (Statement 8: 66.8% agree/strongly agree, mean=3.84±1.15). Remarkably, 49.7% strongly agreed that patient preferences should take precedence over clinical guidelines (Statement 4, mean=3.82±1.31); however, this could be due to either overestimation of the role of patient preferences in EBP or patient-centered values.

There were notable knowledge gaps in a number of areas. There may be gaps in research appraisal training, as nearly half of respondents (40.3%) disagreed that EBP improves comprehension of research methodology (Statement 9). Additionally, 45.3% expressed no opinion regarding whether EBP lessens the critical evaluation of research (Statement 10), indicateing a lack of clarity regarding the analytical nature of EBP.

Practical difficulties were also evident, as 63.8% of respondents acknowledged that understanding statistics was a barrier to applying EBP (Statement 14, mean=3.71±1.04). EBP's clinical value in uncertain situations (Statement 11: 52.2% agree/strongly agree) and cost-effectiveness (Statement 15: 60.5% agreement) were acknowledged by the majority despite this (Table 4).

Table 4 The distributions of EBP knowledge domain statements from all respondents (n = 362)

STATEMENT	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Mean**	**Std.dev**
1. EBP involves critically appraising research findings to make clinical decisions.	-	42 (11.6%)	145 (40.1%)	81 (22.4%)	94 (26.0%)	3.63	0.994

2. EBP emphasizes the use of the best available research, but clinical experience is not always considered.	-	46 (12.7%)	78 (21.5%)	230 (63.5%)	8 (2.2%)	3.55	0.740
3. EBP is most appropriate for making decisions about patient care, rather than for developing healthcare policies.	-	37 (10.2%)	88 (24.3%)	182 (50.3%)	55 (15.2%)	3.70	0.848
4. Patient preferences should be prioritized over clinical guidelines when making decisions about care.	-	103 (28.5%)	38 (10.5%)	41 (11.3%)	180 (49.7%)	3.82	1.309
5. EBP improves clinical practice by only using evidence from meta-analyses.	-	99 (27.3%)	121 (33.4%)	141 (39.0%)	1 (0.3%)	3.12	0.813
6. EBP does not contribute to promoting self-directed learning among healthcare providers.	-	101 (27.9%)	125 (34.5%)	135 (37.3%)	1 (0.3%)	3.10	0.809
7. Systematic reviews are generally more reliable than individual studies, like case-control studies, in EBP.	-	48 (13.3%)	138 (38.1%)	150 (41.4%)	26 (7.2%)	3.43	0.809
8. A well-structured clinical question, using the PICO format (Patient, Intervention, Comparison, Outcome), improves the search for evidence.	-	75 (20.7%)	45 (12.4%)	104 (28.7%)	138 (38.1%)	3.84	1.146
9. EBP enhances a nurse's understanding of research methodology and its application to practice.	-	146 (40.3%)	48 (13.3%)	154 (42.5%)	14 (3.9%)	3.10	0.988
10. Nurses who practice EBP become less critical of research data and findings.	23 (6.4%)	38 (10.5%)	164 (45.3%)	126 (34.8%)	11 (3.0%)	3.18	0.894
11. EBP is beneficial in situations where there is uncertainty in clinical practice or patient care.	-	87 (24.0%)	86 (23.8%)	57 (15.7%)	132 (36.5%)	3.65	1.201
12. Improving access to summaries of research evidence encourages more EBP in clinical settings.	-	26 (7.2%)	40 (11.0%)	265 (73.2%)	31 (8.6%)	3.83	0.675
13. The Cochrane Library provides a wide range of	-	40 (11.0%)	76 (21.0%)	153 (42.3%)	93 (25.7%)	3.83	0.939

systematic reviews applicable to nursing practice.							
14. Difficulty in understanding research statistics is a major challenge when applying EBP.	-	65 (18.0%)	66 (18.2%)	140 (38.7%)	91 (25.1%)	3.71	1.035
15. Applying EBP in nursing is cost-effective for the healthcare system.	-	80 (22.1%)	63 (17.4%)	137 (37.8%)	82 (22.7%)	3.61	1.066

Participants' Attitude f EBP

A strong consensus emerged that EBP can challenge good clinical practice (70.2% agree/strongly agree, mean=3.87). This indicates nurses recognize EBP's potential to disrupt traditional practices, possibly viewing it as both an opportunity and threat to established workflows. Only 34.5% agreed EBP improves outcomes, with nearly half (47.8%) neutral. This surprising ambivalence may reflect limited direct experience with EBP's benefits or difficulties translating evidence into measurable outcome improvements. Most respondents (71.5%) expressed interest in learning more (mean=3.69), indicating strong intrinsic motivation.

This presents a valuable opportunity for educational interventions, though the 17.1% disagreement indicates some resistance. While 42.8% felt ready to adopt EBP, the high neutral proportion (39%) reveals significant hesitation. This implementation gap between interest and action may relate to perceived barriers like time constraints or institutional support. 60.3% valued research in daily care (mean=3.68), though 21.8% were neutral. This moderate endorsement indicates room for strengthening research-practice connections. The majority (60.8%) agreed EBP has limited value, highlighting a concerning perception that nursing care may not require rigorous evidence. This fundamental skepticism presents a major cultural barrier. 60.3% valued clinical experience over EBP, reflecting the strong tradition of practice-based knowledge in nursing.

This tension between experiential and evidence-based knowledge needs reconciliation. 51.4% believed EBP increases care effectiveness, but 30.9% were neutral. The modest agreement, coupled with high neutrals, indicates many nurses remain unconvinced of EBP's practical impact. Polarized responses emerged, with 36.5% confident but 32.6% not confident (mean=3.39). This split indicates significant variability in EBP self-efficacy across the nursing population. 50.8% believed understanding disease mechanisms alone suffices, potentially undervaluing EBP's role in complementing pathophysiological knowledge. Only 38.4% considered database access essential, with 40.6% neutral. This ambivalence about research infrastructure may reflect limited experience with evidence retrieval. 38.1% felt reading review conclusions suffices, indicateing potential over-simplification of evidence synthesis. This could lead to uncritical adoption of recommendations.

Strong agreement (70.8%) that EBP improves care quality contrasts with weaker beliefs about outcome improvement (Statement 2), revealing nuanced perceptions of EBP's value. 76.2% found EBP burdensome (mean=4.12), with nearly half (47.2%) strongly agreeing.

This overwhelming perception of burden represents the most significant implementation barrier. 53.8% endorsed continuous learning, though 35.9% were neutral. The moderate agreement indicates variable commitment to ongoing professional development. 56.1% wanted educational materials, but 30.7% disagreed, indicating substantial unmet learning needs alongside some resistance. Only 37% supported mandatory training, with 49.2% neutral. The lack of strong endorsement for formal education indicates preferences for alternative learning methods (Table 5).

Table 5 The distributions of EBP Attitude domain statements from all respondents (n = 362)

STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.dev
1. I believe that EBP can challenge good clinical practice.	-	62 (17.1%)	46 (12.7%)	132 (36.5%)	122 (33.7%)	3.87	1.065
2. I believe that practicing EBP can improve patient health outcomes.	24 (6.6%)	40 (11.0%)	173 (47.8%)	110 (30.4%)	15 (4.1%)	3.14	0.909
3. I am eager to learn more about EBP if given the opportunity.	-	62 (17.1%)	41 (11.3%)	205 (56.6%)	54 (14.9%)	3.69	0.925
4. I am ready to incorporate EBP into my daily nursing practice.	-	66 (18.2%)	141 (39.0%)	55 (15.2%)	100 (27.6%)	3.52	1.082
5. I feel that research findings are important in the daily management of patient care.	-	65 (18.0%)	79 (21.8%)	124 (34.3%)	94 (26.0%)	3.68	1.048
6. I feel that EBP has limited value in nursing because patient care requires less scientific evidence.	-	103 (28.5%)	8 (2.2%)	220 (60.8%)	31 (8.6%)	3.49	0.997
7. I believe that years of clinical experience are more valuable than EBP in nursing practice.	-	68 (18.8%)	76 (21.0%)	162 (44.8%)	56 (15.5%)	3.57	0.966
8. I am convinced that using EBP in clinical practice increases the effectiveness of nursing care.	24 (6.6%)	40 (11.0%)	112 (30.9%)	178 (49.2%)	8 (2.2%)	3.29	0.934
9. I feel confident in managing patient care using EBP.	24 (6.6%)	118 (32.6%)	46 (12.7%)	42 (11.6%)	132 (36.5%)	3.39	1.422
10. I believe that understanding disease mechanisms is sufficient for good nursing practice, without necessarily using EBP.	-	48 (13.3%)	130 (35.9%)	138 (38.1%)	46 (12.7%)	3.50	0.878
11. I believe that access to databases and journals is essential for practicing EBP in nursing.	-	76 (21.0%)	147 (40.6%)	89 (24.6%)	50 (13.8%)	3.31	0.956
12. I feel that simply reading the conclusions of systematic	-	86 (23.8%)	138 (38.1%)	97 (26.8%)	41 (11.3%)	3.26	0.946

reviews is enough for clinical practice in nursing.							
13. I think practicing EBP would make nurses more effective in delivering quality care.	-	1 (0.3%)	105 (29.0%)	115 (31.8%)	141 (39.0%)	4.09	0.827
14. I often feel burdened when required to incorporate EBP in my clinical practice.	1 (0.3%)	38 (10.5%)	47 (13.0%)	105 (29.0%)	171 (47.2%)	4.12	1.017
15. I believe it is essential for nurses to constantly update their knowledge in order to provide efficient patient care.	-	37 (10.2%)	130 (35.9%)	125 (34.5%)	70 (19.3%)	3.63	0.909
16. I would be interested in receiving educational materials on EBP in nursing.	-	111 (30.7%)	48 (13.3%)	164 (45.3%)	39 (10.8%)	3.36	1.031
17. I believe that formal training on EBP in nursing education is essential for improving care delivery.	-	50 (13.8%)	178 (49.2%)	77 (21.3%)	57 (15.7%)	3.39	0.912

Participants' Practice of EBP

The data reveals that evidence-based practice (EBP) has been widely adopted among nurses, with 68.8% reporting regular use in clinical practice. Nearly half (49.2%) implement EBP often, while 19.6% do so consistently. This high adoption rate is supported by frequent use of multiple evidence sources, with 68.2% regularly consulting databases and journals. However, a notable 17.1% seldom apply EBP, indicating persistent variability in implementation across the nursing workforce.

Significant systemic barriers hinder full EBP integration. An overwhelming 81.2% of nurses cite frequent time constraints as their primary challenge, while 54.2% report clinical setting limitations that often prevent EBP use. These obstacles coexist with otherwise strong engagement, creating a complex implementation landscape where motivation meets practical constraints.

Nurses demonstrate particular strengths in several EBP competencies. Most (73.3%) effectively use EBP to address clinical questions, and an impressive 78.5% regularly participate in EBP continuing education. Knowledge sharing is well-established, with 69.6% frequently discussing EBP with colleagues and 55.2% actively promoting it among peers. These patterns indicate a robust, self-sustaining culture of evidence-based care has taken root.

However, certain advanced EBP skills require further development. Only 51.1% regularly contribute to guideline development, and 55.5% report only sometimes formulating researchable clinical questions - a fundamental EBP competency. While nurses generally use diverse evidence sources, 43.6% predominantly limit themselves to published journals, potentially overlooking other valid evidence forms. These findings highlight opportunities for targeted educational interventions to strengthen specific EBP skills (Table 6).

Table 6 The distributions of EBP practice domain statements from all respondents (n = 362)

STATEMENT	Never	Seldom	Sometimes	Often	Always	Mean	Std.dev
1. I regularly apply EBP in my clinical nursing practice.	-	62 (17.1%)	51 (14.1%)	178 (49.2%)	71 (19.6%)	3.71	0.971
2. I use multiple resources (e.g., databases, journals) to find evidence for clinical practice.	-	41 (11.3%)	74 (20.4%)	159 (43.9%)	88 (24.3%)	3.81	0.931
3. I only search for evidence-based materials from published research journals.	-	63 (17.4%)	97 (26.8%)	158 (43.6%)	44 (12.2%)	3.51	0.918
4. I do not have enough time to study and incorporate EBP in my nursing practice.	-	-	68 (18.8%)	223 (61.6%)	71 (19.6%)	4.01	0.620
5. I am unable to practice EBP due to limitations in patient care options available in my clinical setting.	-	127 (35.1%)	39 (10.8%)	162 (44.8%)	34 (9.4%)	3.28	1.047
6. I use EBP to answer specific clinical questions in my nursing practice.	-	36 (9.9%)	125 (34.5%)	64 (17.7%)	137 (37.8%)	3.83	1.047

7. I attend continuing education programs or workshops on EBP to stay updated.	-	41 (11.3%)	37 (10.2%)	190 (52.5%)	94 (26.0%)	3.93	0.901
8. I promote the use of EBP among my nursing colleagues.	-	62 (17.1%)	100 (27.6%)	126 (34.8%)	74 (20.4%)	3.59	0.998
9. I share knowledge on EBP with colleagues to improve patient care.	1 (0.3%)	102 (28.2%)	7 (1.9%)	173 (47.8%)	79 (21.8%)	3.63	1.120
10. I am involved in the development or review of clinical guidelines based on EBP.	-	65 (18.0%)	112 (30.9%)	121 (33.4%)	64 (17.7%)	3.51	0.982
11. I can formulate clinical questions that can be answered through research literature.	1 (0.3%)	81 (22.4%)	201 (55.5%)	79 (21.8%)	-	3.99	0.674

4.5 Participants' knowledge, attitudes and practices of QI

Participants' knowledge of QI

The data reveals varied understanding of quality improvement (QI) concepts among nursing professionals. While most respondents demonstrated familiarity with core QI principles, significant knowledge gaps exist in specific areas. Approximately half of nurses (52.5%) showed agreement with fundamental QI models like the Model for Improvement (Statement 6, mean=3.73) and PDSA cycles (Statement 7, mean=3.58), indicateing these concepts are relatively well-established in clinical practice.

Notable strengths emerged in understanding the relationship between change and improvement (Statement 9), where 76.2% of nurses agreed or strongly agreed (mean=4.10), indicating strong recognition of this fundamental QI principle. Similarly, knowledge about the six dimensions of quality (Statement 4) was robust, with 75.7% in agreement (mean=3.80). These findings indicate nurses grasp both the theoretical foundations and practical applications of QI in healthcare settings.

However, several areas require educational attention. Nearly half of respondents (49.4%) expressed uncertainty about distinguishing QI from research (Statement 2, mean=3.21), revealing a critical knowledge gap that could hinder appropriate methodology selection. Systems thinking (Statement 3), while generally understood (43.1% agreement), showed limited strong endorsement (only 3.6% strongly agreed). Additionally, about 30% of nurses disagreed with statements regarding process understanding (Statement 5) and impact measurement (Statement 8), indicateing these operational QI aspects need reinforcement (Table 7).

Table 7 The distributions of QI Knowledge domain statements from all respondents (n = 362)

STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
1. QI theory	-	91 (25.1%)	81 (22.4%)	110 (30.4%)	80 (22.1%)	3.49	1.095
2. How QI is different than research	-	65 (18.0%)	179 (49.4%)	95 (26.2%)	23 (6.4%)	3.21	0.809
3. Systems thinking	-	2 (0.6%)	204 (56.4%)	143 (39.5%)	13 (3.6%)	3.46	0.576
4. 6 dimensions of Quality	-	80 (22.1%)	8 (2.2%)	177 (48.9%)	97 (26.8%)	3.80	1.067
5. Understanding processes within a system	-	108 (29.8%)	73 (20.2%)	115 (31.8%)	66 (18.2%)	3.38	1.096
6. The Model for Improvement	-	43 (11.9%)	71 (19.6%)	190 (52.5%)	58 (16.0%)	3.73	0.871
7. PDSA Cycles	-	61 (16.9%)	82 (22.7%)	166 (45.9%)	53 (14.6%)	3.58	0.936
8. How to measure the impact of a change	-	107 (29.6%)	36 (9.9%)	145 (40.1%)	74 (20.4%)	3.51	1.119
9. How Change links to Improvement	-	-	86 (23.8%)	154 (42.5%)	122 (33.7%)	4.10	0.753

Participants' Attitude of QI

The data reveals complex attitudes toward quality improvement (QI) among nursing professionals, showing both enthusiasm and significant ambivalence. While 77.9% of nurses reported enjoying QI work (Statement 1, mean=3.68), only 14.7% expressed interest in QI (Statement 2, mean=2.74), creating a puzzling contradiction that

warrants further investigation. This disparity indicates nurses may appreciate QI's outcomes more than the process itself.

Most respondents recognized QI's importance in healthcare systems (Statement 4, 42.6% agreement, mean=3.66), with 27.7% demonstrating strong understanding of QI's real-world rationale (Statement 9). However, 65.5% were neutral about QI's system role (Statement 3), indicating limited confidence in articulating QI's specific value proposition. Notably, 60% valued QI training for professional development (Statement 5), indicateing openness to learning despite mixed attitudes.

Practical engagement showed more positive trends, with 69.1% willing to participate in QI initiatives (Statement 6). Nurses strongly believed in QI's practical applications, as 69.3% agreed QI methodologies drive system change (Statement 7) and 53.8% affirmed QI's real-world improvement potential (Statement 8). These implementation-positive attitudes contrast with the lower theoretical interest, indicateing nurses may be "doers" who prefer practical application over abstract concepts (Table 8).

Table 8 The distributions of QI Attitude domain statements from all respondents (n = 362)

STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
1. I enjoy QI	-	43 (11.9%)	37 (10.2%)	275 (76.0%)	7 (1.9%)	3.68	0.704
2. I am interested in QI	-	149 (41.2%)	160 (44.2%)	51 (14.1%)	2 (0.6%)	2.74	0.713
3. I understand the role QI plays in the health care system	1 (0.3%)	24 (6.6%)	237 (65.5%)	39 (10.8%)	61 (16.9%)	3.37	0.850
4. QI plays an important role in strengthening systems, such as health care	-	8 (2.2%)	200 (55.2%)	61 (16.9%)	93 (25.7%)	3.66	0.886
5. I value QI training as part of my professional development	-	144 (39.8%)	1 (0.3%)	152 (42.0%)	65 (18.0%)	3.38	1.181
6. I want to participate in QI initiatives as a health professional	-	105 (29.0%)	7 (1.9%)	191 (52.8%)	59 (16.3%)	3.56	1.075
7. Applications of QI theory and methodologies can help make change to a system	24 (6.6%)	85 (23.5%)	2 (0.6%)	181 (50.0%)	70 (19.3%)	3.52	1.228
8. Using QI in the real world will make improvements	1 (0.3%)	67 (18.5%)	99 (27.3%)	120 (33.1%)	75 (20.7%)	3.56	1.025
9. I understand the rationale for QI in the real world	-	105 (29.0%)	37 (10.2%)	148 (40.9%)	72 (19.9%)	3.52	1.110

Participants' Skills of QI

The data reveals strong competency in quality improvement (QI) skills among nursing professionals, with particularly high confidence in applying evidence to practice. An overwhelming majority (99.5%) feel confident applying evidence and best practices (Statement 6, mean=3.65), with 65.5% being extremely confident - the highest rating across all skills. This indicates nurses excel at implementing known solutions but may need more support in earlier QI stages.

With 68.5% being very or extremely confident in identifying quality gaps (Statement 2) and 82.3% feeling at ease with root cause analysis (Statement 4), nurses show strong aptitude for identifying quality issues. But when it comes to starting projects, confidence somewhat declines (Statement 3), with 17.1% remaining only moderately confident, indicateing possible unease with the initial stages of QI work.

The workforce shows particular strength in intervention design (Statement 11, mean=3.38) and outcome measurement (Statement 12, mean=3.38), with nearly 90% reporting confidence in these advanced skills. PDSA cycle usage (Statement 10) also shows strong adoption, with 78.7% feeling confident in this methodology. These results indicate nurses are more comfortable with the practical application aspects of QI compared to initial diagnostic phases.

While most skills show strong confidence levels, writing aim statements (Statement 7, mean=2.89) emerges as a relative weakness, with 21% only moderately confident. Similarly, using improvement tools (Statement 8) shows lower confidence levels, with 20.4% reporting limited confidence. These findings indicate targeted training could enhance nurses' abilities to properly frame and initiate QI projects (Table 9).

Table 9 The distributions of QI Skills domain statements from all respondents (n = 362)

STATEMENT	Not confident whatsoever	Moderately confident	Very confident	Extremely Confident	Mean	Std. Dev
1. Understanding quality issues	-	114 (31.5%)	139 (38.4%)	109 (30.1%)	2.99	0.786
2. Identifying quality gaps	-	61 (16.9%)	191 (52.8%)	110 (30.4%)	3.14	0.675
3. Approach quality improvement projects	1 (0.3%)	62 (17.1%)	146 (40.3%)	153 (42.3%)	3.25	0.739
4. Understand root causes of quality gaps	-	64 (17.7%)	178 (49.2%)	120 (33.1%)	3.15	0.697
5. Identifying an area for improvement	24 (6.6%)	44 (12.2%)	134 (37.0%)	160 (44.2%)	3.19	0.892
6. Application of evidence and best practices to the real world	1 (0.3%)	1 (0.3%)	123 (34.0%)	237 (65.5%)	3.65	0.501
7. Writing an aim statement	-	76 (21.0%)	251 (69.3%)	35 (9.7%)	2.89	0.543
8. Using tools to identify areas for improvement	24 (6.6%)	50 (13.8%)	193 (53.3%)	95 (26.2%)	2.99	0.817
9. Using the Model for Improvement	24 (6.6%)	39 (10.8%)	151 (41.7%)	148 (40.9%)	3.17	0.869
10. Using PDSA cycles to plan and test a change concept	-	77 (21.3%)	150 (41.4%)	135 (37.3%)	3.16	0.749
11. Designing an intervention or change	-	38 (10.5%)	147 (40.6%)	177 (48.9%)	3.38	0.669

STATEMENT	Not confident whatsoever	Moderately confident	Very confident	Extremely Confident	Mean	Std. Dev
12. Use a family of measures to evaluate the impact of a change	-	26 (7.2%)	173 (47.8%)	163 (45.0%)	3.38	0.616

4.6 The Prevalence and Percent of EBP and QI

Evidence-Based Practice (EBP)

The data reveals strong EBP engagement among nurses, with particularly high levels of practical application. Nearly three-quarters (71.5%) demonstrate high EBP practice competency, though knowledge levels show more variation - 40% score high while 59.7% remain at moderate levels. Attitudes are evenly split, with 47.5% showing high commitment to EBP and 45.9% moderate support. The mean scores reflect this pattern, with practice (40.79±6.15) outperforming knowledge (53.09±9.14) and attitude (60.3±9.27) measures (Table10).

Quality Improvement (QI)

QI competencies show a similar but slightly less robust pattern compared to EBP. Skills implementation is particularly strong, with 71.3% at high competency levels - mirroring the EBP practice results. Knowledge and attitude distributions are nearly identical, with about 48% scoring high and 45-52% at moderate levels. The mean scores follow a progression from knowledge (32.2±5.37) to attitude (30.9±6.02) to skills (38.3±4.71), indicateing nurses may find QI concepts slightly more challenging than EBP principles but are effectively translating them to practice (Table10).

Table 10 The Prevalence and Percent of EBP and QI

SCALE	LOW	MODERATE	HIGH	MEAN	STD.DEV

EBP knowledge		59.7%	40.0%	53.09	9.14
EBP attitude	6.6%	45.9%	47.5%	60.3	9.27
EBP practice		28.5%	71.5%	40.79	6.15
QI knowledge		51.9%	48.1%	32.2	5.37
QI attitude	6.6%	45.3%	48.1%	30.9	6.02
QI skills		28.7%	71.3%	38.3	4.71

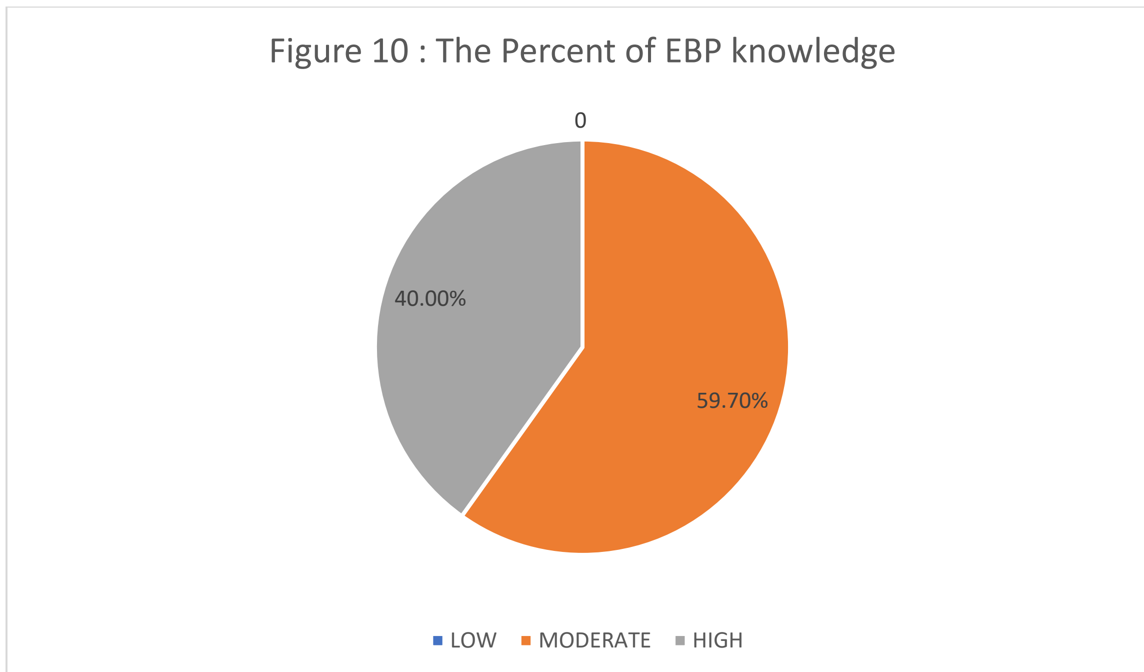


Figure 10 The Percent of EBP knowledge

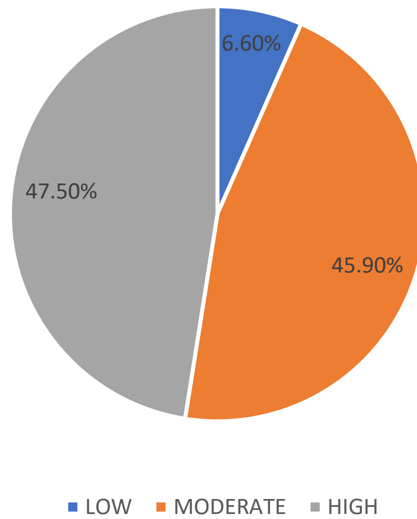


Figure 11 The Percent of EBP attitude

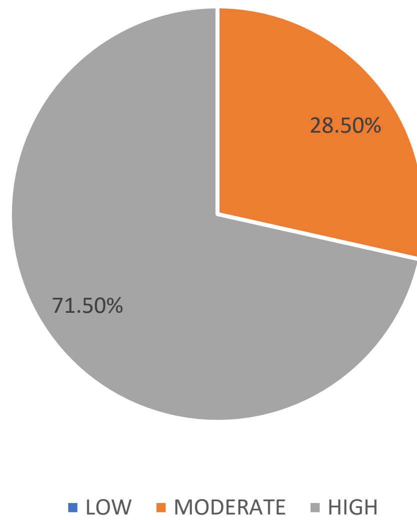


Figure 12 The Percent of EBP practice

Figure 13 : The Percent of QI knowledge

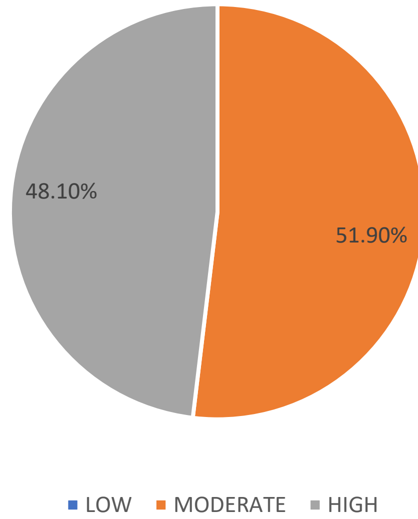
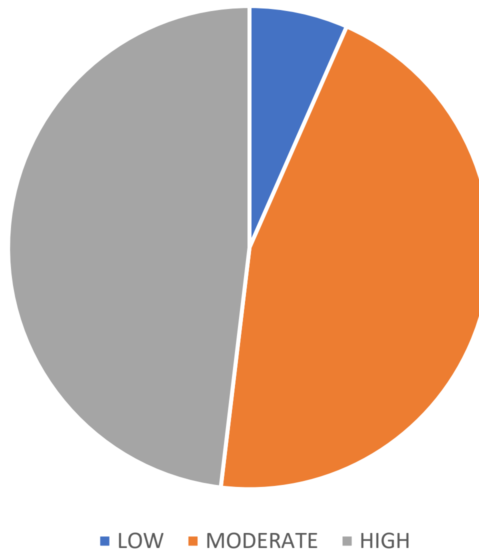


Figure 13 The Percent of QI knowledge

Figure 13 : The Percent of QI attitude



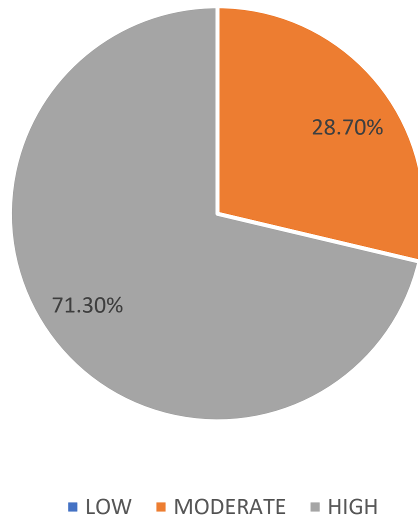


Figure 14 The Percent of QI skills

4.7 Comparisons for nursing evidence-based practice knowledge, attitude, skills levels based on different nurse demographics

Significant demographic differences in nurses' evidence-based practice (EBP) competencies were revealed by the analysis. Male nurses had significantly higher mean ranks than female nurses across all EBP domains: knowledge (215.79 vs. 141.90), attitude (207.58 vs. 151.39), and practice (190.08 vs. 171.59), all $p < .05$. Despite having similar educational backgrounds, this persistent gender gap may indicate the influence of systemic or cultural factors on the adoption of EBP.

Nurses between the ages of 30 and 40 exhibit the most positive EBP disposition (mean rank 214.60), with age-related differences most noticeable in attitudes ($p<0.001$). Younger nurses (ages 22 to 30) have the highest practice competencies (194.02), but knowledge is constant across age groups no statically significant ($p=0.229$). Nurses with at least 20 years of experience rank highest in all domains (knowledge:289.50, attitude:276.50, practice:233.00), indicating a clear dose-response relationship. The most significant competency gains take place between the ages of 5 and 10, indicateing that this is a crucial developmental stage.

While surgical departments lead in practical application (219.66), emergency department staff members demonstrate exceptional EBP knowledge (281.74) and attitude (269.26) rankings. Interestingly, intensive care units lag behind in practice implementation (78.70), which may be a result of workflow limitations in high-acuity settings. EBP competencies are strongly positively correlated with educational attainment; nurses with master's degrees perform noticeably better than those with diplomas in knowledge (214.55 , 108.50), attitude (231.28 , 84.57), and practice (208.96 , 120.66). The significance of advanced training is highlighted by the persistence of these educational gradients even after adjusting for experience.

Highly experienced nurses score 2.4 times more highly in knowledge rankings than novices (257.64 , 108.50), indicating a cumulative effect of prior EBP exposure. Compared to online resources, research articles have a 125% higher knowledge ranking (271.56 , 108.50), making them the most effective information source. Participation in

workshops is especially beneficial for developing attitudes (205.68), whereas formal education has the strongest correlation with competencies related to practical application. These results highlight the multifaceted character of EBP competency development, where knowledge, attitudes, and practice are influenced differently by formal education and continuing professional involvement.

Chief nurses and supervisors score 47–73% higher than staff nurses across all domains, indicating a strong correlation between leadership roles and EBP competencies. The most noticeable attitude difference is between 276.50 and 145.66, indicating that leadership positions may foster more positive views of EBP. Nonetheless, the negligible practice differences between department heads (233.00) and senior nurses (233.00) indicate that practical implementation capabilities may have a ceiling effect. The significance of position-specific EBP development strategies catered to nurses' organizational roles and responsibilities is highlighted by these hierarchical patterns (Table 11).

Table 11 The comparison for nursing evidence-based practice knowledge, attitude, skills levels based on different nurse demographics

Variable	**Value**	**knowledge**	**attitude**	**practice**
		Mean rank		
Gender	Male	215.79	207.58	190.08
	Female	141.90	151.39	171.59
	p-value	p < .001	p < .001	0.032*
Age	< 22 years	183.92	168.25	142.50
	22 - < 30 years	175.33	158.75	194.02
	30 - < 40 years	184.27	214.60	171.26
	40 – < 50 years	212.92	194.04	156.42
	≥ 50 years			
	p-value	0.229	p < .001	0.008*
Department	Medical	170.30	163.16	131.46
	Surgical	123.74	109.84	219.66
	Emergency	281.74	269.26	225.24
	Operation	259.95	244.60	207.14
	Oncology	168.83	176.17	142.50
	Endoscopy	180.90	137.10	160.60
	Intensive care unit	129.27	123.43	78.70
	Cardiac care unit	116.37	276.50	233.00

	p-value	p < .001	p < .001	p < .001
Education	Diploma degree of Nursing	108.50	84.57	120.66
	Bachelor's degree of Nursing	171.19	164.13	172.96
	Master degree of Nursing	214.55	231.28	208.96
	p-value	p < .001	p < .001	p < .001
Years of experience	<5 years	122.79	100.84	134.56
	5 – <10 years	226.60	223.76	231.72
	10 - <15 years	179.80	171.52	123.30
	15 - <20 years	161.05	276.50	233.00
	≥ 20 years	289.50	276.50	233.00
	p-value	p < .001	p < .001	p < .001
Job Position	Staff	155.95	145.66	142.50
	Senior	207.35	219.30	233.00
	Head Nurse of Department	266.88	276.50	233.00
	Supervisor	237.79	276.50	233.00
	Chief nurse	229.17	276.50	233.00
	p-value	p < .001	p < .001	p < .001
Previous Information with Evidence-Based Practice (EBP):	Limited experience (e.g., heard about it, attended a basic workshop)	108.50	107.50	116.32
	Moderate experience (e.g., implemented in some areas)	175.59	157.78	193.99
	Extensive experience (e.g., actively used EBP in work settings)	257.64	275.15	233.00
	p-value	p < .001	p < .001	p < .001
Source of Information about Evidence-Based Practice (EBP)	Education/training	121.58	119.72	143.59
	Online resources (websites, webinars, etc.)	108.50	71.31	54.87
	Research articles/journals	271.56	267.36	233.00
	Workshops or seminars	177.45	205.68	233.00
	p-value	p < .001	p < .001	p < .001

Mean Rank: is the average of the ranks assigned to the observations in a sample derived from Mann-Whitney U and Kruskal-Wallis tests.

* Statistically significant at level 0.05

4.8 comparisons for nursing Quality Improvement knowledge, attitude, skills levels based on different nurse demographics

The result shows that different nurse demographics differ significantly in their knowledge, attitudes, and abilities related to quality improvement (QI). With greater mean ranks in QI knowledge (212.06 , 146.21), attitude (208.41 , 150.42), and practice (190.58 , 171.01), male nurses routinely perform better than their female counterparts. Due to differences in training exposure, roles in the workplace, or confidence levels, these differences are statistically significant ($p < 0.05$), indicating that gender may have an impact on participation in QI initiatives.

Nurses between the ages of 30 and 40 exhibit the highest levels of QI knowledge (mean rank = 213.76) and positive attitudes (213.63), according to age-related trends. Younger nurses (ages 22 to 30) demonstrate greater practical application (194.52), presumably as a result of more recent instruction in contemporary QI techniques. An important factor is experience; nurses with 5–10 years of experience show significant gains in their QI knowledge (220.30) and attitude (233.96), while those with ≥15 years of experience perform at their best (mean rank = 275.50 across all domains). This implies that early career stages of structured QI training may improve the development of long-term competencies.

Employees in emergency departments have the best QI knowledge (267.74) and attitude (268.26), most likely as a result of their high-stakes, dynamic work that demands quick process improvements. On the other hand, ICU nurses have the lowest QI practice score (76.24), which may be because of workflow limitations in critical care environments. However, cardiac care unit nurses perform exceptionally well across all QI domains (275.50), which may be due to their specific training in evidence-based practices. With strong QI practice (220.16) and weaker knowledge (100.22), surgical departments exhibit an unexpected gap that may be due to a practice-focused instead of theory-driven approach.

Master education level nurses better than diploma holders in knowledge (230.25, 94.50), attitude (230.31, 83.81), and practice (209.46, 121.16), showing the significant

impact of educational attainment on QI competency. The highest rankings (275.50) are attained by chief nurses and supervisors, while staff nurses drop shorter (mean rank = 148.10 for knowledge), indicating that leadership roles further increase QI engagement. This emphasizes the value of postsecondary education and leadership development in developing QI proficiency.

While nurses with limited exposure score much lower (94.50 in knowledge), those with extensive EBP experience perform better on QI (mean rank = 275.50). Online resources have the least impact (70.69), whereas research articles are the most effective source of knowledge (265.72). Interactive learning may improve QI receptivity, as workshops moderately improve attitudes (206.29) (Table 12).

Table 12 The comparison for nursing quality improvement knowledge, attitude, skills levels based on different nurse demographics

Variable	Value	knowledge	attitude	practice
		Mean rank		
Gender	Male	212.06	208.41	190.58
	Female	146.21	150.42	171.01
	p-value	p < .001	p < .001	0.024*
Age	< 22 years	185.00	181.58	143.00
	22 - < 30 years	157.62	158.68	194.52
	30 - < 40 years	213.76	213.63	170.36
	40 – < 50 years	198.92	193.15	156.92
	≥ 50 years			
	p-value	p < .001	p < .001	0.007*
Department	Medical	173.96	166.48	131.96
	Surgical	100.22	108.87	220.16
	Emergency	267.74	268.26	225.74
	Operation	249.64	243.68	207.64
	Oncology	185.00	175.33	143.00
	Endoscopy	203.10	170.30	161.10
	Intensive care unit	121.20	122.50	76.24
	Cardiac care unit	275.50	275.50	233.50
	p-value	p < .001	p < .001	p < .001
Education	Diploma degree of Nursing	94.50	83.81	121.16
	Bachelor's degree of Nursing	163.37	164.84	172.58
	Master degree of Nursing	230.25	230.31	209.46
	p-value	p < .001	p < .001	p < .001
Years of experience	<5 years	108.79	100.05	135.06
	5 – <10 years	220.30	233.96	230.93
	10 - <15 years	165.80	173.08	123.80
	15 - <20 years	275.50	275.50	233.50
	≥ 20 years	275.50	275.50	233.50
	p-value	p < .001	p < .001	p < .001
Job Position	Staff	148.10	145.59	142.12
	Senior	215.63	219.60	233.50
	Head Nurse of Department	275.50	275.50	233.50
	Supervisor	275.50	275.50	233.50

	Chief nurse	275.50	275.50	233.50
	p-value	p < .001	p < .001	p < .001
Previous Information with Evidence-Based Practice (EBP):	Limited experience (e.g., heard about it, attended a basic workshop)	94.50	106.50	116.82
	Moderate experience (e.g., implemented in some areas)	170.96	158.44	192.93
	Extensive experience (e.g., actively used EBP in work settings)	275.50	275.50	233.50
	p-value	p < .001	p < .001	p < .001
Source of Information about Evidence-Based Practice (EBP)	Education/training	107.58	120.75	144.09
	Online resources (websites, webinars, etc.)	97.37	70.69	52.50
	Research articles/journals	265.72	266.36	233.50
	Workshops or seminars	201.38	206.29	233.50
	p-value	p < .001	p < .001	p < .001

Mean Rank: is the average of the ranks assigned to the observations in a sample derived from Mann-Whitney U and Kruskal-Wallis tests.
* Statistically significant at level 0.05

4.9 Spearman correlation of Evidence-based practice (EBP) and Quality Improvement variables.

This correlation analysis reveals significant relationships between evidence-based practice (EBP) and quality improvement (QI) competencies. All variables showed statistically significant positive correlations ($p < .01$), indicating strong interdependencies between knowledge, attitudes, and practices across both domains. Notably, EBP attitudes correlated strongly with QI knowledge ($r = .960$), suggesting that positive orientations toward evidence-based care enhance understanding of improvement science. Similarly, QI practice was strongly related to EBP practice ($r = .993$), implying that hands-on quality improvement work reinforces evidence implementation skills.

Within each domain, attitudes and practices also demonstrated robust connections, supporting the view that professional mindset drives implementation behaviors. These consistent correlations advocate for integrated educational approaches that simultaneously develop EBP and QI competencies, as improvement methodologies may effectively operationalize evidence-based care. While all relationships were statistically significant, further research should examine effect sizes and directional influences more precisely. These findings highlight the value of holistic training programs bridging evidence-based and quality improvement paradigms in nursing practice (Table 13).

Table 13 The result of Spearman correlation of Evidence-based practice (EBP) and Quality Improvement variables

Variables	EBP-knowledge	EBP-Practice	EBP-Attitude	QI-knowledge	QI-Practice	QI-Attitude
EBP-knowledge	1.000	r = .766, p < .001	r = .518, p < .001	r = .787, p < .001	r = .768, p < .001	r = .522, p < .001
EBP-Practice	r = .766, p < .001	1.000	r = .650, p < .001	r = .960, p < .001	r = .991, p < .001	r = .653, p < .001
EBP-Attitude	r = .518, p < .001	r = .650, p < .001	1.000	r = .607, p < .001	r = .644, p < .001	r = .993, p < .001
QI-knowledge	r = .787, p < .001	r = .960, p < .001	r = .607, p < .001	1.000	r = .960, p < .001	r = .599, p < .001
QI- Practice	r = .768, p < .001	r = .991, p < .001	r = .644, p < .001	r = .960, p < .001	1.000	r = .648, p < .001

QI- Attitude	r = .522, p < .001	r = .653, p < .001	r = .993, p < .001	r = .599, p < .001	r = .648, p < .001	1.000

* Statistically significant at level 0.05

4.10 Model summary for multiple linear regression analysis

Model 1 (EBP & QI Knowledge) emerges as the strongest predictor, explaining 62% of variance (R^2=.619) in EBP implementation with a relatively small standard error (.304). This robust model indicates that combined knowledge of both EBP principles and QI methodologies substantially influences practice outcomes. The strong fit indicates educational interventions targeting both knowledge domains could significantly enhance evidence-based care delivery.

Model 2 (EBP Knowledge & QI Attitude) shows moderate predictive power, accounting for 53% of variance (R^2=.534). While still substantial, the increased standard error (.336) and reduced explanatory power compared to Model 1 implies that while positive QI attitudes contribute to EBP implementation, they are less determinative than concrete knowledge. This highlights the importance of complementing attitude development with skills training.

Model 3 (EBP Knowledge & QI Skills) demonstrates the weakest relationship, explaining only 27% of variance (R^2=.272) with the largest error term (.420). This surprisingly low association indicates that QI procedural skills alone, without corresponding knowledge or attitude components, have limited capacity to predict EBP success. The findings imply that QI skills may require foundational knowledge and positive dispositions to effectively support evidence-based care (Table 14).

Table 14 Model summary for multiple linear regression analysis

Model	R	R2	Adjusted R2	Std. Error of the Estimate	Strength of Fit
1	.787	.619	.618	.30352	Strong (62% variance explained)
2	.731	.534	.533	.33577	Moderate (53% variance)
3	.522	.272	.270	.41959	Weak (27% variance)

The predictors for model 1 include: (Constant), EBP Knowledge, QI Knowledge
The predictors for model 2 include: (Constant), EBP Knowledge, QI Attitude
The predictors for model 3 include: (Constant), EBP Knowledge, QI skills

4.11 Analysis of Variance (ANOVA) summary for the regression model

The ANOVA results for the three regression models reveal statistically significant predictive relationships (all $p<.001$) between the predictor combinations and EBP implementation, though with varying explanatory power.

Model 1 (EBP ,QI Knowledge) demonstrates the strongest effect (F=585.63), accounting for substantial variance in EBP implementation (Regression SS=53.951) with minimal residual error (MS=.092). This confirms knowledge integration as the most robust predictor.

Model 2 (EBP Knowledge, QI Attitude) shows moderately strong effects (F=412.70), explaining less variance (Regression SS=46.529) with greater residual error (MS=.113), indicateing attitudes provide supplementary but secondary predictive value.

Model 3 (EBP Knowledge, QI Skills) exhibits the weakest though still significant effects (F=134.82), with higher unexplained variance (MS=.176), indicating skills alone contribute limited unique predictive capacity beyond knowledge.

The consistent significance (all p=.000) confirms all models have statistical validity, but the decreasing F-values (585.63→412.70→134.82) and increasing residual errors across models establish a clear hierarchy of predictive strength: combined knowledge > knowledge, attitude > knowledge skills. This pattern emphasizes that while all three QI components relate to EBP implementation, integrated knowledge provides the most complete explanatory model (Table 15).

Table 15 The result of analysis of Variance (ANOVA) summary for the regression model

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	53.951	1	53.951	585.633	.000
	Residual	33.165	360	.092		
2	Regression	46.529	1	46.529	412.696	.000
	Residual	40.587	360	.113		
3	Regression	23.736	1	23.736	134.822	.000
	Residual	63.380	360	.176		

Model 1 include: (Constant), EBP Knowledge, QI Knowledge
Model 2 include: (Constant), EBP Knowledge, QI Attitude
Model 3 include: (Constant), EBP Knowledge, QI skills

4.12 Coefficients to determine the scores for evidence-based practice nursing with domains of quality improvement.

The regression coefficients reveal distinct predictive contributions of QI domains to EBP implementation, with all models showing statistical significance ($p<0.001$) and no multicollinearity concerns (VIF=1.0 for all predictors).

Model 1 demonstrates QI Knowledge as the strongest predictor ($\beta=0.787$, $t=24.20$), where each unit increase in QI knowledge corresponds to a 0.773-point increase in EBP scores (SE=0.032). The large standardized coefficient confirms its dominant role in explaining EBP variance.

Model 2 shows QI Attitude maintains substantial predictive power ($\beta=0.731$, $t=20.32$), with a 0.585-point EBP increase per attitude unit (SE=0.029). While slightly attenuated compared to knowledge, the effect remains robust, indicateing attitudinal factors meaningfully contribute to implementation.

Model 3 identifies QI Skills as the weakest yet still significant predictor ($\beta=0.522$, $t=11.61$), yielding a 0.566-point EBP increase per skill unit (SE=0.049). The comparatively lower beta weight indicates skills alone explain less unique variance in EBP outcomes.

The consistent intercept significance across models (all $p<0.001$) confirms baseline EBP knowledge's fundamental importance. The absence of multicollinearity (VIF=1.0) validates each predictor's independent contribution. These results establish a clear hierarchy: QI knowledge ($\beta=0.79$) > attitude ($\beta=0.73$) > skills ($\beta=0.52$), indicateing educational interventions should prioritize building theoretical QI understanding while concurrently developing supportive attitudes and practical competencies (Table 16).

Table 16 coefficients for evidence-based practice nursing with domains of quality improvement

Model	Predictor	B (Unstd.)	Std. Error	Beta (Std.)	t-value	p-value	Tolerance	VIF
1	(Constant)	0.487	0.081	-	6.022	<0.001	-	-
	QI Knowledge	**0.773**	0.032	**0.787**	24.200	<0.001	1.000	1.000
2	(Constant)	0.990	0.072	-	13.801	<0.001	-	-
	QI Attitude	0.585	0.029	0.731	20.315	<0.001	1.000	1.000
3	(Constant)	0.868	0.134	-	6.478	<0.001	-	-
	QIS skills	0.566	0.049	0.522	11.611	<0.001	1.000	1.000

Model 1 include: (Constant), EBP Knowledge, QI Knowledge
Model 2 include: (Constant), EBP Knowledge, QI Attitude
Model 3 include: (Constant), EBP Knowledge, QI skills
VIF is the variance inflation factor used to test for multicollinearity (values less than 5 are ideal, 5–10 are tolerable, and values greater than 10 represent a faulty model)

Chapter Five

Discussion

The quality improvement (QI) and evidence-based practice (EBP) practices of nurses working in Ramallah, Palestine's private hospital system are closely investigated in this study. While highlighting particular specific challenges and opportunities, the findings provide a complex portrait that is consistent with global trends reported in the literature. The discussion that follows places these findings in the context of recent worldwide research.

5.1 Discussion

What is the prevalence of knowledge, attitudes, and skills related to EBP and QI among nurses in private hospitals in Ramallah, Palestine?

According to our research, nurses working in private hospitals in Ramallah had a generally good attitude toward quality improvement (QI) and evidence-based practice (EBP), but they also showed a moderate level of knowledge and proficiency in these areas. This is consistent with research from Egypt (Hashish & Alsayed, 2020) and Jordan (Aburuz et al., 2017), where nurses indicated positive attitudes but little understanding and application of EBP and QI. Similar disparities between attitude and practice were also seen in Ethiopia (Hadgu et al., 2015) and Malaysia (Bashar, 2019).

The difference indicates that although nurses respect EBP and QI conceptually, they have difficulty putting theory into practice. Lack of institutional support, inadequate resources, or restricted training chances could be the cause of the disparity (Brown et al., 2008; Mohamed et al., 2024). Previous study highlights the importance of supportive leadership, learning opportunities, and organizational culture in closing the gap (Harvey et al., 2019; Melnyk et al., 2014).

2. Does the educational background of nurses have an effect on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine?

Our findings showed a positive correlation between improved EBP and QI knowledge and skills and higher educational attainment. This is in line with research from Oman (Al-Busaidi et al., 2019) and Malawi (Kaseka & Mbakaya, 2022), which found that nurses with postgraduate or baccalaureate degrees reported higher EBP competencies than those with only a diploma.

Research demonstrates that increased exposure to research techniques, critical appraisal, and clinical inquiry in advanced nursing education strengthens EBP knowledge and improves QI involvement (Sánchez-García et al., 2019; Linton & Prasun, 2013). On the other hand, Jordan emphasizes that nurses with diplomas frequently lack official training in these areas (Saleh, 2023). To improve implementation, it is therefore crucial to make investments in ongoing academic advancement and professional growth.

3. What is the effect of demographic variables (e.g., age, gender, years of experience) on the implementation of EBP and QI among nurses in private hospitals in Ramallah, Palestine?

Our analysis found highly associations between demographic variables and EBP/QI implementation. Gender and age showed significant differences, whereas years of experience had a modest effect, with more experienced nurses reporting higher confidence in EBP/QI application. Whereas not align with findings from Pakistan (Rahman et al., 2024), where demographic variables were not strongly predictive of EBP practice, although some trends existed (e.g., gender influencing attitudes). Similarly, studies in Iran (Shafiei et al., 2014) and China (Zhou et al., 2016) reported that organizational and educational factors outweighed demographic ones in shaping EBP/QI engagement. Thus, while personal experience may build confidence, structural and educational interventions remain more decisive.

4. What is the relationship between EBP and QI among nurses in private hospitals in Ramallah, Palestine?

We found a strong positive correlation between EBP and QI, indicating that improvements in QI skills could directly enhance EBP engagement. This echoes findings from Egypt (Hashish & Alsayed, 2020), where QI was shown to predict EBP adoption. International evidence also highlights that EBP and QI are mutually reinforcing processes—EBP provides the scientific foundation for clinical decision-making, while QI ensures systematic application and sustainability of these practices (Van Achterberg et al., 2008; WHO, 2017).

The relationship emphasizes that hospitals should not address EBP and QI separately, but rather integrate them into unified training programs, policies, and performance metrics to maximize impact on patient outcomes.

5. Barriers and Facilitators to Implementation

Our findings, supported by previous literature, point to several barriers that hinder EBP/QI adoption in Ramallah's private hospitals. These include lack of time, limited access to research, inadequate institutional support, and insufficient training (Brown et al., 2008; Kajermo et al., 2010; Mohamed et al., 2024). Similar barriers have been documented globally, from the U.S. (Melnyk et al., 2016) to Africa (Lizarondo et al., 2019).

Facilitators identified in our study, such as nurses' positive attitudes and willingness to adopt EBP/QI, align with international evidence highlighting the importance of supportive leadership, continuing education, mentorship, and access to resources (Kim et al., 2017; Warren et al., 2016). Addressing these barriers while strengthening facilitators is essential for long-term improvement.

6. Implications for Nursing Education and Policy

Our findings highlight an urgent need to embed EBP and QI into nursing curricula and continuing education programs. Regional studies in Jordan (Omar et al., 2024; Saleh, 2023) and Saudi Arabia (Mohamed et al., 2024) indicate gaps in both undergraduate and postgraduate nursing education, which limit knowledge and application. Policies encouraging academic advancement (diploma to bachelor's transitions), structured EBP/QI workshops, and hospital-based mentorship programs could address these gaps.

At the policy level, aligning hospital strategies with international nursing standards and ethical guidelines (ICN, 2012; WHO, 2017) will ensure EBP and QI are institutionalized rather than dependent on individual effort.

Chapter Six

Recommendation, Limitation

6.1 Recommendations

- Expand the scope of future research by comparing governmental and private hospitals, to explore possible differences in the implementation and outcomes of Evidence-Based Practice (EBP) and Quality Improvement (QI).
- Conduct interventional studies where EBP and QI educational conferences or workshops are applied to nurses and healthcare providers, followed by measurement of outcomes such as knowledge, attitude, and practice levels, as well as patient care indicators.
- Include hospitals from multiple cities and regions to enhance the generalizability of findings and capture differences across geographical and organizational contexts.
- Integrate EBP and QI into continuous professional development (CPD) programs for healthcare professionals, ensuring sustainability of practice improvements.
- Encourage policy makers and hospital administrators to adopt strategies that support EBP and QI integration, such as creating dedicated committees, allocating resources, and fostering a supportive culture.

6.2 Limitations

- Cross-sectional design limits the ability to establish causal relationships between EBP and QI.
- Self-reported data may be subject to response bias, as participants could overestimate their knowledge or positive attitudes.
- The study was conducted in a limited number of hospitals within one region, which may reduce the generalizability of results.
- Regression and correlation analysis show significant relationships but do not capture contextual factors (e.g., hospital policies, leadership support) that may also influence outcomes.

- Lack of longitudinal follow-up prevents assessment of long-term impact of EBP and QI adoption.

6.3 Conclusion

This study examined the relationship between Evidence-Based Practice (EBP) and Quality Improvement (QI) among 362 nurses from diverse clinical departments. The findings revealed a high level of engagement with both EBP and QI, particularly in practice domains, although knowledge and attitudes varied across demographic groups. Younger nurses and those with 5–10 years of experience demonstrated strong practice competencies, while senior nurses and those with advanced education exhibited higher knowledge and attitudes, highlighting the cumulative benefits of professional exposure and training.

Significant demographic differences were observed, with male nurses and those in leadership positions consistently outperforming their counterparts in both EBP and QI competencies. Educational attainment and exposure to scientific resources such as research articles and workshops were also strongly associated with higher scores, underscoring the value of structured learning and continuous professional development. Departmental differences further illustrated how clinical contexts influence EBP and QI adoption, with surgical and emergency staff leading in specific domains, while ICU nurses lagged in practice due to workflow constraints.

Correlation analyses confirmed strong, statistically significant associations between EBP and QI domains, with attitudes and practices particularly interlinked, supporting the concept that professional mindset drives implementation behaviors. Regression models further established QI knowledge as the strongest predictor of EBP implementation, followed by QI attitude and QI skills, indicateing that theoretical understanding provides the most robust foundation for evidence-based care.

Overall, the study highlights the synergistic relationship between EBP and QI, demonstrating that strengthening nurses' knowledge, attitudes, and skills in these domains is essential for improving clinical practice and patient outcomes. The results

advocate for integrated educational strategies, leadership development, and organizational support systems to enhance the adoption of evidence-based and improvement-oriented practices across healthcare settings.

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Appendices

Appendix (1)

Participant Questioner

- **Demographic data**

Variable	Values		
Gender	☐Male	☐ Female	
Age	☐ < 22 years	☐ 22 - < 30 years	☐ 30 - < 40 years
	☐ 40 – < 50 years	☐ ≥ 50 years	
Department	☐ Medical	☐ Surgical	☐ Emergency
	☐ Operation	☐ Oncology	☐ Endoscopy
	☐ Intensive care unit	☐ Cardiac care unit	
Education	☐ Diploma degree of Nursing	☐ Bachelor's degree of Nursing	☐ Master degree of Nursing
Years of experience	☐ <5 years	☐ 5 – <10 years	☐ 10 - <15 years
	☐ 15 - <20 years	☐ ≥ 20 years	
Job Position	☐ Staff	☐ Senior	☐ Head Nurse of Department
	☐ Supervisor	☐ Chief nurse	
Previous Information with Evidence-Based Practice (EBP):	☐ Limited experience (e.g., heard about it, attended a basic workshop)	☐ Moderate experience (e.g., implemented in some areas)	☐ Extensive experience (e.g., actively used EBP in work settings)

Source of Information about Evidence-Based Practice (EBP)	☐ Education/training	☐ Online resources (websites, webinars, etc.)	☐ Research articles/journals
	☐ Workshops or seminars		

- **Knowledge, Attitudes, and Practice of Evidence-Based Practice (EBP) for Nurses**

Validity:

The Evidence-Based Practice (EBP) for Nurses Validity Scale was developed to assess the knowledge, attitudes, and practices (KAP) related to evidence-based practice in nursing. In a study conducted by Luo, Zhang, Yang, & Tung. The results showed high internal consistency for each of the three domains, with Cronbach's alpha values of 0.81 for Knowledge, 0.81 for Attitudes, and 0.84 for Practice (Luo, Zhang, Yang, & Tung, 2024). These values indicate that the scale is both valid and reliable, providing strong evidence that it effectively measures nurses' KAP regarding evidence-based practice. This makes it a useful tool for assessing the readiness and implementation of EBP in nursing practice.

Knowledge of EBP	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. EBP involves critically appraising research findings to make clinical decisions.	☐	☐	☐	☐	☐
2. EBP emphasizes the use of the best available research, but clinical experience is not always considered.	☐	☐	☐	☐	☐
3. EBP is most appropriate for making decisions about patient care, rather than for developing healthcare policies.	☐	☐	☐	☐	☐
4. Patient preferences should be prioritized over clinical guidelines when making decisions about care.	☐	☐	☐	☐	☐
5. EBP improves clinical practice by only using evidence from meta-analyses.	☐	☐	☐	☐	☐
6. EBP does not contribute to promoting self-directed learning among healthcare providers.	☐	☐	☐	☐	☐
7. Systematic reviews are generally more reliable than individual studies, like case-control studies, in EBP.	☐	☐	☐	☐	☐
8. A well-structured clinical question, using the PICO format (Patient, Intervention, Comparison, Outcome), improves the search for evidence.	☐	☐	☐	☐	☐
9. EBP enhances a nurse's understanding of research methodology and its application to practice.	☐	☐	☐	☐	☐
10. Nurses who practice EBP become less critical of research data and findings.	☐	☐	☐	☐	☐

11. EBP is beneficial in situations where there is uncertainty in clinical practice or patient care.	☐	☐	☐	☐	☐
12. Improving access to summaries of research evidence encourages more EBP in clinical settings.	☐	☐	☐	☐	☐
13. The Cochrane Library provides a wide range of systematic reviews applicable to nursing practice.	☐	☐	☐	☐	☐
14. Difficulty in understanding research statistics is a major challenge when applying EBP.	☐	☐	☐	☐	☐
15. Applying EBP in nursing is cost-effective for the healthcare system.	☐	☐	☐	☐	☐

Attitudes on EBP	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I believe that EBP can challenge good clinical practice.	☐	☐	☐	☐	☐
2. I believe that practicing EBP can improve patient health outcomes.	☐	☐	☐	☐	☐
3. I am eager to learn more about EBP if given the opportunity.	☐	☐	☐	☐	☐
4. I am ready to incorporate EBP into my daily nursing practice.	☐	☐	☐	☐	☐
5. I feel that research findings are important in the daily management of patient care.	☐	☐	☐	☐	☐
6. I feel that EBP has limited value in nursing because patient care requires less scientific evidence.	☐	☐	☐	☐	☐
7. I believe that years of clinical experience are more valuable than EBP in nursing practice.	☐	☐	☐	☐	☐
8. I am convinced that using EBP in clinical practice increases the effectiveness of nursing care.	☐	☐	☐	☐	☐
9. I feel confident in managing patient care using EBP.	☐	☐	☐	☐	☐
10. I believe that understanding disease mechanisms is sufficient for good nursing practice, without necessarily using EBP.	☐	☐	☐	☐	☐
11. I believe that access to databases and journals is essential for practicing EBP in nursing.	☐	☐	☐	☐	☐
12. I feel that simply reading the conclusions of systematic reviews is enough for clinical practice in nursing.	☐	☐	☐	☐	☐
13. I think practicing EBP would make nurses more effective in delivering quality care.	☐	☐	☐	☐	☐
14. I often feel burdened when required to incorporate EBP in my clinical practice.	☐	☐	☐	☐	☐
15. I believe it is essential for nurses to constantly update their knowledge in order to provide efficient patient care.	☐	☐	☐	☐	☐

16. I would be interested in receiving educational materials on EBP in nursing.	☐	☐	☐	☐	☐
17. I believe that formal training on EBP in nursing education is essential for improving care delivery.	☐	☐	☐	☐	☐

Practice of EBP	**Never**	**Seldom**	**Sometimes**	**Often**	**Always**
1. I regularly apply EBP in my clinical nursing practice.	☐	☐	☐	☐	☐
2. I use multiple resources (e.g., databases, journals) to find evidence for clinical practice.	☐	☐	☐	☐	☐
3. I only search for evidence-based materials from published research journals.	☐	☐	☐	☐	☐
4. I do not have enough time to study and incorporate EBP in my nursing practice.	☐	☐	☐	☐	☐
5. I am unable to practice EBP due to limitations in patient care options available in my clinical setting.	☐	☐	☐	☐	☐
6. I use EBP to answer specific clinical questions in my nursing practice.	☐	☐	☐	☐	☐
7. I attend continuing education programs or workshops on EBP to stay updated.	☐	☐	☐	☐	☐
8. I promote the use of EBP among my nursing colleagues.	☐	☐	☐	☐	☐
9. I share knowledge on EBP with colleagues to improve patient care.	☐	☐	☐	☐	☐
10. I am involved in the development or review of clinical guidelines based on EBP.	☐	☐	☐	☐	☐
11. I can formulate clinical questions that can be answered through research literature.	☐	☐	☐	☐	☐

- **Knowledge, Attitudes, and Practice of Quality Improvement (QI) for Nurses**

Validity:

The Evidence-Based Practice (EBP Validity Scale was developed to assess the knowledge, attitudes, and practices (KAP) related to Quality improvement. In a study conducted by Brown et al. (2019). The results showed robust discriminative validity, differentiating between responses rated as "poor" and "excellent." The instrument's intra- and interrater reliability were strong, reinforcing the scale's reliability in measuring QI competencies. In addition, the intraclass correlation coefficient (ICC) for the total nine-point scale was 0.66, further supporting its validity and reliability for assessing knowledge, attitudes, and practices related to quality improvement in healthcare education (Brown et al, 2019).

Knowledge of QI I believe I am knowledgeable in the following:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. QI theory	☐	☐	☐	☐	☐
2. How QI is different than research	☐	☐	☐	☐	☐
3. Systems thinking	☐	☐	☐	☐	☐
4. 6 dimensions of Quality	☐	☐	☐	☐	☐
5. Understanding processes within a system	☐	☐	☐	☐	☐
6. The Model for Improvement	☐	☐	☐	☐	☐
7. PDSA Cycles	☐	☐	☐	☐	☐
8. How to measure the impact of a change	☐	☐	☐	☐	☐
9. How Change links to Improvement	☐	☐	☐	☐	☐

Attitudes of QI how you feel about each statement:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I enjoy QI	☐	☐	☐	☐	☐
2. I am interested in QI	☐	☐	☐	☐	☐
3. I understand the role QI plays in the health care system	☐	☐	☐	☐	☐
4. QI plays an important role in strengthening systems, such as health care	☐	☐	☐	☐	☐
5. I value QI training as part of my professional development	☐	☐	☐	☐	☐
6. I want to participate in QI initiatives as a health professional	☐	☐	☐	☐	☐
7. Applications of QI theory and methodologies can help make change to a system	☐	☐	☐	☐	☐
8. Using QI in the real world will make improvements	☐	☐	☐	☐	☐
9. I understand the rationale for QI in the real world	☐	☐	☐	☐	☐

Skills of QI I feel confident in my skills to do the following:	**Not confident whatsoever**	**Moderately confident**	**Very confident**	**Extremely Confident**
1. Understanding quality issues	☐	☐	☐	☐
2. Identifying quality gaps	☐	☐	☐	☐
3. Approach quality improvement projects	☐	☐	☐	☐
4. Understand root causes of quality gaps	☐	☐	☐	☐
5. Identifying an area for improvement	☐	☐	☐	☐
6. Application of evidence and best practices to the real world	☐	☐	☐	☐
7. Writing an aim statement	☐	☐	☐	☐
8. Using tools to identify areas for improvement	☐	☐	☐	☐
9. Using the Model for Improvement	☐	☐	☐	☐
10. Using PDSA cycles to plan and test a change concept	☐	☐	☐	☐
11. Designing an intervention or change	☐	☐	☐	☐
12. Use a family of measures to evaluate the impact of a change	☐	☐	☐	☐

Reference:

Luo C, Zhang MX, Yang YP, Tung TH. Self-perceived knowledge, attitude, and practice of evidence-based medicine before and after training among healthcare workers in Taizhou, China. BMC Med Educ. 2024 Jun 27;24(1):700. doi:10.1186/s12909-024-05678-7. PMID: 38937713; PMCID: PMC11212180.

Reference: Brown, A., Nidumolu, A., McConnell, M., Hecker, K., & Grierson, L. (2019). Development and psychometric evaluation of an instrument to measure knowledge, skills, and attitudes towards quality improvement in health professions education: The Beliefs, Attitudes, Skills, and Confidence in Quality Improvement (BASiC-QI) Scale. Perspectives on Medical Education, 8(3), 167-176. https://doi.org/10.1007/s40037-019-0511-8

Appendix (2)

IRP Form

Arab American University

Institutional Review Board - Ramallah

الجامعـــة العربيـــة الأمريكيـــة

مجلس اخلاقيات البحث العلمي — رام الله

IRB Approval Letter

Study Title: "The Relationship Between Evidence-Based Practice and Quality Improvement Among Nurses in Private Hospitals in Ramallah, Palestine: A Cross-Sectional Study".

Submitted by: **Mutasem Bahjt Daraghmeh**

Date received: 2nd September 2025

Date reviewed: 7th September 2025

Date approved: 30th September 2025

Your Study titled **"The Relationship Between Evidence-Based Practice and Quality Improvement Among Nurses in Private Hospitals in Ramallah, Palestine: A Cross-Sectional Study"** with the code number **"R-2025/A/68/N"** was reviewed by the Arab American University Institutional Review Board - Ramallah and it was approved on the 30th of September 2025.

Sajed Ghawadra, PhD
IRB-R Chairman
Arab American University of Palestine

General Conditions:

1. Valid for 6 months from the date of approval.
2. It is important to inform the IRB-R with any modification of the approved study protocol.
3. The Bord appreciates a copy of the research when accomplished.

رام الله — فلسطين

ملخص الرسالة

الخلفية:

تُعد الممارسة المبنية على الأدلة (EBP) حجر الزاوية في الرعاية الصحية الحديثة، إذ تركز على دمج أفضل ما هو متاح من الأدلة العلمية مع الخبرة السريرية وتفضيلات المرضى من أجل دعم اتخاذ القرار وتحسين النتائج الصحية. وفي سياق التمريض، تلعب الممارسة المبنية على الأدلة دورًا محوريًا في توجيه الممارسة السريرية وضمان تقديم رعاية عالية الجودة قائمة على الأدلة.

أما مبادرات تحسين الجودة (QI) فهي أساسية لتعزيز جودة الرعاية الصحية ونتائج المرضى، حيث تهدف إلى المراقبة والتقييم والتحسين المنهجي لعمليات ونتائج الرعاية بهدف تقديم خدمات آمنة وفعّالة وتركّز على المريض.

الهدف:

الهدف الرئيس من هذه الدراسة هو تقييم إدراك الممرضين لمستوى المعرفة والمهارات والاتجاهات المتعلقة بالممارسة المبنية على الأدلة وتحسين الجودة، وكذلك استقصاء العلاقة بين الممارسة المبنية على الأدلة وتحسين الجودة لدى الممرضين في المستشفيات الخاصة في رام الله – فلسطين.

المواد والمنهجية:

اعتمدت الدراسة تصميمًا كميًا مقطعيًا، باستخدام أسلوب العينة الميسّرة، حيث جرى استقطاب عينة من الممرضين العاملين في المستشفيات الخاصة والمتواجدين خلال فترة جمع البيانات. تم جمع البيانات باستخدام استبانة ذاتية التعبئة، وحُللت بواسطة برنامج SPSS الإصدار 22.

النتائج:

من بين (362) ممرضًا شاركوا في الدراسة، كان معظمهم من فئة الشباب (22–30 عامًا)، ويحملون درجة البكالوريوس، ويعملون بشكل رئيسي في أقسام الجراحة والطوارئ والعناية المكثفة. أظهرت النتائج أن ممارسات الممرضين في مجال الممارسة المبنية على الأدلة وتحسين الجودة سجلت أعلى الدرجات مقارنة بالمعرفة والاتجاهات، حيث حقق أكثر من 70% مستويات ممارسة قوية. كما أظهر الذكور، وكبار الموظفين، وحاملو الدرجات العلمية الأعلى، وذوو الخبرة الأطول أداءً أفضل بشكل ملحوظ في مجالات الممارسة المبنية على الأدلة وتحسين الجودة. وأكدت تحليلات الارتباط والانحدار وجود علاقات إيجابية قوية، حيث برزت معرفة تحسين الجودة كأقوى متنبئ لتطبيق الممارسة المبنية على الأدلة ($R^2 = .619$, $p < .001$).

الخلاصة:

أظهرت الدراسة وجود علاقة إيجابية معنوية بين الممارسة المبنية على الأدلة (EBP) وتحسين الجودة (QI)لدى الممرضين. كما ارتبطت الدرجة العلمية الأعلى والخبرة المهنية الأوسع والوصول إلى المصادر العلمية بمستويات أقوى من المعرفة والاتجاهات والممارسات. وقد حدد تحليل الانحدار معرفة تحسين الجودة كأقوى متنبئ لتطبيق الممارسة المبنية على الأدلة، مما يبرز أهمية الدمج بين الجوانب النظرية والعملية. تؤكد النتائج الدور التكميلي لكل من الممارسة المبنية على الأدلة وتحسين الجودة في تعزيز الممارسة السريرية وتحسين نتائج المرضى، وتدعو إلى برامج تعليمية منظمة ودعم مؤسسي لتعزيز تبنيهما.

الكلمات المفتاحية: الممارسة المبنية على الأدلة، دراسة مقطعية، المستشفيات، الممرضون، تحسين الجودة، المستشفيات الخاصة.