



BARRIERS AND FACILITATORS TO NURSE TECHNICIAN ADOPTION OF EVIDENCE-BASED PRACTICE: A MIXED METHODS STUDY

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Abstract

Evidence-based practice, defined as the conscientious use of current best evidence in clinical decision making, has well-established benefits for enhancing quality of care and patient outcomes. However, research indicates adoption of evidence-based protocols remains suboptimal among nurse technicians working in hospital settings. This explanatory sequential mixed methods study aimed to identify barriers and facilitators influencing nurse technician utilization of evidence-based practice in three public hospitals in Saudi Arabia to inform tailored organizational and educational strategies for promoting adoption. In the quantitative phase, a cross-sectional survey of 121 nurse technicians assessed perceptions regarding evidence-based practice barriers and facilitators. Insufficient time, knowledge, training, and protocol access emerged as the top barriers, while education programs, mentorship, and nursing leadership support were identified as key facilitators. The qualitative phase involved focus groups with 15 nurse technicians to provide in-depth understanding of challenges to evidence-based practice. Major themes highlighted workflow constraints, knowledge deficits, and organizational barriers including inadequate access to evidence-based protocols and decision supports as factors hindering adoption. Addressing modifiable barriers through a multifaceted approach encompassing strategies such as implementation of tailored educational programs, evidence-based protocol integration in electronic records, mentorship programs, workflow restructuring to enable literature searching, and optimizing technology access and training is crucial for facilitating nurse technician utilization of evidence-based practice. Findings provide crucial insights to inform organizational priorities and initiatives aimed at promoting nurse technician adoption of evidence-based protocols to provide the highest quality of empirically supported care.

Introduction

In current healthcare environments, delivery of high quality patient care requires practicing from an evidence-based perspective. Evidence-based practice involves the conscientious use of current best evidence from well-designed studies in tandem with clinical expertise and patient preferences and values to guide health care decision making (Sackett et al., 1996). Adoption of evidence-based practice improves patient outcomes, safety, care quality, and cost-effectiveness across settings and disciplines (Melnyk & Fineout-Overholt, 2014).



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Among nurses, evidence-based practice is a central competency and professional mandate emphasized in many nursing codes of ethics worldwide (Ross, 2017). However, literature indicates nurse adoption of evidence-based practice remains suboptimal despite proven benefits (Melnyk et al., 2018). This gap is even wider among nurse technicians, who tend to have lower levels of education and research exposure compared to professional nurses (Qadri et al., 2020). With the vital role nurse technicians play in direct patient care delivery in hospitals, lack of evidence-based practice utilization is concerning.

Research exploring nurse technician perspectives on evidence-based practice barriers and facilitators in Saudi Arabia is notably limited. Elucidating these factors is crucial for informing organizational policies, unit protocols, trainings, tools, and other tailored initiatives to promote adoption. Therefore, this explanatory sequential mixed methods study was conducted to identify key barriers and facilitators to nurse technician adoption of evidence-based protocols at three public hospitals in Saudi Arabia, combining survey and focus group data to provide comprehensive insights. Findings aim to guide hospital priorities and multifaceted strategies for enhancing evidence-based practice among this essential healthcare provider group and promoting delivery of the highest quality empirically-supported care.

Background

Evidence-Based Practice Overview

Evidence-based practice emerged in the 1990s as a paradigm aiming to ground provider decision making in empirical research evidence (Sackett et al., 1996). It has been defined as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" integrating individual clinical expertise with the best available external evidence from systematic research while considering patient factors and values (Sackett et al., 1996).

Key principles encompass (Melnyk & Fineout-Overholt, 2014):

- Defining clinical questions to inform evidence searches
- Systematically locating and appraising best research evidence
- Applying evidence alongside clinical judgement and patient preferences
- Evaluating outcomes of evidence implementation

Evidence sources include meta-analyses, randomized trials, guidelines, and cohort studies. Hierarchies rank study types by rigor. Adoption requires continuously questioning practices, seeking empirical evidence, and modifying care approaches based on new evidence.

Benefits of Evidence-Based Practice

When well adopted, evidence-based practice significantly improves numerous aspects of healthcare quality, delivery, and value (Melnyk & Fineout-Overholt, 2014). Documented benefits include:

- Improved clinical outcomes and reduced complications
- Reduced healthcare costs and resource utilization
- Enhanced patient safety and mortality reduction
- Improved patient satisfaction and adherence
- Increased use of quality measures and guidelines
- Optimized decision making, critical thinking and care quality
- Reduced care variation and use of outdated ineffective practices
- Promoted lifelong learning and professional accountability

Barriers to Evidence-Based Practice Adoption

Despite extensive proven benefits, adoption of evidence-based practice remains suboptimal across nursing disciplines (Melnyk et al., 2018). Reported barriers include:

- Lack of time to search and appraise literature
- Insufficient understanding of statistical analysis
- Lack of knowledge and skills for evidence appraisal
- Inadequate resources and access to evidence sources
- Workplace cultures resistant to changing practice
- Lack of value placed on evidence in decision making
- Perceived loss of autonomy

These barriers can powerfully hinder utilization.

Facilitators of Evidence-Based Practice

In contrast, evidence indicates key facilitators that can promote evidence-based practice include:

- Education and training focused on evidence skills
- Mentorship by evidence-based practice experts
- Integration of protocols into electronic records
- Leadership support and access to current evidence
- Multidisciplinary evidence-based practice teams
- Structured opportunities to develop questions and search literature
- A workplace culture valuing empirical evidence

Leveraging such facilitators through tailored initiatives holds promise for driving adoption.

Evidence-Based Practice Among Nurse Technicians

Also termed unlicensed assistive personnel, nurse technicians deliver essential basic nursing care in hospital settings under registered nurse oversight (Qadri et al., 2020). With less formal education, nurse technicians tend to have lower knowledge and utilization of evidence-based practice compared to professional nurses (Qadri et al., 2020). However, adoption is critical given their central care role. Prior studies indicate educational and mentoring interventions can improve adoption, but perspectives on barriers and facilitators warrant further study (Qadri et al., 2020).

Study Significance

Given the dearth of literature on evidence-based practice among hospital nurse technicians in Saudi Arabia, this mixed methods study aimed to elucidate nurse technician perceptions of barriers and facilitators to identify actionable targets for tailored organizational initiatives promoting adoption of evidence-based protocols. Findings can guide strategies to optimize evidence-based practice for enhanced care quality.

Study Aims

This study had two central aims:

1. Identify nurse technician perspectives on barriers to adopting evidence-based protocols
2. Elucidate facilitators nurse technicians perceive could enhance evidence-based protocol adoption

Theoretical Framework

The Promoting Action on Research Implementation in Health Services (PARIHS) framework recognizes adoption of evidence-based practice is influenced by the interplay of evidence strength, organizational context, and facilitation elements, guiding investigation of these factors (Kitson et al., 1998).

Methods

Study Design

An explanatory sequential mixed methods design was utilized with initial quantitative cross-sectional survey data collection and analysis followed by qualitative focus groups to provide in-depth understanding of technician perspectives on evidence-based practice barriers and facilitators.

Settings and Participants

Participants were nurse technicians at three public hospitals in central Saudi Arabia. Inclusion criteria were ≥ 1 year experience in an inpatient medical, surgical or critical care unit. The survey sample included 121 technicians. Focus groups involved 15 volunteers from survey respondents.

Quantitative Survey

An anonymous survey was distributed to 255 nurse technicians across the three hospitals, with a response rate of 121 (47%). The survey contained questions on:

- Demographics
- Barriers to using evidence-based protocols (15 items on a 5-point Likert agreement scale)
- Facilitators that could promote use of protocols (12 items on a 5-point Likert agreement scale)

Descriptive statistics were calculated for demographic variables. Mean agreement ratings were calculated for barriers and facilitators.

Qualitative Focus Groups

Volunteers participated in one of three semi-structured 45-minute focus group sessions with 6-8 technicians per group. A guide elicited perspectives on:

- Experiences using evidence-based protocols
- Barriers faced in adopting protocols
- Supports needed to enhance adoption
- Recommendations for promoting evidence-based practice

Transcripts underwent inductive thematic analysis using open coding and constant comparison guided by Braun and Clarke's approach (2006).

Ethical Considerations

Institutional review board approval was obtained. Informed consent was provided by all participants. Confidentiality was maintained.

Results

Quantitative Survey Findings

Participant Demographics

Table 1 displays survey respondent demographic characteristics (N=121). Most respondents were female, aged 26-30 years, diploma-prepared, and had 1-5 years of experience.

Table 1. Survey Respondent Demographics

Demographic	n (%)
Gender	
Male	43 (36%)
Female	78 (64%)
Age (years)	
20-25	22 (18%)

Demographic	n (%)
26-30	57 (47%)
31-40	37 (31%)
>40	5 (4%)
Education	
Diploma	79 (65%)
Bachelor's	31 (26%)
Post-basic diploma	11 (9%)
Experience (years)	
1-5	68 (56%)
6-10	35 (29%)
>10	18 (15%)

Top Barriers to Evidence-Based Protocol Use

The top barriers based on mean agreement ratings were insufficient time (3.9/5), inadequate knowledge (3.7/5), lack of training (3.6/5), and poor access to protocols (3.5/5).

Facilitators to Enhance Evidence-Based Protocol Use

The key facilitators identified were education programs (4/5), mentorship (4/5), and nursing leadership support (4/5).

Qualitative Focus Group Findings

Focus group data analysis elicited three central themes:

Theme 1: Workflow Constraints

Technicians felt limited time and high patient loads impeded searching databases and appraising literature:

“There’s no time to read articles.”

Theme 2: Knowledge Deficits

Many noted lack of knowledge in research methods, statistics, and evidence appraisal:

“We don’t know how to tell if studies are good quality.”

Theme 3: Organizational Supports Lacking

Technicians described inadequate access to evidence summaries, protocols embedded in records, decision tools, and technology training as hindering adoption:

“Protocols aren’t available at point of care.”

They advised enhancing access, training, mentors, and addressing workflow barriers.

Discussion

This mixed methods study provides crucial insights into factors influencing nurse technician adoption of evidence-based protocols in Saudi hospitals. Insufficient time, knowledge deficits, inadequate training, and poor evidence access emerged as major barriers. Education, mentors, protocols in records, and nursing leadership support were identified as key facilitators. Focus groups highlighted organizational constraints around information access and technology training along with workflow barriers limiting literature searching.

Findings align with prior evidence on nurse barriers and have implications for strategic initiatives to promote adoption among hospital nurse technicians. Tailored educational programs focused on building literature search and appraisal skills along with embedding user-friendly evidence summaries and protocols directly in electronic workflows could overcome key barriers around knowledge and access. Protected time for searching evidence and training on information platforms are warranted. Unit protocols and tools can disseminate key evidence-based practices. Nursing leadership should foster a culture valuing and expecting evidence-based care.

As a single country study, generalizability may be limited. Additionally, barriers among intensive care technicians may differ due to greater evidence exposure. However, the mixed methods design elicited an in-depth understanding of influences on adoption. Further repeat surveys could track changes over time. Overall, findings provide crucial insights to inform targeted strategies for optimizing nurse technician evidence-based practice and delivery of highest quality patient care.

Conclusion

This mixed methods study identified multifaceted barriers related to time, knowledge, training, access, and organizational supports as hindering nurse technician adoption of evidence-based protocols in Saudi hospitals. Tailored educational programs, user-friendly evidence resources embedded in workflow, protected literature search time, mentors, nursing leadership support, and a culture valuing evidence-based practice were highlighted as key facilitators to guide strategic initiatives aimed at promoting adoption. Focused efforts addressing identified barriers through a multifaceted approach encompassing accessible training aligned with technician needs, optimized knowledge resources, protocols integrated in practice, and leadership support for evidence-based practice are warranted based on findings. Prioritizing evidence-based care promises to enhance nurse technician delivery of optimal patient care grounded in current best empirical evidence.

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