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Barriers and facilitators in implementing evidence-based practice: a parallel cross-sectional mixed methods study among nursing administrators

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Abstract

Background Evidence-based practice (EBP) is a cornerstone of quality healthcare, yet a significant gap persists between nursing administrators' advocacy for EBP and its clinical adoption, particularly in resource-constrained settings.

Aim This study investigates barriers and facilitators to EBP adoption as perceived by nursing administrators in Saudi Arabian hospitals to inform tailored interventions. Design: A parallel mixed-method, cross-sectional design was employed.

Methods A total of 385 nursing administrators from 12 stratified hospital types in the Northern Region of Saudi Arabia completed structured surveys assessing EBP barriers and facilitators. Semi-structured interviews with 40 purposively sampled participants provided qualitative insights. Data were analyzed using descriptive, correlational, and thematic approaches.

Results Key barriers included insufficient staffing and time resources, particularly in private and specialized hospitals (mean = 4.05, SD = 1.46, $p < 0.05$). Supportive organizational policies ($p = 0.015$) and leadership experience significantly influenced EBP adoption. Barriers, such as resource constraints, were negatively correlated with willingness to adopt EBP ($r = -0.17$ to -0.35), while multifaceted strategies explained 27% of the variance in implementation intentions. Qualitative findings highlighted that 92% prioritized patient care quality, while 80% emphasized cost-benefit trade-offs.

Conclusion This study highlights the critical role of organizational support, leadership advocacy, and tailored interventions in overcoming EBP barriers. Gender diversity among administrators and the influence of hierarchical dynamics in Saudi Arabian healthcare settings provide novel insights for improving EBP adoption.

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Implications for the Profession The findings provide actionable strategies for policymakers and nursing leaders to enhance EBP adoption, fostering improved healthcare outcomes and leadership effectiveness.

Clinical trial number Not applicable.

Keywords Evidence-based practice, Nursing administration, Barriers, Facilitators, Leadership, Mixed-methods, Saudi Arabia

Introduction

As the healthcare landscape continues to evolve with new technologies and discoveries, evidence-based practice (EBP) has rightfully earned recognition as a critical component in enhancing patient outcomes, improving the quality of care, and catalyzing progress across systems worldwide [1–3]. EBP integrates the conscientious use of the best current evidence from well-designed studies in conjunction with the expertise of a physician and patient preferences and values to guide optimal healthcare decision-making [4–9]. Considerable empirical validation in diverse settings confirms the effectiveness of EBP in promoting superior clinical outcomes and patient satisfaction through reliable and up-to-date protocols [10], nurturing critical thinking among staff, controlling costs, and standardizing care quality [11–13].

Despite extensive promotion among health authorities and administrators, a substantial gap persists globally between organizational aspirations to adopt EBP and its tangible clinical implementation [14–16], suggesting that deeply embedded barriers obstruct translation into daily practice. Surveys from North America to Europe, Asia, Australia, Africa, and the Middle East reveal a prevailing trend– while more than 80% of nursing administrators endorse support for EBP principles, only around 30–45% of bedside nurses report regularly utilizing evidence-based guidelines [17–22]. This enormous discrepancy highlights concerning divides between managerial priorities and realities of practice, with complex cultural, infrastructural, and capacity barriers underlying implementation inconsistencies across settings [8, 23, 24].

Nursing administrators occupy an increasingly vital position in shepherding EBP adoption through their oversight of staff training, unit operations, resource distribution, practice policies, and organizational culture shaping [1, 25–27]. Their leadership reach extends far beyond pure management, necessitating a complex balancing act, on the one hand directly overseeing care quality while, on the other, working to bolster supporting institutional frameworks facilitating practice change [28, 29]. How administrators perceive and employ EBP within their responsibilities tremendously influences motivating or hindering wider integration [30–32]. Among bedside nurses, barriers such as knowledge deficits in evaluating evidence, heavy workload constraints, outdated authoritarian leadership paradigms emphasizing tradition over innovation, and critically [33, 34], the lack of practical support from nurse managers obstructs the engagement with BP [35, 36]. Whereas facilitators include robustly promoting continuous EBP education, access to current evidence summaries, mentored journal clubs, workplace policies supporting EBP, and nursing leaders who actively role model, advocate for, and allocate resources towards integrating evidence-based changes [37–40].

While substantial literature examines barriers among front-line nursing staff, far less scrutiny is directed at the experience of administrators occupying the nexus between bedside care and boardroom policies [41–43]. This oversight leaves unknowns around the daily challenges of administrators, information and skill needs, sources of decision-making support, and, uniquely, how they balance competing priorities between patient care quality and institutional restrictions to advance EBP initiatives within their sphere of influence [44, 45]. Elucidating administrators' perceived barriers and facilitators shows tremendous promise for constructing effective interventions and tailored solutions addressing multifaceted EBP adoption obstacles at a systemic level [46–49]. Supporting administrators in implementing informed organizational improvements and demonstrating dynamic leadership that embraces evidence-based vision promises the immense potential to transform nurse engagement, patient outcomes, and institutional agility to accelerate healthcare improvements for the future [41, 50–53].

While extensive literature explores barriers and facilitators to EBP implementation among bedside nurses, limited research addresses the unique experiences and challenges faced by nursing administrators [47–49]. This oversight leaves critical gaps in understanding how administrators navigate systemic obstacles, balance competing priorities, and leverage their leadership roles to bridge the gap between policy and practice. This study aims to fill this gap by focusing on the perspectives of nursing administrators, providing insights to inform tailored interventions and systemic solutions for EBP adoption. This study offers a novel contribution to the literature by shifting the focus from bedside nurses, who are commonly the subject of EBP studies, to nursing administrators. By exploring how administrators perceive and address systemic barriers and facilitators, this research provides unique insights into their pivotal role

in bridging the gap between institutional policies and clinical practice. Additionally, this study examines these dynamics in Saudi Arabia, a context with distinct cultural and organizational characteristics that are underrepresented in the global EBP literature.

This cross-sectional study investigates the perspectives of nurse administrators in the Gulf states of Saudi Arabia on specific barriers and facilitators that influence their capacity to promote the adoption of EBP within their leadership jurisdiction. Findings will delineate organizational targets to inform policy changes, resource allocation, communication frameworks, and administrator training tailored to enhance EBP facilitation and overcome implementation obstacles. In conclusion, this study addresses a notable gap by investigating the perspectives of nursing administrators, who occupy an important yet underutilized position within healthcare systems, to bridge the divides between the support espoused for and the embodied adoption of EBP. Findings will define organizational targets across the training, evaluation, communication, and resource allocation realms to inform policies that empower administrators to play the multidimensional leadership role required by the facilitation of BP in a complex and dynamically evolving healthcare landscape.

Research objectives

1. To identify barriers nursing administrators, face in implementing evidence-based practice, use surveys and focus groups to assess knowledge gaps, resource limitations, policy issues, and cultural resistance.
2. To determine facilitators that help nursing administrators adopt evidence-based practice, questionnaires and interviews should be used to evaluate drivers like leadership support, training, streamlined policies, and organizational enabling.
3. To elucidate how nursing administrators make decisions on advancing evidence-based care while facing constraints around staffing and institutional resistance, using case scenario interviews to reveal balancing processes.

Methods

Design

A parallel cross-sectional mixed method was conducted to investigate the perspectives of nursing administrators in the Gulf State of Saudi Arabia on the barriers and facilitators that influence the adoption of EBP within their leadership roles.

Setting

The study was conducted in five major hospitals in the northern region of the Kingdom of Saudi Arabia, selected to represent a diverse range of healthcare settings. These hospitals included two large public general hospitals, one specialized public hospital, one large private general hospital, and one medium-sized private specialized hospital. This selection ensured representation across different healthcare settings, ownership models, and specialization levels, allowing for a comprehensive understanding of barriers and facilitators to EBP adoption. The stratification also reflects the study sample distribution, where public hospitals constituted the majority, followed by private and specialized hospitals. The selection criteria included the size and type of hospital (encompassing both tertiary and secondary care facilities), the diversity of the patient's demographics, differences in administrative structures, and resource availability. These hospitals were chosen to ensure a comprehensive understanding of the barriers and facilitators influencing the adoption of evidence-based practice among nursing administrators. This diversity in selection was critical for capturing varied organizational challenges and strategies, thereby enhancing the generalizability of the findings. Selection also factored in the feasibility of data collection, geographic accessibility, and willingness of the hospital administration to participate in the study. This approach ensures that the study findings are representative and applicable across different northern Saudi Arabian healthcare settings.

Sample

The study sample consisted of nursing administrators, including directors, managers, supervisors, and charge nurses, employed in hospitals within the Northern Region of Saudi Arabia. These administrators, who oversee and coordinate care delivery, provided critical insights into the barriers and facilitators influencing the implementation of evidence-based practice (EBP). A stratified random sampling technique, using a two-stage process involving stratification and proportional sampling, was employed to ensure balanced representation across diverse healthcare settings.

Stratification and sampling procedure

In the *first stage*, hospitals were stratified into 12 distinct categories based on three critical variables: health system (public or private), specialization (general or specialized), and bed capacity (small, medium, or large). This stratification was designed to capture the diversity of healthcare contexts in the region.

In the *second stage*, proportional sampling was conducted within each stratum to allocate the required 385 participants according to the population size within each category. For example, strata with the largest number of eligible administrators, such as public general hospitals with large bed capacities, contributed 25% of the sample.

In contrast, rarer strata, such as privately owned specialty hospitals, contributed 5%. This approach ensured a representative sample that reflected the varied perspectives of nursing administrators across healthcare settings.

Recruitment process

Participants were recruited through a combination of centralized and on-site methods. Survey links were distributed via email to eligible nursing administrators, accompanied by two follow-up reminders to maximize participation. On-site recruitment was conducted during nursing leadership meetings, where the investigator introduced the study, answered questions, and distributed printed surveys and consent forms to interested candidates. This hybrid approach facilitated a 75% response rate, with 385 administrators completing the survey out of the 515 invited.

Qualitative sample

A subset of 40 interview participants was selected based on the principle of data saturation, ensuring a comprehensive exploration of perspectives. This sample was designed to achieve balanced representation across hospital types, administrative roles, and demographic groups, aligning with qualitative research standards. The interviews provided in-depth insights into systemic barriers and facilitators to EBP adoption, complementing the quantitative data and enhancing the study's depth and validity.

Figure 1 visually represents the study's sampling and data collection process, illustrating the progression from the initial study population through stratification, sampling, and recruitment to data integration in the mixed-methods triangulation framework.

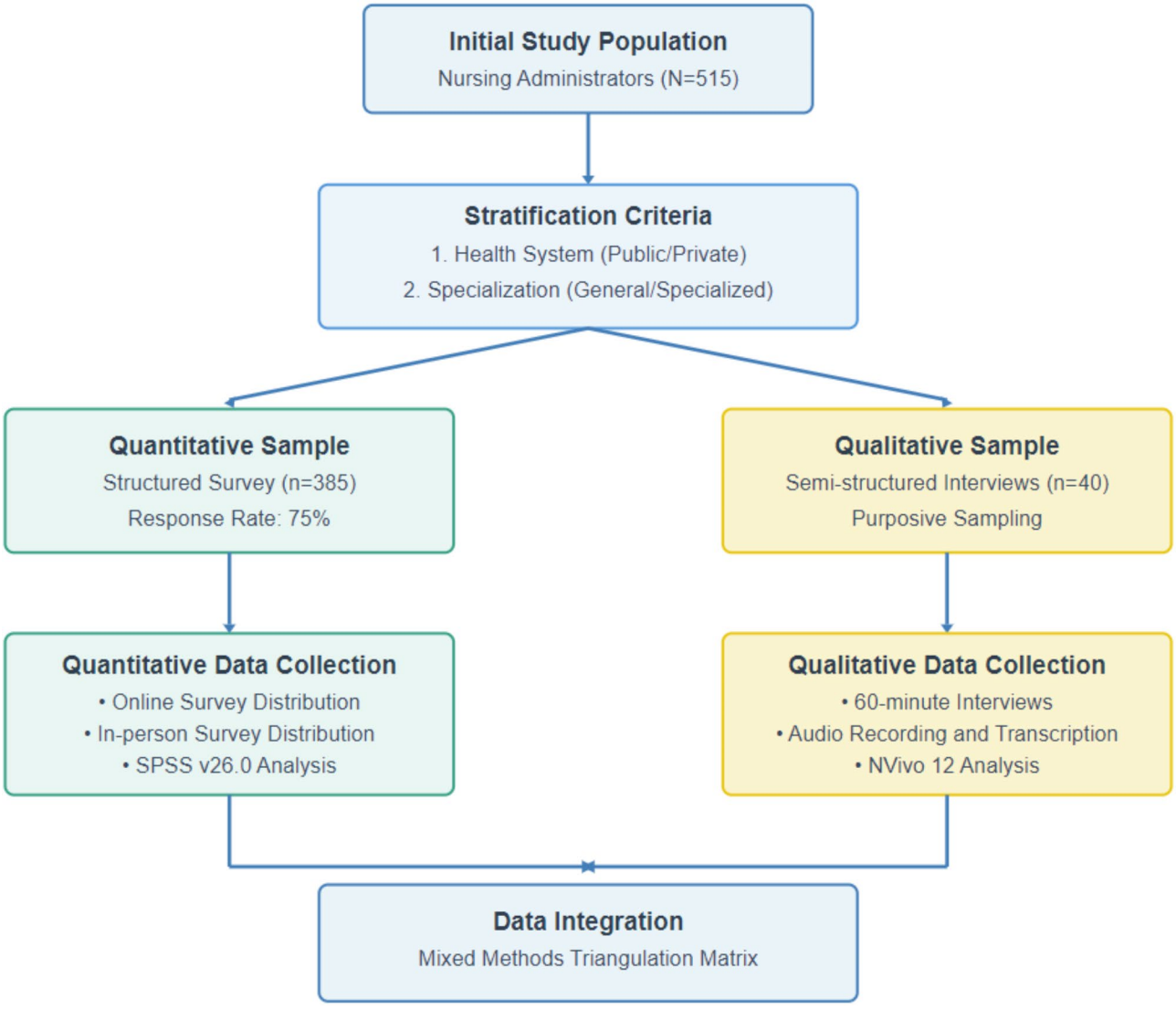

Fig. 1 Study sampling and data collection process

Eligibility criteria

The study focused on nursing administrators directly involved in care delivery oversight and EBP implementation. Participants were included if they held active nursing oversight roles, such as director, manager, supervisor, or charge nurse, at one of the selected hospitals and had at least one year of experience in their current administrative role. Exclusion criteria targeted individuals in executive leadership roles (e.g., C-suite) without direct oversight of unit operations or those with non-clinical administrative responsibilities unrelated to care delivery, staff supervision, or quality improvement (e.g., payroll, human resources, facilities management). These criteria ensured the inclusion of nursing administrators with relevant operational and leadership experience, providing meaningful insights into barriers and facilitators of EBP adoption.

Data collection tools

This mixed-methods study employed a structured survey questionnaire and an interview guide to comprehensively explore the barriers and facilitators influencing nursing administrators' implementation of EBP.

Quantitative tool: structured survey questionnaire

The structured survey comprised three sections to collect data relevant to the study's objectives:

1. **Demographic information:** This section captured participants' demographic and professional characteristics, including age, gender, educational background, years of experience, roles, oversight responsibilities, and hospital characteristics. Content validity was established through an expert panel review to ensure the relevance and clarity of the items. Prior to full-scale distribution, a pilot test was conducted with 30 nursing administrators who were not part of the main study sample. The pilot aimed to assess item clarity, response time, and overall feasibility. Feedback indicated minor wording ambiguities, which were refined for improved clarity. The internal consistency of the questionnaire in the pilot phase was high (Cronbach's $\alpha = 0.88$), confirming its reliability. No significant structural modifications were required before administering the final survey.
   The Organizational Readiness for Evidence-Based Practice Implementation Scale and the Evidence-Based Practice Nursing Facilitators Scale were selected due to their strong psychometric properties, prior validation in healthcare settings, and their specific focus on assessing organizational and leadership influences on EBP adoption. These tools align with the study's aim of examining nursing administrators' perspectives, a critical yet underexplored group in EBP research. While the original instruments were designed for diverse healthcare environments, minor wording adaptations were made to reflect the Saudi Arabian nursing context, ensuring relevance to administrative structures, workforce policies, and local healthcare practices. These modifications were reviewed by an expert panel to maintain conceptual consistency while enhancing contextual applicability.
2. **Barriers subscale:** Adapted from the validated **Organizational Readiness for Evidence-Based Practice Implementation Scale**, this 20-item self-report questionnaire identifies obstacles to EBP adoption from the perspective of nursing administrators [54, 55]. Items assess organizational culture misalignment, insufficient leadership support, challenges monitoring EBP effectiveness, inadequate resource allocation, and limited staff knowledge and skills. Responses are rated on a 5-point Likert scale ranging from "Very Unlikely" to "Very Likely," with higher scores indicating greater perceived barriers [56]. The subscale demonstrates excellent internal consistency reliability (Cronbach's $\alpha = 0.92$) and construct validity, supported by correlations with EBP knowledge assessments and organizational readiness inventories [55, 57]. This tool provides a targeted framework for identifying setting-specific obstacles to evidence-based nursing care [58, 59]. Additional psychometric testing in our study sample demonstrated strong internal consistency ($\alpha = 0.89$), test-retest reliability over two weeks ($r = 0.87$), and construct validity through factor analysis (KMO = 0.82, explaining 68% of variance).
3. **Facilitators subscale:** Derived from the validated **Evidence-Based Practice Nursing Facilitators Scale**, this 15-item questionnaire evaluates enablers of EBP implementation [60, 61]. Participants rate the effectiveness of factors such as organizational climate, policies supporting EBP, availability of resources, and adequacy of training on a 5-point Likert scale from "Not Effective" to "Very Effective [60, 62]. Total scores reflect the perceived strength of these facilitating factors. The subscale has strong reliability (Cronbach's $\alpha = 0.83$) and content validity, confirmed through literature reviews and expert panel evaluations [62, 63]. Construct validity is supported by correlations with organizational innovation measures. This instrument enables the strategic identification of supportive infrastructure critical for fostering EBP adoption [63]. In our study, this subscale demonstrated strong psychometric properties, including internal consistency ($\alpha = 0.86$), test-retest reliability over two weeks ($r = 0.85$), and

construct validity supported by factor analysis (KMO = 0.81, explaining 64% of variance).

Together, these validated tools ensure comprehensive and reliable data collection, providing insights into the systemic dynamics that shape nursing administrators' capacity to implement evidence-based practices.

Qualitative tool: interview guide

A semi-structured interview guide was specifically developed for this study to explore the decision-making processes of nursing administrators regarding the EBP (Supplementary File 1). This guide was designed to elicit detailed insights into how administrators navigate the interplay between institutional restrictions and their commitment to quality patient care. The guide included key thematic areas: administrators' backgrounds, direct experiences with EBP, challenges and successes in implementation, balancing institutional demands, and reflections on leadership strategies.

The development process for the interview guide was rigorous and iterative, grounded in a comprehensive literature review focused on EBP implementation in nursing administration. The draft guide underwent expert review by senior nursing researchers and administrators with experience in EBP. Their feedback informed revisions to improve question clarity, relevance, and alignment with the study objectives. Following expert review, the guide was pilot tested with a small group of nursing administrators not included in the main study. This testing identified ambiguities in question-wording, sequencing, and flow, which were subsequently refined to enhance the tool's reliability and effectiveness in eliciting meaningful data. To ensure trustworthiness and rigor, we established content validity through an expert panel review (five senior nurse administrators and researchers), face validity via pilot testing with eight nursing administrators, and reliability with an inter-rater agreement of 92% between two independent coders. Additionally, dependability was ensured through a detailed audit trail of the guide development process, and credibility was strengthened using member checking of interview transcripts and interpretations.

Data validation

Member checking was employed to ensure the qualitative data's validity and reliability. Participants were provided summaries of key themes and findings from their interviews to confirm accuracy and resonance with their experiences. Additionally, two researchers independently reviewed thematic coding, with discrepancies resolved through discussion to strengthen reliability. Triangulation was achieved by comparing qualitative findings with quantitative survey data, ensuring consistency and complementarity between datasets. These validation strategies enhanced the findings' robustness and alignment with the study objectives. The final interview guide provided a flexible yet structured framework for exploring the complex dynamics influencing EBP implementation. This approach allowed for the emergence of novel insights while maintaining focus on the study's central research questions.

Ethical approval

This study received ethical approval from the Jouf University Institutional Bioethics Review Board (Approval Number: 8-05-45) following a thorough evaluation of its methodology, participant protections, and data confidentiality measures. The study was confirmed to comply with the ethical standards outlined in the Declaration of Helsinki and all applicable institutional, national, and international regulations governing human research. Several measures were implemented to ensure participant confidentiality. During the interviews, all participants were assigned unique identification codes, and no personally identifiable information was recorded or linked to their responses. Audio recordings and transcripts were securely stored on password-protected devices accessible only to the research team. Anonymized transcripts were used for thematic analysis to ensure that participants' identities remained protected throughout the research process. Additionally, written informed consent was obtained from all participants, clearly outlining the purpose of the study, confidentiality assurances, and their right to withdraw at any time without consequences. Approval from participating hospital research committees was obtained before data collection, further reinforcing the commitment to ethical research practices. These measures reflect the research team's dedication to safeguarding participants' rights and ensuring the confidentiality of their contributions at every stage of the study.

Procedure

After receiving formal ethical approval, the research team initiated participant recruitment and data collection in sequential steps designed to ensure methodological rigor and representativeness. First, signed agreements secured administrative permissions from each hospital's nursing director and relevant research committees. These approvals permitted access to potential participants, distribution of surveys, arrangement of interviews, use of de-identified data, and reporting of aggregate findings.

Survey participant recruitment and data collection

Once site permissions were established, the research team employed a stratified sampling framework to account for hospital type, size (bed capacity), specialization level, and ownership model. Within each stratum,

a simple random sampling procedure was used to invite nursing administrators to participate. Survey distribution occurred through two parallel channels. An email invitation, including a study overview and consent form, was sent to 515 randomly sampled administrators across five hospitals that met the inclusion criteria. Respondents received up to two reminder emails at two-week intervals, although no incentives were offered, preserving voluntary participation. In tandem, the primary investigator attended scheduled nursing leadership meetings at participating hospitals over an eight-week span. Administrators who provided written consent in person were given printed surveys, which they completed anonymously, sealed in envelopes, and returned to the investigator. In total, 385 surveys were completed, meeting the a priori sample size requirements and providing adequate statistical power. All survey data were then exported to SPSS software for quantitative analysis.

Interview participant selection

To obtain deeper qualitative insights, the research team selected 40 nursing administrators from among the survey respondents for semi-structured interviews. A combined maximum variation and typical-case approach ensured a balanced representation of administrators based on diverse demographics, hospital settings (public, private, specialized), and leadership roles. Stratifying the survey respondent list into relevant subgroups (e.g., years of experience, extent of reported barriers, readiness for EBP) enabled purposeful sampling of information-rich participants. Random draws of five to ten administrators per subgroup were then used to finalize a set of 40 interviewees whose characteristics mirrored the broader survey population.

Interview data collection

Individual interviews, each lasting up to 60 min, were conducted in Arabic by a native-speaking research team member. A semi-structured interview guide with open-ended questions was used to explore the interplay between institutional constraints and administrators' commitment to evidence-based patient care. Interviews took place in a private setting to foster candid discussion. All sessions were audio-recorded and professionally transcribed. The research team checked the transcripts for accuracy and completeness.

Statistical analysis

Quantitative survey data were analyzed using SPSS version 26.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize sample characteristics and outcome variables. The Kolmogorov-Smirnov test assessed data normality, guiding the selection of parametric or nonparametric inferential analyses. One-way ANOVA was conducted to compare mean barrier and facilitator scores across hospital types and administrator experience levels, with the Levene test assessing variance homogeneity. Tukey post hoc tests identified specific group differences. Pearson's correlation analysis evaluated the relationships between perceived barriers and intentions to adopt evidence-based practices (EBP), while multiple linear regression identified predictors of implementation intentions. Statistical significance was set at $p < 0.05$ for all tests.

Qualitative data were analyzed using inductive thematic analysis in NVivo 12 software. Two independent researchers identified emerging themes through iterative coding and refinement to ensure consistency. The final codebook included representative quotes that captured the core themes related to nursing administrators' decision-making processes and strategies for balancing institutional priorities with EBP implementation. A joint display analysis was conducted to integrate the findings. This approach interwove quantitative and qualitative results within a convergence matrix, mapping areas of alignment and divergence to provide a holistic understanding of administrators' perspectives. By combining statistical findings with thematic insights, this mixed-method triangulation enhanced the depth and breadth of the study's conclusions, offering a comprehensive view of the dynamics influencing practice transformation.

Results

The results delineate the perspectives of nursing administrators surrounding the barriers and facilitators that influence evidence-based practice implementation across a spectrum of hospitals in Saudi Arabia. Of the 385 leaders surveyed, responses revealed significant barriers, including resource constraints (e.g., staffing shortages, inadequate training opportunities) and leadership challenges, while facilitators included organizational culture prioritizing patient outcomes and interdepartmental collaboration. Qualitative interviews with 40 administrators provided deeper insights into the challenges of balancing institutional demands with EBP goals, highlighting specific strategies employed to navigate these dynamics. Statistical analyses identified resource availability, leadership support, and structured training as key predictors of EBP adoption intentions, with notable variations across hospital types. These findings underscore the critical need for targeted interventions tailored to specific organizational contexts to enhance administrators' ability to lead evidence-based practice transformations.

Table 1 presents the demographic profile of 385 nursing administrators from a range of hospital settings in Saudi Arabia. Most participants were middle-aged females with master's degrees, employed as managers in

Table 1 Demographic characteristics of nursing administrator participants ($N = 385$)

Demographic variable	Category	Frequency	Percentage (%)
Gender			
	Male	90	23.4
	Female	280	72.7
	Other	15	3.9
Age group			
	< 30 years	35	9.1
	30–40 years	140	36.4
	41–50 years	125	32.5
	> 50 years	85	22.1
Highest nursing degree			
	Bachelors	150	39.0
	Masters	180	46.8
	Doctorate	55	14.3
Current nursing administrator role			
	Director	70	18.2
	Manager	150	39.0
	Supervisor	100	26.0
	Charge Nurse	65	16.9
Years of experience in current role			
	< 5 years	150	39.0
	5–10 years	125	32.5
	11–15 years	70	18.2
	> 15 years	40	10.4
Type of hospital			
	Public	200	52.0
	Private	150	39.0
	Specialized	35	9.1
Hospital bed capacity			
	Small (< 100 beds)	50	13.0
	Medium (100–500 beds)	235	61.0
	Large (> 500 beds)	100	26.0

mid-sized public hospitals. This demographic composition highlights the perspectives of experienced nurse leaders overseeing general care operations, particularly in the public sector. The sample also includes diverse representations across age, educational attainment, oversight roles, and institutional types, supporting the generalizability of findings to varied healthcare contexts. However, the predominance of female participants reflects the gendered nature of nursing leadership, which could limit the exploration of gender-neutral perspectives. These demographics provide an essential context for understanding the barriers and facilitators of evidence-based practice implementation identified in this study. A small percentage of participants (3.9%) chose not to disclose their gender, recorded under "Other," reflecting non-disclosure rather than a distinct gender category.

Table 2 analyzes variations in perceived barriers to evidence-based practice (EBP) implementation among public ($n = 200$), private ($n = 150$), and specialized hospitals ($n = 35$). Statistical testing identified significant differences in insufficient staffing resources and time constraints, with private and specialized hospitals reporting higher levels of these barriers compared to public institutions. This likely reflects tighter budgetary restrictions and more complex patient care needs in these settings. While other barriers, such as cultural rigidity, leadership support, and evaluation effectiveness, showed no statistically significant differences, subtle qualitative differences suggest variability in administrative perspectives. These findings underscore the need for tailored interventions, such as resource reallocation strategies for private and specialized hospitals or targeted leadership training to address universal challenges. By identifying both shared and setting-specific barriers, the analysis highlights critical opportunities to enhance EBP adoption through situationally adaptive solutions.

Table 3 analyzes variations in perceived facilitators of EBP implementation among nursing administrators with different levels of professional experience: <5 years ($n = 150$), 5–10 years ($n = 125$), 11–15 years ($n = 70$), and > 15 years ($n = 40$). Statistical testing revealed significant differences in perceived facilitators, with more experienced administrators reporting higher mean scores for resource allocation, communication channels, training programs, and institutional policy support. These findings suggest that leadership experience is critical for effectively leveraging institutional infrastructure to drive practice transformation. While a supportive leadership culture showed an upward trend, the differences were not statistically significant, potentially reflecting the pervasive importance of leadership across experience levels.

Table 2 Perceived barriers to evidence-based practice implementation by hospital type ($N = 385$)

Barrier subscale	Public, Mean (SD) ($n = 200$)	Private Mean (SD) ($n = 150$)	Specialized, Mean (SD) ($n = 35$)	F-value	*p*-value	Eta2
Cultural resistance to change	3.075 (1.251)	2.853 (1.072)	3.457 (1.249)	1.944	0.146	0.010
Leadership style not supportive	2.740 (1.449)	3.187 (1.343)	3.114 (1.037)	2.773	0.064	0.014
Lack of effective evaluation procedures	3.325 (1.525)	2.907 (1.170)	3.771 (1.341)	1.326	0.267	0.007
Insufficient EBP staffing	3.500 (1.644)	4.053 (1.461)	4.343 (1.149)	3.017	0.050*	0.016
Inadequate EBP implementation time	4.200 (1.738)	3.787 (1.260)	3.971 (0.900)	0.944	0.390	0.005

*Indicates significant correlation at $p < 0.05$

Table 3 Perceived facilitators of EBP implementation by administrator experience($N = 385$)

Facilitator subscale	< 5 years, Mean (SD) ($n = 150$)	5–10 years, Mean (SD) ($n = 125$)	11–15 years, Mean (SD) ($n = 70$)	> 15 years, Mean (SD) ($n = 40$)	F-value	*p*-value	Eta2
Supportive organizational leadership	3.20 (1.05)	3.46 (0.94)	3.97 (1.01)	4.23 (1.25)	2.450	0.065	0.019
Adequate allocated resources	2.75 (1.34)	3.12 (1.16)	3.61 (1.14)	3.90 (1.04)	3.116	0.028*	0.024
Effective internal communication channels	3.02 (1.02)	3.26 (1.12)	3.69 (1.17)	3.83 (1.14)	2.753	0.045*	0.021
Evidence-based practice staff training programs	2.46 (1.25)	2.85 (1.28)	3.24 (1.43)	3.48 (1.21)	2.868	0.039*	0.022
Organizational policy support	3.13 (0.99)	3.43 (1.09)	3.77 (1.31)	4.03 (1.12)	3.564	0.015*	0.027

*Indicates significant correlation at $p < 0.05$

Table 4 Comparison of perceived barriers across hospital types ($N = 385$)

Barrier subscale	Public ($n = 200$)	Private ($n = 150$)	Specialized ($n = 35$)	F-value	*p*-value
Cultural resistance, mean (SD)	3.1 (1.3)	2.8 (1.1)	3.5 (1.2)	1.94	0.15
Leadership challenges, mean (SD)	2.7 (1.4)	3.2 (1.3)	3.1 (1.0)	2.77	0.06
Evaluation difficulties, mean (SD)	3.3 (1.5)	2.9 (1.2)	3.8 (1.3)	1.33	0.26
Resource constraints, mean (SD)	3.5 (1.6)	4.1 (1.5)	4.3 (1.1)	3.02	0.05*
Knowledge deficits, mean (SD)	2.9 (1.3)	3.1 (1.2)	3.3 (0.9)	0.72	0.49
Time limitations, mean (SD)	4.2 (1.7)	3.8 (1.3)	4.0 (0.9)	0.94	0.39
Overall, barriers, mean (SD)	3.3 (1.1)	3.2 (1.0)	3.5 (0.8)	1.77	0.17

*Indicates significant correlation at $p < 0.05$

These results highlight the need for targeted interventions to bridge the gap for less experienced administrators, such as structured mentorship programs, leadership development workshops, and on-the-job training focused on EBP facilitation. By equipping early-career administrators with the tools to navigate organizational dynamics, healthcare institutions can foster a more consistent and widespread adoption of EBP across leadership levels. The findings reinforce the role of professional growth in empowering nursing administrators to lead transformative change effectively.

Table 4 analyzes variations in perceived barriers to evidence-based practice (EBP) implementation among nursing administrators in public ($n = 200$), private ($n = 150$), and specialized hospitals ($n = 35$). Statistical testing revealed significant differences in resource allocation, with private and specialized hospitals reporting higher levels of staffing, equipment, and overall resource deficiencies compared to public hospitals. These findings likely reflect tighter budget constraints and the complexity of care needs in these settings. While other barriers, such as cultural rigidity, leadership support, evaluation efficacy, knowledge gaps, and time limitations, did not show statistically significant differences, subtle variations in group means suggest these challenges vary across hospital types.

This indicates that while some barriers, like resource deficiencies, are setting-specific, others represent universal challenges faced by nursing administrators. These results underscore the need for tailored interventions to address resource constraints in private and specialized hospitals, such as targeted funding initiatives, resource optimization programs, and policy reforms to enhance infrastructure. Simultaneously, strategies to address universal barriers, such as fostering leadership development, improving evaluation procedures, and building EBP training programs, could benefit administrators across all hospital types. By addressing both setting-specific and universal challenges, healthcare systems can better support administrators in leading EBP transformations.

Table 5 Correlation between perceived barriers and willingness to adopt evidence-based practices ($N = 385$)

Perceived barrier subscale	Correlation coefficient (*r*)	*p*-value	95% Confidence interval
Cultural resistance	-0.205*	0.023*	(-0.319, -0.091)
Leadership challenges	-0.242*	0.016*	(-0.347, -0.137)
Evaluation difficulties	-0.173*	0.037*	(-0.293, -0.053)
Resource constraints	-0.287*	0.005*	(-0.412, -0.162)
Knowledge deficits	-0.326*	0.002*	(-0.447, -0.205)
Time limitations	-0.307*	0.004*	(-0.434, -0.180)
Overall, barriers	-0.351*	< 0.001*	(-0.471, -0.233)

*Indicates significant correlation at $p < 0.05$

Table 5 presents the correlation analysis, revealing statistically significant moderate negative relationships between nursing administrators' perceptions of barriers such as cultural rigidity, leadership resistance, evaluation challenges, insufficient resources, staff skills, and time limitations and their willingness to implement evidence-based practice (EBP) changes (correlation coefficients ranging from −0.17 to -0.35). These findings indicate that as the magnitude of these barriers increases, administrators' motivation to adopt EBP decreases. Addressing these barriers comprehensively is critical to fostering a more supportive environment for EBP adoption. For

Table 6 Predictors of evidence-based practice implementation intentions ($N = 385$)

Predictor variable	Standardized beta	B	SE B	t-value	*p*-value	95% CI
Organizational support	0.236	0.243	0.071	3.422	0.001*	(0.104, 0.382)
Leadership commitment	0.180	0.177	0.059	3.004	0.003*	(0.062, 0.292)
Resource availability	0.204	0.195	0.078	2.502	0.013*	(0.042, 0.348)
EBP training & development	0.153	0.148	0.049	3.010	0.003*	(0.052, 0.244)
Clear EBP policies	0.124	0.120	0.040	3.000	0.003*	(0.042, 0.198)
Interdepartmental EBP collaboration	0.173	0.166	0.059	2.834	0.005*	(0.051, 0.281)

$R2 = 0.27$, $F(6, 378) = 23.62$, $p < 0.001$ *Indicates significant correlation at $p < 0.05$

Table 7 Major qualitative themes on administrator decision-making ($N = 40$)

Theme	Description	*n* (%) endorsing	Exemplary quote
Commitment to care quality	Sense of duty to patients as foremost priority guiding decisions	37 (92.5%)	"I became a nurse to provide the best care possible for patients - that has to come first."
Cost-benefit analysis	Weighing monetary, staffing, and time resources against patient benefit	32 (80.0%)	"There are always trade-offs to consider in terms of costs, workload impacts and outcomes."
Managing competing priorities	Balancing varied bureaucratic, operational, and political pressures	29 (72.5%)	"It feels like a constant juggling act between the different stakeholder agendas."
Collaborative advocacy	Build alliances with other departments to lobby leadership	26 (65.0%)	"Garnering collective support strengthens our voice in petitioning those controlling the budgets."
Gradual data-driven change	Incremental evidence-based changes to demonstrate benefit	21 (52.5%)	"We make the case with data and take small steps to bring leadership on board over time."

example, targeted training programs can build staff competencies and confidence, while improved communication channels can reduce resistance and clarify expectations. Updating institutional policies to prioritize EBP and allocating resources strategically, especially to address time and staffing constraints, could empower both leaders and frontline staff. These interventions, tailored to address specific barriers, hold immense potential to shift attitudes and accelerate systemic advancements in evidence-based practices.

Table 6 presents a regression analysis showing that an interdisciplinary, synchronized organizational change strategy, including robust training programs, enhanced policies, resource allocation, and interdepartmental collaboration, explains 27% of the variability in nursing administrators' willingness to implement EBP. Among these predictors, leadership support at both executive and frontline levels emerged as the most influential factor, highlighting the critical role of actively empowering leaders in fostering a culture conducive to EBP adoption. These findings suggest that while leadership support can mitigate systemic deficiencies, a multifaceted approach is necessary to overcome barriers. For example, organizations could implement leadership development programs to strengthen managerial capacity, establish clear communication channels for disseminating EBP standards, and allocate targeted resources to address staffing and time constraints. This integrated approach, which combines leadership empowerment with structural and resource-based interventions, holds the potential to drive meaningful practice transformations across diverse healthcare settings.

This qualitative analysis in Table 7 provides invaluable information on the multifaceted thought processes, and competing forces nursing administrators must balance when implementing evidence-based practice within their departments. An overarching commitment to improving patient quality of care emerges as the primary factor guiding leaders' choices, with more than 90% citing this ethical duty as the guiding compass even amid bureaucratic pressures. However, nearly three-quarters of the respondents convey the complex dance between addressing operational, financial, workload, and political concerns between various stakeholders, from frontline nurses to hospital executives. Many leaders utilize an open, communicative advocacy approach to building alliances to lobby upper management regarding resource needs with data-backed gradual proposals for change.

This shows that while administrator decisions always originate from care priorities, the path to actualizing improvements requires nuanced collaborative negotiation that uses institutional structures. In summary, despite good-faith intentions toward the advancement of practice, established systemic barriers embedded within the hospital's power dynamics cannot be overlooked. Administrators must become skilled advocates, using evidence and partnerships in a staged approach to motivate incremental buy-in for change. The insights equip researchers and policymakers with a framework to strengthen administrators' change agency through training and supportive leadership pipelines.

Table 8 Mixed methods triangulation matrix of key study findings

Key topics	Quantitative findings	Qualitative themes	Deeper integration of findings
Commitment to care quality	92% rank as top priority ($p < 0.001$)	Patient-First Approach in Decision-Making	Strong alignment suggests a pervasive culture prioritizing patient care across quantitative and qualitative measures.
Resource allocation	80% indicate a moderate/major barrier	Struggles with Budget and Resource Limitations	Quantitative data strengthens qualitative narratives on the impact of resource constraints on care quality.
Leadership dynamics	Authoritarian style r=-0.24 with EBP adoption	Leadership Support Critical for Care Quality	Negative correlation and qualitative insights collectively underscore the need for supportive leadership in EBP adoption.
Interdepartmental collaboration	65% rate as very effective for EBP ($p = 0.002$)	Breaking Down Silos Through Partnerships	Quantitative evidence and qualitative experiences highlight the efficacy and necessity of cross-departmental collaboration in EBP.
Data-driven changes	52% willing to adopt if evidence-based ($p = 0.012$)	Cautious Gradual Adoption of Evidence-Based Practices	Concordance in findings suggests a cautious but growing acceptance of data-driven approaches in healthcare settings.

The Collaborative Advocacy theme underscores the strategic alliances nursing administrators forge across departments to lobby senior management effectively. Rather than operating in silos, these leaders leverage collective input and shared resources, which, according to our qualitative data, significantly increases buy-in for EBP initiatives. By uniting multiple voices around a common goal, administrators can counteract hierarchical decision-making barriers, making evidence-based changes more feasible. This unique insight expands existing research on interprofessional teamwork, indicating that proactive, collaborative advocacy may serve as a critical lever for system-wide practice transformations.

Table 8 integrates quantitative and qualitative findings, offering a clear and nuanced perspective on nursing administrators' views toward EBP adoption. The alignment between quantitative results, such as the 92% of respondents prioritizing patient care, and qualitative themes like the "patient-first" decision-making approach reveals a strong, pervasive commitment to care quality across all levels of data. The table further highlights critical barriers, such as resource allocation challenges, where 80% of respondents identified it as a moderate-to-major barrier, mirrored in qualitative themes of budget constraints. Leadership dynamics, demonstrated by the negative correlation between authoritarian styles and EBP adoption (r= -0.24), are echoed in qualitative findings stressing the need for supportive leadership in driving care quality. The convergence of data-driven approaches, with 52% of administrators expressing a willingness to adopt evidence-based measures, is reflected in a cautious but steady progression toward EBP, as seen in the gradual adoption narratives from interviews. This matrix reinforces the idea that systemic leadership and resource support are essential for successful EBP implementation, offering a valuable framework for policy development to foster cross-departmental collaboration and enhance the adoption of evidence-driven care models.

These integrated findings underscore the need for healthcare organizations to provide targeted resources and leadership training, especially in private and specialized hospitals where administrators reported higher resource constraints (Tables 2 and 4). Additionally, the emphasis on supportive leadership and collaborative advocacy (Table 7) reinforces the notion that hospital executives should actively involve nursing administrators in decision-making processes to mitigate barriers and champion a culture of shared governance. Such steps are instrumental for translating evidence-based initiatives from theory into practice, thereby enhancing patient outcomes across different hospital contexts.

Discussion

This mixed methods research provides vital perspectives from 385 Saudi nursing administrators surveyed and 40 qualitatively interviewed, delineating the multifaceted barriers and enablers shaping evidence-based practice adoption decisions within their oversight in various secondary and tertiary hospitals. The rigorous explanatory sequential study design, precise sampling stratification parameters, strong response rates, and integration of standardized measures allow reasonably generalized conclusions and practical recommendations to accelerate practice transformations regionally.

Sample demographics and gender dynamics in nursing leadership

The diverse representation across gender, age, education, experience levels, and hospital types strengthens our ability to generalize findings to various nursing leadership contexts, supporting previous research on sampling diversity in healthcare leadership [46]. The demographic composition of the sample reveals a notable 23.4% male representation among nursing administrators, which is significant given the predominantly female workforce in nursing. This finding underscores an evolving trend in gender diversity within leadership roles, reflecting global initiatives to promote balanced representation in healthcare leadership [48]. Male leaders may bring diverse perspectives and leadership styles, which can contribute to improved decision-making and organizational innovation [64]. However, this demographic shift also raises questions about the inclusivity of leadership pipelines

and whether systemic barriers to gender equity remain [65].

On disproportionate gender participation in nursing management roles. However, the stratified purposive sampling supports a wider applicability of the conclusions in Saudi Arabian healthcare settings. These demographic findings emphasize the importance of fostering inclusive leadership development strategies that reflect the diverse workforce and leverage unique strengths across genders [66].

Institutional parameters mark key differences in perceived barriers

Private and specialized hospitals reported greater challenges with staffing and time constraints, suggesting these settings face unique resource limitations and complex care demands [49]. While these resource-based barriers varied by hospital type, challenges related to organizational culture, leadership support, and evaluation processes remained relatively consistent across different hospital settings [41]. This pattern of both variable and consistent barriers across settings challenges previous assumptions about uniformly shared implementation obstacles in healthcare organizations [52].

Interestingly, our results indicate that public hospital administrators perceive fewer barriers than their private-sector counterparts, a finding potentially influenced by differences in resource availability, funding models, and organizational cultures. Public hospitals in Saudi Arabia often benefit from government-funded budgets, which may reduce financial constraints and staffing shortages (Tables 2 and 4). Additionally, some participants suggested that public institutions may have more established hierarchical communication pathways, allowing direct access to centralized leadership and streamlining EBP adoption decisions. Conversely, private hospitals may experience more pronounced cost-containment pressures and greater variability in stakeholder agendas, making resource allocation and change initiatives more complex. These variations, in turn, reflect distinct cultural norms regarding decision-making autonomy and budgetary oversight. Future studies could explore how these contextual distinctions, including leadership culture and financial models, collectively shape EBP implementation experiences across diverse hospital systems.

Leadership experience cultivates change competencies

Experienced administrators demonstrated a greater ability to effectively utilize communication channels, training programs, and institutional policies. This finding suggests that leadership capabilities in navigating organizational systems develop over time [67, 68]. While this supports the concept of leaders as change agents, it challenges previous assumptions that leadership approaches remain constant regardless of experience level [69, 70]. Our qualitative findings further support this developmental pattern, showing that experienced leaders employ more sophisticated diplomatic strategies when implementing changes [71].

The role of organizational support in mitigating individual perceptions of barriers

This study highlights the critical role of organizational support in mitigating individual perceptions of barriers to evidence-based practice (EBP) adoption. As shown in Table 5, all perceived barriers exhibited statistically significant negative correlations with willingness to adopt EBP (r = -0.17 to -0.35). These findings indicate that stronger organizational infrastructures can counteract the demotivating effects of resource constraints, leadership deficits, and workload pressures [10]. Organizational factors such as leadership commitment, clear policies, and adequate resource allocation emerged as key predictors of EBP implementation intentions (Table 6), further emphasizing the importance of systemic support [44].

For instance, the moderate negative correlation between "Cultural Resistance" and EBP adoption (r = -0.205) suggests that, as administrators encounter greater cultural pushback, their motivation to champion new practices diminishes. Hospitals facing deeply ingrained routines or skepticism might implement structured staff engagement sessions and evidence-based workshops to counter these attitudes. Similarly, the correlation with Leadership Challenges (r = -0.242) indicates that unsupportive managerial styles can significantly lower administrators' willingness to adopt EBP. Targeted leadership development programs, such as coaching on transformational strategies or peer mentorship, could help leaders foster collaborative environments that sustain EBP. Thus, each moderate negative correlation highlights the impact of a specific barrier and underscores the potential value of tailored interventions ranging from education and policy revisions to resource reallocation to mitigate these obstacles and bolster EBP adoption.

Qualitative findings corroborate this quantitative data, as nursing administrators frequently highlighted the necessity of robust leadership and interdepartmental collaboration in addressing barriers. For example, participants emphasized the importance of leadership advocacy and gradual, data-driven policy changes in fostering a culture of EBP [72]. These insights align with the Promoting Action on Research Implementation in Health Services (PARIHS) framework, which underscores the interplay between organizational culture, leadership, and resource readiness in driving practice improvements [73].

Our qualitative findings revealed that nursing administrators consistently navigate multiple competing demands, supporting previous research on healthcare

leadership challenges [74, 75]. This study extends existing knowledge by highlighting how administrators use collaborative approaches and systematic data-driven strategies rather than relying solely on individual decision-making, as suggested in earlier research [76]. Integrating quantitative and qualitative data through triangulation provides comprehensive insights into EBP implementation [77, 78]. Our analysis particularly strengthens our understanding of leadership dynamics and interdepartmental collaboration in EBP adoption, addressing gaps in previous research [74, 79]. Moreover, these qualitative themes align closely with our survey data. For instance, "Collaborative Advocacy" echoes the moderate negative correlation between "Resource Constraints" and EBP adoption in Table 5, as administrators who build alliances across units can secure vital resources and thereby sustain higher readiness for practice change. Likewise, "Gradual Data-Driven Change" parallels the statistically significant relationship between "Cultural Resistance" (r = -0.205) and lower EBP willingness, revealing how incremental, evidence-backed implementation strategies can mitigate skepticism. By linking these emergent themes with quantitative patterns, such as the importance of leadership and interdepartmental collaboration (Tables 5 and 6), our study illustrates how administrators translate numeric findings (e.g., identified barriers) into actionable tactics (e.g., phased rollouts) to overcome obstacles and foster a stronger EBP culture.

The findings also highlight the influence of cultural dynamics in Saudi Arabia, where hierarchical leadership styles and traditional perspectives on nursing roles often hinder open communication and innovation. For example, qualitative insights revealed that administrators in specialized hospitals encountered resistance from staff who perceived EBP as conflicting with established norms. These cultural elements align with previous studies indicating that Middle Eastern healthcare settings tend to emphasize conformity and deference to authority, which can slow the adoption of evidence-based practices [80, 81].

When compared with findings from other regions, several universal barriers to EBP implementation, such as resource constraints and workload pressures, emerge consistently across settings [82, 83]. However, distinct cultural differences are evident. In North American and European contexts, healthcare systems often promote collaborative decision-making and innovation, which facilitate EBP adoption [52, 84]. Conversely, the Middle Eastern context, including Saudi Arabia, is characterized by a stronger emphasis on hierarchical leadership and resistance to change, as noted in this study [52, 85–87].

Our findings also align with a growing body of literature emphasizing that EBP implementation often hinges on context-sensitive leadership, resource allocation, and organizational cultures receptive to change [25, 88]. For instance, frameworks such as PARIHS (Promoting Action on Research Implementation in Health Services) and RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) highlight the interplay between contextual readiness, facilitative leadership, and ongoing evaluation in successful EBP adoption [89–91]. Studies from North America and Europe demonstrate how less hierarchical management approaches can streamline decision-making and foster staff engagement, whereas more traditional, top-down structures prevalent in the Middle East may slow innovations unless leadership actively champions EBP [92, 93]. By comparing these regional nuances, we underscore the universal need for adaptable, context-specific strategies whether in resource-rich or resource-limited settings and illustrate how interventions should leverage existing cultural strengths, such as collective identity and respect for authority, to ease the transition toward EBP-driven care.

These findings underscore the importance of tailoring interventions to address region-specific cultural factors while leveraging shared global best practices [94, 95]. Building on these regional distinctions, our findings also have implications for global healthcare administration. Many low- and middle-income countries struggle with similar resource constraints, staffing challenges, and hierarchical organizational structures, underscoring the relevance of our observations beyond the Saudi context. Conversely, in high-income settings where collaborative decision-making and well-established managerial pipelines are more common, the identified themes, such as Collaborative Advocacy and Gradual Data-Driven Change, may still apply to change-resistant departments or units. These global parallels support the notion that effective EBP implementation depends on resource availability and leadership styles, cultural norms, and clear policy directives. Thus, policymakers and hospital administrators worldwide can draw on our Saudi-based insights to refine leadership development programs, tailor policies to local cultural dynamics, and promote inclusive, evidence-informed organizational cultures.

Additionally, our study provides novel insights into the leadership dimension of EBP adoption in Saudi Arabia, an area often underexplored in prior investigations that focus predominantly on front-line nurses or Western healthcare contexts [96–98]. By centering on nursing administrators within a hierarchical and culturally distinct environment, we illuminate unique organizational influences such as formalized leadership pathways and resource allocation mechanisms that shape the success of EBP initiatives [99]. This perspective broadens the scope of EBP research and offers transferable strategies for healthcare systems facing similar cultural, structural, or resource-based constraints [100].

In conclusion, this study contributes significantly to the body of knowledge on the implementation of EBP among nursing administrators. Although aligning with several aspects of existing research, it also provides new insights, particularly in understanding nuanced differences between hospital types and the complex interplay of individual and organizational factors in adopting BP. For example, the findings reveal that male representation among nursing administrators, though limited, introduces a new perspective on leadership dynamics within the profession. Moreover, the study underscores the critical role of organizational support, including leadership commitment, policy frameworks, and resource allocation, in mitigating barriers to EBP adoption. These findings highlight the need for tailored strategies that address specific barriers and leverage facilitators unique to different settings of healthcare care and administrator experiences. Future research could focus on exploring these dynamics in a broader geographic context and examining the long-term impact of targeted interventions on the implementation of EBP.

Practical implications and future directions

The study's findings equip policymakers with a framework to formulate contextualized strategies that leverage facilitators and address unique barriers to diverse healthcare settings and administrator profiles. This could involve nursing leadership pipelines, competency models, decision tools, and customized change management protocols based on hospital categories, amplifying administrators' competencies as versatile transformational advocates. Meanwhile, establishing robust region-wide communication channels and communities of practice for administrators to share insights, mentor emerging leaders, and synchronize multi-institution evidence-based initiatives could catalyze broader practice transformations.

The tabulated quantitative outcomes, when interpreted alongside the qualitative themes, point to specific strategic priorities for policymakers and healthcare leaders. For instance, the significant correlation between resource constraints and decreased willingness to adopt EBP (Table 5) suggests that facility-specific staffing solutions and targeted budget allocations are vital for sustaining evidence-based interventions. In line with Table 6, a multifaceted approach integrating leadership training, clear policy support, and interdepartmental collaboration can significantly amplify administrators' readiness to champion EBP in daily practice. Implementing these strategies at both the organizational and national policy levels could help nurture a more evidence-informed culture within the Saudi Arabian healthcare system.

Quantitatively validating the impacts of such interventions through controlled pre-post analyses would strengthen the practical translation of the conclusions. Exploring whether tailoring change management approaches to administrator decision-making styles and hospital cultures improves evidence integration rates could uncover new practice moderators. Ultimately, optimizing the dynamism and efficacy of nursing administrators promises immense dividends for patient experiences and outcomes.

Given the cultural nuances observed in this study, it is imperative to design EBP interventions that align with the hierarchical and traditional values prevalent in Saudi Arabian healthcare settings. For instance, training programs emphasizing respectful communication and gradual change may better resonate with the cultural norms. Future research should explore the impact of similar cultural factors in other Middle Eastern countries to develop region-specific strategies that address unique barriers while promoting evidence-based innovations.

We advised policymakers to establish government-funded EBP development programs for nursing administrators, targeting both clinical competencies and leadership skills. These initiatives incorporated experiential learning modules, simulations of evidence-based decision-making, and formal mentorship programs linking junior leaders with seasoned administrators who excelled in EBP implementation. In addition, we proposed that healthcare authorities sponsor regional leadership academies tasked with creating standardized curricula for EBP-focused continuing education, ensuring consistency across public, private, and specialized hospitals. Policymakers could drive sustainable adoption by incentivizing hospitals that met or exceeded evidence-based care metrics through financial or accreditation benefits. Finally, we recommended collaborating with professional nursing associations to embed EBP competencies into licensure and certification requirements, thereby developing a cadre of nurse leaders dedicated to integrating research evidence into routine patient care.

Limitation

Despite the methodological rigor, certain limitations provide avenues for future research. The study relied primarily on self-reported data, which carry inherent biases that could be addressed through direct behavioral observations. Meanwhile, the qualitative themes reflect personal attitudes, lacking objective validations of competencies, skills, or observed decision rationales, signaling an area for multi-rater assessments. Although sample diversity allows for greater generalisability, expanding the scope to other regions could reveal geographical variances. Finally, the cross-sectional nature offers only a snapshot, while longitudinal tracking could expose temporal evolutions in perspectives and intervention impacts. Addressing

these limitations through mixed-method approaches provides fertile ground for nursing scholarship.

Moreover, because the data were collected at one point, we could not establish causal relationships among barriers, facilitators, and EBP adoption. Although we identified key associations and correlations, longitudinal designs would be necessary to determine whether specific interventions or organizational changes directly lead to shifts in nursing administrators' attitudes and practices over time. Future studies could employ repeated measures or cohort-based tracking to capture how variations in leadership structures, resource allocation, and hospital culture influence EBP implementation trajectories. Such an approach would provide stronger evidence of causality and help policymakers and healthcare leaders tailor interventions to evolving organizational dynamics.

Conclusions

In conclusion, this robust mixed methods study provides vital information on the multifaceted personal, cultural, and institutional barriers and enablers that affect the change agency of nursing administrators to advance evidence-based practices in Saudi hospitals. The findings reveal key differences in obstacle perceptions based on hospital type and leadership experience, suggesting customized interventions can help specific settings. Meanwhile, qualitative decision-making themes showcase a complex 'balancing act' between patient priorities and bureaucratic pressures. Ultimately, synchronized empowerment frameworks focused on training, communication, resource allocation, and interdisciplinary collaboration promise the immense potential to strengthen administrators' pivotal yet underutilized, role-leading transformative practice improvements to accelerate regional and global nursing excellence.

Future research could expand on this study by examining longitudinal shifts in administrators' attitudes following targeted interventions (e.g., leadership training, resource augmentation, or policy reforms). Conducting multi-site or multi-national comparisons would further illuminate how cultural nuances, healthcare financing models, and leadership structures affect EBP integration in both similar and contrasting contexts. While our findings are grounded in Saudi Arabia, many of the identified barriers, such as workload pressures and limited resources, are universally relevant, suggesting transferability to other regions with comparable healthcare challenges. Nevertheless, researchers should adapt implementation strategies to local cultural and policy environments to optimize EBP uptake. By exploring these dynamics across diverse settings, scholars and practitioners alike can continue refining evidence-based approaches that empower nursing administrators to drive meaningful, globally informed practice improvements.

Supplementary Information

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Supplementary Material 1

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Data availability
The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Institutional review board
The research protocol was approved by Jouf University's institutional ethics committee on March 19, 2024 (reference code: 8-05-45), in accordance with the Helsinki Declaration. Participant privacy was ensured through the use of unique identification codes and the presentation of data in aggregate form. All electronic data were stored securely in a password-protected system. Nurses provided informed consent electronically before completing the Google form questionnaire.

Consent for publication
Not applicable.

Informed consent
Informed consent was obtained from all participants involved in the study.

Competing interests
The authors declare no competing interests.

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