Knowledge, practice, and implementation of evidence-based practice among nurses: A cross-sectional analysis

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ABSTRACT

Introduction

A cross-sectional survey of 500 nurses was conducted to determine the level of understanding of EBP principles, frequency of application in clinical settings, and barriers to implementation. EBP knowledge among nurses is relatively moderate, but application is inconsistent and hindered by many barriers, including time constraints, inadequate training, and lack of access to research resources. **Objective:** The study aimed to evaluate the knowledge, practice, and implementation of evidence-based practice (EBP) among nurses working in selected hospitals of Sirsa District, Haryana, India. **Results:** Supportive leadership, a structured training program, and access to research materials were facilitators for EBP adoption. Nursing practice is hampered by the knowledge practice gap, the need for which is further pointed out through this study by the need for continued education, the provision of organizational support, rt, and an environment that fosters EBP. **Conclusion:** The study shows the need to overcome barriers to EBP and strengthen facilitators to ensure consistent use of EBP in nursing practice.

Keywords: Evidence-based practice, nursing, barriers to EBP, knowledge-practice gap, healthcare training.

INTRODUCTION

In modern healthcare systems worldwide, EBP has now become a cornerstone in this regard, since it is practiced to improve patient outcomes and enhance the quality of care and utilization of resources (Scott & McSherry, 2009). The importance of EBP in support of placing care delivery on a solid foundation of the latest scientifically verified knowledge to ensure optimally high-quality care. Although resource-limited settings pose some difficulty in incorporating such

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techniques into the daily nursing practice (Estabrooks et al., 2006), integrating EBP into daily nursing practice is not without its challenges.

The healthcare sector in India is changing rapidly with a growing focus on evidence-based practices. EBP is recognized as important but is not consistently implemented, particularly in rural and semi-urban settings, Sirsa District (Haryana). Educational disparities, poor resource availability, barriers related to organization structure and culture, and lack of support at the institutional level, act as determinants of EBP awareness, utilization, and integration at such facilities among the nursing workforce (Sharma, Deorari, Singh, and Siddiqui, 2017). A cross-sectional design with a sample size of 500 nurses has been used to explore the current state of EBP in the region. The research is anticipated to help understand the barriers and facilitators to EBP adoption in rural and semi-urban healthcare settings in India.

The concept of EBP emerged as a result of growing awareness surrounding wide differences in healthcare outcomes, and the need to have the practice standardized based on the evidence developed scientifically. Nurses are predominantly frontline caregivers and hence form a central element in EBP implementation. For example, EBP in nursing aims at improved quality patient care; there should be evidence-based interventions that are also guided by clinical expertise (Alqahtani et al., 2022). The literature supports the use of EBP by nurses as evidence for improved patient safety, lower healthcare costs, and enhanced job satisfaction of nurses (Labrague et al., 2019). It is also known that nurses who use EBP in practice provide better quality care, lower patient complications and provide overall better healthcare outcomes (Zhou et al., 2016). EBP promotes the development of critical thinking whereby nurses can challenge traditional practice, make informed decisions, and continuously develop knowledge and skills (CB et al., 2022). Organizational, educational, or personal barriers to implementation include a lack of time, insufficient training, limited access to research, and resistance to change (Boström et al., 2013). In resource-poor settings such as in rural and semi-urban hospitals, these barriers are even more pronounced complicating attempts to implement evidence-based care.

The unique challenges in implementing EBP in India are identified in the Indian Healthcare system. Since healthcare infrastructure might be lacking, along with nursing staff having little access to up-to-date research and training opportunities, these challenges are more intense in rural and semi-urban areas like Sirsa District (Mitra et al., 2021). Nurses may not be educated about evidence-based practices. All the training is still trying to keep focussing on traditional approaches

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of caring with less integration of research application and critical thinking in the training process for a long time even in many nursing curricula in India (2017). Working as an Indian nurse often means a day filled with a heavy workload, long hours with no one else to lean on, and understaffed teams of doctors and technicians. Nurses in the environment may find it difficult to stay abreast of the latest research, attend continuing education programs, or put evidence-based practice into their day-to-day routines (Alqahtani et al., 2020). Secondly, the slow adoption of EBP is ed to organizational barriers like poor management support and the absence of a research-friendly culture in most healthcare institutions (Alqahtani et al., 2020). This is particularly worrisome as rural India is home to a high prevalence of preventable diseases, and evidence-based interventions could have a large impact on health outcomes.

The successful implementation of EBP in nursing relies on three critical components: Knowledge, practice, and implementation. The nurse's knowledge component is the nurse's knowledge of evidence-based principles and the ability to critically appraise research findings (Chen et al., 2020). To be agreeable, people sometimes receive formal education or attend regular training and development in that profession. In other words, such access may be restricted in some areas and restrict the application of evidence-based principles by the nurses.

Being able to do so requires integrating evidence into clinical decision-making, tailoring care plans around the most recent evidence, and learning constantly (Stokke et al., 2014). Pereira et al. (2018) state that healthcare institutions support the EBP process such as allowing access to practice relevant literature and time away from the work environment for research.

Implementation is the process of making knowledge and practice routine care delivery. According to CB et al., (2022), implementation of EBP is dependent on organizational commitment, availability of adequate resources, and good leadership. These resources may not be available in many healthcare settings, especially in rural and semi-urban areas, and may slow the spread of evidence-based practices.

Objectives of the Study

1. Knowledge level assessment of the concept of EBP among the nurses of selected healthcare facilities in Sirsa district, Haryana, India.
2. Exploring the degree of EBP integration in clinical practice areas of these hospitals.

3. Exploring perceptions of challenges and enablers of EBP implementation within these hospitals.

4. Presenting ideas for further improvement of the level of knowledge, practical application, and implementation of EBP among nurses in the region.

Significance of the Study

Though several other studies have studied EBP in urban healthcare settings, no study has focused on the needs raised by working in rural districts like Sirsa that do not have enough resources like big hospitals, trained human resources, or useful technology; all of which have been reported as barriers to EBP implementation. The study seeks to provide valuable insights into knowledge, practice, and implementation of EBP in the context that can inform policy, education, and practice at local, regional, and national levels. Such recommendations may include recommendations to improve nursing curricula, offer courses for continuing nursing education, improve organizational support for EBP, and create a developmentally favorable environment for research in hospitals.

METHODOLOGY

Study Design

This study is cross-sectional to identify the EBP knowledge, attitude, and utilization among the nurses practicing in selected hospitals of Sirsa District of Haryana State- India. For this purpose, a structured questionnaire was developed and administered to a sample of 500 nurses working in different healthcare settings in the district.

Setting and Participants

The study selects hospitals of Sirsa District comprising public as well as private healthcare facilities. Hospitals were selected because they are accessible, there is a large nursing workforce, and they were willing to participate. The study population was registered nurses working in these hospitals. The nurses meeting the inclusion criteria were those with at least six months of clinical experience while those with leave or less than six months' practice were excluded from the study.

Sample Size

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An estimate of 5% with a 95% confidence level was utilized in estimating the minimum sample size for the study at 500 nurses. It was felt that the sample size was adequate to produce statistically significant results and to represent a wide cross-section of nurses in the district.

Data Collection

Questionnaires containing structured questions were self-completed by the various participants. The questionnaire was designed to assess three main components:

1. **Knowledge of EBP:** Questions in the section covered the basic principles of EBP, sources of evidence, and research utilization in nursing practice.

2. **Practice of EBP:** The section aimed to determine the frequency with which nurses applied EBP in clinical practice and their capacity to integrate research findings into patient care decisions.

3. **Implementation of EBP:** The section explored limitations and enablers of EBP in the healthcare organizations that the nurses are from, including but not limited to support, evidence literature access, and education.

The questions in the questionnaire were piloted on a small sample of nurses before conducting the actual survey to establish the validity and reliability of the questionnaire.

Data Analysis

Data were analyzed and described using Statistical Package for Social Science (SPSS) version 25. Mean, frequency, and percentage were employed to describe knowledge, practice,e, and implementation of EBP. Chi-square tests and correlation analysis were used to establish the level of knowledge, practice,ce, and perceived barriers in relation to the EBP.

Ethical Considerations

Institutional review board approval for the study was obtained from the participating hospitals. The subject participants received informed consent, and the subject participants' identity was kept a secret, and thewasere no coercion.

RESULTS

This paper presents findings relating to knowledge, practice, and implementation of EBP by nurses of Sirsa District, Haryana in the following subtopics.

Demographic Characteristics of Respondents

The demographic details of the 500 nurses who underwent the study are shown in the following table. The age, gender, educational level, and years of experience of the sample were different.

Table 1: Respondents Demographic Characteristics

Demographic Variable	Frequency (n)	Percentage (%)
Age (years)		
< 25	90	18
25 - 35	180	36
36 - 45	140	28
> 45	90	18
Gender		
Male	120	24
Female	380	76
Education Level		
Diploma	380	76
BSc Nursing	98	19.6

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MSc Nursing	22	4.4
Years of Experience		
1 - 5 years	180	36
6 - 10 years	160	32
> 10 years	160	32

Knowledge of Evidence-Based Practice

EBP can be defined as making decisions on the care of individual patients based on the current best evidence. There are clinical research studies, patient care guidelines, systematic reviews, and other reliable sources of information that enable one to view the best practices of treatment and care (Sackett et al., 1996). It is assumed that the nurses know the evidence and, more importantly, know how to find and use it in practice environments.

Knowledge Levels of EBP

20.0%

45.0%

35.0%

● High Knowledge　● Moderate Knowledge　● Low Knowledge
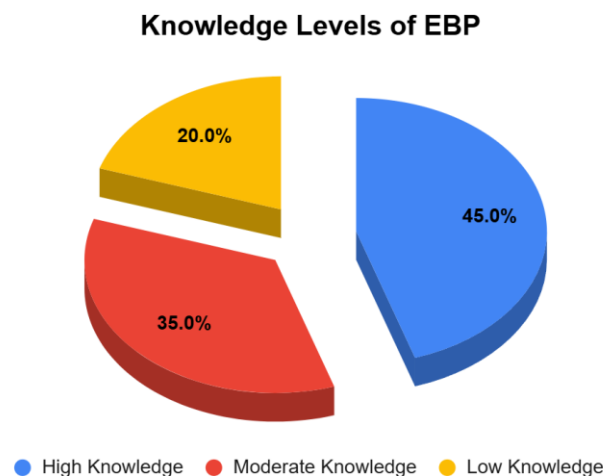
Figure 1: Distribution of Knowledge Levels Among Nurses

Figure 1 shows the distribution of knowledge levels of evidence-based practice (EBP) among nurses. The results show that 45% of nurses had high knowledge of EBP, 35% had average
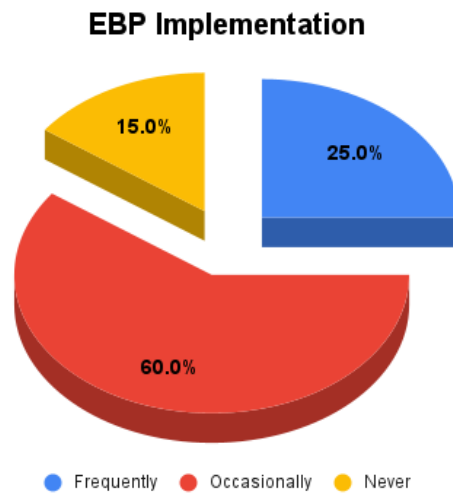
knowledge, and 20% had low knowledge. Finally, 20 percent of nurses had low knowledge of EBP, revealing insufficient education and training for these nurses to learn more about EBP. The outcome of the current investigation illustrates not only the overall levels of EBP knowledge of the target nursing population but also imposes the necessity of further educational initiatives addressing the population's EBP competency in a healthcare environment.

Table 2: Knowledge of Evidence-Based Practice

Knowledge Area	High Knowledge (%)	Average Knowledge (%)	Low Knowledge (%)
Basic principles of EBP	55	30	15
Sources of evidence (journals, databases)	42	40	18
Research utilization in clinical decisions	47	35	18
Importance of patient preferences in EBP	50	35	15

Practice of Evidence-Based Practice

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EBP Implementation

- Frequently
- Occasionally
- Never

Figure 2: Frequency of EBP Practice Among Nurses

Figure 2 illustrates the frequency of barriers to implementing evidence-based practice (EBP) as reported by the study nurses. The chart shows that the biggest barrier is lack of time for research with 60% of nurses saying that this is a major barrier. Next at 55% is a high patient workload, which indicates that clinical responsibilities are so heavy that little time is available for engaging in EBP activities. 50 percent of nurses lack access to necessary research and 45 percent receive insufficient opportunities for training (also significant obstacles suggesting that nurses might not be able to find necessary resources or to develop professionally enough). The need for structural changes to develop a culture that supports EBP is emphasized by a lack of organizational support (40%). These barriers point to how EBP implementation in healthcare settings could be improved.

Table 3: Frequency of EBP Practice Among Nurses

Frequency of EBP Practice	Frequency (n)	Percentage (%)
Frequently	125	25
Occasionally	300	60
Rarely/Never	75	15

Implementation of Evidence-Based Practice

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The perceived barriers to implementing EBP in healthcare settings are presented in Table 4. The major barrier identified by nurses is the lack of time for research (60% of respondents). Next is limited access to research resources (50%) meaning that nurses may not be able to access current evidence to help inform their practice. (45%) also limit EBP adoption by failing to convey adequate training opportunities regarding knowledge and skills. More, than 55% of patients reported a high workload as a substantial barrier and 40% reported a lack of organizational support as a substantial barrier. Each of these factors exhibits some form of hindrance to the ability to put into practice EBP in clinical practice, and they prove a tough task of advancement of nursing in the adoption of EBP into practice, there is a need to adopt system changes that would enhance implementation.

Table 4: Barriers to Implementation of EBP

Barrier to Implementation	Frequency (%)
Lack of time for research	60
Inadequate training opportunities	45
Limited access to research	50
Organizational support	40
High patient workload	55
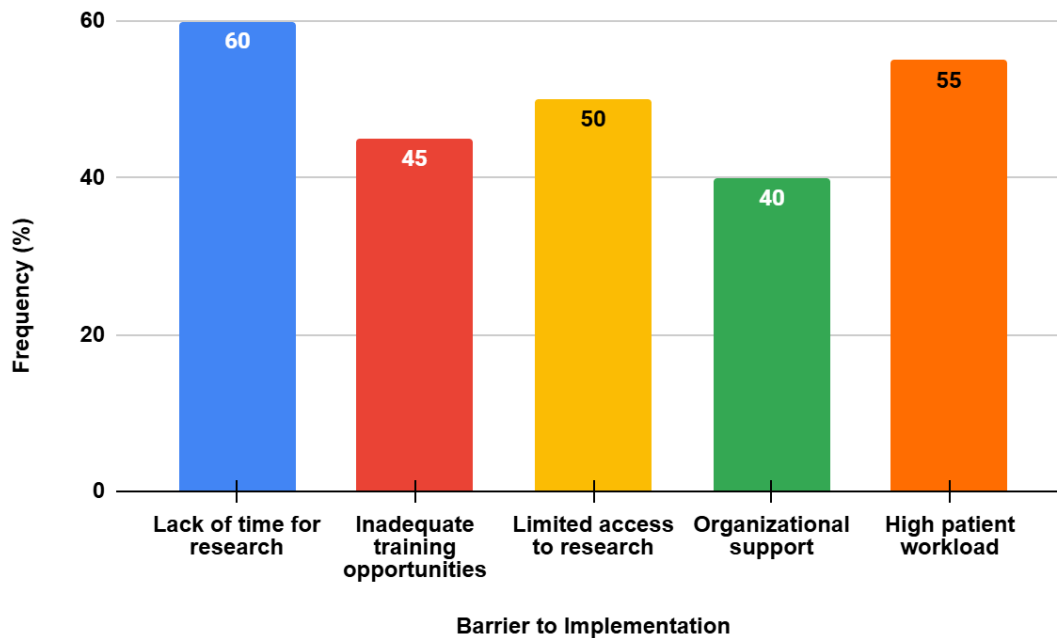
Figure 3: Barriers to Implementing EBP

Multiple Regression Analysis

To determine the relationship between the knowledge levels and the barriers to practice and the frequency of the EBP among the nurses, a multiple regression analysis was carried out as shown in Table 5. The baseline frequency of EBP practice is constant, 2.19. The frequency of EBP practice is significantly predicted by knowledge level (high) ($\beta = 0.28$, $p < 0.01$), indicating that nurses with higher knowledge of EBP practice it more frequently. The association between knowledge level (average) is also positive, but marginally non-significant ($\beta = 0.12$, $p = 0.06$). Lack of time ($\beta = -0.20$, $p = 0.002$) and high patient workload ($\beta = -0.10$, $p = 0.045$) significantly reduce EBP practice frequency as barriers. Weaker or non-significant effects are found for other barriers, including inadequate training and limited access to research. These findings emphasize the need to manage knowledge and time to improve EBP practice.

Table 5: Multiple Regression Analysis of Knowledge and Barriers to Frequency of EBP Practice

Variable	Unstandardized Coefficient (B)	Standardized Coefficient (β)	Standard Error	t-value	p-value

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Constant	2.19	-	0.42	5.21	<0.001
Knowledge Level (High)	0.35	0.28	0.09	3.89	<0.01
Knowledge Level (Average)	0.15	0.12	0.08	1.88	0.06
Lack of Time	-0.22	-0.20	0.07	-3.14	0.002
Inadequate Training	-0.10	-0.09	0.06	-1.67	0.09
Limited Access to Research	-0.08	-0.07	0.05	-1.56	0.12
High Patient Workload	-0.12	-0.10	0.06	-2.00	0.045

Correlation Analysis

The correlation analysis between knowledge, practice, and barriers to the implementation of EBP is shown in Table 6. Knowledge of EBP and frequency of EBP practice are positively correlated ($r = 0.62$, $p < 0.01$), suggesting that nurses with more knowledge of EBP tend to practice EBP more often. Both knowledge and practice are negatively correlated with lack of time ($r = -0.45$, $p < 0.01$) and high patient workload ($r = -0.42$, $p < 0.01$), indicating their importance as barriers to EBP implementation. Inadequate training also has a negative relationship ($r = -0.38$, $p < 0.05$) with knowledge and practice. Finally, limited access to research has less (or a weaker) negative correlation to suggest that these barriers impair effective EBP adoption.

Table 6: Correlation Analysis Between Knowledge, Practice, and Barriers to EBP Implementation

Variables	Knowledge of EBP	Frequency of EBP Practice	Lack of Time	Inadequate Training	Limited Access to Research	High Patient Workload
Knowledge of EBP	1	0.62**	-0.45**	-0.38*	-0.30	-0.42**
Frequency of EBP Practice	0.62**	1	-0.50**	-0.33*	-0.28	-0.47**
Lack of Time	-0.45**	-0.50**	1	0.30*	0.25	0.55**
Inadequate Training	-0.38*	-0.33*	0.30*	1	0.28*	0.32*
Limited Access to Research	-0.30	-0.28	0.25	0.28*	1	0.20
High Patient Workload	-0.42**	-0.47**	0.55**	0.32*	0.20	1

Facilitators to Implementing Evidence-Based Practice

The key facilitators of the implementation of EBP among nurses are highlighted in Table 6. The most crucial element is leadership, Total number of nurses; 50 percent reported it as the most crucial component for enabling EBP practice in clinical. The significance is underscored, by the leadership, in facilitating an environment that endorses evidence-based decision-making. Another important facilitator is access to research resources, which is important to 45% of nurses. 40% of nurses identified structured training programs as a facilitator. It seems that organized educational

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initiatives can contribute significantly to the skill of EBP application of the nurse in the nurse's daily practice and thereby improve overall patient care outcomes.

Table 6: Facilitators to Implementing EBP

Facilitator to Implementation	Frequency (%)
Supportive leadership	50
Access to research resources	45
Structured training programs	40

DISCUSSION

The study on knowledge, practice, and implementation of EBP among nurses in selected hospitals of Sirsa District, Haryana is important to know the status of EBP in Indian healthcare settings. The study demonstrates that EBP knowledge is fairly moderate and that barriers to frequent practice and full implementation of EBP are significant. These findings support previous research in India and other scenarios regarding EBP advancement in the clinical nursing practice.

Results are consistent with other studies similar done in India where the level of knowledge about EBP among nurses was also found to be moderate. Some knowledge of EBP principles was known by nurses, but this was limited. The study results showed that 45% of nurses had a high knowledge level of the basic principles of EBP especially the integration of research evidence in clinical decision making and 20% had low knowledge, especially on evidence sources such as research databases and journals. The findings are by Straus et al., (2018) who reported that limited access to research and no formal education are the major barriers that inhibit Indian nurses from acquiring adequate EBP knowledge. Especially the integration of research evidence into clinical decision-making. 20% had low knowledge, particularly in terms of evidence sources, including research databases and journals. The findings are congruent with studies by Straus et al., (2018) who reported limited access to research, and lack of formal education as the major obstacles resulting in inadequate EBP knowledge among Indian nurses. We found that there is a critical gap in knowledge about how patient preferences play a role in EBP. According to Al-Busaidi et al., (2019), the element is important in delivering patient-centered care, where patient's preferences

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should be considered in conjunction with the best available research evidence and clinical expertise. The gap suggests that there is a need for additional targeted education programs to remind us of the ideals of EBP, such as the patient-centered, holistic approach.

The frequency of EBP practice was relatively low; 60% of nurses practiced EBP occasionally, and 25% practiced EBP frequently. This is consistent with Sharma et al., (2017) who discovered that although nurses may be aware of something about EBP, its application is inconsistent. The occasional use of EBP is due to several factors, including time constraints, high patient workloads, and unfamiliarity with the integration of research evidence into day-to-day nursing practice. As Pitsillidou et al., (2021) notes, even when nurses know how to apply evidence, practical barriers often prevent its regular use. The findings are similar to those of Alqahtani et al., (2020), where organizational constraints, lack of access to resources, and inadequate management support are the barriers to the integration of EBP principles into practice. These barriers are likely especially prominent in resource-limited settings like those in many Indian hospitals and may explain the moderate frequency of EBP practice reported in the study.

The study identified several important barriers to the implementation of EBP. The most common barriers were lack of time (60%) inadequate training (45%) and limited access to research (50%). The findings are consistent with the barriers identified as the main barriers to the implementation of EBP in Indian nursing practice, time constraints and lack of training. The incorporation of EBP in clinical practice is hindered by scarce time in situations such as those in Indian healthcare settings, where patient-to-nurse ratios are very high and work hours are extended (Perruchoud et al., 2021). The lack of access to research and academic resources makes it hard to implement EBP. The study found that nurses were challenged by the lack of access to up-to-date journals, databases, and other resources needed to be current with the latest evidence. Therefore, the barrier is critical as access to reliable evidence is fundamental to informed decision-making in patient care (Li et al., 2022). Research articles and evidence-based guidelines have to be available to nurses and healthcare institutions have to invest in infrastructure to allow this. Inadequate training was also considered a major barrier. Many nurses reported that they sometimes engage in EBP but that their training on the subject was often inadequate. These results concur with the findings of Abu-Baker et al., (2021) who indicated that for nurses to adopt EBP in practice, continuous education and targeted training programs are necessary so that they have the appropriate skills to start integrating EBP into practice. Nurses need not only the theoretical

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knowledge of evidence-based techniques but also practical, hands-on training to put those techniques into clinical practice.

In a positive vein, the study found that there are several facilitators to EBP implementation supportive leadership – 50%; access to research resources – 45%; and structured training programs – 40%). These results are aligned with already established literature that found that organizational support is instrumental in EBP. According to Iyengar et al., (2014), successful implementation of EBP strategies by healthcare organizations was most likely to occur in organizations with strong leadership and a culture invested in evidence-based practices. Nurses in the study indicated that whenever hospital management gave priority to EBP and access to research resources, they were more likely to work with EBP. It emerged that structured training programs also served as a major facilitator. Nurses who were formally trained in EBP felt more confident about making decisions regarding patient care using evidence than those without EBP-specific training. These findings indicate that training programs are needed to develop competence and increase the confidence of nurses in using EBP.

The study found a striking knowledge–practice gap. The literature well documents the gap (Dagne et al., 2021), and knowledge alone is not enough to promote widespread EBP adoption.(Rosswurm & Larrabee, 1999) Argue translating evidence into practice occurs only in the context of access to resources, learning, adequate organizational support, and a conducive work environment. The gap must be addressed by strategies utilized by healthcare institutions that help the cognitive and practical as well as EBP. Enhancing research accessibility; facilitating a time for nurses for research activities; providing ongoing training; and building a supportive organizational culture focusing on EBP are some of these (Newhouse et al., 2005). Also, mentoring programs and peer support might support nurses in the gap of knowledge to practice by learning from colleagues who are experts in the practice of EBP.

Limitations of the study include valuable information regarding the current use of EBP in nursing practice. Due to the cross-sectional design conclusions about causal effects cannot be drawn and findings are possible only based on hospitals of the Sirsa District, Haryana, and possibly not for other regions in India.

CONCLUSION

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The study provides massive significant information related to the knowledge, practice, and implementation of evidence-based practice (EBP) among the nurses in the selected hospitals of Sirsa District, Haryana. The findings indicate that knowledge about EBP principles is moderate, with gaps in the application and full implementation of EBP. Although some nurses have some understanding of EBP, there are still many barriers in the way of translating knowledge into regular clinical practice, including time constraints, limited access to research resources, and lack of training. The findings of the study demonstrate the significance of working to make up the knowledge-to-practice gap in nursing through: improving access to research, ongoing training of nurses on EBPs, and establishing a work culture that supports the implementation of evidence-based practice. Strong leadership and access to research resources are identified as important facilitators of EBP implementation. To this end, organized skill development interventions and coaching interventions can enhance the propensity of the conduct of the nurses to the employment of EBPs in the delivery of nursing care. To bridge the knowledge-practice gap and secure the widespread adoption of EBP, healthcare institutions must take a multifaceted approach whereby not only is the knowledge of nurses increased, but also practical barriers include institutional support, sufficient training, and provision of time for the research activity. Implementing EBP in nursing practice improves patient care outcomes and can stimulate evidence-driven healthcare in India, by supporting nursing practices to integrate EBP into everyday nursing. Finally, the study provides a starting point for future research on the longitudinal effects of EBP training programs and organizational changes and provides a guide for greater success in nursing's adoption and maintenance of EBP practices.

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