

Nursing Managers' Perspectives on Facilitators of and Barriers to Evidence-based Practice: A Cross-sectional Study

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Abstract

Background: Evidence-based practice (EBP) is one of the most important ways to empower nursing. The perspective of nursing managers about EBP plays an important role in the process of accepting the use of EBP by nurses. On the other hand, identifying facilitator of and barriers to EBP is necessary to improve its implementation. This study aimed to determine the facilitators of and barriers to EBP from the perspective of Iranian nursing managers.

Methods: In this cross-sectional study, 335 top nursing managers, who were selected by stratified random sampling from Iranian universities of medical sciences, was studied. The research instruments included three electronic questionnaires for demographics, barriers and facilitators of EBP. Data were analyzed in SPSS software using descriptive statistics and appropriate analytical tests.

Results: A total of 277 individuals participated in the study (response rate of 80%), 51.6% of them were female (n=143) with an average age of $43/6 \pm 7$ years. Iranian nursing managers believed that organizational factors were the most important domain for both EBP facilitators (34.7 ± 9.2) and barriers (28.37 ± 6.2). Furthermore, the most important facilitator of EBP was manager's increased support and encouragement (4.23 ± 1.19) and the most important barrier was physicians' not cooperating with nurses in applying research results (3.80 ± 1.29).

Conclusion: The findings of this study revealed the most important facilitator of and barriers to EBP, and especially **emphasized the key role of organizational factors in the implementation of EBP**. Identifying facilitator and barriers and creating an organizational culture supporting evidence-based practice are effective interventions that result in improving the quality of nursing care.

Background

Evidence-based practice (EBP) is a decision-making method that has become an important component of healthcare in recent decades(1) and is recognized as a way to improve healthcare standards and excellence in nursing care(2). As a problem-solving method, EBP integrates the best available scientific evidence with clinical expertise, situational conditions, available resources and patient preferences(3). Since nurses are the largest group of specialized staff in healthcare system, their performance significantly impacts the quality of healthcare and this leads to reduced costs, family satisfaction, nurses' personal and professional development and improvement of organizational performance(4).

Facilitators of and barriers to EBP in clinical settings have been the focus of research for many years. Factors that have a great impact on the implementation of EBP in several studies are related to organizational support, especially leadership and support by managers(5). Healthcare system leaders need to create an organizational culture to support their staff to implement EBP(6). The perspectives and performance of nursing managers play an effective role in the process of accepting the use of EBP by nurse(7). Nursing managers, especially top nursing managers, are a significant force in the success of EBP because they understand the importance of evidence-based interventions and policies, have the

potential to change healthcare system, and allocate human and material resources to nurses' work environment(2, 8). Hence, it is necessary to investigate nursing managers' perspectives on EBP and how to implement it. In Iran, Hassanpour et al. conducted a study to examine the perspectives of nursing managers at one of the universities of medical sciences in relation to facilitators of and barriers to evidence-based management (EBMgt)(9). But, no specific and broad study has been conducted to investigate the Iranian nursing managers' perspectives on EBP. Therefore, the present study was designed and implemented with the aim to learn about facilitators of and barriers to EBP from the perspective of Iranian Nursing Managers, and then examine the relationship between managers' demographic characteristics and facilitators of and barriers to EBP. Another aim of this study was to determine the necessity and extent of EBP implementation by nurses from the perspective of nursing managers.

Methods

Study Design

The present cross-sectional study was conducted at Iranian universities of medical sciences. The research population included top nursing managers, comprising two categories in Iran,, chief nursing officers (matrons) of hospitals and nursing managers of medical universities.

Sampling Method

Two sampling methods were used in this study: census and stratified random sampling. University nursing managers were 55 individuals at the time of the study, and all of them entered the study by census. Matrons were 750 individuals, so Morgan table was used with the likelihood of a 10% sample loss to estimate the sample size as 280 individuals. A stratified random method was used to select the 280 participants. Iranian universities of medical sciences are classified into three levels: one, two and three according to the ranking system of the Ministry of Health. According to the number of hospitals in each level, the required sample was determined and allocated. Sampling was then performed at each level by simple random sampling. The total number of samples required was estimated at 335 (Fig. 1).

Study Instruments

Three electronic questionnaires were used to collect information in this study.

1. Demographic Characteristics Questionnaire

This questionnaire included 11 items related to personal and educational information, work experience, familiarity with EBP and the level of research activity. In addition, two items asked about the necessity and extent of EBP implementation, scored from zero to ten, and were classified into three levels of low (score 0 to 3), medium (score 4 to 6), and high (score 7 to10).

2. Facilitators of Evidence-based practice Questionnaire:

This Persian questionnaire, designed by Rahmatpour et al. in 2013, includes 16 items for reviewing EBP facilitators. The criteria for assessing the score in this questionnaire are based on a five-point Likert scale (nothing, little, no opinion, moderate and high), which are assigned scores of one to five, respectively. Thus, the total score of this questionnaire ranges from 16 to 80. The reliability of the instrument was determined with Cronbach's alpha coefficient of 0.89(10). In the present study, items were classified into three domains based on their similarities: nursing factors (3 items), organizational factors (9 items) and quality and research presentation factors (4 items) in order to facilitate its assessment.

3. Barriers to Evidence-based practice Scale (BARRIER Scale):

The Persian version of BARRIER Scale was used, which was translated into Persian by Salemi et al. and its reliability was determined with Cronbach's alpha coefficient of 0.71(11). The *BARRIER Scale* includes 29 items that investigate the barriers to implementation of EBP in four domains: barriers to nurses' values, skills, and awareness (8 items), organizational barriers and limitations (8 items), barriers to research quality (6 items), and barriers to presentation and accessibility of research results (7 items). The scoring criteria are based on a five-point Likert scale (nothing, little, no opinion, moderate and high), which are given scores one to five, respectively, with the total score ranging from 29 to 145.

Data Collection

First, necessary permissions were obtained to start the study, and phone numbers of the nursing managers were given to the researcher by the nursing offices of the universities of medical sciences. Then, consent to participate in the study was obtained by phone and the questionnaires were sent to them by e-mail or social networks.

Data Analysis

Data collected were analyzed in SPSS software version 22 using descriptive statistics, inferential statistics, and analytical tests of Spearman's, Pearson's, Chi-square, and one-way ANOVA, as well as relevant tables and figures. The results of statistical tests were considered significant at $p < 0.05$.

Results

Demographic Characteristics of the Respondents

Of the 335 questionnaires sent, 277 were returned, indicating an 82 percent response rate. The participants included 31 university nursing manager and 246 matrons, 51.6% of the managers ($n = 143$) were female. The mean age of the participants was 43.6 ± 7 years. They also had a mean work experience of 20.5 ± 7.38 years. Table 1 shows participants' individual and professional characteristics.

Results related to Facilitators of EBP

From among the three domains of facilitators, nursing managers believed organizational factors were the most important (34.7 ± 9.2). Next came factors related to quality and presentation of research results, and factors related to nursing, respectively.

The results showed the most important facilitating factors were "increased support and encouragement by managers " and "establishing an evidence-based nursing committee" to apply research findings in clinical settings, which received medium to high scores, respectively by 78.7% of managers (Table 2).

No significant relationship was observed between the mean score of facilitators of EBP and demographic characteristics of managers, according to their gender, place of work (university or hospital) and education level. Meanwhile, there was a significant relationship between the university ranking of managers' workplace and all three domains of facilitators according to one-way ANOVA: factors related to nursing ($P = 0.006$), factors related to organization ($P > 0.0001$) and factors related to research ($P = 0.042$). Pearson's correlation test showed a significant relationship between the duration of employment as a nursing service manager and factors related to nursing ($P = 0.007$) and organizational factors ($P = 0.04$). Furthermore, research quality and research presentation were significantly related to age ($P = 0.03$) and work experience ($P = 0.02$) of nursing managers.

Results related to Barriers to EBP

The results of this study showed that among the four domains of EBP barriers, organizational barriers (28.37 ± 6.2) were considered the most important barriers from the perspective of nursing managers. Next came, with a little discrepancy, barriers related to nurse's values, skills and awareness (27.12 ± 5.3). Then came barriers related to presentation and accessibility of research results and barriers related to research quality, respectively. "Physicians' not cooperating with nurses in applying research results" had the highest mean scores among all 29 barriers. The first ten barriers reported by nursing managers can be seen in Table 3.

In this study, no statistically significant differences were observed between the mean score of the four domains of barriers with the managers' gender, place of work (university or hospital) and university ranking. However, one-way ANOVA showed that nursing managers' perspectives differ in some domains of barriers according to their level of education. As such, nursing managers with a doctoral degree assigned the highest score to factors related to research quality ($P = 0.048$) while managers with a bachelor's degree assigned the highest score to factors related to presentation and accessibility of research results ($P = 0.0001$). Investigating quantitative variables, Pearson's correlation test showed a significant negative relationship between nursing managers' perspective on organizational barriers to EBP, age ($P = 0.05$) and work experience ($P = 0.038$). There was also a significant positive relationship between the factors related to presentation and accessibility of research results and the duration of employment of research units as the manager of nursing services ($P = 0.011$).

Results related to the Necessity and Extent of EBP implementation

As Table 4 shows, 79.9% ($n = 221$) of the participants considered EBP to be essential, while 45.8% ($n = 127$) regarded its implementation as moderate.

The correlation between nursing managers' perspective on the necessity and extent of EBP implementation with facilitators of and barriers to EBP was investigated with Pearson's correlation test. Thus, there was a significant positive relationship between the necessity and extent of EBP implementation and all three domains of facilitating factors ($P < 0.0001$). Regarding barriers, a positive relationship was observed between the necessity of EBP and the first three domains of barriers, i.e., the domains of nursing factors ($P > 0.0001$), organizational factors ($P = 0.001$), and research quality factors ($P = 0.03$). However, there was no significant relationship between the extent of implementation and the four domains of EBP barriers.

Table 1
Some of participants' demographic and professional details

Variable		Numbers	Percentage
Gender	Female	143	51.6
	Male	134	48.4
Education level	Bachelor's degree	105	37.9
	Master's degree	157	56.7
	PhD	15	5.4
Place of service	University	31	11.2
	Medical centers	246	88.8
University level	Grade 1	94	33.4
	Grade 2	117	42.3
	Grade 3	66	23.8
Take a research course	Yes	206	74.4
	No	71	25.6
EBP awareness method	Academic subjects	161	58.1
	Academic and training course	116	41.9
Articles published	None	92	33.2
	Less than five	140	50.5
	5 to 10	31	11.2
	More than 10	14	5.1

Table 2
The most important EBP facilitators from the perspective of nursing managers

Priority	Domain	Facilitators	Moderate and high effect Frequency (%)	Mean ± SD
1	Organization	Managers' increased support and encouragement	218 (78.7)	4.32 ± 1.19
1	Organization	establishing an evidence-based nursing committee	218 (78.7)	4.03 ± 1.43
2	Nurse	training nurses on research methods	212 (76.6)	3.88 ± 1.19
2	Organization	allotting appropriate time for reviewing and implementing research findings	212 (76.6)	3.86 ± 1.15
3	Research	comprehensibility of research reports	209 (75.5)	4.19 ± 1.04
4	Organization	Encouragement of nurses for clinical use of evidence-based care	202 (72.9)	3.99 ± 1.30
5	Organization	Equipping hospital library with journals and internet access	198 (71.5)	3.74 ± 1.29

Table 3
The most important EBP barriers from the perspective of nursing managers

Priority	Domain	Barriers	Moderate and high response %	Mean \pm SD
1	Organization	physicians' not cooperating with implementation	70.8	3.80 \pm 1.29
2	Nurse	The nurse is unaware of research	65	3.51 \pm 1.19
3	Organization	There is insufficient time on the job to implement new ideas	63.5	3.70 \pm 1.08
4	Nurse	The nurse does not feel capable of evaluation the quality of the research	62.1	3.50 \pm 1.13
5	Organization	Nurses do not have enough authority to change patients' care procedures	61	3.59 \pm 1.34
6	Nurse	The facilities are inadequate for implementation	59.9	3.54 \pm 1.19
7	Nurse	The nurse is unwilling to change/try new ideas	59.6	3.57 \pm 1.06
8	Nurse	The nurse feels the benefits of changing practice will be minimal	58.8	3.27 \pm 1.21
9	Organization	The nurse does not have time to read research	58.8	3.61 \pm 1.16
10	Organization	Administration will not allow implementation	58.8	3.71 \pm 1.10

Table 4
Relative and absolute frequency distribution of nursing managers' perspective on the necessity and extent of EBP implementation

Variable	Not at all/a little	Moderate	High	Mean \pm SD
	(score 0 to 3)	(score 4 to 6)	(score 7 to 10)	
	Numbers (%)	Numbers (%)	Numbers (%)	
EBP necessity	9 (3.2)	47 (16.9)	221 (79.9)	8.02 \pm 1.9
EBP implementation	99 (35.7)	127 (45.8)	51 (18.5)	4.36 \pm 2.1

Discussion

This study explored facilitators of and barriers to EBP from the perspective of Iranian nursing managers. Analysis of the findings showed that nursing managers consider the factors related to the organization

more important than other domains in terms of both facilitators of and barriers to EBP, as reported by several studies conducted in different organizational contexts (12–14).

Regarding the facilitators, 74.4% of nursing managers mentioned the domain of organizational factors with a mean score of 34.7 ± 9.2 as a factor with a great impact. These results are similar to those of the Panagiari's study in Germany, in which more than 80% of the facilitators were related to organizational factors(15). However, Hasanpoor et al. considered social/interpersonal factors as the most important facilitator(9). In the present study, the two factors of "increased support and encouragement by managers" and "establishing an evidence-based nursing committee" were the most effective facilitating factors reported by nursing managers; both of these factors fall under the category of organizational factors. Increased support by managers is a factor that has been considered in many studies(14, 16, 17). Increased support from managers ranked second in the study by Mohammadpour et al. in Iran, who concluded that nursing managers can lay the ground for evidence-based care through various methods such as increasing the motivation and material and spiritual encouragement of nurses, establishing an evidence-based committee and providing adequate facilities and resources(18).

Establishing an evidence-based nursing committee for clinical research findings has been considered in other studies; in Mehrdad's study, nurses agreed on the establishment of a center that could help them perform EBP, and 65.4% of the nurses believed such a team or committee can facilitate the use of research results in clinical work(19). The role of evidence-based nursing committees as a training resource is important because nurses' education is considered as one of the most important facilitators in various studies (9, 16, 20). In the present study, this item held the second place among facilitating factors. The results of a study by Gallagher et al. also affirmed this finding in that many EBP features, including knowledge, skills, and attitudes toward EBP significantly improved and sustained after an intensive 5-day training program(6).

Moreover, this study explored the barriers of EBP among nursing managers. "Lack of cooperation between physicians and nurses in applying the research results" had the highest mean scores among all 29 barriers. This finding was perceived by 70.8% of nursing managers as a large or medium barrier. Expressing the impact of organizational barriers on EBP and the need for support from the organization, Jordan et al. considered nursing managers as the most important advocates of EBP implementation, followed by nursing colleagues and ultimately physicians. They stated lack of support by physicians may harm implementing EBP because they are one of the main stakeholders in patient care (21). However, some studies have reported this factor to rank fourth among barriers(11, 22). Since this factor is highly dependent on organizational culture, differences in study results can be justified. Physicians and nurses have different understandings of patient needs, thus, correcting the physician-nurse relationship strengthens the planning based on common goals and increases the sense of participation and cooperation in the treatment team(23). The second barrier from the perspective of nursing managers is nurses' unawareness of research findings. To remove this barrier, there are suggestions such as continuing training, holding a journal club and hiring research-oriented nurses who can serve as role

models. In this regard, the results of Malik's study strongly support education as a tool to enhance nurses' inquiry and appraisal skills, create positive attitudes and to overcome EBP barriers(14).

Another important barrier is "insufficient time on the job to implement new ideas". In sum, 60–75% of nurses in different countries considered not having enough time to try new ideas as a barrier with a moderate or high impact (11, 14, 20, 21). Lack of time can be caused by a shortage nurses in addition to too much workload in each shift. The previous research suggests that nurses are reluctant to EBP because they are too tired and overworked (14, 16). Although some believe that not having time is an acceptable excuse in the society, which can reflect the lack of interest, need, and knowledge for applying research results (24).

Another part of this study addressed the perspective of nursing managers on the necessity and extent of EBP implementation. In sum, about 80% of managers considered EBP essential. The positive attitude of nursing managers toward EBP in this study has been observed among nurses in other studies conducted in Iran and other countries (7, 25, 26). However, when it comes to EBP implementation, nursing managers believe EBP was moderately implemented for care giving at medical centers, which is consistent with other studies (20, 26). The findings of this part show that despite the strong positive attitude toward EBP, its implementation in clinical performance is moderate or low.

Limitations

This study had some limitations. One of the limitations was the way data were collected and questionnaires were completed electronically. This limitation made it impossible to resolve ambiguities because we could not have direct and face-to-face contact with research units. The participants are also likely to be biased in reporting due to the self-report method used.

Conclusion

This study analyzed the facilitators of and barriers to EBP from the perspective of Iranian nursing managers. Nursing managers identified many barriers and introduced facilitators, most of which reflect the existing barriers to EBP. Among these factors, nursing managers attached more importance to organizational factors as an important component in EBP success. Along with organizational factors, nursing factors were also of great significance. In fact, individual and organizational factors can be considered intertwined, such that barriers in both areas must be removed in parallel in order to advance EBP.

An analysis of the findings revealed that our findings were in many ways similar to those of other studies. Accordingly, it can be concluded that the opinions and perspective of clinical nurses and nursing managers concerning the factors affecting EBP are largely the same. It is promising to note that top nursing managers are aware of the problems, shortcomings, and conditions of the clinical environment. However, this awareness has not led to changes. Of course, it should be noted that it is usually time

consuming to make a change in a system, especially in an extensive system such as the healthcare system, therefore, achieving the EBP goal requires interest, positive attitude, commitment and collective effort at all levels of nursing.

Abbreviations

EBP: evidence-based practice

EBMgt : evidence-based management

Declarations

Ethics approval and consent to participate

The study was approved by research ethics committee of Gonabad University of Medical Sciences (code of ethics: IR_GMU.REC.1397.041). Since the participants were in different cities and there was no direct access to all, verbal consent was obtained by phone and then questionnaires were sent to them. This was approved by the ethics committee.

Consent for publication

No Applicable.

Availability of data and materials

The identified datasets analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare there are no competing interests.

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Authors' contributions

All authors read and approved the final manuscript. Hosseini-Moghaddam F and Mohamadpour A contributed in designing the study, Hosseini-Moghaddam F collected the data, and data analyzed by Hosseini-Moghaddam F, Bahri N and Mojalli M. All authors participated in the writing and review of the manuscript.

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Figures

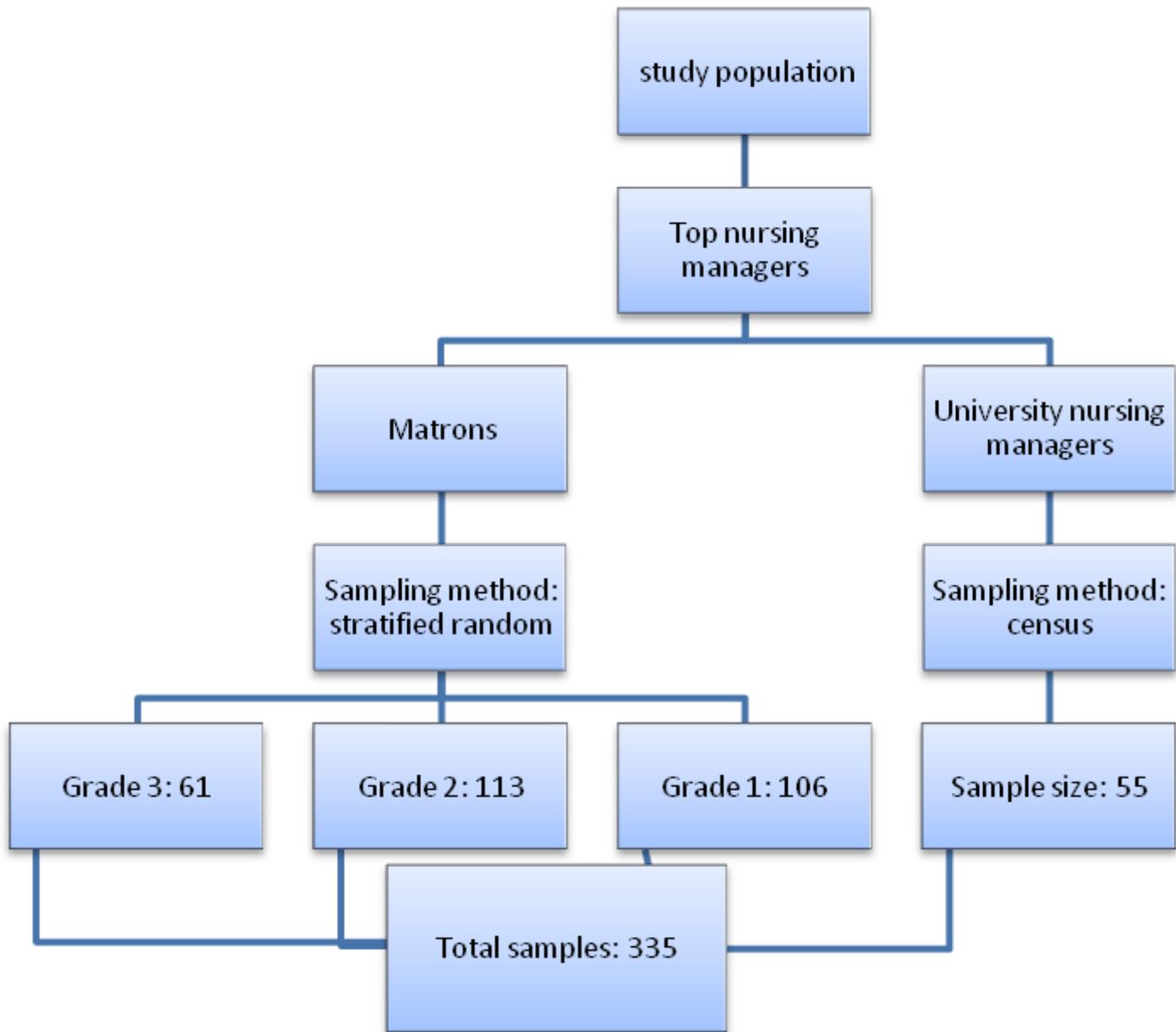


Figure 1

Study population and sampling