

Knowledge, Practice and Self-Efficacy in Evidence-Based Practice among Midwives in East Iran

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المعرفة وفاعلية العناية والتفعيل الذاتي المعتمدة على الدليل لدى القابلات القانونيات في شرقي إيران

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ABSTRACT: Objectives: The successful implementation of evidence-based practice (EBP) can lead to appropriate and effective midwifery care during pregnancy, childbirth and in the postnatal period. However, levels of knowledge and confidence in one's ability to apply EBP are related to its effective implementation. This study aimed to investigate levels of knowledge, practice of and self-efficacy towards the use of EBP among midwives in East Iran. **Methods:** This cross-sectional study took place between January and February 2016 and involved 98 midwives employed at two hospitals and all four urban health care centres in Torbat-e Heydariyeh, Iran. Two subscales of the Evidence-Based Practice Questionnaire were used to assess participants' knowledge and practice of EBP, respectively, while a modified version of a previously described scale was used to determine self-efficacy. **Results:** A total of 76 midwives participated in the study (response rate: 77.6%). Mean knowledge, practice and self-efficacy scores were 4.48 ± 0.94 , 3.53 ± 0.68 and 2.80 ± 0.81 , respectively. Significant relationships were found between mean self-efficacy, practice and knowledge scores and proficiency in English language ($P = 0.001$ each) and statistical methods ($P < 0.050$ each). Additionally, significant relationships were found between knowledge and practice of EBP and proficiency in the use of databases ($P < 0.050$ each). Knowledge and self-efficacy scores were significantly correlated with practice ($P = 0.001$ each). **Conclusion:** These findings demonstrate a need for improvement in the self-efficacy, practice and knowledge of EBP among midwives in East Iran. Interventions that promote these factors may help increase the use of EBP in this population.

Keywords: Evidence-Based Practice; Knowledge; Self Efficacy; Nurse Midwives; Iran.

المخلص: الهدف: إن التنفيذ الناجح لعملية العناية المعتمدة على الدليل يؤدي إلى توفير وعرض خدمات مناسبة للعناية بالحوامل في فترات الحمل، والولادة، وما بعد الولادة. هذا وتوجد علاقة وثيقة بين مستوى المعرفة والثقة بالنفس لدى القابلات القانونيات وبين تنفيذ عملية العناية المعتمدة على الدليل. هدف هذا البحث إلى دراسة مستوى المعرفة، والتفعيل الذاتي في تنفيذ تلك العملية لدى القابلات القانونيات في شرقي إيران. **الطريقة:** أجريت هذه الدراسة على 98 قابلة قانونية يعملن في مستشفيات وجميع المراكز الصحية في مدينة تربة حيدرية وذلك خلال الفترة مابين شهر يناير حتى شهر فبراير عام 2016 م. تم تحضير استمارتين استخدمت الأولى لدراسة وتقييم فاعلية العناية القائمة على الدليل، والأخرى لدراسة كمية التفعيل الذاتي. **النتائج:** شاركت في الدراسة 76 قابلة قانونية (نسبة الإجابات 77.6%). وكانت متوسطات درجات المشتركات في كل من الجانب المعرفي، والفاعلية، والتفعيل الذاتي هي كالآتي على الترتيب: 4.48 ± 0.94 ، 3.53 ± 0.68 و 2.80 ± 0.81 . كان هناك ارتباط ذو دلالة إحصائية بين درجات المعرفة، والفاعلية، والتفعيل الذاتي، مع إتقان اللغة الإنجليزية، وأساليب الإحصاء على الترتيب ($P = 0.001$) ($P < 0.050$). وجد أيضاً ارتباط ذو دلالة إحصائية بين مستوى المعرفة، والفاعلية بالنسبة لتنفيذ عمليات العناية المعتمدة على الدليل وإتقان استخدام قواعد البيانات ($P < 0.050$). وقد كان هناك أيضاً ارتباط ذو دلالة إحصائية بين المعرفة والتفعيل الذاتي بالنسبة لفاعلية الشخص ($P = 0.001$). **الخلاصة:** تدل هذه النتائج على ضرورة تحسين التفعيل الذاتي، والفاعلية، والمعرفة بالنسبة للعناية القائمة على أساس الدليل لدى القابلات القانونيات شرقي إيران. ستلعب الآليات التي تتسبب في تحسين هذه المستويات دوراً ملحوظاً في ارتفاع مستوى توظيف العناية القائمة على الدليل.

الكلمات المفتاحية: العناية المعتمدة على الدليل: المعرفة: التفعيل الذاتي: القابلات القانونيات: إيران.

ADVANCES IN KNOWLEDGE

- The findings of this study indicate that midwives in East Iran have poor levels of practice and moderate levels of knowledge and self-efficacy regarding evidence-based practice (EBP).
- Significant relationships were observed between EBP knowledge, practice and self-efficacy and proficiency in English, statistical methods and using databases. Knowledge and self-efficacy were also significantly correlated with practice.

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APPLICATION TO PATIENT CARE

- *The implementation of EBP is a vital competency for midwives. The moderate levels of EBP knowledge and self-efficacy and poor levels of practice reported among the Iranian midwives in the current study have alarming implications for future patient care. As such, interventions to promote EBP implementation are recommended in this population.*

PREGNANCY-RELATED COMPLICATIONS ARE THE second global leading cause of death among women of reproductive age.¹ In 2015, approximately 303,000 maternal deaths occurred worldwide, most of which could have been prevented; in the same year, 340 women in Iran died from pregnancy-related complications, resulting in a maternal mortality ratio of 25 deaths per 100,000 live births.² Evidence-based practice (EBP) plays an integral role in high-quality healthcare by promoting a problem-solving approach that emphasises implementation of the current best available research within a clinical context, helping healthcare professionals to remain up-to-date and make better healthcare decisions.³⁻⁷ The National Academy of Medicine in the USA recognises EBP as an essential skill for healthcare providers in the 21st century.⁸ Several studies have also indicated that EBP improves the quality and safety of patient care.^{6,7,9}

Nevertheless, many healthcare decisions are still based on traditional practices, assumptions, personal experiences and individual opinions and skills.^{10,11} The possession of adequate knowledge and skills is essential for gathering and appraising evidence and implementing best practices in a clinical setting.⁴ However, numerous studies have revealed that most healthcare professionals do not have sufficient knowledge and skills for the effective implementation of EBP.^{4,11-14} In a study analysing perceptions of EBP among nurses, Melnyk *et al.* found that fewer than half of the participants believed that their colleagues consistently used EBP in patient care.⁵ Similarly, Zhou *et al.* indicated that most Chinese nurses lacked practice in many EBP-related skills.¹⁵ Another important variable affecting the implementation of EBP is self-efficacy, which is defined as an individual's belief in their own ability to execute skills at a designated level of performance.^{11,16-18} Several studies have indicated that the majority of healthcare professionals do not have the desired level of self-efficacy in the implementation of EBP.^{11,19}

To the best of the authors' knowledge, few studies have focused on the knowledge, practice and self-efficacy of EBP among Iranian midwives. As health policies in Iran are based on population growth, the role of midwives is becoming more prominent, due to their importance in the pregnancy and childbirth process. This study therefore aimed to determine

levels of knowledge, practice and self-efficacy towards EBP in clinical decision-making among midwives working in hospitals and healthcare centres in Torbat-e Heydariyeh, Iran.

Methods

This descriptive cross-sectional study took place from January to February 2016 and included 98 midwives employed at two public hospitals and all four urban health centres in Torbat-e Heydariyeh. Only those midwives with at least six months of work experience at the time of the study were included. Midwives who were sick or on maternity leave during this period were excluded from the study. A convenience sampling method was used to recruit the midwives. All midwives in the hospitals and health centres were informed of the study goals and were invited to participate at the beginning of each work shift.

A questionnaire was designed to collect information regarding the participants' sociodemographic and professional characteristics, including age, education level, number of years of work experience, previous participation in EBP courses, proficiency in English, statistical methods and use of databases, participation in conferences or congresses and number of previously published articles in national and international journals. The frequency of use of various print (five items), electronic (eight items) or human (six items) health information sources was scored on a 5-point Likert scale, with a score of 1 indicating never and 5 indicating always.¹¹ In order to assess EBP knowledge and practice, the 14-item and 6-item subscales of the Evidence-Based Practice Questionnaire were used; items were scored on 7-point Likert scales ranging from 1 to 7, indicating poor and best knowledge for knowledge items and never and frequently for practice items, respectively.²⁰ A modified version of a previously described EBP self-efficacy scale was used to determine the participants' self-efficacy towards implementing EBP.¹¹ These eight items were scored on a 5-point Likert scale, with scores of 1 and 5 indicating poor and best efficacy, respectively.¹¹

All of the questionnaire items were translated from the original English into Persian, after which two linguists made revisions to ensure the validity of the translations. Subsequently, the content and face validity of all questionnaire items was confirmed by

Table 1: Sociodemographic and professional characteristics of midwives in Torbat-e Heydariyeh, Iran (N = 76)

Characteristic	n (%)
Experience in years*	
<5	39 (51.3)
5–10	27 (35.5)
>10	9 (11.8)
Previous participation in EBP courses	
Yes	34 (44.7)
No	42 (55.3)
Proficiency in English	
Low	25 (32.9)
Moderate	48 (63.2)
High	3 (3.9)
Proficiency with statistical methods*	
None	14 (18.4)
Low	37 (48.7)
Moderate	22 (28.9)
High	2 (2.6)
Proficiency in database use[†]	
None	3 (3.9)
Low	22 (28.9)
Moderate	41 (53.9)
High	6 (7.9)
Previous participation in conferences or congresses	
Yes	58 (76.3)
No	18 (23.7)
Number of previously published articles in national journals*	
0	66 (86.8)
1–2	3 (3.9)
≥3	6 (7.9)
Number of previously published articles in international journals	
0	73 (96.1)
1	1 (1.3)
≥2	2 (2.6)

*Due to missing data in the completed questionnaire of one participant, the total cohort for this variable was 75. [†]Due to missing data in the completed questionnaires of four participants, the total cohort for this variable was 72.

a group of experts. Additionally, Cronbach's alpha values indicated good internal consistency reliability of the knowledge (0.81), self-efficacy (0.88), practice (0.70), print information sources (0.72) electronic information sources (0.88) and human information sources (0.72) questionnaire items. The various questionnaire subscales were compiled into one survey which was distributed individually to each midwife. The researchers then collected the completed surveys from midwives at each hospital and healthcare centre. The entire survey took approximately 15 minutes to complete.

Data were analysed using the Statistical Package for the Social Sciences (SPSS), Version 19.0 (IBM Corp., Chicago, Illinois, USA). Means, standard deviations and frequencies were calculated for the descriptive data. To determine relationships between variables, Pearson and Spearman's correlation tests were performed. A *P* value of <0.050 was considered statistically significant.

This study was approved by the Ethical Board Committee of Torbat Heydariyeh University of Medical Sciences (#IR.THUMS.REC.1394.2). All of the midwives provided written informed consent before participating in the study. Midwives were assured of the confidentiality of the data before recruitment. Once analysed, the results of this study were provided to the midwives and officials of the participating health centres and hospitals.

Results

A total of 76 midwives participated in the study (response rate: 77.6%); of these, 42 (55.3%) were employed by hospitals and 34 (44.7%) by health centres. The mean age of the participants was 29.30 ± 4.86 years (range: 22–43 years old). The percentage of midwives with a bachelor's or master's qualification was 93.4% and 6.6%, respectively. The mean number of years of work experience was 5.22 ± 4.21 years (range: 6 months–18 years). Overall, 44.7% of the midwives had previously taken part in EBP training courses. Most of the participants were moderately proficient in English (63.2%) but had low proficiency in statistics (48.7%) [Table 1].

Mean knowledge, practice and self-efficacy scores were 4.48 ± 0.94 , 3.53 ± 0.68 and 2.80 ± 0.81 , respectively. Mean scores for individual items in the knowledge subscale ranged from 3.78–5.29. Determining the validity and usefulness of material were the knowledge items with the lowest mean

Table 2: Knowledge of evidence-based practice* among midwives in Torbat-e Heydariyeh, Iran (N = 76)

Questionnaire item	Mean score ± SD
Converting information queries into a question	4.21 ± 1.56
Research skills	4.06 ± 1.40
Awareness of information types/sources	4.45 ± 1.28
Ability to determine the validity of material	3.78 ± 1.36
Ability to critically appraise material	4.05 ± 1.29
Knowledge of how to retrieve evidence	4.20 ± 1.34
IT skills	4.24 ± 1.34
Monitoring and reviewing practice skills	4.44 ± 1.39
Ability to identify gaps in own practice	4.44 ± 1.33
Ability to determine usefulness of material	3.97 ± 1.36
Discussion of new ideas with colleagues	5.08 ± 1.14
Application of information to individual cases	5.25 ± 1.18
Sharing ideas/information with colleagues	5.29 ± 1.20
Ability to review own practice	5.26 ± 1.27

SD = standard deviation; IT = information technology.

*Knowledge was self-assessed by participants using a Persian version of the knowledge subscale of the Evidence-Based Practice Questionnaire.²⁰ Responses were scored on a 7-point Likert scale, with scores of 1 and 7 indicating poor and best knowledge, respectively.

scores (3.78 ± 1.36 and 3.97 ± 1.36, respectively) [Table 2]. In the self-efficacy subscale, mean scores ranged from 3.26–3.88, indicating that the midwives had above-average self-efficacy. However, conversion of a clinical problem into a well-formulated clinical question resulted in a lower mean self-efficacy score in comparison to the other items (3.26 ± 0.98) [Table 3]. For the practice subscale, mean scores ranged from 3.94–4.97. The most practiced items included sharing information with colleagues (4.97 ± 1.53), integrating evidence with expertise (4.67 ± 1.30) and formulating clear questions (4.43 ± 1.42), whereas critically appraising literature was the least frequently practised item (3.94 ± 1.34) [Table 4].

In terms of health information sources, print sources were most frequently employed, closely followed by electronic sources (3.43 ± 0.86 and 3.13 ± 0.97, respectively). Among print information resources, textbooks and instructions/handouts produced by the Iranian Ministry of Health (MOH) were the most frequently used (3.96 ± 1.15 and 3.92 ± 1.06, respectively). Websites identified via an Internet browser search engine were the most frequently used electronic source (3.50 ± 1.43), followed by online tutorials provided by professional associations, medical libraries or overseas hospitals

Table 3: Self-efficacy towards evidence-based practice* among midwives in Torbat-e Heydariyeh, Iran (N = 76)

Questionnaire item	Mean score ± SD
Ability to identify clinical problems	3.88 ± 0.92
Ability to overcome barriers of evidence-based care	3.47 ± 0.78
Ability to convert a clinical problem into a well-formulated clinical question	3.26 ± 0.98
Ability to conduct online searches using databases and web search engines	3.55 ± 1.01
Ability to relate research findings to clinical practice and point out similarities and differences when reading research articles	3.57 ± 0.91
Ability to read research reports and form general notions of strengths and weaknesses	3.57 ± 0.91
Ability to apply interventions based on the most applicable evidence	3.44 ± 0.87
Ability to evaluate the application of interventions and use this to improve clinical decisions	3.51 ± 0.96

SD = standard deviation.

*Self-efficacy was self-assessed by participants using a Persian version of a previously described evidence-based practice self-efficacy scale.¹¹ Responses were scored on a 5-point Likert scale, with scores of 1 and 5 indicating poor and best efficacy, respectively.

Table 4: Practice of evidence-based practice* among midwives in Torbat-e Heydariyeh, Iran (N = 76)

Item	Mean score ± SD
Critical appraisal of literature	3.94 ± 1.34
Integration of evidence with expertise	4.67 ± 1.30
Formulation of clear questions	4.43 ± 1.42
Tracking down of relevant evidence	4.39 ± 1.47
Evaluation of outcomes of practice	4.36 ± 1.41
Sharing of information with colleagues	4.97 ± 1.53

SD = standard deviation.

*Practice was self-assessed by participants using a Persian version of the practice subscale of the Evidence-Based Practice Questionnaire.²⁰ Responses were scored on a 7-point Likert scale, with scores of 1 and 7 indicating never and frequently, respectively.

(3.36 ± 1.28). Finally, the most common human sources of health information were colleagues (3.41 ± 1.27) and physicians (3.32 ± 1.24) [Table 5].

A bivariate correlational analysis was performed to determine relationships between EBP knowledge, self-efficacy and practice scores and the demographic and professional characteristics of the midwives. Significant relationships were observed between education level and knowledge, self-efficacy and practice ($P = 0.001, 0.010$ and 0.013 , respectively). Moreover, significant correlations between knowledge, self-efficacy and practice were observed with

Table 5: Frequency of use of health information sources* among midwives in Torbat-e Heydariyeh, Iran (N = 76)

Source of information	Mean score ± SD
Print	3.43 ± 0.86
Textbooks	3.96 ± 1.15
Journal articles	3.05 ± 1.27
Magazines/newspapers	2.96 ± 1.46
Instructions/handouts from the Iranian MOH	3.92 ± 1.06
Other	3.16 ± 1.13
Electronic	3.13 ± 0.97
E-books	3.20 ± 1.30
Digital medical/nursing libraries	2.81 ± 1.30
Medical/nursing databases (e.g. CINAHL)	3.11 ± 1.36
Websites found via browser search engines	3.50 ± 1.43
Online tutorials	3.36 ± 1.28
Medical blogs	2.92 ± 1.18
UpToDate (Wolters Kluwer Health, Alphen aan den Rijn, Netherlands) and ClinicalKey (Elsevier, Amsterdam, Netherlands) databases	2.92 ± 1.24
Other	2.97 ± 1.37
Human	3.01 ± 1.05
Colleagues	3.41 ± 1.27
Supervisors	2.82 ± 1.36
Research groups within an organisation	2.72 ± 1.32
Physicians	3.32 ± 1.24
Professional friends working in other hospitals/clinics	2.98 ± 1.24
Other	2.92 ± 1.31

SD = standard deviation; MOH = Ministry of Health; CINAHL = Cumulative Index to Nursing and Allied Health Literature.

*Frequency of use of health information sources was self-assessed by participants using a Persian version of a previously described questionnaire.¹¹ Responses were scored on a 5-point Likert scale, with scores of 1 and 5 indicating never and always, respectively.

proficiency in English ($P = 0.001$ each) and statistical methods ($P = 0.002, 0.016$ and 0.015 , respectively). Similarly, knowledge and practice had statistically significant relationships with proficiency in the use of databases ($P = 0.015$ and 0.005 , respectively). Midwives with a higher number of published articles in national journals also had significantly higher self-efficacy scores ($P = 0.023$). No correlation was noted between previous EBP training and knowledge, self-efficacy or practice. Finally, significant relationships were found between mean knowledge scores and self-efficacy and practice ($P = 0.001$ each) and between mean self-

efficacy scores and practice ($P = 0.001$) [Table 6].

Discussion

Overall, different levels of EBP knowledge, practice and self-efficacy have been reported among health professionals.^{6,11,21,22} These findings may be useful in developing a comprehensive and appropriate strategy for promoting EBP, leading to more effective patient care.²³ In the current study, levels of knowledge and self-efficacy among the midwives were slightly higher than average, while their practice scores were below average. Previous research has also demonstrated moderate mean knowledge scores among nurses and nursing faculty.^{5,13,24,25} Brown *et al.* reported that practice scores among nurses were higher than average while Farokhzadian *et al.* previously reported a low mean self-efficacy score among nurses (2.93 ± 1.06).^{19,24} Appropriate interventions should be performed targeting priorities among the items in the three subscales utilised in the current study to increase knowledge and practice of and self-efficacy towards EBP among midwives in East Iran. As per the findings of the present study, the ability to determine the validity (i.e. truthfulness) and usefulness (i.e. clinical application) of information should have the highest priority in the knowledge context when planning an intervention. Consequently, midwives should be able to identify reliable and applicable information within a large volume of medical research in order to bridge the gap between empirical evidence and clinical practice.

Participants of the current study demonstrated the least self-efficacy when it came to their ability to convert a clinical problem into a well-formulated question and to apply an intervention based on the most applicable evidence. Similarly, Mohsen *et al.* found that most clinical nurse specialists had no confidence in their ability to translate clinical problems into well-formulated questions.²⁶ The ability to apply interventions based on the most applicable evidence was also one of the highest priorities identified in another Iranian study.¹⁹ In general, EBP should begin with a precise and structured clinical question; it is therefore important that midwives develop the necessary skills to convert informational needs into questions. Subsequently, evidence can be applied to a clinical decision.²⁷ In the current study, mean scores for the remaining self-efficacy items were comparable, indicating moderate levels of confidence among the midwives for other aspects of EBP self-efficacy. Other studies have reported mean self-efficacy scores of 2.5–3.5 among nurses.^{11,19}

In terms of mean practice scores, results from the current study indicated that the ability to critically

Table 6: Correlations between demographic and professional characteristics and evidence-based practice knowledge, self-efficacy and practice scores* among midwives in Torbat-e Heydariyeh, Iran (N = 76)

Variable	Knowledge		Self-efficacy		Practice	
	r	P	r	P	r	P
Age	0.086	0.468	0.130	0.297	0.246	0.036 [‡]
Education level	0.369	0.001 [‡]	0.314	0.010 [‡]	0.289	0.013 [‡]
Work experience	0.082	0.489	0.151	0.228	0.170	0.150
Previous EBP training	0.142	0.224	-0.070	0.572	0.191	0.102
Proficiency in English	0.419	0.001 [‡]	0.423	0.001 [‡]	0.410	0.001 [‡]
Proficiency in statistics	0.354	0.002 [‡]	0.294	0.016 [‡]	0.285	0.015 [‡]
Proficiency in the use of databases	0.288	0.015 [‡]	0.215	0.088	0.329	0.005 [‡]
Previous participation in conferences/congresses	0.153	0.190	0.103	0.408	0.140	0.233
Number of published articles in national journals	0.113	0.339	0.280	0.023 [‡]	0.056	0.638
Number of published articles in international journals	0.191	0.100	0.203	0.100	0.088	0.458
Print information sources [†]	0.384	0.008 [‡]	0.464	0.002 [‡]	0.386	0.009 [‡]
Electronic information sources [†]	0.274	0.066	0.261	0.099	0.265	0.075
Human information sources [†]	-0.077	0.593	0.160	0.292	-0.080	0.586
Knowledge score	-	-	0.625	0.001 [‡]	0.739	0.001 [‡]
Self-efficacy score	-	-	-	-	0.638	0.001 [‡]

EBP = evidence-based practice.

*Knowledge and practice were self-assessed by participants using Persian versions of the knowledge and practice subscales of the Evidence-Based Practice Questionnaire while self-efficacy was self-assessed by participants using a Persian version of a previously described EBP self-efficacy scale.^{11,20}

[†]Frequency of use of health information sources was self-assessed by participants using a Persian version of a previously described questionnaire.¹¹

[‡]Significant at $P < 0.050$.

appraise literature, evaluate outcomes of practice and track down relevant evidence were the most important priorities for an EBP intervention among midwives in East Iran. These findings are consistent with those of Shafiei *et al.* and Brown *et al.*^{24,25} Therefore, educational interventions would be useful to familiarise midwives with the entire EBP process, from formulating answerable questions to finding recent and relevant material, critically evaluating evidence and applying that evidence in practice.

In the current study, midwives with a higher level of education had significantly greater knowledge, self-efficacy and practice of EBP. This may be because midwives with more advanced academic degrees had more knowledge and experience in practicing EBP and were therefore more likely to be confident in their EBP skills. Farokhzadian *et al.* observed no significant relationship between self-efficacy and academic degree in another study of Iranian nurses; in contrast, Weng *et al.* also reported that healthcare professionals with more advanced academic degrees more frequently implemented EBP.^{12,19} Similarly, several studies have confirmed the positive effects of higher education levels on patient outcomes through

the implementation of EBP.^{26,28–30} In the present study, midwives who were older and had more work experience were not significantly more likely to have greater EBP knowledge, self-efficacy or practice. This finding was supported by a previous study which found no relationships between age or clinical experience with EBP knowledge among nurses.¹³ However, both Majid *et al.* and Ferguson *et al.* have suggested that new nurses have limited practical knowledge and experience and are less confident in the implementation of EBP.^{11,31} Nearly half of the participants in the current study reported previously taking part in EBP training courses; however, relationships between this variable and EBP knowledge, practice or self-efficacy were not significant, which is inconsistent with previous findings from Iran and Singapore.^{11,19}

Significant relationships were noted in the present study between proficiency in English language and the use of databases with EBP knowledge, self-efficacy and practice. Previous studies have considered lack of familiarity with English to be a barrier to EBP implementation among non-English speakers.^{12,32,33} This may be because the majority of up-to-date medical resources are in English. Unfortunately,

most midwives in the current study had a low understanding of statistical methods; this is important as significant relationships were identified between proficiency in statistics and EBP knowledge, self-efficacy and practice. Numerous EBP studies have reported that an inadequate understanding of statistical terms and difficulties in understanding statistical analysis are two of the most notable barriers to adopting EBP.^{11,24,34,35} Therefore, well-designed education and training courses focusing on familiarity with the English language, database searching skills and statistical methods are potential approaches to increasing knowledge and facilitating the implementation of EBP among Iranian midwives.

According to Farokhzadian *et al.*, Iranian nurses use more human and print resources than electronic resources to gain information.³⁶ Similarly, more than half of the nurses in a study by Yoder *et al.* utilised physicians or nursing peers as their primary information sources.³⁷ Print materials were the most frequently used source of health information in the current study, in particular textbooks and instructions/handouts from the Iranian MOH. Due to the structure, peer review process and legal aspects associated with the publication of these resources, their use in clinical decision-making is justifiable. A significant relationship was observed between use of print resources and EBP knowledge, self-efficacy and practice; this may be due to the continuous updating of printed medical resources. Electronic sources were the second most commonly used source of health information, particularly online tutorials and websites identified via an Internet browser search engine; however, no significant relationships were found between this factor and EBP knowledge, self-efficacy or practice. This may be because browser search engines do not solely provide results from evidenced-based websites. Use of medical e-books and medicine-specific databases was infrequent among midwives in the current study; this may be due to limited Internet access and access to valid databases at home. Midwives in the current study least frequently utilised people as a source of health information; among those who did, colleagues and physicians were the most common information sources. As with electronic sources, no significant relationships were identified between frequency of use of human information sources and EBP knowledge, self-efficacy and practice.

In the present study, significant associations were observed between knowledge of and self-efficacy towards EBP, both of which were associated with practice. Recent quantitative studies have demonstrated that interventions to promote knowledge can improve EBP implementation.^{24,25} Adequate training

may therefore be helpful in increasing confidence and engagement in EBP among Iranian midwives; additionally, the findings of the present study may aid hospital managers and policy-makers in the development of strategies to promote EBP in this population. Employing midwives with more advanced academic degrees, providing advanced education programmes—including statistics training—and holding journal clubs to improve midwives' confidence in appraising medical literature are potential strategies to encourage EBP implementation in East Iran.

The results of the present study are subject to certain limitations. First, the findings were based on responses to self-administered questionnaire items and may therefore be inaccurate or biased; data collection using interviews and focus groups might have generated more objective results. Second, since the study was cross-sectional, a causal relationship could not be established. As a result, interventional studies are recommended to confirm these findings. In addition, there is a need for further research to investigate other variables affecting the use of EBP among Iranian midwives.

Conclusion

The findings of the current study indicate that there is a need to improve EBP knowledge, self-efficacy and practice among Iranian midwives. In addition, there was significantly greater knowledge, practice and self-efficacy in EBP among participants with more advanced academic degrees, those with increased proficiency in English, statistics and the use of databases and among midwives who more frequently used print sources of health information. Consequently, interventions and training that support these factors may help to increase the use of EBP among midwives in East Iran.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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