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Abstract: Background/Objectives: Evidence-based practice (EBP) has been widely adopted in clinical nursing practice, with nursing education efforts consistently emphasizing its importance in strengthening implementation efforts. Despite these efforts to promote translational research, the level of evidence-based practice (EBP) implementation in clinical nursing practice remains unsatisfactory. This study aimed to explore the barriers to research utilization in clinical settings, as perceived by nurses in Malaysia. **Methods**: A cross-sectional study was conducted in 2019 using the BARRIERS Scale, a validated tool that measures perceived barriers to research utilization across four domains: organizational barriers, nurses' research awareness and values, quality of research, and research communication. The study involved nurses from five tertiary hospitals in Sabah, Malaysia. **Results**: A total of 562 nurses participated in the study, with a mean age of 34.3 years (SD = 7.96) and mean duration of clinical practice of 10.0 years (SD = 7.58). Half of the nurses (53.9%) had a moderate understanding of EBP. Using the BARRIERS questionnaire, the top three prominent barriers perceived by nurses were 'the nurse does not feel she/he has enough authority to change patient care procedures'(35.9%), 'the nurse does not have time to read research' (27.8%), and 'research reports/articles are not published fast enough' (25.8%). Among the four domains, organizational barriers scored highest (mean=2.7, SD=0.72), followed by research communication (mean=2.6, SD=0.73). **Conclusions**: The study findings emphasize the challenges nurses encounter in integrating research into clinical practice and highlight the need for ongoing efforts to promote evidence-based practice and research utilization among nurses in Sabah while addressing the identified gaps.

Keywords: evidence-based nursing; evidence-based practice; nursing; barriers; Malaysia

1. Introduction

Research utilization in clinical practice is essential for the advancement of evidence-based nursing; however, nurses often encounter barriers that impede the integration of research findings into patient care. Integrating research findings into daily nursing practice bridges the gap between theoretical knowledge and practical application, enabling nurses to make informed decisions based on current and reliable evidence. This approach not only enhances the quality of patient care but also promotes cost-effectiveness and efficiency in healthcare delivery [1].

The recognition of barriers to research utilization in nursing has evolved in several ways over time, as evidenced by systematic reviews of existing studies [2,3]. While the most commonly reported

barriers have remained largely consistent since the early 1990s, primarily focusing on organizational factors such as lack of time, inadequate resources, and insufficient authority, there have been notable changes in how these barriers are studied and understood in different contexts.

In recent years, the geographical focus of studies on barriers to research utilization has expanded from primarily Western countries to include more research in Asia, Africa, and North America. Interestingly, despite geographical and cultural diversity, nurses across different regions report similar barriers, such as lack of time, support, and resources, as well as difficulties in understanding statistical analyses [4,5]. These barriers are not only persistent over time but also consistent across continents, indicating a commonality in the challenges faced by nursing professionals [2]. Moreover, factors such as insufficient organizational support, lack of nurses' research skills, and research communication or accessibility issues have been identified as significant predictors of perceived barriers [6–9].

While many of these barriers to research utilization are commonly encountered across countries, context-specific factors also exist. Evidence from a local setting is imperative to explore and better understand the unique and context-specific barriers to facilitating efforts and policies that are responsive to addressing these barriers. While there have been studies examining evidence-based practice in Malaysia among various healthcare practitioners [10], the specific barriers to research utilization among nurses in clinical practice in Sabah, Malaysia, remain unexplored. Previous studies have investigated the knowledge, attitudes, and barriers to EBP among medical practitioners [10,11] and assessed EBP implementation among nurses in peninsular Malaysia [11]. However, there is limited understanding of the challenges nurses face, specifically in Sabah. Given that barriers to EBP implementation can vary by region and healthcare setting, evidence from this local setting is imperative to better understand the unique and context-specific barriers to facilitate efforts and policies that are responsive to addressing these barriers.

This study aimed to investigate the perceptions of barriers to research utilization in clinical practice among nurses in Sabah, Malaysia. We also investigated the possible factors associated with the total mean scores of the questionnaire used to evaluate the perceived barriers to research utilization.

2. Materials and Methods

2.1. Study Design and Settings

This cross-sectional study was conducted between July and December 2019 among nurses from five main hospitals in Sabah, Malaysia. These five hospitals were selected because they are the five largest tertiary-level hospitals that cater to the majority of the population in the state of Sabah, Malaysia. Being the largest hospitals, they also had the largest number of nurses with varying levels of experience, as junior nurses are often placed in these centers for early career training.

2.2. Study Population and Sampling

Eligible and practicing nurses from each hospital were randomly sampled and invited to participate in the study. The recruited nurses should have at least one year of clinical experience to ensure that they have undergone mentorship programs and have sufficient clinical experience and exposure to identify barriers that they perceive as important to evidence-based practice.

The minimum sample size required for the study was calculated using a sample size calculator to estimate the mean [12]. Using the highest SD (1.22) reported in a previous study [7], to achieve a precision of 0.25, the required sample size was 92. A non-response rate of 20% was considered; therefore, this study recruited 110 participants (92 participants plus 20%) from each of the hospitals involved. The total number of participants anticipated for this study was 550, with 110 participants from each of the five hospitals involved.

2.3. Data Collection

Questionnaires and informed consent forms were distributed by members of the study team to the ward managers in each ward or clinic, where the participants were selected. The purpose of the study was explained in detail in the informed consent form, and a copy of the form was provided to each participant. After participants provided written consent to participate, a questionnaire was administered to them, and they returned the completed questionnaires to the investigator within two weeks.

2.4. Research Instrument

This study utilized the BARRIERS questionnaire, a validated tool widely used to assess barriers to research utilization in nursing practice [2,13]. The BARRIERS scale consists of 29 items categorized into four subscales: organizational barriers, nurses' research awareness and values, quality of research, and research communication. Items were rated on a 5-point Likert Scale (0 = no opinion, 1 = to no extent, 2 = to a little extent, 3 = to a moderate extent, and 4 = to a great extent). Permission to use the BARRIERS Scale was obtained from the original author [14].

2.5. Data Analysis

Descriptive statistical analysis was used to describe the participants' demographic features, the components of the questionnaire, and the attributes of the subscales of the BARRIERS Scale. Mean, standard deviation, and percentage values were used to determine the results. The mean total score on the BARRIERS scale was compared between the groups of variables of interest using an independent t-test or One-Way ANOVA. The variables examined included years of experience in the clinical field, highest level of education attained, familiarity with EBP, and perceived understanding of EBP.

2.6. Ethical Considerations

This study was registered in the National Medical Research Register (NMRR), and ethical approval to conduct the study was obtained from the Medical Research Ethics Committee (MREC) of the Ministry of Health, Malaysia.

3. Results

A total of 562 nurses were recruited for this study. While the initial target was 550 participants (110 from each of the five hospitals), the number was slightly higher due to additional interest from eligible nurses at some of the participating hospitals. All nurses who were approached and who met the inclusion criteria agreed to participate in the study.

The mean age of the participants was 34.3 years (SD = 7.96). The mean practice in clinical years was 10.0 years (SD = 7.58). As shown in Table 1, the majority of the participants (86.1%, n=484) had diplomas as their highest academic qualification, while 8.2% (n=46) held bachelor's degrees, and 2.8% (n=16) held certificates or advanced diplomas. Most participants (78.1%, n=439) had acquired academic qualifications from government educational institutions, with the remainder (21.9%, n=123) from private institutions.

Table 1. Demographic of nurses participated in the study (n = 562).

Sociodemographic	Variables	Freque	Percentage
Age	Years [1]	34.3	7.96
Years as a clinical nurse	Years [1]	10.0	7.58

Qualification	Certificate	16	2.8
	Diploma	484	86.1
	Advanced Diploma	16	2.8
	Bachelor	46	8.2
Education institutional status	Government	439	78.1
	Private	123	21.9

[1] Mean (SD).

Among the participants, nearly two-thirds (66.5%, n=370) reported having heard of evidence-based practice (EBP), as presented in Table 2. When asked where they learned about EBP, participants most commonly reported their study place (33.7%, n=106) or workplace (32.1%, n=101), followed by workshops (15.9%, n=50), books/journal articles (9.8%, n=31), and online sources (7.3%, n=23). Approximately half (n=282, 53.9%) of the respondents considered their knowledge of EBP to be moderate, while only 7.3% (n=38) reported understanding EBP very well, and 38.8% (n=203) reported not being familiar with EBP.

Table 2. Evidence Based Practice (EBP) perceived among the respondents.

Item	Variables	Frequen	Percenta
Have heard about EBP? n = 556	Yes	370	66.5
Where was it is mentioned? n = 315	Workshop	50	15.9
	Study place	106	33.7
	Workplace	101	32.1
	Book/ Journal article	31	9.8
	Online	23	7.3
	Not remember	4	1.3
How well do you think you understand EBP? n = 523	Very well	38	7.3
	Moderate	282	53.9
	Not familiar	203	38.8
Do you search for information or research evidence to help you in your clinical practice? n = 528	Yes	354	67.0
Where do you look for information or research evidence? *Participant can answer more than one*	Colleagues or nurse managers opinion	333	61.0
	Search online information (general search)	498	91.2
	Read specifically nursing journals/ publications	250	45.8
	Read nursing textbooks and practice guidelines	332	60.9
The most IMPORTANT information source n = 430	Search online	171	39.8
	Textbooks and practices guidelines	109	25.3
	Journals/ publications	79	18.4
	Colleagues or nurse managers	66	15.3
	opinion	5	0.5

	Others		
The most COMMON source use n = 436	Search online	298	68.3
	Textbooks and practices guidelines	64	14.7
	Colleagues or nurse managers opinion	48	11.0
	Journals/ publications	22	5.0
	Others	4	0.7

Approximately 67.0% (n=354) of the participants indicated that they had sought information or research evidence to help them in their clinical practice. When asked about their information-seeking practices, the most common approach was conducting general online searches (91.2%, n=498), followed by seeking colleagues' or nurse managers' opinions (61.0%, n=333), reading nursing textbooks and practice guidelines (60.9%, n=332), and reading nursing journals/publications (45.8%, n=250). Online searches were perceived as both the most important source (39.8%, n=171) and the most common approach (68.3%, n=298) used by nurses to seek information and research evidence.

Using the BARRIERS questionnaire (Table A1), among those who perceived barrier items to be barriers "to a great extent," the top five barriers identified were: 1) the nurse does not feel she/he has enough authority to change patient care procedures (35.9%, n=202), 2) the nurse does not have time to read research (27.8%, n=156), 3) research reports/articles are not published fast enough (25.8%, n=145), 4) there is insufficient time on the job to implement new ideas (25.7%, n=144), and 5) the nurse feels results are not generalizable to own setting (25.1%, n=141).

This study found that most of the nurses surveyed perceived barriers to research utilization as 'to a moderate extent' for most of the items asked. Among these nurses, the top five items perceived as barriers to a moderate extent were: 1) research reports/articles are not readily available (56.4%, n=317), 2) implications for practice are not made clear (53.7%, n=302), 3) the research has not been replicated (50.1%, n=281), 4) statistical analyses are not understandable (48.9%, n=273), and 5) the nurse does not feel capable of evaluating the quality of the research (48.2%, n=271).

We also investigated possible factors associated with the total mean scores, but none of the variables of interest were found to be significant when the total scores were compared (Table 3). Nurses with ≤14 years of clinical experience had a slightly higher mean total score (75.2, SD=18.57) than those with ≥15 years of experience (74.4, SD=22.42), but this difference was not statistically significant (p=0.721). Similarly, no significant differences were found between diploma and bachelor's degree holders (p=0.145), between those who had or had not heard about EBP (p=0.138), or among the different levels of perceived understanding of EBP (p=0.093).

Table 3. Comparison of total score among group of variables of interest.

Variables	n	Mean (SD)	Mean diff [a]	P-value [a]
Years of clinical experience				
≤ 14 years	435	75.2 (18.57)	0.8 (-3.8, 5.5)	0.721[b]
15 years	104	74.4 (22.42)		
Level of education				
Diploma	469	75.9 (18.09)	-4.3 (-10.0,1.5)	0.145
Bachelor	42	80. 1 (18.38)		
Have heard about EBP?				
Yes	353	76.1 (18.62)	-2.6 (-6.1,0.8)	0.138
No	183	73.5 (20.67)		

Individual's perceived understanding of EBP				
Very well	36	72.9 (17.21)		
Moderate	271	76.9 (17.96)	-	0.093 [c]
Not familiar	198	73.1 (21.43)		

[a] Independent t-test; [b] Equal variances not assumed; [c] One-way ANOVA.

Among the subscales in the questionnaire, organizational barriers were evaluated as the highest, with a mean score of 2.7 (SD = 0.72), followed by research communication (mean score 2.6, SD = 0.73), nurses' research awareness and values (mean score 2.6, SD = 0.76), and quality of research (mean score 2.5, SD = 0.79).

4. Discussion

The findings of this study inform EBP practice among nurses in Sabah, Malaysia, particularly regarding their perceived barriers to research utilization in clinical practice. Majority of the nurses in our study reported having heard about EBP (66.5%), but only 7.3% felt that they understood it very well. This suggests a significant gap between awareness and in-depth understanding of EBP. Previous studies in various settings have reported similar results. Although nurses in China are aware of EBP concepts, only a small proportion report high confidence in their EBP skills [9]. Similarly, low levels of comprehensive understanding of research utilization among nurses in Nepal have been reported despite reasonable awareness levels [8]. This pattern highlights the need to address the knowledge-practice gap in future training and continuing nursing education efforts.

The study also found that general online searches were the most common practice among nurses seeking information or research evidence (91.2%), and that evidence from these sources was perceived as both common (68.3%) and important (39.8%). While it is encouraging that the majority of nurses reported searching for information or research evidence to support their clinical practice, the heavy reliance on general online searches and colleagues' opinions (61.0%) is concerning, as the quality and reliability of such evidence may be inconsistent without expert peer review. Comparatively, a smaller proportion of nurses utilized peer-reviewed sources such as nursing journals/publications (45.8%). This finding aligns with a Korean study [5] that found that Korean nurses predominantly relied on informal knowledge sources rather than research literature. This pattern highlights the need to improve access to and training in the use of evidence-based resources.

Using the BARRIERS questionnaire, we investigated perceived barriers to research utilization in clinical practice and found that organizational barriers were the most significant obstacles across all domains (mean score 2.7, SD = 0.72). Among the items perceived to be barriers "to a great extent," four of the top five belonged to the organizational barrier category: 1) the nurse does not feel she/he has enough authority to change patient care procedures (35.9%), 2) the nurse does not have time to read research (27.8%, n=156), 3) there is insufficient time on the job to implement new ideas (25.7%, n=144), and 4) the nurse feels results are not generalizable to own setting (25.1%, n=141). In a systematic review, organizational factors were consistently identified as significant obstacles in multiple studies and settings worldwide [2]. Similarly, limitations in authority, insufficient resources and facilities, and absence of managerial support were among the most commonly reported barriers across geographical regions and practice settings [3].

Our findings revealed that a majority of the nurses surveyed perceived most barriers to research utilization as occurring "to a moderate extent." This middle-range perception suggests that while these barriers do not completely prevent research utilization, they significantly hinder the implementation of evidence-based practices in clinical settings. The top five barriers endorsed at this level deserve particular attention in the future.

Research reports and articles not being readily available (56.4%) emerged as the most commonly endorsed moderate barrier, highlighting significant access problems. This finding corresponds with

nurses' reported information-seeking behaviors, where they predominantly rely on general online searches rather than peer-reviewed literature. Similarly, the perception that the implications for practice are not made clear (53.7%) reflects a communication gap between researchers and clinical practitioners that impedes the practical application of research findings.

The concern that research has not been replicated (50.1%) suggests that nurses value evidence reliability and are hesitant to implement changes based on single studies. This barrier highlights the need for nursing education to emphasize critical appraisal skills to help practitioners evaluate the strength and quality of the available evidence. The difficulty in understanding statistical analyses (48.9%) further supports this need, as quantitative literacy is essential for interpreting the research findings.

Finally, the fact that 48.2% of nurses did not feel capable of evaluating research quality (48.2%) reveals a self-efficacy gap that affects their confidence in implementing evidence-based changes. This perception likely stems from limited training in research methodology and critical appraisal during nursing education and professional development courses.

These moderate barriers differed from those rated as "great extent" barriers, which focused more on organizational constraints such as authority, time, and generalizability. Moderate barriers predominantly related to research accessibility, communication, and nurses' research literacy. These findings suggest that while organizational changes are necessary to address the most severe barriers, improving research communication and enhancing nurses' research skills could mitigate many of the moderate barriers that collectively impede evidence-based practice implementation.

Interventions tailored to address these moderate barriers may include the development of user-friendly research databases, creation of practice-oriented research summaries, promotion of replication studies, provision of statistical literacy training, and enhancement of critical appraisal skills through continuing education. Such targeted approaches could help bridge the research-practice gap that persists despite the growing awareness of evidence-based practice among nursing professionals in Malaysia.

Interestingly, our further analysis found no significant differences in perceived barriers based on years of clinical experience, educational level, or familiarity with EBP among the study participants. This suggests that barriers to research utilization in Malaysia are pervasive across different groups of nurses and may be more related to systemic and organizational factors than to individual characteristics. Our results are consistent with those from Jordan, Iran, and international critical care settings, where similar patterns were observed [15–17]. However, this observation may be context-specific, as studies in other settings, such as Korea, Cyprus, and China, found that educational background, understanding of evidence-based practice, and research experience were associated with perceived barriers among nurses [5,9,18].

The study findings have several implications for nursing practice and education in Malaysia. First, targeted educational interventions are needed to improve nurses' understanding of EBP and research utilization. Healthcare organizations should implement strategies to address time constraints and empower nurses to implement evidence-based changes in practice. Next, improving access to high-quality and easily understandable research resources is crucial for advancing evidence-based nursing. Finally, fostering a culture of collaboration and knowledge sharing among nurses could help overcome the feeling of isolation in research utilization, ultimately enhancing the integration of evidence into clinical practice.

This study draws strength from the diverse representation of nurses across their experience and academic qualifications, randomly sampled from tertiary training hospitals in Sabah, Malaysia. This is one of the largest studies on this study's scope to investigate barriers to research utilization in clinical practice involving nurses in Malaysia. Therefore, it provides locally relevant input for future efforts to address these barriers and improve research utilization and EBP in nursing.

Although this study provides valuable insights, it is limited by its cross-sectional nature and reliance on self-reported data. Future research could benefit from longitudinal designs to track

changes in perceived barriers over time and interventional studies to test strategies for overcoming these barriers.

5. Conclusions

In conclusion, although nurses in Malaysia are aware of EBP, significant barriers remain in translating this awareness into practice. Addressing these barriers requires a multifaceted approach involving individual nurses, healthcare organizations, and nursing education programs. By doing so, the nursing profession can move closer to the goal of evidence-based practice, ultimately improving patient care.

Appendix A

Appendix A.1

Table A1. Evidence-Based Practice (EBP) among the respondents.

Subscale	Item	This is a barrier n (%)									
		To no extent		To a little extent		To a moderate extent		To a great extent		No opinion	
RC	Research reports/articles are not readily available	26	(4.6)	112	(19.9)	317	(56.4)	74	(13.2)	33	(5.9)
RC	Implications for practice are not made clear	27	(4.8)	128	(22.8)	302	(53.7)	76	(13.5)	29	(5.2)
RC	Statistical analyses are not understandable	33	(5.9)	132	(23.7)	273	(48.9)	97	(17.4)	23	(4.1)
RC	The research is not relevant to the nurse's practice	81	(14.5)	149	(26.6)	211	(37.7)	69	(12.3)	50	(8.9)
NRAV	The nurse is unaware of the research	45	(8.0)	112	(19.9)	235	(41.8)	136	(24.2)	34	(6.0)
OB	The facilities are inadequate for implementation	29	(5.2)	116	(20.6)	257	(45.7)	129	(23.0)	31	(5.5)
OB	The nurse does not have time to read research	30	(5.3)	132	(23.5)	221	(39.3)	156	(27.8)	23	(4.1)
QR	The research has not been replicated	27	(4.8)	115	(20.5)	281	(50.1)	92	(16.4)	46	(8.2)
NRAV	The nurse feels the benefits of changing practice will be minimal	32	(5.7)	104	(18.5)	260	(46.3)	107	(19.1)	58	(10.3)
QR	The nurse is uncertain whether to believe the results of the research	32	(5.7)	121	(21.6)	253	(45.2)	88	(15.7)	66	(11.8)
QR	The research has methodological inadequacies	27	(4.8)	145	(25.8)	236	(42.0)	91	(16.2)	62	(11.0)
RC	The relevant literature is not compiled in one place	24	(4.3)	104	(18.5)	259	(46.2)	126	(22.4)	48	(8.5)
OB	The nurse does not feel she/he has enough authority to change patient care procedures	29	(5.2)	75	(13.3)	216	(38.4)	202	(35.9)	40	(7.1)
OB	The nurse feels results are not generalizable to own setting	25	(4.4)	118	(21.0)	242	(43.1)	141	(25.1)	36	(6.4)
NRAV	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	40	(7.1)	135	(24.0)	232	(41.4)	110	(19.6)	44	(7.8)

(Continued on next page)

Table A1. Evidence Based Practice (EBP) among the respondent (continued)

Subscale	Item	This is a barrier n (%)									
		To no extent		To a little extent		To a moderate extent		To a great extent		No opinion	
NRAV	The nurse sees little benefit for self	35	(6.2)	145	(25.8)	245	(43.6)	88	(15.7)	49	(8.7)
QR	Research reports/articles are not published fast enough	29	(5.2)	101	(18.0)	236	(42.1)	145	(25.8)	50	(8.9)
OB	Physicians will not cooperate with implementation	37	(6.6)	128	(22.8)	226	(40.3)	111	(19.8)	59	(10.5)
OB	Administration will not allow implementation	34	(6.1)	141	(25.2)	235	(42.0)	76	(13.6)	74	(13.2)
NRAV	The nurse does not see the value of research for practice	47	(8.4)	147	(26.2)	232	(41.3)	89	(15.8)	47	(8.4)
NRAV	There is not a documented need to change practice	33	(5.9)	110	(19.6)	257	(45.7)	105	(18.7)	57	(10.1)
QR	The conclusions drawn from the research are not justified	29	(5.2)	148	(26.3)	239	(42.5)	63	(11.2)	83	(14.8)
QR	The literature reports conflicting results	35	(6.3)	130	(23.2)	235	(42.0)	91	(16.3)	69	(12.3)
RC	The research is not reported clearly and readably	29	(5.2)	145	(25.8)	221	(39.4)	107	(19.1)	59	(10.5)
OB	Other staff are not supportive of implementation	47	(8.4)	94	(16.7)	229	(40.7)	134	(23.8)	58	(10.3)
NRAV	The nurse is unwilling to change/try new ideas	74	(13.2)	112	(20.0)	215	(38.3)	113	(20.1)	47	(8.4)
QR	The amount of research information is overwhelming	32	(5.7)	130	(23.2)	256	(45.6)	84	(15.0)	59	(10.5)
NRAV	The nurse does not feel capable of evaluating the quality of the research	30	(5.3)	110	(19.6)	271	(48.2)	104	(18.5)	46	(8.2)
OB	There is insufficient time on the job to implement new ideas	34	(6.1)	103	(18.4)	251	(44.8)	144	(25.7)	28	(5.0)

NRAV = Nurses' research awareness & values, OB = organizational barriers, QR = Quality of research, RC = Research communication.

References

1. Connor, L.; Dean, J.; McNett, M.; Tydings, D.M.; Shrout, A.; Gorsuch, P.F.; Hole, A.; Moore, L.; Brown, R.; Melnyk, B.M.; et al. Evidence-based Practice Improves Patient Outcomes and Healthcare System Return on Investment: Findings from a Scoping Review. *Worldviews Ev Based Nurs* **2023**, *20*, 6–15. https://doi.org/10.1111/wvn.12621.

2. Berthelsen, C.; Hølge-Hazelton, B. The Importance of Context and Organization Culture in the Understanding of Nurses' Barriers Against Research Utilization: A Systematic Review. *Worldviews Evid Based Nurs* **2021**, *18*, 111–117. https://doi.org/10.1111/wvn.12488.

3. Kajermo, K.N.; Boström, A.-M.; Thompson, D.S.; Hutchinson, A.M.; Estabrooks, C.A.; Wallin, L. The BARRIERS Scale -- the Barriers to Research Utilization Scale: A Systematic Review. **2010**.

4. Aljezawi, M.; Al Qadire, M.; Alhajjy, M.H.; Tawalbeh, L.I.; Alamery, A.H.; Aloush, S.; ALBashtawy, M. Barriers to Integrating Research Into Clinical Nursing Practice. *Journal of Nursing Care Quality* **2019**, *34*.

5. Kang, Y.; Yang, I.-S. Clinical Nurses' Perception on Barriers to Research Utilization. *J Korean Acad Fundam Nurs* **2015**, *22*, 198–206. https://doi.org/10.7739/jkafn.2015.22.2.198.

6. Kajermo, K.N.; Undén, M.; Gardulf, A.; Eriksson, L.E.; Orton, M.-L.; Arnetz, B.B.; Nordström, G. Predictors of Nurses' Perceptions of Barriers to Research Utilization. *J Nurs Manag* **2008**, *16*, 305–314. https://doi.org/10.1111/j.1365-2834.2007.00770.x.

7. Shifaza, F.; Evans, D.; Bradley, H. Nurses' Perceptions of Barriers and Facilitators to Implement EBP in the Maldives. *Advances in Nursing* **2014**, *2014*, 698604. https://doi.org/10.1155/2014/698604.

8. Srijana, K.C.; Subramaniam, P.R.; Paudel, S. Barriers and Facilitators of Utilizing Research among Nurses in Nepal. *Journal of Continuing Education in Nursing* **2016**, *47*, 171–179. https://doi.org/10.3928/00220124-20160322-07.

9. Wang, L.-P.; Jiang, X.-L.; Wang, L.; Wang, G.-R.; Bai, Y.-J. Barriers to and Facilitators of Research Utilization: A Survey of Registered Nurses in China. *PLoS One* **2013**, *8*, e81908. https://doi.org/10.1371/journal.pone.0081908.

10. Lai, N.M.; Teng, C.L.; Lee, M.L. The Place and Barriers of Evidence Based Practice: Knowledge and Perceptions of Medical, Nursing and Allied Health Practitioners in Malaysia. *BMC Res Notes* **2010**, *3*, 279. https://doi.org/10.1186/1756-0500-3-279.

11. Sivasangari, S., Krishinan, S., Thandapani, R. U., Rostenberghe, H. V., & Berahim, A. Clinical Decision Making in Nursing Care: Evidence Based Practice and Seniority. *9*, 77–88.

12. Naing, L.; Winn, T.; Rusli, B.N. Practical Issues in Calculating the Sample Size for Prevalence Studies. *Archive of Orofacial Sciences* **2006**, *1*, 9–14.

13. Ozga, D.; Krupa, S.; Mędrzycka-Dąbrowska, W.; Penar-Zadarko, B. Adaptation and Validation of the Barriers to Research Utilization (BARRIERS Scale) Questionnaire among Polish Nurses and Midwives: Cross-Sectional Study. *Applied Nursing Research* **2022**, *63*, 151547. https://doi.org/10.1016/j.apnr.2021.151547.

14. Funk, S.G.; Champagne, M.T.; Wiese, R.A.; Tornquist, E.M. Barriers to Using Research Findings in Practice: The Clinician's Perspective. *Applied Nursing Research* **1991**, *4*, 90–95. https://doi.org/10.1016/S0897-1897(05)80062-X.

15. Khalaileh, M.A.; Qadire, M.A.; Musa, A.S.; Rn, O.A.A.-K.; Qudah, H.A.; Alhabahbeh, A. Closing the Gap between Research Evidence and Clinical Practice: Jordanian Nurses' Perceived Barriers to Research Utilisation. *Journal of Education and Practice* **2016**.

16. Hosseini-Moghaddam, F.; Mohammadpour, A.; Bahri, N.; Mojalli, M. Nursing Managers' Perspectives on Facilitators of and Barriers to Evidence-Based Practice: A Cross-Sectional Study. *Nurs Open* **2023**, *10*, 6237–6247. https://doi.org/10.1002/nop2.1864.

17. Poiroux, L.; Bruyneel, A.; Larcin, L.; Fossat, G.; Kamel, T.; Labro, G.; Goursaud, S.; Rouze, A.; Heming, N.; Hermann, B. Barriers to Research Findings Utilization amongst Critical Care Nurses and Allied Health Professionals: An International Survey. *Intensive Crit Care Nurs* **2024**, *81*, 103610. https://doi.org/10.1016/j.iccn.2023.103610.

18. Pitsillidou, M.; Roupa, Z.; Farmakas, A.; Noula, M. Factors Affecting the Application and Implementation of Evidence-Based Practice in Nursing. *Acta Inform Med* **2021**, *29*, 281–287. https://doi.org/10.5455/aim.2021.29.281-287.

19. Sulaiman, N.; Tok, P.S.K.; Gimbo, J.; Saptu, A.R.; Philip, P.B.; Yau, K.Y.; Pengui, L.; Dalie, D.; Tinggal, N. Perceptions of Barriers to Research Utilization in Clinical Practice among Nurses in Sabah. *Med J Malaysia* **2023**, *78*, 17.