

Role of Magnet®-Recognized Hospital Nurse Managers in Implementing Evidence-Based Practice: A Mixed Method Study

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Purpose

- To gain a deeper understanding of the leadership roles, the influencing factors, and experiences of Magnet recognized hospital nurse managers (MRHNMs) in implementing evidence-based practice (EBP) in their units

- To extend nursing science by examining roles of Nurse managers (NMs) in implementing EBP at the unit level and could help the healthcare organizations to enhance their initiatives on EBP and sustain Magnet recognition

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Background & Significance







- Healthcare systems recognize EBP as the prestigious standard for providing safe, high-quality and cost-effective care (Verloo et al., 2020)
- Implementation of EBP is essential for Magnet recognition (ANCC, 2022)
- NMs are in the best position to create a supportive EBP environment (Shuman et al., 2018)
- EBP is a complex and challenging process due to research-practice gap (Cardoso et al., 2021)
- EBP is inconsistent in the US and throughout the world (Lehane et al., 2020)
- The level to which NMs engaged in EBP is unclear (Chen et al., 2020)

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Literature Review

-  This review found a gap in nursing science and evidence-based practice
-  Leadership of NMs influenced EBP implementation (Castiglione, 2020; Kitson et al., 2020; Lunden et al., 2019)
-  EBP implementation became more complex and challenging with lack of knowledge (Bianchi et al., 2018), inadequate resources (Hornrtvedt et al., 2018), and limited time (Hering, 2018)
-  EBP education improved level of evidence utilization, and future use of EBP (Patelarou et al., 2020)
-  Organizational context and culture significantly influenced EBP (Lunden et al., 2019; Chang et al., 2013; Wilkinson et al., 2011) including Magnet recognition (Wilson et al., 2015)
-  PhD and DNP-prepared nurses as leaders with expertise in research and EBP needed to collaborate and advance implementation of EBP (McNett et al., 2021) and to translate nursing science into practice (Graves et al., 2021)

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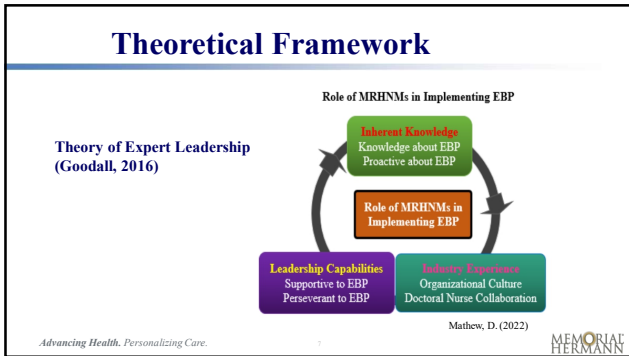
Research Questions

- RQ1. How do MRHNMs view their leadership roles in implementing EBP in their clinical areas?
- RQ2. What factors impact leadership roles of NMs in implementing EBP?
 - RQ2a. How could doctorally prepared (PhD and DNP) nurses support NMs to improve knowledge and facilitate EBP?
 - RQ2b. Do critical care MRHNMs differ in implementation of EBP from acute care MRHNMs?
- RQ3. What are the lived experiences of MRHNMs in implementing EBP in their clinical areas?

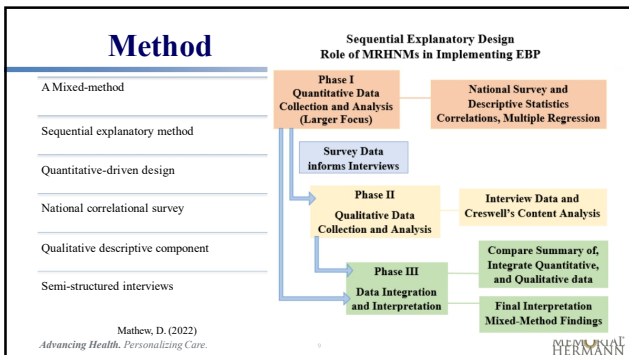
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- ### Theoretical Assumptions
- EBP inherits its knowledge from Nursing
 - NMs are essential frontline leaders to facilitate unit based EBP
 - NMs leadership in EBP implementation can be improved with organizational support, and collaboration with doctorally prepared nurses
 - Demographic factors can influence MRHNMs roles in implementing EBP
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Settings & Sample

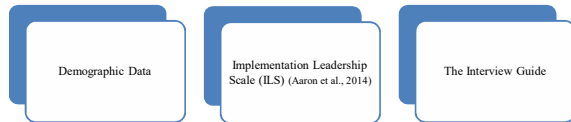
- All Magnet-recognized hospitals in the US: 548 (ANCC, 2021)
- NMs recruited through their CNOs
- Critical care and acute care NMs
- NM span of control of at least 40 direct reports
- NM employed for at least one year in the current position

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Instruments



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Theory to Data Collection

Theoretical Components	Instrument Scales	Main Interview Questions
Inherent Knowledge	ILS1:Proactive Leadership ILS2:Knowledgeable Leadership	How do NMs influence successful establishment of a unit climate for EBP?
Leadership Capabilities	ILS3:Supportive Leadership ILS4:Perseverance Leadership	What are nurse managers' challenges/obstacles in implementing EBP?
Industry Experience	Implementation Leadership (Overall ILS Score)	How do doctorally prepared nurses (PhD and DNP) support NMs in implementing EBP?

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Data Collection Procedure

- Study approved by TWU IRB and Graduate School
- Introductory email was to CNOs with IRB approval
- Data collection flyer with the survey link and a copy of consent form were emailed
- If NMs e-consented, it opened the survey link
- After e-consent for interview, an email address was collected to arrange interview
- REDCap collected survey data and analyzed in SPSS vs. 28
- Interviews conducted in Zoom-video conferencing with only audio recording

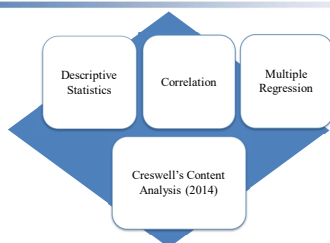
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Data Analysis



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Results: Demographics (N=153)

- Response Rate: CNO: 6.7% (34 hospitals) & MRHNMs: 194
- Personal characteristics: mostly whites (56%), females (83%) with a mean age of 45 years
- Professional characteristics: included 69% had Bachelors and 27.5% had Masters in nursing; 40.5% certified and 76% formal EBP education
- Unit characteristics: mainly acute care NMs (59%), bed capacity averaged to 34 and direct reports to 73
- Organizational characteristics: Magnet recognition year: 1994 – 2020; from five time zones, and 13 states; mainly worked in tertiary (55%) and teaching facilities (72%) with a bed capacity 100–499 (51%)
- 12 MRHNMs were interviewed, who were selected from the quantitative data sets

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Quantitative Findings: Descriptive Statistics (N=153)

Scale	M	Min	Max	Range	SD	Variance	Skewness		Kurtosis	
							Stat.	SE	Stat.	SE
ILS Total	26.23	11	44	33	7.697	59.244	.374	.196	-1.007	.390
ILS1:Proactive Leadership	4.98	1	11	10	2.178	4.743	.685	.196	-.534	.390
ILS2:Knowledgeable Leadership	5.26	1	12	11	2.551	6.507	.743	.196	-.524	.390
ILS3:Supportive Leadership	9.91	6	12	6	1.625	2.640	-.020	.196	-.590	.390
ILS4:Perseverance Leadership	6.07	1	12	11	2.646	7.000	.490	.196	-.623	.390

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Findings: Multiple Regression (N=153)

Predicting Factors/ Demographic Variables	Unstandardized		Standardized		
	B	SE	β	t	p
Post-Graduate Degree	0.048	0.013	0.282	3.708	<0.001
RN Experience	0.044	0.013	0.259	3.313	0.001
Certification	0.037	0.011	0.236	3.198	0.002
Formal EBP Education	0.029	0.012	0.162	2.480	0.014
Unit Bed Capacity	0.026	0.012	0.164	2.183	0.031

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Findings: Multiple Regression (N=153)

ILS Subscales	R ²	p	Predicting Factors/Demographic Variables
ILS1: Proactive	38%	<0.001	certification ($p < 0.014$), previous researcher role ($p < 0.025$) and RN experience ($p < 0.05$)
ILS2: Knowledgeable	55%	<0.001	certification ($p < 0.001$), highest educational level ($p < 0.001$), RN experience ($p < 0.006$), Magnet recognized year ($p < 0.011$), and unit bed capacity ($p < 0.03$)
ILS3: Supportive	28%	<0.001	highest educational level ($p < 0.013$), RN experience ($p < 0.021$) and unit type ($p < 0.026$)
ILS4: Perseverance	47%	<0.001	highest educational level ($p < 0.002$), RN experience ($p < 0.005$), certification ($p < 0.009$), formal EBP education ($p < 0.019$), Magnet recognized year ($p < 0.026$)

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Findings: Independent t-test, MANOVA (N=153)

Unit Types	n	M	SD	Min	Max	t	p	d
Critical Care MRHNMS	62	28.04	7.118	14	42	2.563	0.011	0.422
Acute Care MRHNMS	91	24.89	7.693	11	44			

Variables	IIS1: Proactive			IIS2: Knowledgeable			IIS3: Supportive			IIS4: Perseverance		
	M	SD	p	M	SD	p	M	SD	p	M	SD	p
Critical care	5.44	2.212	.032	5.53	2.296	.152	10.40	1.598	.002	6.66	2.374	.023
Acute care	4.67	2.116	.032	4.96	2.481	.152	9.578	1.565	.002	5.672	2.757	.023
Total	4.98	2.178		5.192	2.417		9.912	1.625		6.073	2.646	

- MANOVA: a statistically significant difference between groups on the dependent variables (*Wilks' lambda* = 0.929, *F* (4,148.00) = 2.840, *p* = 0.026) Partial Eta Square = 0.071.
- A statistically significant difference among ILS subscales other than knowledgeable leadership was found using Bonferroni adjusted alpha level of 0.05.

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Results: Reliability (N=153)

Cronbach's Alpha based on the standardized items = 0.950

Scale/ Subscales	Cronbach's Alpha	Number of Items
IIS Total	0.950	12
IIS 1: Proactive	0.880	3
IIS 2: Knowledgeable	0.975	3
IIS 3: Supportive	0.960	3
IIS 4: Perseverance	0.943	3

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Qualitative Findings: Themes 1 to 3 (n=12)

Theme 1: EBP is a healthcare priority

- EBP is a priority
- EBP is always best for the patient and patient outcomes
- EBP is based on research and science

Theme 2: Leadership of NM is necessary to promote implementation of EBP

- NM led by example
- Getting nurses involved
- Encourage nurses

Theme 3: Expertise of doctorally-prepared nurses to support NMs in EBP

- Research Expertise
- Collaborative support with doctorally prepared nurses

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Qualitative Findings: Themes 4 to 6 (n=12)

- Theme 4: Magnet culture and organizational support improve EBP implementation**
 - Magnet hospitals are well-structured for EBP implementation
 - Organizational support and resources
- Theme 5: Lack of knowledge and difficulties with the EBP process**
 - Lack of knowledge about EBP and research
 - Difficulties with EBP steps and process
- Theme 6: Lack of time and staffing issues are barriers to implementing EBP**
 - Lack of time to do EBP
 - Staffing issues/ Covid-19 pandemic related issues

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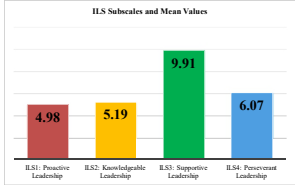
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RQ1. How do MRHNMs view their leadership roles in implementing EBP?

Quantitative Findings

ILS total: Moderate level of leadership 54.6%

ILS Subscales and Mean Values




Subscale	Mean Value
ILS1: Provisional Leadership	4.98
ILS2: Knowledgeable Leadership	5.19
ILS3: Supportive Leadership	9.91
ILS4: Power-based Leadership	6.07

Qualitative Findings

- Theme 2: leadership of NMs is necessary to promote implementation of EBP
- All participants agreed that NM as a unit manager supported implementation of EBP by leading or guiding nurses in implementing EBP
- Half of them depended on other resources to get more information on EBP

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RQ2. What factors impact leadership roles of NMs in implementing EBP?


Quantitative Findings

Group	Subgroups	N	M	SD	p
Highest Education Level	Post-graduate degree	47	32.3	5.371	
	graduate degree	106	23.4	6.818	<.001
RN Experience	6-15 years	49	26.7	6.435	
	More than 15 years	104	25.9	8.112	<.001
Certification	Certified NM	62	31.5	6.053	
	Non-certified NM	91	22.5	6.270	<.001
Formal EBP Education	Formal EBP education	116	28.2	7.099	
	Never had EBP education	37	19.7	5.145	<.001
Unit Bed Capacity	25 or less beds	54	25.1	6.289	
	More than 25 beds	98	26.6	8.118	<.001
Unit Type	Critical care NM	62	10.4	1.598	
	Acute care NM	91	9.6	1.564	0.011

Qualitative Findings

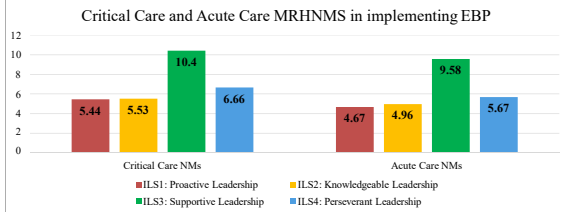
- Facilitated: Theme 4: Magnet culture and organizational support improve EBP implementation
- Barriers: Theme 5: lack of knowledge and difficulties with the EBP process
- Theme 6: time and staffing issues as barriers to implement EBP

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RQ 2a. Do critical care MRHNMs differ in their implementation of EBP from acute care MRHNMs?

Quantitative Findings: Critical care MRHNMs had better implementation of EBP than acute care MRHNMs



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RQ 2b. How could doctorally prepared (Ph. D. and DNP) nurses support NMs to improve knowledge and facilitate EBP?

Qualitative Findings: Theme 3: Expertise of doctorally-prepared nurses to support NMs in EBP. MRHNMs preferred the partnership with PhD and DNP nurses to advance EBP and research knowledge and to translate knowledge into practice.

RQ 3. What are the lived experiences of MRHNMs in implementing EBP?

Qualitative Findings: Themes 1 to 6

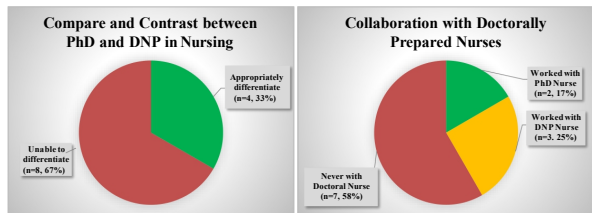
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Additional Findings

Qualitative Data Analysis (n=12)



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Summary of Findings

Quantitative

- The results reported a moderate level of leadership roles (54.6%) of MRHNMs in implementing EBP
- Implementation of EBP had statistical significance on MRHNMs demographic characteristics
- These included post-graduate degree, certification, formal EBP education, working in critical care units, RN Experience of 6-15years, unit capacity more than 25 beds

Qualitative

- MRHNMs considered EBP as a priority and NMs leadership is necessary to implement EBP at unit level
- Magnet culture, organizational resources, collaboration with doctorally prepared nurses could support NMs in implementing EBP
- All NMs had quite gotten to a state of some difficulties in routinely implementing evidence-based interventions in their units

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Mixed-Method Findings

Theoretical Constructs	Survey Items	Themes	Quantitative	Qualitative	Mixed Method
Inherent Knowledge Knowledge about EBP Proactive about EBP	ILS2	Lack of knowledge	↓	↓	↓#↓
	ILS1	Difficulties with EBP process	#	↓	
Leadership Capabilities Supportive to EBP Pervasive to EBP	ILS3	Leadership of Nurse Managers	↑	↑	↑#
	ILS4		#	↑	↑
Industry Experience Organizational Culture	ILS total	Magnet culture and Organizational support improve EBP	#	↑	↑#↑
Doctoral Nurse Collaboration		Expertise of doctorally prepared nurses to support NMs in EBP	●	↑	●↑
		EBP is a healthcare priority	●	↑	
Additional Findings		Time and staffing issues as barriers to implementing EBP	●	↓	●↓

Note:
 ↑ = improved implementation
 ↓ = barrier to improve implementation
 # = almost a mid-value
 ● = not identified

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Discussion & Findings

- Nurse leaders lack leadership in EBP (Lunden et al., 2019)
- Lack of knowledge was a concern in implementing EBP (Chen et al., 2020; Hasanpoor et al., 2019)
- Formal EBP training enhanced EBP implementation and had a significant (p < 0.01) difference of 8.6% improvement in EBP knowledge (Galiano et al., 2020)
- NMs need support for effective implementation of EBP (Lopez-Medina et al., 2022; Kitson et al., 2021)
- PhD nurse working in clinical practice enhanced research, education, and EBP (Orton et al., 2019)
- Theory of Expert Leadership (Goodall, 2016) was a good fit
- This study met the theoretical assumptions

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Implications

- Implication to EBP, nursing management, education, Magnet recognition, and research
- Hospitals must promote clinical practice based on current evidence and encourage EBP at every point of care
- The leadership of MRHNMs is necessary to shape evidence-based care at the bedside and at an organizational level to sustain Magnet recognition
- The use of an EBP approach during the leadership training should be promoted by organizations to overcome the NMs barriers to EBP use in clinical settings
- Organizations must invest in the resources needed to create a culture of research and EBP

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Recommendations for Future Studies

- A need for research on interventions to promote MRHNM's knowledge in implementing EBP in their units
- Replication of this study on non-Magnet hospitals could compare this study findings and may open their pathway to Magnet recognition
- A study on the RN population on leadership roles of their NMs in implementing EBP could describe unit based EBP from a different perspective

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References

Aarons, G. A., Ehhart, M. G., & Furlong, L. R. (2014). The implementation leadership scale (ILS): Development of a brief measure of unit-level implementation leadership. *Implementation Science*, 9(1), 45-54. <https://doi.org/10.1186/s12874-014-0045-4>

American Nurses Credentialing Center. (2022). *Find a Magnet Organization or download Magnet facilities*. <https://www.nursingworld.org/organizational-programs/magnet-find-a-magnet-organization/>

Bianchi, M., Bagnasco, A., Bressan, V., Barbone, M., Tamina, F., Rossi, S., Pellegrini, R., Abo, G., & Sano, L. (2019). A review of the role of nurse leadership in promoting and sustaining evidence-based practice. *Journal of Nursing Management*, 26(8), 918-932. <https://doi.org/10.1111/jonm.12638>

Cardoso, D., Couto, F., Cardoso, A. F., Bobrowicz-Campos, E., Santos, L., Rodrigues, R., Cozminho, V., Pinto, D., Ramis, M. A., Rodrigues, M. A., & Apóstolo, J. (2021). The Effectiveness of an Evidence-Based Practice (EBP) Educational Program on Undergraduate Nursing Students' EBP Knowledge and Skills: Randomized Control Trial. *International Journal of Environmental Research and Public Health*, 18(1), 293-305. <https://doi.org/10.3390/ijerph18010293>

Castiglione S. A. (2020). Implementation leadership: A concept analysis. *Journal of Nursing Management*, 28(1), 94-101. <https://doi.org/10.1111/jonm.12892>

Chang, H. C., Jones, M. K., & Russell, C. (2013). Exploring attitudes and barriers toward the use of evidence-based nursing among nurse managers in Taiwanese residential aged care facilities. *Journal of Gerontological Nursing*, 39(2), 36-42. <http://dx.doi.org.ezp.ny.u.edu/10.3928/00989134-20130110-02>

Chen, L., Wu, Y., Zhou, C., Li, X., & Zhao, H. (2020). Value, knowledge, and implementation on evidence-based practice among nurse managers in China: A regional cross-sectional survey. *Journal of Nursing Management*, 28(1), 139-147. <https://doi.org/10.1111/jonm.12907>

Galiano, A., Simionetti, M., Queiroga, N., & Larram, A. (2020). Development, implementation, and evaluation of an evidence-based practice model in a new hospital in Chile. *Journal of Nursing Management*, 28(7), 1748-1757. <https://doi.org/10.1111/jonm.13334>

Goodall, A. H. (2016). Theory of Expert Leadership (TEL) in Psychiatry. *Australian Psychiatry*, 24(3), 231-234. <https://doi.org/10.1177/1039856215609760>

Graves, L. Y., Tamez, P., Wallen, G. R., & Salgan, L. N. (2021). Defining the role of the doctor of nurse practice in symptoms science research opportunity for collaboration. *Nursing Outlook*, S0029-6554(21)00078-8. Advance online publication. <https://doi.org/10.1016/j.outlook.2021.07.013>

Hassanpoor, E., Strands Belete, Y., Janati, A., Hajjabrhami, S., & Haghshayest, E. (2019). Nursing Managers' Perspectives on the Facilitators and Barriers to Implementation of Evidence-Based Management. *Worldviews on Evidence-Based Nursing*, 16(4), 255-262. <https://doi.org/10.1111/wvn.12372>

Hering, I. G. (2018). Implementation Science for the Environment. *Environmental Science & Technology*, 52(10), 5555-5560. <https://doi.org/10.1021/acs.est.8b00974>

Hornvold, M. T., Nordstengen, A., Ferrmann, T., & Severinsen, E. (2018). Strategies for teaching evidence-based practice in nursing education: a thematic literature review. *BMC Medical Education*, 18(1), 172. <https://doi.org/10.1186/s12909-018-1278-z>