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Exploring nurse beliefs and perceived readiness for system wide integration of evidence based practice in a large pediatric health care system



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ABSTRACT

Purpose: Evidence-based practice (EBP) within healthcare leads to improved patient outcomes, high-quality care, job satisfaction, reduced turnover, professional autonomy, and validates nursing practice. Although a plethora of research focuses on implementing EBP, there has been little attention on assessing organizational readiness for integration. The primary aims of this study were to explore nursing beliefs and attitudes about EBP and explore the culture and readiness among pediatric nurses for system-wide integration of EBP.

Design and methods: This study was a quantitative, cross-sectional survey-based study conducted at a large pediatric health system.

Results: Overall pediatric nurses had a mean score of 61.78 ± 9.32 on the EBPB ($n = 396$). Results of the EBPB Scale and OCSIEP showed no statistical difference between nursing roles EBPB scores; however, nursing leaders had higher scores than any other nursing role. The OCSIEP had a mean score of 84.98 ± 19.53 ($n = 388$).

Conclusions: Findings suggest that pediatric nurses believe that EBP results in the best clinical care for patients and can improve clinical care, but they lack the skills and time necessary to engage in the process. This study found that increasing awareness of EBP resources and developing EBP competencies may assist pediatric nurse leaders with EBP integration into daily practice.

Practice implications: Increasing visibility and competencies of EBP may positively impact organizational readiness by increasing confidence needed to remove identified barriers and engrain EBP in the organization's culture.

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Introduction

Evidence-based practice (EBP) is critical for excellence in healthcare. It combines the best available evidence with clinical expertise and patient preferences and values. Implementation of EBP within healthcare leads to improved patient outcomes and high-quality care. EBP also improves job satisfaction, reduces nursing turnover, professional autonomy, and validates nursing practice (Melnik et al., 2018). The American Academy of Nursing, the American Credentialing Center, Sigma Theta Tau, and the Institute of Medicine (IOM) have endorsed EBP as an integral part of health care practice (Connor et al., 2017).

At the bedside and in leadership positions, nurses hold strong, positive beliefs about EBP (Al-Busaidi et al., 2019; Melnyk et al., 2016; Thiel

& Ghosh, 2008; Weng et al., 2013). Quality care and patient outcomes are associated with nurses' positive beliefs. Positive attitudes and beliefs for EBP are facilitators for developing an organizational culture that welcomes EBP (Connor et al., 2017; Malik et al., 2016). EBP beliefs are associated with improving the quality of care (Al-Busaidi et al., 2019; Thiel & Ghosh, 2008; Weng et al., 2013). Many studies have evaluated nurses' attitudes and beliefs about EBP; however, a paucity of studies compare nursing leaders' and clinical nurses' attitudes and beliefs surrounding EBP (Melnik et al., 2016). Understanding the differences between the two groups may provide important insight on how institutions can bridge gaps between leadership and the bedside nurse attitudes for EBP.

Despite the plethora of literature illustrating the importance of and strong beliefs in EBP, healthcare systems across the United States lack consistent implementation. Only a small percentage of nurses utilize EBP regularly at the bedside (Connor et al., 2017). Common barriers to implementation of EBP include inadequate organizational culture, manager and leader resistance, lack of role modeling or support from

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hospital leadership, time, resources, and insufficient EBP knowledge or competencies (Al-Busaidi et al., 2019; Bartelt et al., 2011; Melnyk et al., 2016; Thiel & Ghosh, 2008; Weng et al., 2013; Yoo et al., 2019). Lack of leadership support for EBP behavior is often cited as the result of leaders underdeveloped or lacking EBP competencies (Lunden et al., 2018; Melnyk et al., 2018; Pittman et al., 2019; Shuman et al., 2018). Nurses and nursing leaders may value EBP but if they are unable to competently conduct or exhibit supportive behaviors, EBP implementation may be low.

Strong beliefs are not enough for organizations to enculturate EBP into nursing practice. Embedding EBP into everyday practice requires a vision, continual focus, infrastructure, and leadership support (DeCruzia et al., 2019; Stetler et al., 2014; Thiel & Ghosh, 2008; Pittman et al., 2019). Organizational culture and context may impact the level of EBP implementation (Caramanica & Spiva, 2018; Shuman et al., 2018; Yoo et al., 2019). Hospital culture (Kueny et al., 2015; Pittman et al., 2019), leadership behaviors (Caramanica & Spiva, 2018; Shuman et al., 2018; Stetler et al., 2014), environmental support, and prioritization (Melnyk et al., 2016) influence EBP implementation at the unit level. Pediatric nurses often report high beliefs and acceptance of EBP but are unable to conduct EBP which may have negatively impact pediatric quality of care (Maaskant et al., 2013). Pediatric nurses in EBP supportive cultures reported more EBP implementation and utilization of evidence for practice than those in nonsupportive cultures (Cummings et al., 2010). Though literature cites organizational culture, leader support, positive attitudes, and beliefs about EBP as vital to integrating EBP, it is imperative to obtain a baseline assessment before building and sustaining an evidence-based culture (Yoo et al., 2019).

Assessing and understanding organizational readiness can provide insight into facilitators and barriers for creating an organizational EBP culture (Yoo et al., 2019). If clinical nurses feel that the organization ineffectively balances best practice and productivity, they may perceive a less supportive work culture for EBP (Pittman et al., 2019). Findings suggest that the institution's environment may influence nurses' attitudes and beliefs. In addition, few studies have explored pediatric registered nurses' or pediatric institutions' attitudes and beliefs and organizational readiness for EBP. Studies that have been conducted are primarily single-site studies in adult facilities that may not be representative.

Problem description

As the organization began to create and build a culture of EBP, the organization needed an assessment to understand the current state of evidence-based practice culture, beliefs, and readiness for system-wide integration to develop interventions.

Objectives

The purpose of this study was to explore pediatric nurses' beliefs and attitudes about EBP and their perceived readiness for system-wide integration. We hypothesized that pediatric nurses would have positive attitudes and beliefs toward EBP, but organizational readiness would be low. The specific aims were to 1) assess the organizational culture and readiness for EBP 2) assess pediatric nurses' beliefs and attitudes about EBP 3) compare EBP beliefs between clinical nurses and nurse leaders, and 4) compare EBP beliefs between pediatric nurses in supportive and advanced practice registered nurse (APRN) roles to those of nursing leadership.

Methods

Design and setting

This exploratory, comparative, cross-sectional study was conducted in a large tertiary hospital with a free-standing pediatric, medical-school affiliated teaching facility. This hospital is a Magnet®-designated health

system, with 2133 employed registered nurses across three campuses. The organization has had ongoing efforts to facilitate and integrate the use of EBP into the organizational culture. Shifting priorities and lack of infrastructure resulted in the fragmentation of an EBP culture. Most recently, the organization established infrastructure for EBP by creating the culture of clinical inquiry committee with Clinical Nurse Specialists, the Chief Nursing Officer, nursing faculty from affiliated schools of nursing, and other clinical inquiry champions. Additionally, the organization hired a director for nursing research and EBP. This study was conducted in quarter four 2020 after obtaining approval from the University of Texas Southwestern Institutional Review Board.

All registered nurses employed at the health system received an anonymous survey with an invitation to participate in the research study via a link within the email. Consent to participate was implied with the completion of the survey. Information about the survey was shared at nursing shared governance councils, unit councils, and leadership meetings to encourage participation. In addition, reminder emails were sent two weeks after the initial email and again three days before the survey closed. Only subjects who completed the survey were analyzed after data collection.

Participants

Inclusion criteria included registered nurses with a nursing license and who were employed within the health system. Role working within nursing cost centers nor nurses who did not hold a registered nurse license (i.e., LVN) were excluded from the study.

Subjects were self-categorized by completion of the study using the ANCC Magnet® definitions of registered nurse roles within health care systems where applicable. The clinical nurse role was defined as the registered nurse who spends the majority (≥51%) of his or her time providing direct patient care. Nurse leaders were defined as nurse managers, nurse directors/ associate vice presidents, and the Chief Nursing Officer within the organization. Advanced Practice Registered Nurses (APRN) were defined as a registered nurse who has met advanced educational and clinical practice requirements beyond the two to four years of basic nursing education required of all nurses (i.e., Nurse Practitioners, Certified Nurse Midwives, Clinical Nurse Specialists, and Certified Registered Nurse Anesthetists). Support Registered Nurse roles were defined as the registered nurse who spends less than or equal to 50% of his or her time providing direct patient care. Specific roles may include clinical nurse educators, quality/risk nurses, informatics nurses, nurse researchers, clinical liaison/ telehealth nurses, occupational health nurses, nurse recruiters in human resources, or nurse auditors in compliance. Nurses who did not fit any of the other role criteria were defined as Other.

Measures

Study measures included the demographic questions, EBP Beliefs Scale (EBPB), and Organizational Culture and Readiness for System-Wide Integration of EBP scale (OCRSIEP). The scales were administered simultaneously. Bernadette Melnyk granted permission for use of the Organizational Culture and Readiness for System-Wide Integration of EBP Beliefs scale for study purposes.

Demographic data collected included current role, practice setting, the highest level of nursing education completed, years of nursing experience, and completion of a nursing residency program.

The EBPB Scale measures EBP beliefs and nurses' perceived ability to implement EBP (Melnyk et al., 2008). The EBPB Scale is a 16-item scale (Melnyk et al., 2008). Responses are on a five-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree (For example, one question asks, "I know how to implement EBP sufficiently enough to make practice change") Scores may range from 16 to 80 with higher scores indicating stronger EBP beliefs. The survey has face, content, and

construct validity with Cronbach alphas above 0.85 (Melnyk et al., 2008).

The OCSIEP Scale measures and assesses an organization's cultural factors that might influence EBP and the individual's overall perceived readiness for integrating EBP compared to 6 months ago (Fineout-Overholt & Melnyk, 2006). culture and readiness for system wide EBP implementation). Responses to the 26 survey items consist of a five-point Likert-type scale, ranging from 1 (none at all) to 5 (very much). For example, one question asks, "To what extent is measurement of and sharing outcomes part of the culture of the organization in which you work?". The sum of items creates a total score, with higher scores indicating greater organizational readiness for and movement toward a culture of EBP. The scale has face, content, and construct validity with Cronbach alphas above 0.85 (Melnyk et al., 2010).

Data analysis

Study data were collected and managed using REDCap® electronic data capture tools. REDCap® is a secure web application for building and managing surveys and databases specifically geared to support on-line or offline data capture for research studies and operations. All responses were anonymous and de-identified within the REDCap® System. Only surveys that were completed in their entirety were included in the data analysis. Data analysis was performed using SPSS V 26.0. Descriptive statistics were used to summarize demographic characteristics of participants. Differences between participant's role groups, by EBP beliefs, were analyzed through independent *t*-test and analysis of variance. Cronbach's alpha test was performed to measure the internal consistency of the surveys.

Results

Participants

The study was conducted between November 3, 2020, to November 24, 2020. A total of 402 nurses participated in the study, with a response rate of 18.8%. Most of the nurses in this study held a baccalaureate degree (73.63%, $n = 296$), practiced in clinical roles (66.17%, $n = 266$), worked in acute care services (27.86%, $n = 112$), and had more than six years of nursing experience. Table 1 further characterizes study demographics. Out of the 402 study participants, 14 did not complete the OCSIEP survey in its entirety, and six did not complete the EBPB; therefore, they were excluded from the survey results.

EBPB

A total of 396 registered nurses completed the EBPB. Overall mean scores were 61.78 (± 9.32), with a range of 24 to 80, with a mode of 62. The top-scoring question was, "I believe that EBP results in the best clinical care for patients". The lowest scoring item was, "I believe EBP is difficult." Table 2 further describes the rankings of individual questions scores. The EBPB had a high level of internal consistency, as determined by the Cronbach's alpha of 0.912. When comparing roles EBP beliefs, there are no statistically significant differences between clinical nurse and nursing leadership EBP beliefs (P value = 0.75). There are no statistically significant differences between the supportive nurse, APRN, and nursing leadership EBP beliefs (P value = 0.14).

OCSIEP

A total of 388 registered nurses completed the OCSIEP. The overall average score on the OCSIEP was 84.98 (± 19.53) with a range of 37 to 125 and mode of 74. The highest-scoring questions were, "To what extent do you believe EBP is practiced at your organization" ($M = 4.06$). The lowest scoring question is, "To what extent are librarians used to search for evidence (2.51)". Table 3 further describes the highest and lowest scoring questions on the OCSIEP. The OCSIEP had a high level of internal consistency, as determined by a Cronbach's alpha of 0.955.

Discussion

Pediatric nurses within this study, including clinical nurses, nursing leaders, supportive nurses, and APRNs, reported high beliefs of EBP. These findings are consistent with those of other studies, including of Chief Nursing Officers (Melnyk et al., 2016), nurses in the United States (Melnyk et al., 2018), and other specialty nurses (Thiel & Ghosh, 2008; Al-Busaidi et al., 2019). Pediatric nurses in this study reported that they strongly believe that EBP is practiced within the organization. Additionally, pediatric nurses felt they had the appropriate support and commitment from physician leaders and the mission and values of the organization to implement EBP. High beliefs may be attributed to 73% of nurse respondents who were BSN prepared, Magnet®-designated, organizations which are affiliated with a large academic medical school. The fact that nursing leaders and clinical nurses did not have significantly different scores in this study indicates that the organizational leadership creating an EBP vision needs to be visible and intentional with leaders to trickle down from unit leadership to clinical nurses.

Table 1
Participant demographics.

Variables	n (%)	Variables	n (%)
Role Group		Campus Location	
Clinical Nurse	266 (66.2%)	CMC Dallas	292 (72.6%)
Supportive Roles	60 (14.9%)	CMC Plano	62 (15.4%)
Nursing Leaders	47 (11.7%)	Specialty Center Dallas	23 (5.7%)
APRN	25 (6.2%)	Other	15 (3.7%)
Other	4 (1.0%)	Trinity Towers	6 (1.5%)
Education Level		Our Children's House	4 (1.0%)
Diploma/Associates	10 (2.5%)	Practice Setting	
Baccalaureates	296 (73.6%)	Acute Care Services	112 (27.9%)
Masters	88 (21.9%)	Critical Care Services	87 (21.6%)
Doctors	8 (2.0%)	Ambulatory	64 (15.9%)
Nursing Experience (Years)		Perioperative Services	41 (10.2%)
<1	11 (2.7%)	Support Role	35 (8.7%)
1–3	35 (8.7%)	Other	31 (7.7%)
4–5	33 (8.2%)	Emergency Services	31 (7.7%)
6–10	74 (18.4%)	Rehabilitation Services	1 (0.2%)
11–15	88 (21.9%)	Completed Nursing Residency Program	
>16	161 (40.0%)	Yes	179 (44.5%)
		No	223 (55.5%)

Table 2

Beliefs about EBP beliefs

Items	Mean, SD	Rank
EBP beliefs	61.78, 9.32	
I believe that EBP results in the best clinical care for patients.	4.55, 0.62	1
I am sure that evidence-based guidelines can improve clinical care.	4.51, 0.61	2
I believe that critically appraising evidence is an important step in the EBP process.	4.43, 0.64	3
I am sure that implementing EBP will improve the care that I deliver to my patients.	4.39, 0.67	4
I believe the care that I deliver is evidence-based.	4.09, 0.70	5
I am sure that I can implement EBP.	4.02, 0.90	6
I am clear about the steps of EBP.	3.85, 0.99	7
I believe that I can overcome barriers in implementing EBP.	3.70, 0.89	8
I am confident about my ability to implement EBP where I work.	3.64, 1.00	9
I am sure about how to measure the outcomes of clinical care.	3.60, 0.97	10
I am sure that I can implement EBP in a time efficient way.	3.60, 0.96	11
I believe that I can search for the best evidence to answer clinical questions in a time efficient way.	3.57, 1.05	12
I believe that EBP takes too much time.	3.53, 1.03	13
I know how to implement EBP sufficiently enough to make practice changes.	3.52, 0.99	14
I am sure that I can access the best resources in order to implement EBP.	3.45, 1.02	15
I believe EBP is difficult.	3.35, 0.97	16

OCRSIEP scores were favorable in this sample of pediatric nurses compared with other studies. The samples that did not find this were nurses in other countries such as South Korea (Yoo et al., 2019), in Chief Nursing Officers/executives (Melnyk et al., 2016), and other teaching hospitals (Thiel & Ghosh, 2008). Pediatric nurses in this study felt that EBP is clearly described as central to the organization's mission and was one of the top highest scoring questions on the OCRSIEP survey. As health care organizations have consistently aligned the quality of patient care with strategic priorities and cultures, nurses may have developed strong beliefs for EBP because they observe and understand that EBP is related to the quality of care provided.

Despite the rationale for high beliefs of EBP, pediatric nurses in this study reported that EBP is difficult and that they are unsure how to access the best resources for EBP. The survey results reveal a lack of awareness of EBP resources. For example, despite this sample of nurses rating low scores on medical librarian access for literature searches, the organization has a group of medical librarians, a website, and resources for

accessing the medical librarians for literature searches. The lack of awareness highlights the importance of the availability and visibility of medical librarians, nurse scientists, and electronic peer-reviewed journals for nurses. If these resources are not accessible, nurses assume they are not available; and, therefore, not integrated into practice workflows. This lack of awareness may be easily mediated by marketing resources and embedding the use of medical librarians into nurse residencies, policy revision, professional development, and other established infrastructures.

Additionally, pediatric nurses held low scores on the EBPB survey on questions specifically asking about perceived ability to implement EBP and perceptions of available people resources and experts. This finding may highlight other literature findings that a deficit of EBP competencies in practicing nurses and nursing leaders exists. This sample of pediatric nurses, consistent with other studies, find value in EBP but have difficulty implementing it. Most experienced nurses answered the survey questions, and interestingly, many of these nurses participated in a nurse residency program (Table 1). Still, they expressed concerns about applying evidence in clinical practice and the time it takes to do so. More information is needed to drill down what the perceived barriers are to clinical application. Further research is needed to assess EBP competencies in practicing pediatric nurses and their perceived ability to implement EBP. Across nursing, EBP competencies are reported as relatively low to moderate, which may hinder integrating EBP into their everyday clinical workflow and setting (Melnyk et al., 2018; Saunders et al., 2019). Strong associations between EBP competency and beliefs about value of EBP and ability to implement it (p -value <0.001) (Melnyk et al., 2018). Nursing managers EBP competencies (Shuman et al., 2018) and EBP leadership behaviors (Caramanica & Spiva, 2018; Stetler et al., 2014) may influence nurses' perceptions of ability to implement EBP in their practice. Pediatric nurses reporting strong beliefs about EBP suggest that pediatric nurses and leaders may be more successful in developing competencies if the correct infrastructure is in place. Because pediatric nurses in this study reported only moderate levels of organizational culture and readiness for system-wide integration of EBP, this may further emphasize the need for developing competencies for practicing pediatric nurses and nurse leaders. This result is not unique to this organization. Like other published work, our study results revealed a perceived lack of mentors, champions, and staff designated to support EBP efforts in our organization (Melnyk et al., 2016; Melnyk et al., 2018; Pittman et al., 2019; Saunders et al., 2019).

This study supports that nursing beliefs are essential for organizational readiness for system-wide integration of EBP, but leadership needs to create a culture ready for integrating EBP into the organization. Many of the lowest scoring questions in the study were surrounding the lack of support for doing EBP and research. Behaviors are challenging to change, but many of the reported limitations reported in the organization's EBP infrastructure were related to awareness of available resources and is favorable for developing an EBP culture. Additionally, research is needed to understand further how leadership behaviors influence unit and organizational cultures for EBP.

This study findings suggest that increasing awareness of resources, developing and integrating competencies for pediatric nurses to gain knowledge and expertise, and providing financial resources and clear pathways for EBP project development and dissemination should improve EBP readiness and implementation.

Limitations

A significant limitation of this study was that the sample was a convenience sample of one large health care system; therefore, the findings cannot be generalizable to all pediatric nurses. This study is only reflective of nurses and not other disciplines that make up the culture of the organization. The response rate was also lower than desirable to adequately reflect all pediatric nurses. The study was conducted during

Table 3

Level of Organizational Culture and Readiness for System-Wide Integration of EBP.

Items	Mean, SD	Rank
Organizational Culture and Readiness for System-Wide Integration of EBP	84.98, 19.53	
Highest 4 Items		
To what extent do you believe that EBP is practiced in your organization?	4.06, 0.91	1
To what extent do staff nurses have proficient computer skills?	3.97, 0.90	2
To what extent is the physician team with whom you work committed to EBP?	3.92, 1.00	3
To what extent is EBP clearly described as central to the mission and philosophy of your institution?	3.90, 1.01	4
Lowest 4 Items		
To what extent are there EBP champions (i.e., those who will go the extra mile to advance EBP) in the environment among Staff Nurses?	3.09, 1.23	22
To what extent are there EBP champions (i.e., those who will go the extra mile to advance EBP) in the environment among Administrators?	3.06, 1.18	24
To what extent are fiscal resources used to support EBP (e.g. education-attending EBP conferences/workshops, computers, paid time for the EBP process, mentors)?	3.06, 1.21	23
To what extent are librarians used to search for evidence?	2.51, 1.28	25

the COVID-19 pandemic, in which the organization was reporting information, data, and evidence for care rapidly. Selection bias is another limitation, as nurses who are more interested in EBP may have been more likely to respond, skewing the survey to reflect more positive scores than those less interested.

Practice implications

Study findings support many practice implications requiring further exploration. Clinical nurse development outside of the nurse residency programs, such as developing EBP champions and skillsets that will help support EBP infrastructure and visibility. Additionally, integrating EBP competencies into the skillset of practicing nurses and leaders is essential to develop an organizational culture of EBP. Many nurses in this study reported a lack of skills or understanding to implement EBP in their everyday practice.

This study reveals that our pediatric nurses are ready for organizational integration of EBP, essential to providing the best care. However, there are opportunities for ensuring that staff is aware of available resources and that they are easily accessible. The Culture of Clinical Inquiry Committee can use the study results to improve access and increase the visibility of resources. Several EBP experts, Clinical Nurse Specialists, and nurse scientists are available, but staff may not know who they are or how to access them. Currently, credentials are not visible on employee badges and may help nurses identify EBP experts on their units. There are some resources available right at the point of care, but again nurses may not know they exist. For example, UpToDate®, ClinicalKey®, and Elsevier are available in our electronic medical records and may be an underutilized resource. The investigation is needed to assess nurses' knowledge and utilization of the tools.

The results from the organizational readiness survey encourage introspection of nursing leaders and EBP leaders. Organizations moving toward a culture of clinical inquiry need to understand how to capitalize on current professional development opportunities for EBP integration. Organizational readiness was a significant influence on EBP implementation (Yoo et al., 2019). Despite organizational leadership supporting EBP, nurses' perceptions did not match with the organizational structure that reflects EBP as a priority. Further studies need to investigate how modifying language and expectations to reflect EBP as a priority in annual performance appraisals, leadership communications, shared governance, and clinical achievement programs impact perceptions of EBP culture. The COVID-19 pandemic forced rapid evidence application and nurse leaders can leverage this recent experience to promote the importance of an EBP culture.

Conclusions

This study supports that nursing beliefs are essential for organizational readiness for system-wide integration of EBP. Nurse leaders from executives to managers must create a culture that is ready for integration of EBP into the organization. Developing a robust nursing strategy inclusive of interventions to promote and support EBP enculturation and conducting an EBP readiness study provided objective and quantifiable results to secure resources to build infrastructure for professional nursing excellence.

Beliefs and behaviors are difficult to change, but many of the reported limitations for organizational readiness were favorable for transitioning EBP to practice. This study suggests that increasing awareness of resources, developing and integrating competencies for pediatric nurses to gain knowledge and expertise, and providing financial resources and clear pathways for EBP project development and dissemination should improve EBP readiness, integration and dissemination.

Future studies should include the testing of interventions to achieve EBP competencies in practicing pediatric nurses and nursing leaders. In addition, future studies on how nurses and nursing leaders effectively integrate research, clinical expertise, and patient preferences into

practice. Also, a further understanding of how CNS presence and EBP modeling in daily practice impacts bedside practice and culture of EBP is needed. Additionally, more knowledge is needed to understand how nurse leaders gain EBP competency in order to promote, support and empower nurses to engage in an EBP culture.

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