Staff Nurse Ratings of Implementation Self-Efficacy for EBP (ISE4EBP) and Organizational EBP Readiness

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Abstract

There is limited research about nurses' confidence in implementing evidence into clinical practice. The purpose of this study was to further test, refine and strengthen the Implementation Self-Efficacy for EBP (ISE4EBP) scale and gain knowledge about staff nurses' perspectives of their confidence in EBP implementation in relation to the work environment as measured by the Context Assessment Index (CAI). We proposed, higher nurses confident in implementing evidence into practice would result in higher levels of implementing evidence-based practices (EBP). Bandura's theory of self-efficacy, which postulates that task-specific self-efficacy predicts performance guided the study. In a sample of 75 registered nurses, the overall average score for the ISE4EBP scale was 63%, indicating moderate confidence in implementation strategies. This study furthered the construct validity of the ISE4EBP scale by demonstrating associations between the ISE4EBP scores with the CAI.

Chapter I: Statement of the Problem

Evidence-Based Practice (EBP) is considered essential for improving the quality and safety of patient care and ensuring optimal patient outcomes (Frankel et al., 2017). There are seven steps in the EBP process described by Melnyk and Fineout-Overholt (2019). The first four steps (0-3), involve finding the evidence. Step five begins the implementation phase. Many believe implementation to be the most important and challenging step of EBP and is often underappreciated and under-resourced (Powell et al., 2015), which has contributed to the large gap that exists between scientific discovery and the use of EBP in the clinical setting. Previous work suggests that it takes approximately 17 years for 14% of original research to be integrated into practice (Balas & Boren, 2000).

The field of implementation science emerged to understand this lag time and to help to identify strategies and frameworks that could address the challenges associated with implementation. Multiple models, frameworks, and theories exist to promote EBP implementation and sustainability (Nilsen, 2015). Although many of these models show promising solutions to the time gap, they have created unintended outcomes of confusing terminology and the inability to know how to select a model/framework.

Nurses primarily deliver hospitalized patient care; therefore, it is essential to address nurses' understanding of EBP and explore their confidence in implementing it into their practice. A 2018 study with a sample of 2,344 nurses found low levels of self-competency in nurses across 19 hospitals and healthcare systems in the United States (Melnyk et al., 2018). A strong predictor of EBP competency and knowledge was associated with a strong EBP organizational culture (Melnyk et al., 2018).

The Evidence-based Practice Self-Efficacy (EBPSE) scale, developed by Tucker and colleagues in (2009), provided direction for the Implementation Self-efficacy for Evidence-Based Practice (ISE4EBP) scale which measures an individual's judgment in their ability to use implementation strategies in practice (Tucker et al., 2020). The authors expected that nurses who perceived strong organizational readiness would also report greater confidence (self-efficacy) to implement strategies in practice. The ISE4EBP scale was psychometrically tested and piloted tested in one hospital with a sample of 63 nurses (85% staff nurses and 15% leadership nurses). Which demonstrated adequate content validity (via content validity index), internal reliability (Cronbach's alpha=.987), and construct validity, indicated by associations with organizational readiness for EBP.

This study builds on the pilot study but includes only direct care staff, nurses. The purpose of the study is to (1) describe staff nurses' ratings of their self-efficacy in EBP implementation strategies, nurses' ratings of their perception of organization's readiness for EBP, and demographic characteristics, and (2) examine relationships among these study variables. We also compared response rates using paper versus electronic systems.

Significance of the Study and Aims/Research Questions

Our primary goal of this study was to further test, refine, and strengthen the ISE4EBP scale and gain knowledge about staff nurses' perspectives of their EBP environment and confidence in EBP implementation. This will inform further studies on demonstrating the implementation of evidence-based nursing care, relationships between EBP supportive environments, and positive patient outcomes. A secondary goal was to explore which survey method (electronic versus paper) results in a higher survey response rate.

The specific aims were to:

1. Describe RN staff nurse ratings of their self-efficacy related to EBP implementation.
2. Describe RN staff nurse ratings of the organization's readiness for EBP.
3. Examine the associations between RN staff nurse ratings of EBP implementation strategies self-efficacy and organizational readiness for EBP.
4. Examine associations among demographic characteristics and EBP implementation strategies self-efficacy and organizational readiness for EBP.
5. Compare response rates between units who received the email invitation and survey with units who received a paper invitation and survey.

Conceptual Framework

Bandura's theory of self-efficacy postulates that task-specific self-efficacy predicts performance; therefore, this theory guides our strategy to discover what EBP implementation strategies nurses felt confident in using. Self-efficacy includes the judgment of the difficulty of the task and the expectation of the ability to perform the task. Key sources of self-efficacy include mastery (actually performing the task with success) observing others perceived as "like me" performing the task, receiving support from trusted people that express "I can do it," and managing physiological stress and anxiety in performing the task. We selected Bandura's self-efficacy model to guide this study because we sought to measure the self-efficacy of implementation strategies within a healthcare work context.

Chapter II: Review of the Literature

Evidence-based practice (EBP) is recognized as essential for optimal patient outcomes, especially to improve the quality and safety of patient care (Frankel et al., 2017). EBP is considered a process by which clinical decision making is shared between patients/families and providers and guided by the research evidence, provider expertise, and patient values and preferences. Multiple studies and researchers have come up with EBP models, frameworks, and resources to guide the systematic process of promoting evidence-based practice changes (Moullin et al., 2015; Nilsen, 2015; Schaffer et al., 2012). However, few, if any, are comprehensive for all practice changes (Moullin et al., 2015; Nilsen, 2015; Schaffer et al., 2012).

Studies have found that barriers to implementation include time, lack of EBP skills and knowledge, lack of available evidence, lack of resources and finances, patient-related factors, the attitude of the clinician, misperception of EBP, lack of leadership support, and lack of mentors (Melnyk, Fineout-Overholt, et al., 2004; Sadeghi-Bazargani et al., 2014; Scurlock-Evans et al., 2014; Zwolsman et al., 2014). From these findings, the field of implementation science emerged to identify factors, strategies, and frameworks that could address the challenges associated with consistently using research in real-world settings, i.e., to achieve more evidence-based practice in health care. One of the unintended outcomes of the multiple soloed models is confusing terminology and not knowing how to select a model/framework. Thus, major gaps remain as to how these implementation models/tools can guide clinicians in bringing EBPs to their real-world practices and settings.

Many of the EBP models and frameworks developed are nursing process models used to describe and guide the implementation of EBP into practice. (Iowa Model, ACE Star Model, Knowledge-to-Action Model, Ottawa Model, Johns Hopkins Model, Stetler Model). Additional

process models that have evolved from other disciplines include the Practical, Robust Implementation and Sustainability Model (PRISM), and the Quality Implementation Framework. One issue with these process models is structures presented as linear, which research and practical experiences have shown is not the case (Nilsen, 2015).

Several frameworks look specifically at variables (enablers and barriers) that influence the adoption of a specific EBP. Enablers identified by Kitson and colleagues (1998) included evidence, context, and facilitation, which led to the development of the Promoting Action on Research Implementation in Health Services (PARIHS) Framework that is now widely used. Another framework that also addressed the importance of the context is the Advancing Research and Clinical Practice Through Close Collaboration (ARCC) framework, developed by Melnyk and Fineout-Overhold (2002). This model emphasizes the importance of a system-wide level to ensure sustainability and includes an assessment of organizational culture and readiness for EBP, identification of strengths and barriers in the EBP process, identification of EBP mentors, implementation of the evidence organizational practice, and evaluation of the outcomes.

Classic theories have been adopted in implementation science, largely those that focus on behavior change. Rogers's theory of Diffusion of Innovation (Rogers, 2003), characterized by five attributes (relative advantage, compatibility, complexity, trialability, and observability), has evolved in healthcare as a key model for how to spread innovations, including EBPs. Moreover, Rogers highlighted the importance of influencers, such as opinion leaders, change agents, and gatekeepers, in the success of an innovation. Several specific implementation theories have also unfolded in the implementation science world (Implementation Climate, Absorptive Capacity, Organizational Readiness, and Normalization Process Theory) to achieve enhanced understanding and explanation of select aspects of implementation.

There are also evaluation frameworks used widely used, such as the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) Framework and the Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation-Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development (PRECEDE-PROCEED) Framework. The RE-AIM framework is a planning and evaluation model used in a variety of settings to address various programmatic, environmental, and policy innovations for improving population health. The framework was the most widely used implementation framework for many years. Developers encourage users to apply the framework from the beginning of designing a program through its full implementation and evaluation. The PRECEDE-PROCEED is considered a cost-benefit evaluation framework designed to help program planners, policymakers, and other evaluators analyze situations and design programs. The overall structure allows assessing health and quality of life needs for program development and evaluation; the primary focus on outcomes rather than inputs.

Despite the development and use of these multiple models, frameworks, and theories, what the average clinician understands about the implementation process and strategies that will move evidence-based initiatives forward and stick is unknown. Moreover, clinician confidence in the ability to use various implementation strategies is highly understudied, which matters since confidence (self-efficacy) predicts performance. Nurses are in an especially important position to implement EBP because of their number and influence on healthcare organizations and their large amount of time spent in direct patient care. Therefore, this study is important in the field of implementation science to understand and begin to change practice for nurses to feel confident and knowledgeable in implementing EBP.

Chapter III: Methodology

Research Design

This project employs a descriptive and exploratory design to address the study aims.

Sample and Setting

We recruited 486 staff registered nurses from a 190-bed hospital that is part of a major health system in central Ohio to complete the ISE4EBP scale, Context Assessment Index (CAI), which measures organizational EBP readiness, and demographic questions. Exclusion criteria were traveler nurses not employed by OSU and leadership non-direct care providers.

Variables and Measures

Implementation Self-Efficacy for Evidence-Based Practice Scale. The primary variable of interest is self-efficacy related to EBP implementation strategies. To measure this construct, the 29-item ISE4EBP scale Tucker and colleagues was used. Respondents rate their level of self-efficacy (confidence) on a scale of 0% to 100% with higher scores reflecting greater self-efficacy for each item. For example, one item states, "I am this percent confident I can use the following implementation strategies to promote the adoption of a practice where there is good solid evidence to achieve desired patient outcomes.". The scale demonstrated adequate content validity (via content validity index), internal consistency reliability (Cronbach's alpha=.987), and construct validity, indicated by associations with organizational readiness for EBP. Clinicians may use the ISE4EBP scale to identify areas for building implementation confidence to accelerate the uptake of evidence to improve quality care.

Organizational Readiness for EBP. Understanding the context of an environment is vital to understanding a nurses' role in EBP implementation. The Context Assessment Index (CAI) was developed by McCormack and colleagues (2009) using the Promoting Action on Research

Implementation in Health Services (PARIHS) Framework as the theoretical framework. This tool includes 37 items that measure the context of where clinicians work and the effect their organization has on using and implementing evidence in practice. Initial testing of the CAI included a 5-stage instrument development and testing methodology. To develop and refine the scale, principal components analysis, exploratory factor analysis, and expert panel feedback occurred. Telephone interviews were also conducted with expert nurses to gauge the usability of the instrument. Five factors or subscales (collaborative practice, evidence-informed practice, respect for persons, practice boundaries, and evaluation) emerged, and Cronbach's alpha coefficients ranged from .78-.91 for the factors. The overall instrument coefficient was .93. Test-retest scores suggested reliability of the findings, and focus group feedback indicated the instrument has practical utility.

To minimize staff burden, two subscales of the CAI, Evidence-informed Care (11 items; r = -.523) and Practice Boundaries (6 items; r = -.510), totaling 17 items, were deemed most relevant for staff nurses' ability to practice EBP and were used in the pilot study. The two subscales had moderate associations with the ISE4EBP scale in the pilot study by Tucker and colleagues (2020). The survey included a total of 58 items (29 ISE4EBP, 17 from the Evidence-Informed and Practice Boundaries subscales of the CAI, and 12 demographics questions.

Demographic Data. Demographic data included: age, gender, race, ethnicity, education, hours worked per week, years of experience as a nurse, years of experience in the current unit, and current roles. Additional data collected included experience with EBP, previous participation in an EBP training program beyond formal educational training, whether their formal nursing educational programs included EBP coursework, whether they have worked on an EBP project and participation in a quality improvement project or research study.

Data Collection Procedures

Following IRB review and approval, all units were first randomly assigned to either electronic or paper-based surveys. For the electronic survey units, the Administrative Director of Nursing and Patient Care Services (ADNPCS), at the study hospital, sent an email invitation with the survey link to all eligible nursing units and staff assigned to the electronic survey group. Qualtrics™ a software program provided the platform for the participants who completed the surveys electronically using a standard computer or mobile devices. For the paper-based survey units, study team members visited each unit for both shifts once a week for two weeks and shared the study opportunity with key staff present. Survey packets were made available with a yellow manilla envelop that staff could seal and place in a locked survey return container. Visual fliers inviting staff nurses to participate in the study were available in the nurses' conference room with additional survey packets available to staff.

All participants (electronic and paper) received information about the research purpose and their rights as volunteers, including the right to choose not to participate or to change their minds at any time with no penalty. An explanation of how their data would be protected and used, and participation was anonymous with a separate ID# that would not be traceable to them, was provided. Nurses informed that supervisors were not involved in the study team and would not be aware of their decision to participate or not.

The ADNPCS receive an email from the study PI with the electronic survey. The electronic survey participants were sent an email from the ADNPCS, which included the link to the survey. The survey was sent out twice because of a conflicting survey from another PI associated with the hospital. For the paper surveys participants, packets were made available on each unit. Unit

managers remind nurses about the study. The ADNPCS Administrative also sent out a general reminder email to all eligible staff.

Participants were eligible to be included in a ten-dollar gift card drawing after the survey closed by accessing a link and providing information. Twenty, ten-dollar gift cards were issued.

Chapter IV: Results

Descriptive and correlational statistics were used to address the study's aims. All data from the electronic surveys were collected through Qualtrics™ database, then converted, to an Excel file, by a study team member, who designed and managed the survey, and sent to the PI. The PI and Co-I manually entered the paper-based survey data into the Excel file, and the entire file was converted to an SPSS file. The data were stored in a password protected file in the PIs desktop in her locked office. The paper surveys were kept in a locked file in the PIs office. The data were used to refine the instrument and prepare for a larger study that will also include access to clinical data.

Aim 1. Describe RN staff nurse ratings of their self-efficacy related to EBP implementation.

Seventy-three staff nurses completed the ISE4EBP scale. The nurses averaged 39.5 years of age, were 85% female, 72% white, and 97% non-Hispanic (see Table 1 for demographics). About one-third of nurses had participated in quality improvement (QI) and one-fourth in EBP. Over 40% had EBP in their undergraduate or graduate academic course work. The average score on the 29-item ISE4EBP was 62.78 (SD=18.68). The survey items with the highest average score included "Report results to senior leaders" and "Use visual reminders to maintain and encourage EBP." The survey items with the lowest average score included "Obtain needed equipment and supplies for the adoption of the EBP" and "Mobilize needed EHR/EMR changes to facilitate the implementation of the EBP" (see table 2).

Aim 2. Describe RN staff nurse ratings of the organization's readiness for EBP.

The CAI subscales "Practice boundaries" and "Evidence-Informed Care" were completed by the same group of nurses to assess their ratings of organizational readiness for EBP. Lower scores on the CAI are more favorable, indicating agreement and a more favorable factor related

to organizational EBP readiness. The mean score for the Practice Boundaries items was 2.10 (SD=0.59) compared to a 1.98 average on the pilot study. The average score for the evidence-informed care subscale items was 1.92 (SD=0.53) compared to a 1.93 average on the pilot study (see table 3).

Aim 3. Examine the associations between RN staff nurse ratings of EBP implementation strategies self-efficacy and organizational readiness for EBP.

We examined correlations between the ISE4EBP Scale scores and the two subscales of the CAI, Practice Boundaries, and Evidence-Informed Care. The Pearson correlation coefficients for the two subscales were significant. For Evidence-Informed Care, the mean r was -.410, and the *p* score was .001. For the Practice Boundaries subscale, the mean r was -.298, and the *p* score was .016.

Aim 4. Examine associations among demographic characteristics and EBP implementation strategies self-efficacy and organizational readiness for EBP.

We examined the relationships between educational level and scores on the ISE4EBP as well as scores on the two subscales of the CAI Practice Boundaries and Evidence-Informed Care (see table 4). We also looked at the relationships between age, years of experience, years on unit, and scores on ISE4EBP as well as scores on the subscales Practice Boundaries and Evidence-Informed care (see table 5). We examined the relationship between EBP exposure (participation in an EBP project, an EBP training program, or EBP course work in undergraduate or graduate courses) and scores on the ISE4EBP and the two CAI subscales (see table 6). With exposure to EBP, the average scores on the ISE4_4EBP increased, although not a statistically significant degree. Lastly, we compared ISE4EBP and CAI subscale scores for those who reported participation in a quality improvement project or a research project with those who did not (see

table 6). Similar observations occurred with quality improvement and research that the ISE4EBP scale scores increased, but not a significant amount.

Aim 5. Compare response rates between units who receive the email invitation and survey with units who receive a paper invitation and survey.

How many nurses were in the study? Half of the units received paper surveys, and the other half received email invitations to a survey link. We got back 69 electronic surveys and 29 paper survey responses. The electronic surveys were easier to analyze and had more responses indicating that would be the preferred method of collection in future studies.

Chapter V: Conclusions and Recommendation

Guided by the self-efficacy theory, the ISE4EBP scale was tested to examine nurses' self-efficacy related to implementation strategies for EBP changes. Construct validity was established by examining relationships between ISE4EBP scores and the CAI (EBP organizational readiness), scores. As organizational readiness scores improved, nurses' self-efficacy for implementation improved (Tucker et al., 2020).

The average age and years of experience of the nurses in the study were lower than the national average (US Department of Health and Human Services Health Resources and Services Report, 2010). The population we studied was slightly more diverse than the national average, with only 19.2% of national nurses considered a minority. In contrast, this study had a 28.4% minority population (US Department of Health and Human Services Health Resources and Services Report, 2010). This study had a greater amount of men than the national average; 15.3% men versus US-wide only 9.0% of nurses are men (US Department of Health and Human Services Health Resources and Services Report, 2010). The overall average score for the ISE4EBP scale for this study was 63%. This is slightly below the average of the pilot study, but still indicates moderate confidence in implementation strategies. The pilot study included leaders, whereas this study is all staff nurses, which could potentially account for the slight difference in score. More testing would be needed to determine if the difference was affected by the participation of nurse leaders. Item analysis indicated that the highest mean scores were for "reporting results to senior leaders," "use visual reminders," and "use creative strategies to promote EBP and mentorship." These findings were very similar to the top results for the pilot study (Tucker et al., 2020).

The Institute of Medicine recommends that more education on evidence-based practice is needed because, with more knowledge, there is more confidence and more likelihood in implementation. The results from this study support that EBP exposure could affect a nurse's self-efficacy of implementation. The average on the ISE4EBP scale increased with EBP exposure. More studies using this scale, and the CAI are needed to suggest a relationship between the two factors.

Literature has suggested in the past that paper response rates are greater than electronic response rates (Fowler et al., 2019). This study shows the opposite; 70.4 % of respondents completed the electronic survey indicating that this was the preferred method among this population. There is not much research on specifically bedside nurse response rate; all research I found was indicative of the population at large rather than this smaller subcategory. More research is needed to determine if staff nurses prefer electronic surveys.

This study furthered the construct validity of the ISE4EBP scale by demonstrating associations between the ISE4EBP scores with the two subscales from the CAI. There was an inverse relationship between the two variables, because higher scores are more favorable on the ISE4EBP scale, while lower scores are more favorable on the CAI subscales. The results when associated with educational level were quite interesting (see table 4). Most increases in education accounted for an increase in confidence for EBP implementation, except for BSN prepared nurses who had the lowest average score on the ISE4EBP scale. It would be important to study this result further as it may be due to the small sample size yet could be an interesting phenomenon if found elsewhere.

The ISE4EBP scale differs from other instruments because it focuses on self-efficacy in using implementation strategies, not EBP in general or self-efficacy with EBP behaviors, as in

other scales (Tucker, 2020). The assessment of nurses' self-efficacy is necessary for implementation strategies for EBP because healthcare organizations and leaders are failing to give enough attention to strategies to deliver EBP, and clinicians must select implementation strategies with little information about what might work (Fernandez et al., 2019). With the ISE4EBP scale, leaders can now assess nurses' perceptions about their confidence regarding implementation strategies in their work. Clinicians and researchers can use the ISE4EBP scale to identify areas for building confidence among nurses. This scale will help to bridge the gap in understanding nurses' self-efficacy for advancing the uptake of EBPs in nursing and healthcare.

Study limitations include a small sample and a low response rate. Nonetheless, we believe the findings may be generalized to the population of US nurses because the sample demographics (mean age, gender) reflect the population (US Department of Health and Human Services Health Resources and Services Report, 2010). Future research will test the effects of interventions designed to build confidence in implementation strategies and effects on sustainable practice changes and patient outcomes.

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Table 1. Demographic Data

Demographics (n= 98)	Mean (SD)	(%)
Age (n=92)	39.49 (11.97)	
Years as a nurse (n=91)	11.16 (10.96)	
Years on current unit (n=89)	5.18 (5.40)	
Gender (female) (n=97)		84.70%
Ethnicity (non-Hispanic) (n=97)		97.90%
Race:		
Asian:		8.40%
Black/African American		20.00%
White:		71.60%
Employment:		
Full time		93.80%
Half- time		2.10%
Part-time		2.10%
As needed		2.10%
Education:		
ADN		23.50%
Diploma		4.10%
BSN or BS or BA		69.50%
MSN or MS		6.10%
MBA, MEd, MSW		2.00%
Some graduate		8.20%
DNP		0.00%
PhD		1.00%
Select your Role (Staff Nurse)		94.90%
Unit:		
Medical-Surgical		38.80%
Critical Care adult		34.70%
Operating room/PACU		1.10%
Emergency Room		5.40%
Ambulatory		4.30%
Behavioral Health/Addiction		2.20%
Procedural		3.20%
Other		6.50%
Hold a Specialty Certification (Yes)		33.70%
Participation in:		
Quality Improvement project		41.80%
Participated in Evidence-based project		28.60%
Participated in research project		9.20%
Participated in EBP course		16.30%
Participated in EBP in undergraduate program		28.60%
Participated in EBP in graduate program		13.30%

Table 2. Implementation Self-Efficacy for Evidence Based Practice (ISE4EBP) Scale (n=73)
*Scale responses were selected on a 1-100% Scale

Survey Question	Mean*	SD
Report results to senior leaders	70.68	21.87
Use visual reminders to maintain and encourage EBP	68.24	20.78
Use creative strategies to promote implementation of the EBP	66.30	23.86
Celebrate and recognize program success in promoting implementation of the EBP	66.18	25.16
Use mentors/facilitators to support implementation of the EBP	66.09	24.56
Obtain leadership support for implementation of EBP	65.82	23.21
Assess local staff attitudes of EBP	65.25	22.95
Use unit management to promote implementation of the EBP	65.24	23.49
Provide feedback to clinical staff to promote implementation of EBP	65.13	22.24
Educate interprofessional staff to promote implementation of the EBP	65.01	23.46
Use interprofessional team daily communication to promote implementation of EBP	64.41	22.74
Assess local staff knowledge of the EBP	64.41	22.69
Highlight the key evidence including expected outcome of the EBP	63.70	21.13
Present outcomes internally and externally of the implementation of the EBP	63.55	23.02
Continuously monitor(audit) key actions related to implementation of the EBP	63.38	22.58
Engage patients/family members to adhere to EBP	62.74	22.67
Use informal unit leaders to support implementation of the EBP	62.63	23.32
Use standardized templates to promote implementation of the EBP	62.44	24.53
Use peers to influence implementation of the EBP	62.30	21.44
Develop a staff educational plan for the EBP	62.09	22.73
Pilot the practice change on one unit	61.79	23.03
Build a team to promote and implement the EBP	61.14	21.21
Link to organizational priorities/strategic plans to promote implementation of the EBP	60.79	24.29
Create unite dashboards for communicating results of the EBP implementation	59.89	24.06
Create an implementation action plan for the EBP	59.44	22.46
Use early adopters to support implementation of the EBP	57.50	23.46
Obtain needed human resources for implementation of the EBP	54.69	23.35
Obtain needed equipment and supplies for adoption of the EBP	54.24	23.10
Mobilize needed EHR/EMR changes to facilitate implementation of the EBP	49.02	25.40
ISE4EBP average score	**62.78**	**18.68**

Table 3. Context Assessment Index Subscales Evidence Informed Care and Practice Boundaries

	Mean*	SD
Evidence Informed Care (n=72)	**1.92**	**0.53**
Education is a priority	1.70	0.78
Audit and/or research findings are used to develop practice	1.77	0.69
Guidelines and protocols based on evidence of best practice are available	1.79	0.63
Evidence-based knowledge on care is available to staff	1.81	0.69
Resources are available to provide evidence-based care	1.82	0.66
All aspects of care/treatment are based on evidence of best practice	1.86	0.72
HCPs have the opportunity to consult with specialists	1.9	0.61
The development of staff expertise is viewed as a priority by nurse leaders	1.94	0.77
Structured programs of education are available to all HCPs	1.99	0.66
The management structure is democratic and inclusive	2.04	0.73
The organization is non-hierarchical	2.42	0.77
Practice Boundaries (n=71)	**2.10**	**0.59**
Challenges to practice are supported and encouraged by nurse leaders and nurse managers	2.03	0.73
Personal and professional boundaries among HCPs are maintained	2.04	0.70
Organizational management has high regard for staff autonomy	2.08	0.81
Staff have explicit understand of their own attitudes and beliefs toward the provision of care	2.12	0.74
HCPs and healthcare workers understand each other's role	2.14	0.65
HCPs feels empowered to develop practice	2.14	0.68

*Lower scores are more favorable (1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree)
HCP = health care providers

Table 4. Average ISE4EBP, CAI Average Score Differences by Education

Education	**ISE4EBP Scale M(SD)**	**EIP Subscale M(SD)**	**PB Subscale M(SD)**
ADN	61.92(19.23) n=16	1.79(.45) n=15	1.99(.44) n=15
Diploma	69.65 n=1	2.00 (.257) n=2	1.92 (.118) n=2
BS/BSN/BA	58.23 (18.10) n=41	2.00 (.577) n=39	2.20 (.702) n=38
Some Graduate Education	70.57 (16.56) n=6	1.66 (.567) n=7	1.86 (.565) n=7
MSN/MS/MBS	80.79 (14.63) n=7	1.85 (.417) n=6	2.03 (.386) n=6
DNP	n=0	n=0	n=0
PhD	67.24 n=1	2.09 n=1	2.00 n=0
ANOVA F (p value)	2.205 (.064)	.724 (.608)	.605 (.696)

M = mean; SD = standard deviation

Table 5. Associations Between ISE4EBP, CAI, Age, Years of Experience and Years on Current Unit

	ISE4EBP Average Score r* (p value)	EIP Average Score	PB Average Score
Age	.139 (.261)	.199 (.108)	.203 (.104)
Years of Experience	.061 (.621)	.118 (.344)	.148 (.239)
Years on Unit	.242 (.050)	.157 (.212)	.152 (.232)
EBPSE Average Score	--	--	--
EIP Average Score	-.410 (.001)	--	--
PB Average Score	-.298 (.016)	.867 (.000)	--

*r = Pearson correlation coefficients
EIP = Evidence Informed Practice Subscale of CAI
PB = Practice Boundaries Subscale of CAI

Table 6. ISE4EBP Average Scores and Differences by EBP, Quality & Research Experiences

Previous Experiences	M (SD)	T-test (p value)
EBP Exposure (EBP project, training program or courses)		
Yes (n=39)	65.20 (17.69)	1.224 (.225)
No (n=29)	59.78 (18.50)	
Quality Improvement		
Yes (n=33)	66.93 (15.60)	1.513 (.135)
No (n=33)	60.35 (19.50)	
Research		
Yes (n=7)	69.25 (15.38)	.933 (.354)
No (n=60)	62.52 (18.29)	