JNPD Journal for Nurses in Professional Development • Volume 33, Number 3, 113–119 • Copyright © 2017 Wolters Kluwer Health, Inc. All rights reserved.

Promoting the Utilization of Science in Healthcare (PUSH) Project

CE 1.0 ANCC Contact Hour

A Description of the Perceived Barriers and Facilitators to Research Utilization Among Pediatric Nurses

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The purpose of this descriptive study was to identify the perceived barriers and facilitators to research utilization and evidence-based practice among nurses employed in a tertiary care children's hospital. Results revealed seven facilitator and six barrier themes that contribute to the understanding of the problem. The themes can be utilized by nursing professional development specialists to customize organizational infrastructure and educational programs.

BACKGROUND

Research utilization and evidence-based practice (EBP) are terms that are frequently used interchangeably; however, these terms are distinctly different. Research utilization is the use of knowledge typically from one study, whereas EBP is broader and involves the synthesis of evidence from multiple sources (current relevant research, clinical expertise, and patient preferences and values; Melnyk & Fineout-Overholt, 2015). Research has shown that patient safety and quality are improved when nurses base their clinical practice on the most current relevant empirical evidence (Melnyk & Fineout-Overholt, 2015; Melnyk, Gallagher-Ford, & Fineout-Overholt, 2014). A growing body of evidence also suggests that healthcare costs can be reduced and variation in clinical practice can be decreased when practitioners use an EBP approach to caregiving (Melnyk et al., 2014; Melnyk & Fineout-Overholt, 2015). Despite the benefits of EBP, nurses still report significant barriers to utilizing research to inform and drive their clinical practice (Melnyk et al., 2014; Melnyk & Fineout-Overholt, 2015).

The current study sought to gain a deeper understanding of the specific barriers to EBP and research usage among nurses at a tertiary care children's hospital. The timing for the study was optimal, as a nursing research professional development specialist role had been recently established within the Department of Clinical Education and Research. The role and scope of a nursing professional development (NPD) specialist is to provide leadership and support to promote research and EBP among frontline staff within organizations (Association for Nursing Professional Development [ANPD], 2016; Bruce, 2013). In addition, our organization had made a commitment to pursue Magnet® designation; therefore, the timetable was optimal to implement curriculum and make the necessary infrastructure changes to build a more robust nursing culture of research and EBP. To inform the customization and implementation of a program to promote research and EBP, a study was necessary to assess the perceived barriers and facilitators to the utilization of research and EBP among nurses at a tertiary care children's hospital.

The Barriers to Research Utilization Scale (BARRIERS Scale; Funk, Champagne, Wiese, & Tornquist, 1991) has been applied in numerous studies to identify perceived barriers to research utilization and EBP among nurses,

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This research was supported by an institutional research grant from the All Children's Hospital Foundation.

The authors report no conflict of interest. The authors alone are responsible for the content and writing of this paper.

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DOI: 10.1097/NND.0000000000000345

including difficulty in understanding research articles because of the terminology and the statistics included in these reports (Atkinson, Turkel, & Cashy, 2008; Chan, Gardner, Webster, & Geary, 2010), lack of administrative and available mentorship support (Fink, Thompson, & Bonnes, 2005), and lack of awareness or insufficient time to keep abreast of current research (Atkinson et al., 2008; Black, Balneaves, Garossino, Puyat, & Qian, 2015; Fink et al., 2005; Hutchinson & Johnston, 2006; Schoonover, 2009). Lack of awareness and insufficient time to keep abreast of current research was also reported as a barrier by clinical nurse educators (Strickland & O'Leary-Kelley, 2009). In addition, nurses reported a lack of knowledge and skill related to critiquing and appraising evidence (Black et al., 2015; Fink et al., 2005; Hutchinson & Johnston, 2006). Lack of the necessary organizational infrastructure to support research and EBP was another perceived barrier to research utilization reported by nurses (Atkinson et al., 2008; Hutchinson & Johnston, 2006) and clinical nurse educators (Strickland & O'Leary-Kelley, 2009). In addition, nurses reported a perceived lack of authority to change practice (Atkinson et al., 2008; Fink et al., 2005; Schoonover, 2009) and lack of time necessary to implement innovative ideas as other sources of perceived barriers (Atkinson et al., 2008; Black et al., 2015). Lack of perceived authority to make practice changes and lack of time to implement innovative ideas were also reported by clinical educators as perceived barriers (Strickland & O'Leary-Kelley, 2009).

Research Question

What are the perceived barriers and facilitators to research utilization and EBP among nurses employed at a tertiary care children's hospital?

Primary Aim

The primary aim of this study was to identify the perceived barriers and facilitators to research utilization and EBP among nurses employed in a tertiary care children's hospital at baseline.

METHODS

Study Design

This study employed a descriptive cross-sectional design.

Approvals

The research was approved by the study site institutional review board.

Funding

This research study was supported by an institutional research grant from All Children's Hospital Foundation.

Sample/Sampling Plan

Three cross-sectional samples of pediatric nurses were recruited for participation in the study (at baseline and 6 and 12 months postimplementation of a research and EBP curriculum) from a cohort of $N = 890$ registered nurses employed at a freestanding children's hospital in west central Florida. Data from the first or baseline sample will be discussed in this article.

Recruitment

Recruitment e-mails were sent out by a representative from the information technology department to all eligible nursing staff, and flyers were posted in all inpatient and outpatient units. All nurses received an e-mail invitation for study participation with a hyperlink to complete the electronic BARRIERS Scale questionnaire (estimated to take 20 minutes to complete) and Promoting the Utilization of Science in Healthcare (PUSH) specific questionnaire with demographic information sheet (estimated to take 20 minutes to complete). The e-mail cover letter described the study and indicated that the informed consent would be implicit in completing the questionnaires.

Data Collection

Participants who completed the required study documents were given a $5.00 meal coupon at each of the three data collection periods. The meal coupons were purchased from the study grant fund (institutional research grant from All Children's Hospital Foundation). Participants were asked to complete the BARRIERS questionnaire and a combined demographic information sheet/PUSH specific questionnaire at each of the three data collection periods in which they volunteered to participate. Data collection was done using SurveyMonkey.

Measurement Instruments

The primary instrument used in this study was the BARRIERS Scale (Funk et al., 1991), a 29-item 5-point Likert-type questionnaire that was developed to assess perceived barriers and facilitators to the utilization of research findings in clinical practice. The theoretical basis of the BARRIERS Scale is Rodgers' Diffusions of Innovation Theory (Rogers, 2003). The classifications of the BARRIERS Scale items are divided into four main factors that include characteristics of the adopter (items related to knowledge and competency with research appraisal skills, attitudes toward research, awareness of new research), innovation (items related to the quality and the relevance of the research), communication (items related to the quality of the dissemination and accessibility of the research), and organization (type of setting, staff culture, strengths and limitations of infrastructure within organization to support research). Participants are asked to rate the extent to which they perceive each item as a barrier to research utilization. Response options include 1 = *to no extent*, 2 = *to a little extent*, 3 = *to a moderate extent*, 4 = *to a great extent*, and a *no opinion* choice for participant selection (Funk et al., 1991, p. 40). Scoring the BARRIERS Scale is

completed by adding up the scores (1–4) for each of the items listed in the four factors (characteristics of the adopter, innovation, communication, and organization) and dividing the total score by the number of items with a valid score. Scores of 1–4 are considered valid. A *no opinion* response was also allowed (Funk et al., 1991). After rating each of the listed barrier items, participants are asked to write in any additional perceived barriers and facilitators to research utilization and to rank their top three choices (Funk et al., 1991).

The items included in the scale were developed based on a review of the literature, the Conduct and Utilization of Research in Nursing questionnaire (Horsley, Crane, & Bingle, 1978), and additional data obtained from nurses (Funk et al., 1991). Potential items to be included in the scale were assessed by a panel of experts (Funk et al., 1991). Items demonstrating face and content validity were then pilot tested. Preliminary psychometric testing of the tool included a factor analysis to provide evidence to support the construct validity, and reliability was evaluated by test–retest (Funk et al., 1991). The internal consistency of the four factors of the BARRIERS Scale has been established with ranges from .65 to .80 and item-total correlation of .30–.53 (Funk et al., 1991, p. 43). Permission to use the scale and permission to administer the questionnaire in an electronic form were obtained from the corresponding author.

The PUSH specific questionnaire with combined demographic information sheet is a 24-item form with a combination of multiple-choice, open-ended, and 4-point Likert scale questions developed specifically for this study. The demographic component included questions designed to delineate the nursing sample population with respect to education level, years of experience, area of clinical practice, and specialty certification. The questionnaire also asked the participants to describe their previous knowledge and involvement with research and/or EBP projects. The questionnaire was intended to elicit the confidence level of nursing staff related to basic research and EBP knowledge and skill competency. Participants were asked to rate their perceived level of confidence on a 4-point Likert scale (1 = *no confidence*, 2 = *slightly confident*, 3 = *confident*, 4 = *very confident*) related to research utilization, EBP, and critiquing and appraising evidence. The participants were also asked to rate their attitude toward research on a 4-point Likert scale (*negative, slightly positive, positive, very positive*). The questionnaire includes several open-ended questions designed to elicit participant awareness of the existing infrastructure, resources, and support systems within the institution to promote research and EBP among staff.

Data Analysis Plan

Descriptive statistics (e.g., frequency, percentages, and proportions) were examined for participant responses pertaining to perceived barriers and facilitators of research utilization and EBP. Responses to free text questionnaire items were examined as qualitative data. The narrative data were read and coded into themes until consensus was achieved between two study team members (Creswell, 2014).

RESULTS

Of 890 eligible nurses, 369 (41.5%) responded to the baseline questionnaire. Of those who responded, 337 returned a completed questionnaire appropriate for analysis. The demographics of the sample with respect to education, primary role, number of years employed at the institution, and specialty certification are reported in Table 1.

TABLE 1 Demographics of the Sample (n = 337)

	Frequency	Percent
Highest degree		
Diploma/ADN	72	21.36
BSN	157	46.59
MSN	61	18.10
DNP/PhD	6	1.78
Other (BA)	41	13.61
Primary role		
Admin/director	19	5.64
Clinical manager/charge nurse/nurse leader	61	18.1
Educator/preceptor	18	5.34
Staff nurse	188	55.79
Nurse practitioner/ARNP	25	7.42
Other/nurse researcher	26	7.71
No. of years employed at the institution		
0–4.9	90	31.69
5–9.9	103	36.27
10–14.9	41	14.44
15–19.9	21	7.39
20 or more	29	10.21
RN/ARNP self-reported certification	138	50.64

Note. Sample size for demographics does not sum up to 369 because of missing data.

Facilitators

The participants reported seven qualitative themes when asked what they perceived as facilitators to the use of EBP and research in their clinical practice at baseline (see Figure 1).

Improved communication and collaboration with interdisciplinary team in the development/implementation of EBP guidelines and research studies. The participants frequently reported that "staff involvement" or "staff buy in" was an important facilitator. The nurses discussed the importance of good communication and collaboration between the entire interdisciplinary team for the successful implementation of new practice guidelines and research protocols. One nurse summarized by saying, "keeping staff informed of ongoing changes and new research." Respondents conveyed the need to understand the evidence to support the practice change. One nurse participant reported, "I believe [that] if the staff understands the implications for the change, they are more likely to adhere [to the change], as well as to assist in the facilitation of the change."

Education and mentored participation in research, EBP, and journal club. The nurses frequently reported that they value the need for "education" and "mentors in research" and consider these facilitators to using research and EBP in their clinical practice. The nurse participants reported that they need "time to do it [research]," and "education on how to do it [research]." They reported many different preferences for how the education and training should be presented, including "education classes," "online basic research classes for those who are learning the terminology, process and structures," as well as "education for nursing staff provided by conferences and in-house inservices [*sic*]." The participants discussed content areas they felt would be helpful, which included "clarity on the benefits to practice," "training on critiquing and analyzing the findings of a research study," "journal clubs," and "how it [research] is beneficial to our practice."

Organizational infrastructure and resources to support research and EBP. The nurse participants frequently described "resources" to support research and EBP, and these included "affording nurses paid time off unit to learn about and prepare to implement new research and practice changes," "computers and technology," "blocking time [to participate in research project]," "supportive attitude of superiors and funding," and "availability of research RNs in all specialty areas." The nurses frequently reported the need for "readily available articles and research results" and a "good library and assistance with searches" as potential facilitators.

Research friendly environment/organizational culture. "A culture of acceptance" (of research) within the organization and a "research friendly environment" were identified as other important facilitators to promote research utilization and EBP by participants. The participants further described the culture as requiring a "desire for best practice" and "an environment that fosters research." One nurse participant summarized the theme in this way, "a culture (not just the organization but more frontline staff) that promotes and rewards research and change." They listed multiple levels of support, including from management/leadership and the organization itself.

Perceived personal and/or professional incentives of the nurse. Perceived personal and professional incentives were other significant facilitators. Perceived personal incentives included "passion," "energy," "willingness," "creativity," "eagerness to learn," and "nurses that are motivated and

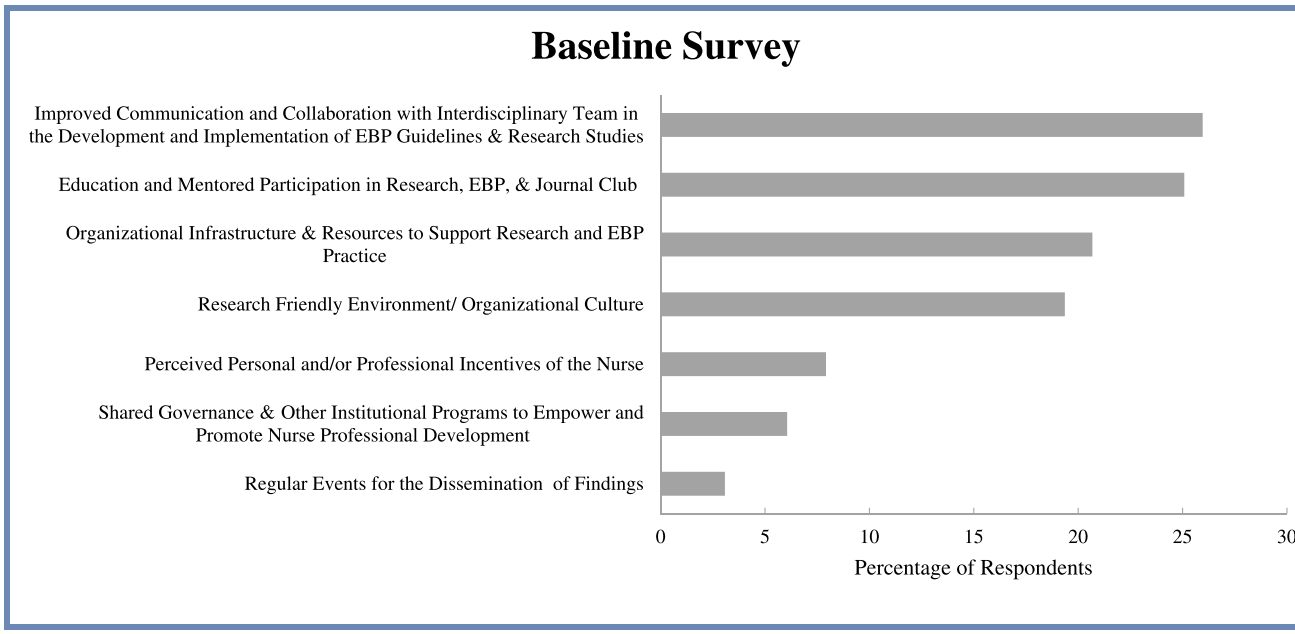

FIGURE 1 Participants self-reported top seven perceived facilitator themes, listed in relative rank order (highest to lowest).

interested in learning new knowledge." Nurse participants also explained that "encouragement and praise," "empowerment," and "being able to make change for the better" regarding patient outcomes were also important facilitators. Lastly, the professional incentives included "clinical ladders that encourage research" and "work load balance that includes reading research."

Shared governance and other institutional programs to empower and promote nurse professional development. The nurse participants identified that involvement in shared governance such as "practice council" and "committees to review research within the dept. [department]" as additional facilitators. Other nurse participants stated that shared governance was viewed as an important facilitator of EBP and research by affording staff the "opportunity to meet at practice council and brainstorm issues and ideas" and by providing a forum for "bouncing ideas off others." In addition, nurse participants reported that involvement in the clinical ladder program served to empower and promote their professional development.

Regular events for the dissemination of findings. The nurse participants in the study discussed how they valued having regularly scheduled events for "communication of results" and to have "simple understandable results made available and how RNs can implement the findings in everyday practice." The nurses discussed how regularly scheduled research events would encourage networking between research scientists and inspire others to engage in research and EBP. The nurse participants explained that "communication of results (or best practices) in a concise manner" was perceived to be an important facilitator. They also discussed that the dissemination of research findings should be "readily available [thru] regularly scheduled meetings to discuss results/foster Q&A/communicate implications for practice."

Barriers

Six common themes emerged from the data when the nurses were asked to list any other items they perceived as sources of moderate to severe barriers to using research and EBP and then rank the top three items. The six common themes listed in rank order from highest to lowest were as follows: (a) there is insufficient time on the job to implement new ideas, (b) the nurse does not have enough time to read research, (c) the nurse does not feel that she or he has enough authority to change patient care procedures, (d) the amount of research information is overwhelming, (e) the nurse is unaware of the research, and (f) statistical analyses are not understandable (see Figure 2).

Confidence and Attitudes

The nurses were asked to report their confidence level related to searching data bases, critiquing and appraising evidence, participating and leading a journal club, and their attitude toward research and EBP (see Table 2). When the nurse participants were asked to describe their prior EBP training, themes of academic education programs and other continuing education courses on EBP emerged from the data. When the nurse participants were asked to describe their prior research training, themes related to participation in academic education programs, on the job training (participation in the Nursing Research and EBP Council, Nursing Research Fellowship Program, and/or participation in a research study), and other continuing education courses on research were revealed among the responses.

DISCUSSION

This study has revealed perceived barriers and facilitators among a large sample of nurses at a tertiary care pediatric hospital that will significantly inform the further customization

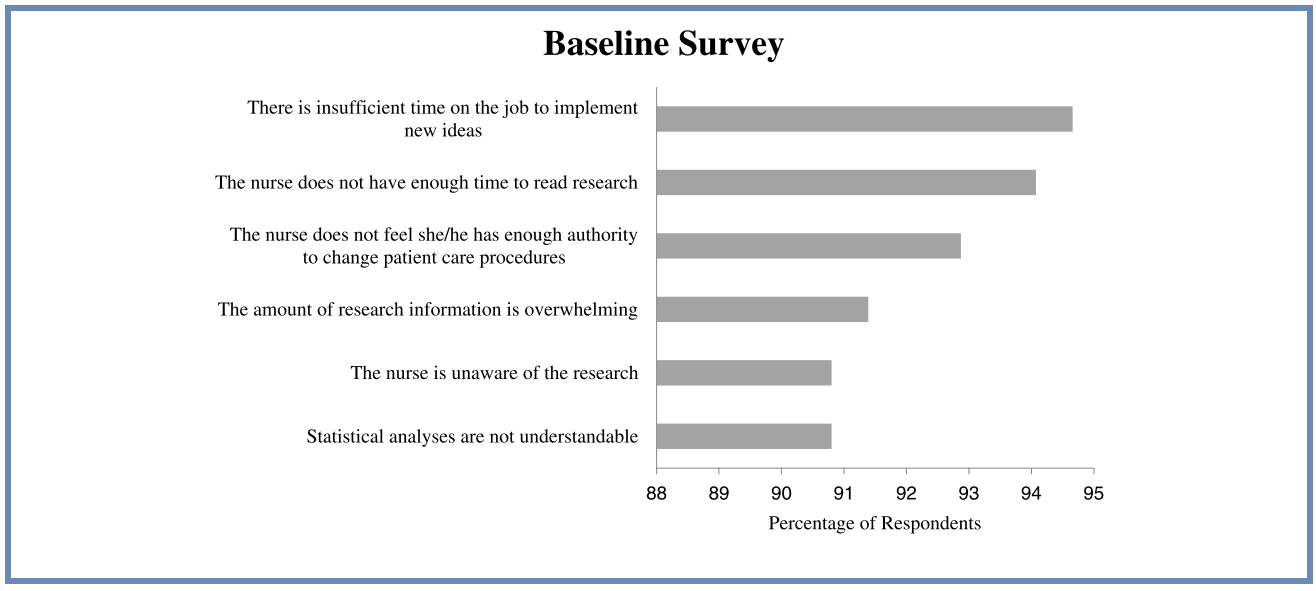

FIGURE 2 Participant self-reported top six perceived barrier themes, listed in relative rank order (highest to lowest).

TABLE 2 Confidence and Attitude Levels of the Nurse Participants (n = 337)

	Frequency	Percentage of Respondents
Confidence level related to searching the library data bases for relevant articles to answer a specific knowledge or practice question		
No confidence/slightly confident	192	56.98
Confident/very confident	145	43.03
Confidence level related to critiquing and appraising evidence		
No confidence/slightly confident	251	74.53
Confident/very confident	86	25.52
Confidence to participate in a unit-based journal club		
No confidence/slightly confident	182	54.01
Confident/very confident	155	45.99
Confidence to lead a unit-based journal club		
No confidence/slightly confident	270	80.12
Confident/very confident	67	19.88
Attitude toward research		
Negative	0	0
Slightly positive	59	17.56
Positive	173	51.49
Very positive	104	30.95

and implementation of a curriculum to promote the utilization of research and EBP. In addition to identifying the need to provide greater education and mentorship support for nursing, the participant responses indicated that the culture of the organization needs to support research and EBP, the infrastructure of the organization must provide a shared governance model to empower nurses to drive EBP, and all levels of the organization need to be supportive of novice nurse scientists (including administration, physicians, and peers). These recommendations are consistent with the literature that suggests that strong administrative support, establishing and maintaining a research department or council, providing education and mentorship support are all effective strategies to promote research utilization among nurses (Grant, Stuhlmacher, & Bonte-Eley, 2012; Wallace, 2010; Wintersgill & Wheeler, 2012). Implementing nursing educational programs focused on research utilization and EBP can build knowledge and skill competency of nurses at all levels of the organization, which can lead to greater confidence and competency in engaging in research as well (Wintersgill & Wheeler, 2012).

Nurse participants in this study also recommended that the organization promote professional development (attending research conferences and journal club participation), provide opportunities for dissemination of study findings, and provide incentives for staff engagement in research and EBP (clinical ladder programs). The latter notion in particular is consistent with Grant et al. (2012), who suggest providing a reward system linked to an annual evaluation, based on the level of research or EBP shown by nurses, as a strategy for research engagement. In addition, showcasing poster and podium presentations by peers at an institutional nursing research conference promotes positive attitudes toward research and builds a culture of inquiry (Wintersgill & Wheeler, 2012). Consistent with prior research, improved access to necessary resources (such as release time, intramural grant funding, mentorship support, biostatistician colleagues and librarian support) were also identified in this study as important additional facilitators for staff engagement in research and EBP (McLaughlin, Gabel Speroni, Kelly, Guzzetta, & Desale, 2013; Schoonover, 2009). The results of this study will serve as the foundation for the further customization of the research and EBP curriculum and changes to the infrastructure of the organization to support research utilization and EBP among frontline staff.

Limitations of the Study

The most significant limitations of this study were that the response rate by nurses surveyed was 41.5%, the study population was characterized by in-patient nurses, and the study was conducted at only one pediatric institution. Even so, the population sample size is large, and the pediatric academic health center serving as the site of this research bears many similarities to other medium–large freestanding children's hospitals throughout the United States. Still, careful consideration of generalizability must be undertaken when extrapolating the findings.

Implications for Nursing Education, Clinical Practice, and Future Research

One of the roles of the NPD specialist is to promote EBP and research within an organization. This is consistent with the scope and standards established by the ANPD for the NPD specialist (ANPD, 2016). The perceived barriers and facilitators to research identified with this survey study were used to inform further customization

and implementation of a curriculum to promote the utilization of research and EBP at the study site. A description of the curriculum, implementation of the curriculum, and the impact of the implementation of the curriculum on the perceived barriers, facilitators, and confidence levels of the pediatric nurse participants over a 12-month time period will be described in a future publication.

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