

## Application in Practice of Evidence-based Practice by Online MSN Graduates

Evidence-based practice (EBP) has become a key concept in nursing and nursing education. Nurse educators teach the concept of EBP in all nursing programs from prelicensure programs right up to the doctoral level. The application of the concept, which came from the field of medicine and is credited to Cochrane, a British epidemiologist (French, 2002), has been studied extensively in advanced practice nurses (APNs) who graduated from on-ground nursing programs (Ax & Kincade, 2001; Brown, Wickline, Ecoff, & Glasser, 2009; Butler, 2011). There have been no studies to date that have addressed the use of EBP in APNs who graduated from online MSN programs. This exploratory descriptive study was undertaken to begin exploration of any differences or similarities in practice between these two groups and fill this identified gap in the nursing literature.

### **Literature Review**

The research-practice gap has been a topic of great interest, discourse, and research for many years. Pioneering activities related to understanding research utilization by nurses occurred in the United Kingdom in the 1960s. This interest was followed 10 years later by empirical studies conducted in the United States aimed at understanding the factors which influenced nurses' use of research evidence in practice (Estabrooks & O'Leary, 2006). Interest in this area continues as evidenced by the numerous studies both in the United States (Brown et al., 2009; Frasure, 2007; Halm, 2010; McCloskey, 2008; Solomon & Spross, 2011; Thompson et al., 2008) and internationally (Eizenberg, 2010; Hutchinson & Johnston, 2004; Mehrdad, Salsali, & Kazemnejad 2008; Sandstrom, Borglin, Nilsson, & Wilman, 2011; Upton & Upton, 2006) that were aimed at trying to determine the barriers and facilitators of EBP by nurses.

The rationale for pursuing further dialogue and research derives from the belief among many nursing scholars that research evidence should be a variable factored into the decision making of professional nurses for quality cost-effective care (American Association of Colleges of Nursing [AACN], 2011; Butler, 2011; Institutes of Medicine [IOM], 2011; Titler et al., 2001). The significance of continued research is attested to by the “Essentials of Masters Education” document recently published by the AACN (2011). Of the nine essential topics which comprise the foundation for graduate degree education, Essential IV, “Translating and Integrating Scholarship into Practice”, speaks to the importance of applying research in practice. Reaching this goal is further explicated in one of the 15 terminal outcomes for graduate nursing education which states graduates must “apply the best available evidence from nursing and other sciences as the foundation for practice” (AACN, 2011, p. 27). There is little question of the need for continuous exploration of factors which serve as barriers and facilitators to EBP by graduates of masters degree programs.

Despite 50 years of nursing research aimed at increasing our understanding and knowledge related to the research-practice gap, many questions remain. One such question is how APNs who are graduates of online nursing programs use EBP in their nursing practice. Online nursing education has provided flexible and realistic expansion of educational opportunities working to meet the forecast need for nurses with advanced degrees (Holly, 2009). Thus, it was the aim of this study to contribute to nursing's and nursing education's knowledge base by focusing on the application of EBP by graduates of online graduate nursing programs.

### **Research Questions**

The purpose of the proposed study is to answer the following questions:

- a. Do nurses who have graduated from an on-line graduate nursing program report applying evidence-based practice (EBP) in their nursing practice?
- b. What barriers do these nurses report in applying EBP?
- c. What facilitators do these nurses report in applying EBP?

## **Methodology**

### **Sample and Setting**

The sample chosen for the survey consisted of all MSN graduates from a major online university from the time the program graduated its first class in 2007 to October of 2012. The graduates were from the program's nursing educator and nursing administration tracks. The mean and median age of the respondents was 47.96% of which the majority, 96%, were female (n = 49) and 4% were male (n = 2). The majority (71%) of respondents graduated with a major in education (n = 36) and 29% graduated with a major in nursing administration (n = 15). With regard to employment status and setting, the majority of respondents (82%) worked full time (n = 40) and 43% held a position in nursing education (n = 21), while 14.3 % reported working part time (n = 7) and 29.4% held a position in nursing administration (n = 15). The setting for the survey was online using the SurveyMonkey website.

### **Data Collection Procedures**

After approval from the university's IRB and the program's dean and MSN chair, personal email addresses, supplied by the assistant dean of students, were used to send an email message to all graduates of the program. The email message explained the research study and contained an authenticated link to the survey. The email included a copy of the informed consent and directions for completing the survey via SurveyMonkey. Three follow-up emails were sent every 2 weeks thanking those who had responded and asking those who had not

completed the survey to do so, reiterating the deadline for completion. A total of 202 emails were sent, with 1 respondent opting out, 54 responding, and 6 partially responding. This resulted in a response rate of 24%.

### **Instrument**

The researchers created a survey designed for graduates of online MSN programs. Survey items were developed after an extensive review of the literature to identify themes related to the application of EBP in practice settings. There were 11 demographic questions, 11 mixed item-type survey questions (e.g., Likert scale, Yes/No, and checkbox items), and 4 open-ended questions designed to identify facilitators and barriers reported by practitioners for applying EBP practice.

### **Results**

Application of evidence-based nursing practice in online graduates of MSN programs was operationalized by asking respondents to rate their ability and confidence levels in the use of EBP in their present positions. Two variables (i.e., Work in Teaching Hospital and Confidence Levels) were found to have significant correlation with the respondents' application of EBP. To explore the relationships between the variables, multiple cross tabulations were computed.

#### **Work in Teaching Hospital**

*Cross-classified by time to read research.* Table 1 shows the total counts and percentages of participants in both categories in parentheses below these total counts, and rounded to the nearest tenth of a percent. Only complete sets of paired responses were included in the tables. Omitting one of the responses meant that the particular case was excluded from the cross-classification and totals vary from table to table.

Ten respondents, or 22.7% of the sample, worked in a teaching hospital and also reported time to read research. A total of 15 or 34.1% of the survey participants did not work in a teaching hospital or have time to do research. In contrast, 6 (13.6%) of respondents who worked in a teaching hospital indicated that they did not have time to read research, while 13 (29.5%) reported that they did not work in a teaching hospital but did have time to read research.

**INSERT TABLE 1 HERE**

*Cross-classified by ability to identify research implications.* Table 2 displays the cross-classified responses for whether or not the participants work in a teaching hospital and can identify implications of research. All respondents who worked in a teaching hospital (n = 15) indicated their ability to identify research implications. All but one of the 28 participants who did not work in a teaching hospital also reported that they were able to identify research implications.

**INSERT TABLE 2 HERE**

*Cross-classified by research improves practice.* As shown in Table 3, 14 of the respondents who worked in a teaching hospital believed that research improves practice (31.8%), while 2 (4.5%) did not. A total of 25 who did not work in a teaching hospital similarly believed that research improves practice (56.8%), while 3 (6.8%) did not.

**INSERT TABLE 3 HERE**

*Cross-classified by research is relevant.* All of the survey respondents believed that research is relevant, regardless of where they worked. This is shown in Table 4.

**INSERT TABLE 4 HERE**

*Cross-classified by use of evidence-based practice.* As shown in Table 5, half of the 16 who worked in a teaching hospital did use evidence-based practice ( $n = 8$ ) while the other half did not. Of those who did not work in a teaching hospital, 18 used EBP while 10 did not.

*Cross-classified by authority to change practice.* Of the 44 respondents to these questions, 19 (43.2%) did not work in a teaching hospital, but did have authority to change practice, as contrasted with 7 (15.9%) of those who worked in a teaching hospital. An equal number ( $n = 9$ , 20.5%) did not have authority to change practice, regardless of where they worked. These results are shown in Table 6.

### **INSERT TABLES 5 and 6 HERE**

#### **Confidence Level in Ability to Critically Evaluate Research**

*Cross-classified by use of evidence-based practice.* Table 7 contains the results of cross classifying the respondents' self-reported confidence level in their ability to use EBP by actual use. A total of 13 participants felt very confident in their ability and reported using EBP (27.1%), while 5 felt very confident in their ability to use EBP but did not actually use EBP (10.4%). Ten who used EBP (20.8%) and 12 who did not (25%) reported feeling somewhat confident about its use. Finally, 5 felt confident and used EBP (10.4%), while 3 feel confident but did not use it (6.3%).

*Cross-classified by belief that research improves practice.* As shown in Table 8, 17 (35.4%) felt very confident in their ability to critically evaluate research and also believed that research improves practice. Another 20 (41.7%) felt confident in their ability and believed that research improves practice. In contrast, 1 respondent (2.1%) felt very confident in critically evaluating research but did not believe that such research improved practice. Two each felt

confident or somewhat confident in their critical evaluation ability (4.2%) but did not believe that research improved practice.

#### **INSERT TABLES 7 and 8 HERE**

*Cross-classified by belief that research is relevant.* Table 9 shows that, regardless of reported confidence level, ranging from very confident to somewhat confident, all of the respondents believed that research was relevant to nursing practice.

*Cross-classified by authority to change practice.* Table 10 contains the results of cross classifying self-reported confidence in the ability to critically evaluate research with whether or not they had the authority to change practice. Twelve (25.5%) felt very confident, while 10 (21.3%) felt confident and also had the authority to change practice. By comparison, 12 (25.5%) felt confident and 5 (10.6%) felt very confident in their critical evaluation ability, but at the same time did not have the authority to change practice.

#### **INSERT TABLES 9 and 10 HERE**

#### **Correlations of Ratings for Select Survey Items**

As a follow-up step, non-parametric distribution-free Spearman's Rho correlation coefficients were computed between pairs of ratings for select survey items. Table 11 displays the Spearman's rho values that were statistically significant at the 0.05 level (2-tailed test of significance). The results should be interpreted with caution, given the nature of the study. At the same time, these values may be indicative of potential trends and relationships worthy of future research exploration.

#### **INSERT TABLE 11 HERE**

The use of EBP was moderately negatively correlated with the belief that research improves practice (-0.288 correlation). In other words, those respondents who believed research

improved practice were also less likely to use it. Similarly, those who did not believe that research improved practice were more likely to use it. Again, the moderate size of the correlation coefficient should be kept in mind; however, the results were significant at 0.05 (associated  $p$ -value of 0.047). Given that the Spearman Rho measures magnitude and direction of linear relationship, it could be the case that another non-linear pattern of correlation better fits pairwise data (e.g., asymptotic, exponential, log-linear). This would be worthy of further study.

The relationship between the use of EBP and time to read research was also negative, moderate in size (-0.303), and statistically significant (associated  $p$ -value of 0.036). Those who used EBP were less likely to have time to read about it and vice versa. The relationship between the belief that research improved practice and time to read research was also moderate and in the expected direction (0.356; associated  $p$ -value of 0.013). Those participants who believed that research improved practice also took the time to read it. Likewise, the correlation between authority to change practice and the use of EBP was in the expected direction (0.293; associated  $p$ -value of 0.045). Those who had the authority to change practice were also more likely to use EBP than those who did not. Finally, the relationship between the authority to change practice and the belief that research improved practice was inverse and moderate in size (-0.284; associated  $p$ -value of 0.053). Those who had the authority to change practice were less likely to believe that research improved such practice and vice versa.

### **Analysis of Open-ended Questions**

Since the publication of the first articles about the use of EBP in nursing (Funk, Champagne, Wiese, & Tornquist, 1992), authors and researchers have focused on factors which practitioners reported as facilitating and inhibiting applying EBP in an attempt to explain the



research-practice gap. In keeping with this focus, we included similar questions in an attempt to identify if online students reported similar experiences.

**Barriers.** Of the 25 respondents who reported barriers, all attributed organizational factors as inhibiting their ability to apply EBP. Among these factors were “funding”, “upper levels of management”, “corporate policies and administration”, “budget constraints”, and “red tape . . . number of committees to get approval”. Of interest was the finding that only 4 of the 25 respondents stated “time” was a barrier. This finding was not consistent with previous studies which emphasized that time is the major barrier to applying EBP in the clinical setting (Atkinson, Turkel, & Cashy, 2008; Butler, 2011; Melnyk, Fineout-Overholt, Gallaher-Ford, & Kaplan, 2012). Since few previous studies have elaborated on the concept of time, what is not clear is “not enough time for what”. For example, when nurses report “time” as a barrier to applying EBP, what is it about time that bars their application of EBP? Is it insufficient time to retrieve research articles? To read and critique research? To develop a plan for change? To apply research? To get staff involved in EBP? To gain administrative support? There is no question that further exploration of the concept of time could prove to be fruitful for increasing our understanding of EBP.

**Facilitators.** Of the 24 participants who responded to the question about facilitators to applying EBP, three respondents credited other staff by stating, “willingness of other APN’s to support and implement EBP”, “Nursing Directors are supportive”, “Proactive nursing administration”, and one credited “autonomy . . . in the classroom” as factors which facilitated their ability to use EBP. Since the question was worded awkwardly, interpretation of the remaining responses cannot be categorized definitely. However, an additional survey question which asked participants to identify individuals or groups who supported their actions to apply

research for improving patient outcomes does provide indirect evidence that major support came from peers and colleagues, followed by administration, with physicians being reported as providing the least support. This finding is consistent with many previous studies (Butler, 2011; Melnyk et al., 2012; Sandstrom, 2011; Solomons, 2011) which speak to the key role played by leadership in providing the resources and support to successfully implement EBP in practice.

***Applying EBP at Work.*** In response to the question, "If you have been involved in applying EBP where you work, please tell us what that experience was like", of the 25 who responded to this question, 9 reported positive experiences such as "very rewarding because a change did take place", "rewarding, liberating", "educational", and an "exceptional experience". One respondent explained that "it's a slow process" and another indicated that the "facility was supportive, but it took almost a year of research and committee review to get it going". In contrast, some respondents reported a negative experience which was expressed as "very difficult to obtain ongoing support from administration", "the agency did not invest in evidence based resources at opportunity to interact with staff and this time", and "It's been a challenge to get approval from the board because not a lot of them have the background necessary for understanding in medical professions".

***Initiating research in practice.*** One question in the survey, not posed in previous reported research, shed light on who initiated the EBP project. Of the 26 respondents who provided answers to this question, the majority (n = 9) reported initiating the EBP change by themselves or with the support-cooperation of administration, such as the DNO or CNO. Other individuals or departments mentioned were infection control, nursing education, a public health nurse, or the research team, suggesting a multidisciplinary effort. These findings are encouraging in that, despite the many barriers (i.e., staffing, funding, lack of knowledge about

EBP by leaders, and colleague support) reported by the participants in this survey, almost half of the respondents were able to actually apply an EBP change.

*Additional comments.* A final open-ended question asked participants to share any additional comments about EBP. There were 25 responses, almost half of the total number of respondents, which revealed some ambiguous feelings about the experience of applying EBP in their clinical setting. One nurse indicated “my experience has been very frustrating. EBP is a buzz word and leadership will state they support EBP but in reality practice remains a conceptual practice”. Another respondent stated “although challenging perseverance is the key”, suggesting that the individual practitioner is key in applying EBP.

The analysis of these open-ended questions strongly suggests that graduates of this university's MSN online program found barriers consistent with those identified by on-ground MSN graduates (e.g., organizational and financial), but did not find time to be a barrier. Facilitators were also found to be consistent with on-ground graduates, also (e.g., support of peers and colleagues). Overall, the participants who added comments found that applying EBP to practice was a rewarding experience, though obtaining support and gaining approval to use EBP was difficult at times.

### **Discussion**

These findings are encouraging in light of using EBP by online MSN graduates. These data indicate that online MSN graduates do understand the value of EBP and are applying it in their practices. Our first research question (i.e., Do nurses who have graduated from an on-line graduate nursing program report applying evidence-based practice (EBP) in their nursing practice?) was answered in the affirmative, as the data showed that 59% of the participants reported applying EBP in their practice.

In addressing our second research question (i.e., What barriers do these nurses report in applying EBP?), the barriers reported by respondents were primarily related to organizational factors such as budget constraints and priorities of management. Time was not the primary barrier to applying EBP as in many previous studies. Facilitators reported by participants, related to our third research question (i.e., What facilitators do these nurses report in applying EBP?), were support of peers, colleagues, and administrators.

There were some interesting findings that bear consideration. Those participants, who did not work in hospitals, which was the majority of the participants, appeared to be more confident in applying EBP in the workplace. All respondents felt that research improves practice and reported being confident in critically evaluating research. However, almost 32% were not applying the evidence in practice. The reasons for these dichotomies were not apparent to the researchers and merit further discussion and research.

There were only 4 instances (16% of responses) of time reported as a barrier to implementing EBP, though it is pervasive in previously reported research (Atkinson et al., 2008; Butler, 2011; Melnyk et al., 2012;). It could be conjectured that respondents were more skillful in retrieving and critiquing research studies because of the on-line learning environment and use of online databases. However, a definitive answer to this question awaits further study.

### **Limitations**

Limitations of the study included the small sample size, the small number of nursing administration and nursing informatics graduates in the sample, and that all online MSN graduates in this sample came from the same university. As this was a descriptive exploratory study, the researchers were attempting to begin expanding research on EBP in graduates of MSN

programs to those who graduated from online universities, and felt the study was important even with these limitations.

### **Conclusions**

The application of research to the practice area permeates all levels of nursing education, from the associate to the doctoral level, and is vital to the profession. This is the first reported study of the application of EBP by MSN graduates of an online program. In light of the ever-increasing number of online nursing students, findings from this study have significant implications for nursing education. Participants' responses attested to not only to their confidence in applying EBP, but also actually initiating an EBP change. This finding suggests that these respondents were able to overcome organizational barriers and knew the process for actually implementing a EBP change. This is in stark contrast to the findings reported by Butler (2011) who reported that in her sample of 90 ANPs there was an inconsistency between “beliefs and attitudes” (p. 56) of respondents and their actually implementing EBP. Although generalizations cannot be made from Butler’s (2011) convenience sample from Tennessee or from this study, the findings of the present study bear further investigation as it suggests that perhaps the online learning environment provides students with the knowledge for applying EBP and implementation in practice to be confident in actually applying EBP in the real world.

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