Implementing Evidence-Based Practice in Taiwanese Nursing Homes
Attitudes and Perceived Barriers and Facilitators

ABSTRACT
To date, there is a paucity of research investigating nurses’ perceptions of evidence-based practice (EBP) in nursing homes, especially in non-Western countries. This descriptive, quantitative study investigated attitudes toward and perceived barriers and facilitators to research utilization among 89 Taiwanese RNs. The majority of nurses expressed positive attitudes toward research and EBP. The most frequently cited barriers were related to insufficient authority to change practice, difficulty understanding statistical analyses, and a perceived isolation from knowledgeable colleagues with whom to discuss the research. EBP facilitators included improved access to computers and Internet facilities in the workplace, more effective research training, and collaboration with academic nurses. These findings are similar to those from research conducted in Western countries and indicate that further education and training in research for nurses working in nursing homes would be beneficial.

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During the past 2 decades, researchers and health care professionals, including nurses, have become increasingly aware of the importance of using evidence-based practice (EBP) in health care settings. Prior to this, nurses commonly complained of the irrelevancy of research to nursing practice and generally regarded research in a negative light (Bassett, 1993; Burrows & McLeish, 1999; Funk, Champagne, Wiese, & Tornquist, 1991a). Although a gradual change toward more positive attitudes about research has been recently reported (Glacken, 2004; McCaughan, Thompson, Cullum, Sheldon, & Thompson, 2002; Olade, 2003), research is still not always rigorously used in nursing practice, and this research-practice gap is considered a worldwide phenomenon (Mehrdad, Salsali, & Kazemnejad, 2007; Nagy, Lumby, McKinley, & Macfarlane, 2001; Olade, 2003). This is an especially important issue in the area of gerontological nursing: As McConnell et al. (2009) recently noted, “Evidence-based practice holds tremendous potential to optimize care outcomes for older adults, yet many nurses are ill prepared to identify, interpret, and apply the best evidence to their practice” (p. 27).

**LITERATURE REVIEW**

Unfortunately, research regarding nurses’ attitudes and perceived barriers to the adoption of EBP has been conducted predominantly in hospital settings in Western countries, such as Australia (Bonner & Sando, 2008), England (Veeramah, 1995), Sweden (Kajermo, Nordström, Krusebrant, & Björvell, 1998), and the United States (Brett, 1987). Even in Western countries there is a lack of research examining this topic in nursing homes (Boström, Kajermo, Nordström, & Wallin, 2009; Boström, Wallin, & Nordström, 2006). One study that did examine this issue was conducted by Boström et al. (2006). They investigated staff perceptions of factors related to EBP utilization in 11 facilities in Sweden providing care for older adults. The researchers found positive attitudes toward research but a relatively low extent of research use in daily practice. This was particularly true for the nurses and nurse aides in the sample.

Studies examining why nurses have not widely adopted EBP have identified three main sets of barriers. These include the individual’s attributes, such as lack of research knowledge; the organizational context, including lack of accessibility to research findings, time, support from others, and authority; and the nature of research, including the gap between research and practice and the complexity of the presentation of research articles (Fink, Thompson, & Bonnes, 2005; Glacken & Chaney, 2004; Mehrdad et al., 2008).

Many studies have also shown that nurses lack knowledge and confidence to undertake research or apply research findings in practice (Gerrish & Clayton, 2004; Kuuppelomäki & Tuomi, 2005; Oranta, Routasalo, & Hupli, 2002; Walsh, 1997). A study of 765 nurses working in a U.K. hospital revealed that only 40.5% understood the term evidence-based practice and 68.9% had only a basic knowledge of the research process (McSherry, 1997). An Australian investigation of 400 hospital-based RNs found that lack of understanding of research was a major limitation to the RNs’ grasp of research knowledge (Retsas, 2000). Thus, there was a significant deficit in nurses’ knowledge of research and the research process, and this reflected an inadequacy in research training.

Organizational factors have also been implicated as a major obstacle for EBP implementation. Researchers have consistently found that most of the significant barriers to EBP implementation were related to features of the organization. These included a lack of accessibility to research articles among nurses (Boström et al., 2009; Kajermo et al., 1998), lack of time (McSherry, 1997; Nagy et al., 2001), lack of support from others in the workplace (Boström et al., 2009; Griffiths et al., 2001), and lack of authority from medical staff and managers (Funk, Tornquist, & Champagne, 1995; Kajermo et al., 1998). Given these findings, it is not surprising some researchers have asserted that EBP should be considered an organizational issue rather than an individual response (Dunn, 1990).

As previously noted, most studies to date have been undertaken with nurses in hospital settings within Western countries. To ensure quality of nursing care for older adults, research investigating the experience of and attitudes toward EBP of RNs who work in nursing homes is necessary. Further, an investigation of the
difficulties geriatric nurses perceive in incorporating research into their daily care and the strategies they see as useful in facilitating the adoption of EBP into nursing homes will provide important information about how best to close the research-practice gap.

**STUDY PURPOSE**

Given the lack of information about EBP in nursing homes in non-Western countries, we selected Taiwan as the study site. This study extends the scope of previous work in two ways: by investigating a nonhospital setting and focusing on a non-Western society. To our knowledge, it is the first such study to do so. The specific research objectives were to:

- Determine the range of attitudes toward EBP among nurses practicing in nursing home settings and the factors associated with these differing views.
- Describe nurses’ perceptions of barriers to EBP in these nursing home settings, as well as facilitators that may assist the development and use of EBP by nurses in nursing home settings.

**METHOD**

A descriptive, quantitative study was conducted with a convenience sample of 89 RNs from six nursing homes. Participants completed a survey that collected self-report data on nurses’ involvement in research-related activities and EBP, along with attitudes toward and their perceived barriers to and facilitators of EBP implementation.

**Sample**

Hsinchu, one of 16 districts in Taiwan, has a total of 12 nursing homes registered with the Taiwan Department of Health. From these 12, 6 were randomly selected for inclusion in the study using a lottery draw, which involved placing 12 numbered paper slips in a container and selecting one at a time until six numbers were drawn. Each slip corresponded to one of the 12 nursing home sites. The total study sample was composed of the 96 RNs who were employed across the six facilities. Eighty-nine of these RNs completed the questionnaire.

**Data Collection**

Because no previous single study had addressed all of the aspects we wanted to examine, we developed a questionnaire that incorporated relevant items from other surveys. For example, the section “Barriers to Using Research in Practice” included 29 items identical to those in the scale used by Funk et al. (1991b). This scale was used because it has high face and content validity, with Cronbach’s alpha coefficients reported between 0.65 and 0.80 (Funk et al., 1991b; Kajermo et al., 1998; Retsas, 2000). The other survey sections contained items adapted from several sources, with permission from each of the authors (Clifford & Murray, 2001; Hutchinson & Johnston 2004; McSherry, 1997; Veeramah, 2004; Walsh, 1997). Minor modifications were made to the wording of some items to improve relevance to the target audience and setting. All items (except sociodemographic characteristics) were in the form of statements, which respondents were asked to rate on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Under the supervision of the first author, these statements were translated into Mandarin by a professional translator. Because not all respondents were expected to be familiar with the term evidence-based practice, it was referred to in the survey as “the implementation of research evidence to nursing care.” The internal consistency of the sum variable was measured using a Cronbach’s alpha coefficient of 0.78.

**Data Analysis**

The coded data were analyzed using SPSS version 10.0. Descriptive statistics included frequencies, percentages, means, and standard deviations. Frequency and descriptive statistics were used to identify error entries and remaining ambiguously worded items that tend to yield missing data, as well as to analyze data on sociodemographic details of the sample, attitudes toward EBP, and barriers to and facilitators of using research in practice. Inferential statistics were used to assess whether significant differences existed between dependent variables and sociodemographic characteristics. The differ-

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<th><strong>Variable</strong></th>
<th><strong>n (%)</strong></th>
<th><strong>Mean (SD)</strong></th>
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<tr>
<td>Age (years)</td>
<td>31.83 (8.32)</td>
<td></td>
</tr>
<tr>
<td>Nursing experience (years)</td>
<td>9.00 (6.94)</td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
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<tr>
<td>Nursing school</td>
<td>10 (11.2)</td>
<td></td>
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<tr>
<td>Graduate diploma</td>
<td>62 (69.7)</td>
<td></td>
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<tr>
<td>Bachelor’s degree</td>
<td>16 (18)</td>
<td></td>
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<tr>
<td>Master’s degree</td>
<td>1 (1.1)</td>
<td></td>
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<tr>
<td>Past employment position</td>
<td></td>
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</tr>
<tr>
<td>RN</td>
<td>71 (79.8)</td>
<td></td>
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<tr>
<td>Nurse manager</td>
<td>12 (13.5)</td>
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<td>Other</td>
<td>6 (6.7)</td>
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TABLE 1: SOCIODEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE (N = 89)
ences in the background variables with nurses’ attitudes toward and associations of workplace with barriers to and facilitators of research utilization results were studied using chi-square analysis, nonparametric procedures (i.e., Kruskal-Wallis test, Mann-Whitney U test), t tests, one-way analysis of variance, Tukey’s honestly significant difference test, and Pearson correlations for comparing mean values.

Ethical Issues
Ethical approval for this study was obtained from the boards of each participating nursing home and from the University’s Human Research Ethics Committee. All participants were given both written and verbal information about the purpose and nature of the study before being invited to sign the consent form. They were also informed that there was no obligation for them to participate, that they could withdraw at any time without penalty, and that information they provided would be treated strictly confidentially. The questionnaires were returned to the first author in individual sealed envelopes. Identification numbers were used on all completed questionnaires, which were stored and will be retained for 7 years in a locked filing cabinet in the first author’s university office.

RESULTS
Sociodemographic Characteristics
Table 1 presents the sociodemographic characteristics of the 89 RNs. The mean age of these participants was 31.83 (age range = 22 to 53). On average, they had been in professional nursing for 9 years (range = less than 1 year to 30 years). Most participants (69.7%) held a graduate diploma in nursing, 18% held a bachelor’s degree, and 11.2% had graduated from nursing school. Only 1 participant held a master’s degree. All of the participants currently worked as RNs, although 12 had previously been employed as nurse managers.

RNs’ Attitudes Toward EBP
Table 2 shows the means and standard deviations in rank order for the 11 statements assessing RNs’ attitudes toward EBP in nursing homes. The results reveal that the RNs in this study reported generally positive attitudes toward research and EBP, with an overall mean of 3.74. The three statements that elicited the highest average ratings were: “Research is essential for the development of the nursing profession” (mean = 4.19, SD = 0.56), “Gerontological nurses should do a compulsory course on research methodology” (mean = 4.01, SD = 0.75), and “Nursing research has a large part to play in improving aged care” (mean = 4.01, SD = 0.55). No significant differences were revealed between the RNs’ attitudes toward EBP and past employment position, educational level, age, and years of nursing experience.

Perceived Barriers to EBP
The description of the RNs’ perceptions of barriers to EBP in these nursing home settings was one of the research objectives of this study. Table 3 presents the means and standard deviations of the RNs’ perceived barriers to the use of research evidence. The most strongly endorsed perceived barrier was,

<table>
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<td><strong>RNs’ ATTITUDES TOWARD EVIDENCE-BASED PRACTICE IN NURSING HOMES</strong></td>
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<tr>
<td><strong>Attitude in Rank Order</strong></td>
</tr>
<tr>
<td>1. Research is essential for the development of the nursing profession.</td>
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<tr>
<td>2. Gerontological nurses should do a compulsory course on research methodology.</td>
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<tr>
<td>3. Nursing research has a large part to play in improving aged care.</td>
</tr>
<tr>
<td>4. Research is the way forward to change nursing practice.</td>
</tr>
<tr>
<td>5. One essential role of gerontological nurses is to carry out research.</td>
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<tr>
<td>6. Research helps me in my decision making.</td>
</tr>
<tr>
<td>7. Research is relevant to day-to-day work in nursing home settings.</td>
</tr>
<tr>
<td>8. Nursing homes should become an evidence-based practice setting.</td>
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<tr>
<td>9. I would change my practice based on research findings.</td>
</tr>
<tr>
<td>10. Nursing research is of interest to me.</td>
</tr>
<tr>
<td>11. Research-based practice is useful in a hospital setting, but not in a long-term care setting.</td>
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<tr>
<td><strong>Overall attitudes</strong></td>
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*Note: Scores are based on a scale of 1 (strongly disagree) to 5 (strongly agree).*
The nurse does not feel he or she has enough authority to change patient care procedures” (mean = 3.71, SD = 0.83), followed by “Statistical analyses are not understandable” (mean = 3.63, SD = 0.74). The next three most strongly endorsed barrier statements were: “The nurse is isolated from knowledgeable colleagues with whom to discuss the research” (mean = 3.58, SD = 0.88), “The nurse does not feel capable of evaluating the quality of the research” (mean = 3.56, SD = 0.81), and “There is insufficient time on the job to implement new ideas” (mean = 3.54, SD = 0.80). The participants disagreed with the negative statements: “The nurse does not see the value of research for practice” (mean = 2.38, SD = 0.79), “The nurse feels the benefits of changing practice will be minimal” (mean = 2.51, SD = 0.85), and “The nurse is unwilling to change or try new ideas” (mean = 2.54, SD = 0.80). These results indicate that the RNs believe research is valuable, change is beneficial, and that the nurses were willing to try new ideas.

Although the “Barriers to Using Research in Practice” section of the questionnaire included 29 items, the participants were invited to list additional statements (items 30 through 33) that were not included in the first 29 items. Only 3 of the 89 participants responded to this latter component of the study, and a total of six additional barriers were identified: lack of funding, lack of family support, residents’ lack of cooperation and motivation, lack of access to research-relevant software, the nature of the environment, and teamwork.

Perceived Facilitators of EBP

One of the research objectives was to identify what the RNs perceived as potential facilitators in the development and use of EBP in the nursing home setting. Table 4 presents the means and standard deviations of the five items endorsed as the most significant and least significant facilitators to using research in practice.

The two highest perceived facilitators were, “Provides enhanced ward-based computer and Internet facilities” (mean = 4.14, SD = 0.53) and “Provides advanced education to increase research knowledge base”
Our research suggests that nurses need to be supported so they can move from using anecdotal evidence, past experience, and precedents to guide their clinical practice to evidence-based decision making.

the RNs recognize the importance of EBP and its potential value for their clinical practice. We also found that the RNs’ attitudes toward research did not differ in relationship to their past employment history, educational level, age, or years of nursing experience. The only inconsistency with previous findings was that in European studies, a higher level of education was associated with more positive attitudes toward EBP (Kajermo et al., 2000; Olade, 2003; Veeramah, 2004). Similarly, a study conducted in Australia also found that senior-level nurses were more likely to have a positive attitude toward research, and that completion of university subjects on nursing research was significant in determining positive attitudes and knowledge of research (Bonner & Sando, 2008). One possible explanation may be that in the current study, argued, nurses’ general lack of power and authority might emanate from a tradition in which nurses did not question nursing practice but instead focused on tasks set for them by colleagues in management positions or by medical staff.

Statistical analysis was rated as the second most significant perceived barrier in the current study. This item was ranked first in the United Kingdom (Walsh, 1997), fourth in Australia (Retas, 2000), and tenth in Sweden (Kajermo et al., 1998). These rankings may be indicative of differences in nursing training in the various countries. Statistical analysis is given only minimal attention in the nursing curricula of universities in Taiwan. Most students either do not understand statistics or show a fear of them (Kajermo et al., 2000). This may be because education in such skills is not a specific requirement for entering the nursing profession in Taiwan.

The item “The nurse is isolated from knowledgeable colleagues with whom to discuss the research” was the third most significant perceived barrier to research utilization among these Taiwanese RNs. This finding can be interpreted in various ways. It may reflect a lack of RNs within organizations who have been trained in research methods, or it may reflect the RNs’ need for knowledge and guidance when attempting to interpret research findings. To effect change and advance the status of nursing professionals, the employment of highly qualified nurses with experience in research appears crucial. This will provide support to advance nurses’ skills and engender confidence with clinical capability in the workplace (Meah, Luker, & Cullum, 1996). The benefits of having access to nurse clinicians who can impart their clinical wisdom in combining evidence and practice specific to gerontological care is therefore extremely important (Bonnel, 2009).

In line with previous findings (Griffiths et al., 2001; McSherry, 1997; Mehrdad et al., 2008), perceived lack of time was the fifth most commonly cited barrier to research utilization. Petten-gill, Gillies, and Clark (1994) suggested there is a need to investigate the concept of time in relation to personal factors such as motivation and aspiration. The need for such an investigation is further supported by Thompson et al. (2008), who suggested that lack of time as a barrier to research utilization is more multifaceted than depicted in the literature and needs to include the notion of the mental time and energy required of nurses in their complex work environments. Overall, the similarities between the findings of the current study and previous studies suggest that differences between nursing in nursing homes and other settings should not be overestimated.

Our findings suggest the need to implement interventions that promote the uptake of research evidence into practice. The RNs in this study envisaged a
strong learning organization in which they would have greater opportunity and support for learning about EBP, access to further education and training to increase their research knowledge, and collaboration with clinical nurses who also have research-based knowledge to reduce the gap between research and practice. Previous studies have also demonstrated the effectiveness of a variety of interventions, such as increasing managerial support for frontline staff, providing access to advanced education programs to provide nurses with research skills, and increasing time available to read and implement research (Kajermo et al., 1998; Parahoo, 2000; Thompson, Estabrooks, Scott-Findlay, Moore, & Wallin, 2007). A systematic review of these interventions by the NHS Centre for Reviews and Dissemination (1999) concluded that single interventions are insufficient and that successful strategies to promote the uptake of EBP are likely to be multifaceted, targeting various barriers.

**IMPLICATIONS FOR PRACTICE, EDUCATION, AND RESEARCH**

The findings from this study have implications for practice, education, and research. Our research suggests that nurses need to be supported so they can move from using anecdotal evidence, past experience, and precedents to guide their clinical practice to evidence-based decision making. Managers can play an important role in promoting and supporting these changes by allowing more time to implement research findings and providing permission and support for nurses to change their nursing care practices.

Nurse educators need to consider the best ways of teaching epidemiology and statistics, developing skills in critical appraisal, and engendering familiarity with the basic principles and concepts of research. This will help clinical nurses attain greater knowledge and understanding of research and its implementation. In addition, it will help nurses become confident in their ability to use appropriate research findings in practice and contribute to their professional responsibility of providing high-quality care for nursing home residents. There is also a pressing need for inservice education to increase nurses’ knowledge and awareness of research and its utilization.

One of the limitations of this study is the small sample. Therefore, it would be prudent to repeat the study with a larger sample of nurses working in nursing homes, both in Western and non-Western countries. It is suggested that the questionnaire developed for this study be used in future research to facilitate comparative analyses. We also recommend that qualitative methods, such as individual interviews, focus groups, and direct observation, be used for a more comprehensive picture.

**CONCLUSION**

Overall, our findings among Taiwanese RNs concur with those of previous studies that have investigated barriers to and facilitators of research utilization in Western countries. Despite cultural differences, a consistency exists among most studies in respect to the positive attitude of nurses toward research and EBP and the most common barriers to EBP. It is clear that a considerable amount of work needs to be done in all countries, including Taiwan, to overcome these barriers.

**REFERENCES**


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