



THE JOURNAL

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Evidence-Based Practice

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EDITORIAL

This issue of the *Journal* is devoted to evidence-based practice. Many definitions of this concept are found in the literature. One commonly referenced definition relates to evidence-based medicine: using the best available evidence in making decisions about care of an individual patient in conjunction with the clinician's expertise and the patient's values and preferences (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000).

The term "evidence-based medicine" has evolved into the concept of "evidence-based practice" (EBP). EBP is one model of clinical decision-making that can be used to answer clinical questions about therapy, prognosis, harm, secondary prevention, and patients' experiences and perceptions (Melnyk and Fineout-Overholt, 2005), as well as questions about the accuracy of nursing diagnoses (Levin, Lunney and Krainovich-Miller (2005).

Another definition of evidence-based nursing practice may be helpful in practice settings where more than one nurse gives care to the same patient: "Evidence-based nursing practice is practice in which nurses make clinical decisions using the best available research and other evidence that is reflected in approved policies, procedures, and clinical guidelines in a particular healthcare agency" (Ervin, 2002, p. 2).

While some of our colleagues believe (or hope) that EBP is a fad that will soon pass, we believe that it is here to stay. How can anyone argue with the statement that healthcare professionals need to base their decisions on the best available evidence? To us this is like motherhood and apple pie. Or these days, perhaps, like parenthood and pizza.

It is predicted that as more discoveries are made, health care will be based more on research evidence and less on professional opinion. A recent *New York Times* article pointed out that the federal government is now providing "hospital report cards" about three conditions: heart attacks, heart failure, and pneumonia. For example, it was found that only 30% of Veterans Affairs patients who should have been given the pneumonia vaccine had received it. After this information was provided to physicians and staff, the level of immunization increased to 90% (Kolata, 2004).


The level of information should increase in the future as the public demands to know about the quality of the health care provided in hospitals and nursing homes. The American Nurses Association and NYSNA support public disclosure of data related to the quality of nursing care (NYSNA, 2005).

Although the majority of available literature on EBP focuses on the decisions of direct-care providers, we believe that the EBP model is necessary for all decision-making in nursing. Recent reports by the Institute of Medicine recommend the promotion of EB management practices (IOM, 2004) and EB health-policy decisions (IOM, 2003).

The article by Marybeth Ryan and Deborah McCauley in this issue of the *Journal* examines the knowledge and attitudes of nursing students toward older adults. It supports the concept of evidence-based educational interventions. The need for more research and other evidence about the effectiveness of educational interventions is apparent in nursing as well as other health professions.

While EBP has been associated mainly with quantitative evidence, the type of question needs to guide the kind of evidence for which one searches. For example, if a nurse wants to find out about the best treatment for pressure ulcers, then a quantitative question and quantitative evidence are more appropriate. On the other hand, if the nurse wants to better understand the experience of a specific population, a qualitative question and qualitative evidence are more appropriate.

Continued —



Mary Infantino's article on gardening is an example of the latter. She presents the results of a small study and provides the beginning data upon which additional qualitative or quantitative studies can be built. Building the science foundation for nursing practice involves many years of research from a variety of perspectives.

This position is demonstrated in the article by Deborah Walker and Sharon Rising. They present the results of studies about two aspects of prenatal care. The evidence about fewer prenatal visits is strong enough to support the use of this approach in providing prenatal care. The second model of prenatal care, CenteringPregnancy, shows promise, but more research is needed to demonstrate its effectiveness.

Sometimes there simply is not enough evidence to answer a burning clinical question. In their article on the use of music with patients in restraints, Linda Janelli and her colleagues wanted to determine the effect of listening to preferred music on the behavior of elderly, hospitalized patients. As available previous evidence was inconsistent, they conducted a pilot study to begin to accumulate further evidence. Such studies will help these researchers and others to refine their methods to eventually provide an evidence-based answer for practice.

In their article, Ellen Fineout-Overholt, Rona Levin, and Bernadette Melnyk share the lessons they learned during the conduct of pilot studies designed to test one model of facilitating EBP in clinical settings. It appears that Hillary Clinton's notion that "it takes a village" can be applied here. Implementing EBP in the acute-care setting requires organizational support and collaborative peer effort.

Evidence-based nursing practice is the norm of the future. We present this issue as an example of the work being done to develop the evidence base for professional practice.

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Guest Editors

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We Built It and They Did Not Come: Knowledge and Attitudes of Baccalaureate Nursing Students Toward the Elderly

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Abstract

A pilot program in gerontological nursing was developed for senior baccalaureate nursing students but could not be implemented due to lack of student interest. As a consequence, the authors conducted a descriptive survey research study to determine the knowledge base and attitudes of junior and senior baccalaureate nursing students toward older adults. A sample of 55 students was surveyed using two instruments: Palmore's revised Facts on Aging Quiz (FAQI) and Kogan's Attitudes Toward Old People Scale (KOP). While neither the junior or senior student group scored high on the FAQI, an analysis of variance revealed a significant difference between the groups in overall knowledge about the elderly. The mean KOP score of neither group indicated a high positive attitude toward the elderly and there was no significant difference between the groups in this area. The relationships between participants' demographic characteristics and KOP results also were explored. Findings support research indicating that nursing students often lack knowledge of the elderly and need opportunities to develop positive attitudes toward them. Implications are identified that relate to curriculum development, students, and faculty.

A pilot educational program in gerontological nursing, "Developing Clinical Learning Partnerships in a Geriatric Setting," was designed for senior baccalaureate nursing students as a capstone clinical course. While gerontology had been integrated into various courses already completed by these students, this course offered them the opportunity to participate in this pilot for their final clinical experience. The proposed program was developed to test and evaluate a geriatric clinical innovation at the baccalaureate level by creating clinical experiences that would serve as models of care delivery to older adults.

The Learning Partners Model was selected for the pilot program because it promotes the development of mentor, facilitator, preceptor, and learner roles (Crim & Hood, 1995). The transmission of nursing knowledge from clinician/preceptor to student was to be supported through the use of unique learning experiences.

The program was to be offered in a multilevel geriatric facility that would provide the students with an experience in high-quality, state-of-the-art geriatric care. It would provide 260 hours of clinical experience in the form of intensive clinical

study in geriatrics. Five baccalaureate-prepared registered nurses were to serve as preceptors to five senior nursing students. Desired program outcomes were to attract students to the field of geriatrics and to foster their interest in practicing in geriatric settings after graduation.

Despite a variety of intense and persistent recruitment efforts, no students were interested in participating in the pilot program. Disappointed by students' response to this opportunity, the authors decided to survey nursing students to determine their knowledge about and attitudes toward the elderly.

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Who will care for a segment of society to which almost everyone will someday belong?

Key research questions included: What is the knowledge base and attitudes of junior and senior level baccalaureate nursing students toward older adults? Does the knowledge base and attitudes of the junior level students differ from the senior level students? The authors also hoped to identify implications for future curriculum development.

Review of the literature

In 2000, there were 35 million Americans aged 65 years and older. By the year 2030, the projected population for this age group is over 70 million, with baby boomers leading the way (American Geriatrics Society, 2000). This will increase the percentage of Americans over 65 from 12% to approximately 20% (Administration on Aging, 2002).

Older adults represent more than 48% of hospital patients, 60% of visits to primary care providers, 80% of home care visits, and 85% of the nursing home population (Mezey & Fulmer, 1999). By 2030, the number of residents in geriatric facilities could triple (AoA, 1996). With the predicted future growth of the older population, the question arises: Who will care for a segment of society to which almost everyone will someday belong?

As a burgeoning population becomes grayer, the need for both informal caregivers and formal care providers will increase. The need for the latter category, which includes registered nurses, licensed practical nurses, nurses' aides, or home health aides, arises when a person's needs increase beyond the scope of knowledge, time, and ability of the informal caregiver (University of Illinois, 2001).

Due to the increasing age of the nursing workforce, the availability of formal care providers is on the decline. The average age for a working RN is over 43 years and many RNs are nearing retirement (Health Resources and Services Administration, 2002). In addition, although enrollment in schools of nursing has increased in the past two years (American Association of Colleges of Nursing, 2004), fewer young people are choosing

nursing as a career (American Nurses Association, 2001; Healthcare Association of New York State, 2002). These factors are contributing to the current nursing shortage, which will stretch the limits of formal care providers' availability as the older population increases over the next 30 years.

Another factor contributing to the lack of formal care providers for the elderly is a lack of geriatric nurses. Nurses are not drawn to the field of geriatrics because they regard working with older adults as low status, think they may lose their nursing skills, and often do not value their contribution to the care of the elderly (Purse & Luker, 1995). Since 1991, only 3,400 geriatric nurse practitioners and 800 gerontological clinical nurse specialists have been certified out of an estimated 70,000 to 80,000 advanced practice nurses (American Academy of Nursing, 2001).

Studies have been conducted in an attempt to discover the reasons for the negative attitudes of nursing students and registered nurses toward elderly clients.

Lookinland and Anson (1995) speculated that exposing nursing students to older adults who were functioning well and contributing to society would have a favorable effect on their attitudes. Schneiderman, Jordan-Marsh, and Bates-Jensen (1998) explored the value of nursing students' work with well adults in senior centers and found that the majority of nursing students felt the experience positively influenced their attitudes towards the elderly. Scheffler (1995) found, to the contrary, that regardless of the clinical setting, the attitudes of nursing students about older adults did not depend on where students had their first clinical experience.

The educational community has a great responsibility and opportunity to affect student nurses' ageist attitudes toward older adults. Lookinland, Linton, and Lavender (2002) found that more education and knowledge about the elderly led to a more positive attitude about their care among associate-degree nursing students and registered nurses. Fagerberg and Ekman (1997) demonstrated

that a lack of knowledge about gerontology may have led to nursing students' feelings of distress and that these feelings may have affected their desire to care for the elderly. The role of the educator has been seen as a key element in nurturing positive attitudes in students (Haight, Christ, & Dias, 1994; Zembrzusi, 2000). Educators must examine their own attitudes about the elderly and the way in which they communicate about geriatric care (Happell & Brooker, 2001).

Some studies have found that the age of the students affects their attitudes toward the elderly, with older students having more positive attitudes (Scheffler, 1995; Soderhamn, Lindecrona & Gustavsson, 2001). Lookinland and Anson (1995) suggested that age does not affect attitudes. They found, however, that attitudes were affected by ethnicity. White and American-Indian nurses had more positive attitudes toward the elderly than did Hispanic, Asian, and African-American nurses. In a later study, the same researchers found that African-American nurses expressed positive attitudes toward the elderly (Lookinland & Anson, 2002).

Gender may be another factor affecting attitudes. Slevin (1991) found that female students had more positive attitudes toward the elderly than did male students, a finding that was supported by two later studies (Lookinland & Anson, 1995; Soderhamn et al., 2001).

Theoretical framework

The literature on aging is replete with references to the need for both professional care providers and informal caregivers who are able to meet the needs of the elderly. A major assumption in Watson's treatise on caring is that "caring is the central unifying focus of nursing practice – the essence of nursing" (Patton, Barnhart, Bennett, Porter & Sloan, 1998, p. 147). In more recent work, Watson (2002) discussed the practice of transpersonal nursing and presented guidelines for developing and activating a conscious intentional practice of caring-healing through the implementation of eight intentions. In the

fourth intention, Watson advocated that one should “make an effort to *see* who the spirit-filled person is behind the patient . . .” (p. 18).

Identifying the knowledge base and attitudes of baccalaureate nursing students toward the elderly will be an initial step in developing strategies that will make caring for older adults a preferred choice for these future care providers. Perhaps, then, they will be able to *see* beyond elderly patients and provide the caring-healing needed to promote their optimal well-being.

Method

Design

For this study, a nonexperimental, descriptive survey research method was used. This method “focuses on obtaining information regarding the activities, beliefs, preferences, and attitudes of people” via self-reporting (Polit & Beck, 2004, p. 733).

A convenience sample of baccalaureate nursing students ($N=55$) enrolled in a junior or senior level nursing course at a suburban, private university school of nursing participated in the study. There were 54 (98.2%) females and 1 (1.8%) male. The mean age of the students was 27 ($SD=6.10$), and their ages ranged from 20-43 years. The sample was racially diverse, with 23 (41.8%) white, 17 (30.9%) black/African-American, seven (12.7%) Asian, four (7.3%) Hispanic/Latino, one (1.8%) native Hawaiian/other Pacific Islander student, and three (5.5%) who indicated other/combined racial status. Table 1 presents the demographic characteristics of the junior- ($n=36$) and senior- ($n=19$) level students.

Approval to conduct the study was obtained from the university’s Institutional Review Board. An informed consent was signed by the participants and code numbers were used on the two instruments and the demographic information form to ensure student anonymity.

Table 1: Demographic Characteristics of the Junior and Senior Baccalaureate Nursing Students

Variable	Juniors $n=36$	Seniors $n=19$
Gender	Female: 35 Male: 1	Female: 19 Male: 0
Age	Mean: 26 years Std. Deviation: 5.29 Range: 20-39 yrs.	Mean: 28 years Std. Deviation: 7.31 Range: 21-43 yrs.
Race		
White	12	11
Black/African American	11	6
Asian	6	1
Hispanic/Latino	3	1
Native Hawaiian/ Other Pacific Islanders	1	0
Other	3	0
Note. $N=55$		

Instruments

To determine student attitudes toward the elderly, Kogan’s (1961) Attitudes Toward Old People Scale (KOP) was used. The KOP is a 34-item, Likert-type instrument consisting of 17 matched positive and negative item pairs (OP+ and OP- scale items) of attitudinal statements about the elderly. In this study, the 34 items were randomly arranged. Participants agreed or disagreed with the items using six-point descriptors ranging from (1) strongly disagree to (6) strongly agree. To obtain a single score for the OP+ and OP- items, the value of the negative items was reversed and averaged with the positive responses. Thus, higher scores indicated a more positive attitude toward the elderly and lower scores indicated a more negative attitude toward them. Scores for the KOP can range from 34 to 204.

Kogan reported odd-even Spearman-Brown reliability coefficients for three sample groups ranging from $r=0.73-0.83$ for the OP- scale and $r=0.66-0.77$ for the OP+ scale. In this study, Cronbach’s alpha for the total KOP scale was .63.

A revised version of Palmore’s (1998) The Facts on Aging Quiz, the FAQI, was used to measure students’ knowledge about older adults. The FAQI is a 25-item, multiple-choice instrument. Participants responded by choosing the best answer or by putting a question mark next to an item for which they did not know (DK) the best answer. Use of the DK response allows a distinction between a misconception and ignorance. According to Palmore (1998), “a misconception involves a belief that one knows the correct answer when actually one does not. Ignorance involves a recognition that one does not know the correct answer...It is usually more difficult to correct a misconception than to change ignorance into knowledge” (p. 39).

Scoring for the FAQI is threefold: the “percentage correct” measures the individual’s overall knowledge; the “percentage wrong” indicates the amount of misconception that needs to be corrected; and “percentage DK” indicates ignorance that requires information (Palmore, 1998).

According to Palmore (1998), all items in the FAQI “have a high degree of ‘face validity’” (p. 58) and the addition of the DK response option to the FAQI improved its reliability. Courtenay and Weidemann (1985) reported a Cronbach’s alpha of .60 in their study using the true-false version of the FAQI. Construct validation has been demonstrated with individuals trained in gerontology.

In addition to the two survey instruments, a demographic information form was used to collect data about the participants’ gender, age, race, and class standing in the baccalaureate nursing program

Data collection

Permission to collect data from students during their classes was obtained from nursing faculty. After the purpose of the study was explained, survey packets were distributed and consent forms signed. Students then completed the two instruments and demographic information form. The researchers collected the completed survey packets. Six packets were deleted due to a large number of missing responses.

Data analysis

Descriptive statistics were used to organize and summarize demographic information and obtain means and standard deviations for junior and senior scores on the KOP and FAQI. One-way analysis of variance (ANOVA) was used: 1) to determine whether significant differences existed between the junior and senior students' mean scores on the instruments; and 2) to test whether specific races differed in their attitudes toward the elderly as has been reported in the literature. A Pearson Product Moment Correlation was used to identify if age was related to scores on the KOP.

Results

Students' total mean score on the KOP was 142.76 ($SD=15.92$). Senior students scored higher on the KOP than the juniors with means of 145 ($SD=15.41$) and 141.58 ($SD=16.27$) respectively, although neither group's score indicated a high positive attitude toward the elderly. Analysis of variance showed no significant difference between the mean scores.

An ANOVA showed a significant difference $F=2.5$ ($p=.04$) among the KOP means among the ethnic groups. Post-comparison contrast tests among the group means for the white, 143.65 ($SD=17.40$), black/African-American, 135.65 ($SD=12.53$) Asian, 140.57 ($SD=14.95$) and Hispanic/Latino, 155.50 ($SD=9.75$) students showed that Hispanic/Latino students scored significantly higher than black students on the attitudinal measure; no other statistical significances were found when other racial groups were compared. For the age variable, a Pearson Product Moment Correlation revealed an $r=.165$ score on the KOP, indicating low correlation.

Results measuring student's knowledge about the elderly showed that the senior group achieved a higher FAQI correct response mean score, 12.42 ($SD=3.06$), than the junior students, 10.42 ($SD=2.42$). Table 2 provides the total group mean score and group mean scores for correct responses, incorrect responses, and don't know responses. While ANOVA revealed a significant difference between these means in terms of overall knowledge about aging ($F=7.09$ [$p=.010$]), neither group did well on the FAQI. When converted to a percentage, the senior students' group mean score was 49% and the junior group's score was 42%.

Discussion

Findings from the study support the work of Sheffler (1995) and Soderhamn et al. (2001), who found that nursing students lack knowledge about the elderly and often do not have positive attitudes toward them. While the senior students scored better than juniors, neither group achieved high scores on either the attitude or the knowledge measure.

The senior students' better scores on the FAQI may have been due to their exposure to more course content related to aging and older people. When combining the incorrect responses and don't know responses made by both groups, however, it is apparent that there is a need to provide nursing students with information related to aging and older adults in order to correct misconceptions and convert ignorance into knowledge.

Although there was no correlation found for age and the mean score on the KOP, the students, who were primarily young adults, did not score high on positive attitudes toward the elderly. This supports the findings of Haight et al. (1994) and Soderhamn et al. (2001) that younger nursing students (<25 years) had less favorable attitudes toward the elderly than their older counterparts. The trend toward older, second-career students entering nursing programs may have a serendipitous impact on nursing students' willingness to enter geriatric care.

Finally, Hispanic/Latino student nurses, although reflecting only 7.3% of the sample, had the highest KOP mean score of all the ethnic groups. While this score did not indicate an extremely favorable attitude, cultural values of this group regarding the elderly may have influenced the results achieved. It is necessary to be conservative when interpreting these data because the size of each ethnic group was small.

Limitations of the study include its cross-sectional design; use of a small, convenience sample; and the inclusion of only one male nursing student. Strengths are the racial diversity of the sample and the use of two instruments that have good psychometric properties and have been used in numerous studies. The Cronbach's alpha of .63 for the KOP in this study, however, brings its reliability here into question.

Table 2: Means for the Correct, Incorrect, Don't Know Responses on the FAQI

	Correct Responses	Incorrect Responses	Don't Know Responses
Juniors (N=36)			
Mean	10.42	13.53	1.06
Standard Deviation	2.419	3.066	2.203
Seniors (N=19)			
Mean	12.42	11.79	0.79
Standard Deviation	3.061	3.066	1.718
Total (N=55)			
Mean	11.11	12.93	0.96
Standard Deviation	2.800	3.150	2.036

Conclusions and implications

The study findings support previous research that indicates nursing students lack knowledge about care of the elderly and do not have positive attitudes toward them. As Mezey and Fulmer (1999) suggested, "One apparent strategy to ensure a workforce adequately prepared to care for the elderly is to give every nursing student adequate knowledge and skills in geriatric nursing" (p. 118).

Ways to change students' attitudes toward the aging population must be identified and tested. One strategy may be to position a separate geriatric nursing course early in the program that includes clinical assignments with well, functioning older adults. Geriatric contact would then be reinforced throughout the curriculum.

These strategies might make a career in geriatric nursing more attractive to students and help to alleviate the dearth of formal caregivers in this specialty. To test these proposals, university faculty are developing a required, stand-alone course in geriatric nursing for baccalaureate students that will have an accompanying clinical experience with well, elderly clients.

Clearly, faculty preparation is a critical factor in the process of educating students to care for the nation's aging population. This aspect,

which was not included in this study, must be considered in discussions about curriculum development or revision. According to Trossman (2003), "There is simply a lack of gerontological nursing educators who can serve as mentors and role models for nursing students" (p. 14).

It is essential that new approaches to preparing students for geriatric nursing practice include program evaluation so that stakeholders (nursing students, faculty, and aging consumers of health care) can be assured of program efficiency and effectiveness. The pilot program in gerontological nursing for senior students was a worthy endeavor, but from the study's findings and the literature, it is evident that a different foundation needed to be laid. The authors have a better understanding of why students did not participate in the pilot program and strategies that are required before another attempt is made to implement it.

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Gardening: A Strategy for Health Promotion in Older Women

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Abstract

One of the goals of Healthy People 2010 is improved cognitive status of older adults. Preliminary research has identified gardening as an activity that may be cognitively protective. Clarification of gardening as a concept is a first step toward the development of theory that will enable nurses to develop interventions related to gardening. The purpose of this study was to describe the phenomenon of gardening. Using a phenomenological methodology, interviews with five older women were analyzed using Colaizzi's approach. Four themes emerged: "Gardening is challenge and work," "Gardening is connection," "Gardening is continuous learning," and "Gardening is sensory and aesthetic experience." The phenomenon of gardening is analogous to the relationship between a spider and its web, linking internal and external environments and providing support over a lifetime. It appears that the gardening experience, as an evolving lifelong process, sustains older women in their cognitive and spiritual development.

In the United States, 80% of noninstitutionalized adults over 65 years of age have at least one chronic illness that limits some aspect of their daily activities. Chronic diseases account for 80% of healthcare expenditures in the United States and cause 80% of the deaths in adults over 65 years of age (Beers & Berkow, 2000). The number of adults 65 or older is expected to increase to 71 million by 2030, accounting for 20% of the total population (Centers for Disease Control & Prevention, 2003).

Given these current and projected statistics, the Public Health Service (PHS) has led the initiative for Healthy People 2010 (U.S. Dept. of Health & Human Services, 2000), which calls for research into improvement of cognitive,

social, and functional health in older adult populations through an emphasis on health promotion and prevention of illness.

Although this study does not focus on chronic illness in older adults, a critical component of the Healthy People 2010 challenge is the identification of activities that could delay or prevent the onset of chronic cognitive disorders (e.g., dementia, Alzheimer's, depression). Cognitive vitality is central to quality of life and survival in older adults (Fillit et al., 2002). Identifying activities that can serve as health promotion and illness prevention strategies, and which are applicable to all older adult populations, may have the same positive impact on older adults in future generations that improved diet and exercise

have had on the current older adult population (Fillit et al., 2002; Katzman, 1995).

Preliminary research into leisure activities of older adults supports the theory that participation in mentally stimulating activities may be cognitively protective (Wilson et al., 2002a; Wilson et al., 2002b; Fabrigoule et al., 1995). Gardening has been identified as one of these activities (Fabrigoule et al., 1995; Katzman, 1995). Gardening has consistently been shown to be one of the most common and popular leisure activities among older adults in the United States. According to the National Gardening Association (2004), 78% of American households participated in gardening in 2003. One of the largest groups of participants was 55 years and older.

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The practice of gardening as a therapeutic modality was documented prior to the 1800s (Burgess, 1990). Since that time, gardening has evolved into an accepted adjunctive or activity therapy in almost every special population including the institutionalized elderly, the mentally handicapped, the physically handicapped, prisoners, and substance abusers (Bryant, 1991; Burgess, 1990; McBey, 1985). The purpose of this research was to provide the data needed to begin to describe and assess the phenomenon of gardening and its potential benefits for the older adult population.

Benefits of leisure activities for older adults

Many authors (Edelman & Mandle, 1998; Fabrigoule et al., 1995; Hammer & Small, 1993) agree that involvement in leisure activities during retirement might have a positive impact on an individual's life satisfaction and health status. Fabrigoule et al. (1995) examined the relationship between social and leisure activities and the risk of dementia in 2,040 older adults. The researchers identified gardening as a significant cognitively demanding or complex activity serving to maintain mechanisms that promote cognitive performance. They found that participation in gardening was associated with a 50% lower risk of dementia.

In a longitudinal study done with a large cohort of older adult Catholics, Wilson et al. (2002a) utilized multiple measures to assess the relationship between cognitively stimulating activities, physical activity, and cognitive decline. Over a 4.5-year follow-up period, the researchers found that older adults who frequently participated in cognitively stimulating leisure activities (e.g., reading newspapers and books, crossword puzzles) were 47% less likely to develop dementia. There was no evidence that increased physical activity had a positive impact on cognitive decline. This suggests that the association of cognitive activity with disease risk "reflects mental stimulation rather than a non-specific result of being active" (p. 746).

Wilson and his colleagues (2002b) obtained similar results with a large, stratified random sample in a four-year prospective study of older adults in a community setting. They found that older adults who infrequently participated in cognitive activities were two times more likely to develop cognitive disorders than older adults who participated frequently in these activities. These results suggest that cognitive activity is potentially modifiable and, because of its association with cognitive decline, is of "substantial public health importance" (Wilson et al., 2002b, p. 1913). These findings may also have application among well older adults who garden.

Sensory stimulation in older adults

Many authors assert that gardening stimulates all of the senses (Bryant, 1991; Haley, 1987; McBey, 1985). Sensory stimulation in older adults is necessary to keep underlying neurophysical structures

operating at maximum efficiency and in a state of communication with the body and surrounding environment (Laming, 1997; Piek, 1998). According to Eliopoulos (2001), sensory stimulation facilitates accurate perception of the environment. Declining biological processes lead to failing sensory systems and are responsible for the disoriented states experienced by older adults (Eliopoulos, 2001). Declining sensory processes, combined with the chronic diseases that confront older adults, increase the likelihood of sensory deprivation.

Research suggests that with increased sensory stimulation, both sensory and cognitive function can be modified and improved in older adults, even in sensory deficit situations (Laming, 1997; Piek, 1998). The body may be capable of developing a compensatory mechanism in response to altered sensory input. The more the senses are stimulated, the more rapidly adaptation will occur and sensory distortion will be modified (Piek, 1998).

McBey (1985) and Haley (1987) stated that the garden is an excellent place for stimulation of all the senses. Both authors found that gardening triggered memories through the sensory experiences of touch and aroma. In a study by Bryant (1991), gardening was one of the activities chosen for exploring sensory stimulation through sensory integration therapy with disoriented, institutionalized elderly. This was due both to the flexible and creative qualities of gardening and to patients' familiarity with the activity. Positive changes in patient communication patterns were reported in response to gardening over a five-month period.

Research suggests that with increased sensory stimulation, both sensory and cognitive function can be modified and improved in older adults, even in sensory deficit situations.

Therapeutic aspects of gardening

A review of the gardening literature shows an emphasis on the rehabilitative, therapeutic, and practical aspects of gardening for special populations. Despite gardening's popular use in many patient settings, however, few systematic studies have been done. Kaplan (1973) described the phenomenon of gardening and explored gardening from the participants' perspectives. He used the Gardening Benefit Scale, which comprised three sub-scales that measured enjoyment of gardening in two groups: community gardeners (younger, student community volunteers) and home gardeners (older, more experienced gardeners).

The responses were analyzed using a hierarchical cluster analysis program. The gardening benefits identified by Kaplan were compared between the two study groups. He found that flower growers in both groups scored significantly higher ($p < .001$) than vegetable growers, and that home gardeners who were women derived greater satisfaction from gardening experiences than community gardeners ($p < .04$). Kaplan believes these findings support the idea that gardening is a source of fascination, diversion, and relaxation. A limitation of this research is that scale-type questionnaires might not be the best methodology to explore personal experiences of gardening. Additionally, participants' responses might have been biased by the researcher's explanation to them that she was searching for "gardening benefits."

Methodology

There are few studies that describe the phenomenon of gardening from the gardener's perspective. As clarification of the concept of gardening is critical to establishing a theoretical foundation on which to base gardening as an intervention, this study was designed to explore and describe the process and content of the lived experience of leisure gardening among older adults in a community setting.

Gardening is an individual experience between a person and his or her environment, so a phenomenological approach was used. As a qualitative methodology, phenomenology allows for a systematic inquiry into areas that involve human beings and the nature of their transactions with their environment (Munhall & Oiler, 2001). It is a holistic approach and is used to investigate subjective human phenomena and explore experience as lived by the participants within their social context. The methodology utilizes the natural setting for interactions between researcher and participant. A natural setting is free from investigational manipulation and is one which is comfortable, private, and facilitates conversation between the researcher and participant.

Phenomenology does not seek to generate theories or provide explanations of the data, but rather seeks rich description of a phenomenon through the perceptions of the participants, as free of biases and presuppositions as possible. In-depth interviews are the primary method of data collection. This allows the researcher to clarify the lived experience of gardening through current and retrospective descriptions by the participants (Polit & Beck, 2004). The goal of this methodology is to describe and understand the lived experience as it is presented by the participants. These perceptions may bring understanding to a little-studied area and allow the essence of the experience to be uncovered (Morse, 1994). Essences indicate true meaning and give common understanding to the phenomenon or experience under study.

Design and sample

After approval was received from the Human Subjects Committee at Adelphi University, a purposeful sampling method known as the snowball technique (Bogdan & Biklen, 1992) was used to obtain participants. Purposeful sampling is commonly used in phenomenological research to obtain "information-rich" participants. The selection of participants is based on their in-depth knowledge of a phenomenon and their ability to share that knowledge (Carpenter & Speziale, 2003).

Utilizing the snowball technique, information regarding the study and the need for volunteers was spread by word of mouth. Those who spread the word were advised of the participant inclusion criteria, which were adults 65 years or older who were capable of caring for themselves in their homes and who identified themselves as leisure gardeners. Flyers briefly describing the study and contact information also were distributed to potential participants. Only older adult women responded to the flyers and agreed to be participants in the study. No older men participated in the study.

Once contact was established with a potential participant, inclusion criteria were reviewed in a telephone interview. Those meeting the criteria and interested in participating were then given additional information, which included the purpose of the study. Participants were advised that all interviews would be tape-recorded to capture the entire description, and were assured that their identities would not be revealed.

Study participants were five English-speaking Caucasian women, all of whom considered themselves to be lifetime leisure gardeners. All could recall their gardening experiences and were enthusiastic about doing so. All had been retired for at least one year, were from suburban communities in New York, and maintained a home and garden on Long Island.

Participants ranged in age from 67 to 75 years, with four in their seventies and one in her late sixties. Other than mild complaints of joint stiffness, all five women considered themselves to be in good to excellent health. Three of the five women were taking one to two prescription medications on a daily basis. Two of the participants were widowed, two were divorced, and one participant was married. Three of the participants were Catholic and two were Jewish. Two of the five participants stated they did not practice their religion.

Data collection

Informed consent and demographic data, which included general questions about the participant's health, were obtained at the time of the first meeting and prior to data collection. The primary tool used for data collection was the face-to-face, in-depth, open-ended interview, since it provided the most effective way to access the lived experience of those participating.

The interviews were conducted in natural settings. One interview, lasting approximately one hour, was conducted in each participant's home. Two of the participants had brief, follow-up interviews at their homes to clarify descriptions shared during the researcher's previous meetings with them.

An interview guide (Table 1) was created for the initial interview, during which participants were asked to talk about themselves and gardening. They happily and effortlessly discussed their gardens, and the researcher rarely needed to refer to the interview guide. A tour of each participant's garden enhanced the richness of the participant's descriptions as the sensory experiences of touch, sight, sound, and smell stimulated memory and elicited stories.

Table 1: Sample Items from the Interview Guide

- Tell me about your garden.
- What is gardening like for you? What is it like to garden?
- What led you to become interested in gardening?
- What were your reasons for taking up this particular activity?
- What kind of plants do you grow?
- What are some of the difficulties associated with gardening?

Data collected also included extensive field notes that described body language, expression, and tone of voice. Participants' personal documents (e.g., letters, poems, pictures) also were collected. Field notes were used to describe observations that were not captured by audio recordings. Notes are important adjuncts during data analysis, as they "provide validation for important points made by the participants and help support emerging themes" (Carpenter & Speziale, 2003, p. 33).

Data collection stopped when data saturation was reached. Data saturation occurs when no new essences or themes emerge from the data collection and the analysis process begins to become repetitive (Polit & Beck, 2004). Therefore, a predetermined number of participants, or interviews per participant, are not possible. Data collection continues until the researcher is sure saturation has been achieved.

In this study, data quickly became repetitive in the data analysis process and saturation was reached after five participants were interviewed. According to Polit and Beck (2004), if participants are good informants who are able to reflect and communicate their experiences effectively, saturation can be achieved with a relatively small sample.

Data quality

In keeping with the phenomenological approach, biases, assumptions, and presuppositions were examined by the researcher and suspended, or bracketed, before and during data collection in an effort to describe the phenomenon as accurately and objectively as possible. This requires the researcher to be constantly aware of assumptions/biases so they do not interfere with the data collection process (Carpenter & Speziale, 2003).

Presuppositions and assumptions that the researcher needed to bracket included: "Gardening is a therapeutic activity," "Gardening is a satisfying activity," and "Gardening is an enjoyable activity." Interview tapes were transcribed by the researcher immediately after each interview to ensure accuracy and completeness of the data. Field notes were recorded immediately after each interview.

In addition, members of the researcher's dissertation committee and doctorally prepared nursing colleagues familiar with the methodology reviewed data. They made certain that caution was exercised when moving beyond the original data, that meanings were always traceable back to the original protocol (description), and that no important meanings had been omitted. Dissertation committee members and colleagues were given copies of participants' protocols and significant statements along with the formulated meanings derived from those significant statements. After a consensus was reached that formulated meanings were traceable back to the original protocols, the researcher further reduced the formulated meanings. Colleagues were again utilized to review the themes derived from the formulated meanings.

Data analysis

Data were analyzed using the descriptive, phenomenological research methodology developed by Colaizzi (1978). Initially, each participant's protocol was read to acquire a feel for the content. Significant verbatim statements from each protocol that directly pertained to the experience of gardening were then extracted and placed into the broadest possible categories to begin the organization of data.

After significant statements were identified, appropriate words were selected to express formulated meanings. Formulated meanings represent the researcher's own interpretation of meaning based upon reflection of the participants' words. Table 2 is an example of how formulated meanings were derived from the participants' significant statements. Formulated meanings were then further reduced and organized into clusters of themes. Related theme clusters were considered together and reduced until themes were no longer reducible.

Four themes and three sub-themes ultimately emerged from the data analysis. The themes were: 1) "Gardening is challenge and work;" 2) "Gardening is connection" (which included sub-themes "Connection to friends and family," "Connection to past memories and relationships," and "Connection to nature;" 3) "Gardening is continuous learning;" and 4) "Gardening is a sensory and aesthetic experience."

Table 2: Significant Statements with Formulated Meanings

(1) Patricia; (2) Gloria; (3) Peggy; (4) Blanche; (5) Anne.

Significant Statement	Formulated Meaning
I buy compost for areas that are not doing well. I think you don't have to do soil testing if you put organic stuff in it. Whatever is wrong with it will correct itself. (1)	Support nature naturally and nature will take care of itself.
I don't want to have to go back because something has died and I have to pull it out. Because I'm older I can't get down and really dig in like I used to. I can't do that because it hurts. It's getting to be too much to maintain. (2)	Gardening is becoming more physically difficult with advancing age.
The whole idea of looking back as an adult. What a wonderful idea to give city children, who really didn't know how things grow. I am amused and delighted with the idea of what they started to grow, those city kids. (3)	She enjoys reflecting back to her childhood gardening experience.
And really, I like flowers and I like learning about the different types of leaves and how they grow and what makes it a rose bush, you know, with the buds, the habit of growth. I feel like I know a little bit about that. The different faces, it really is very interesting. Painting helps me study it. (4)	Painting is how she enjoys, studies, and becomes knowledgeable about flowers.
It (the garden) was so gorgeous this spring. It was absolutely wonderful that my neighbors say [the] garden looks like a catalog picture. (5)	Her spring garden was so beautiful that neighbors noticed and complimented her.

After thorough data analysis, results were integrated into an exhaustive description of the experience of leisure gardening among older adult women in a community setting. The description incorporated the identified themes (Table 3). This narrative was mailed to each study participant, along with a cover letter thanking them for their participation and requesting validation of the narrative. Feedback was requested within two weeks and a stamped self-addressed envelope was included. Participants validated the narrative by mail, by phone, or by e-mail.

Lastly, a statement was formulated that was based on the validated exhaustive description and identified the phenomenon's essence or fundamental structure.

Table 3: Exhaustive Description

Major concepts outlined in the exhaustive description indicated that study participants:

- Believed gardening kept them mentally and physically active;
- Met challenges related to aging by enlisting assistance or altering gardening techniques;
- Perceived their efforts as satisfying and pleasurable;
- Found that gardening assisted them in maintaining connections with family, friends, and neighbors;
- Were stimulated to recall past gardening experiences as well as specific people, places, and events;
- Were aware of their partnership with nature and accepted with good humor the problems of unfavorable weather, insects, and plant disease;
- Were continually learning, solving problems, and sharing gardening knowledge with others;
- Enjoyed the beauty of their gardens, which involved the senses of sight, smell, touch, and taste; and
- Experienced a sense of accomplishment, achievement, and recognition from successfully tending their gardens and sharing the "fruits of their labors" with others.

Results

Theme 1: Gardening is challenge and work

Participants explained why they continued to garden despite multiple challenges related to aging, nature, and limited finances.

Gardening kept the participants mentally and physically active. It provided opportunities for them to experience change and meet challenges by using adaptive strategies that reflected their desires and abilities. Participants also displayed a mixture of tolerance, acceptance, perseverance, and humor, particularly in situations over which they had no control.

In an effort to continue gardening, participants tried "mulching more," "letting things spread naturally," and "container gardening." Although

some participants had decreased or changed their overall gardening efforts, they never discussed a time when they would no longer garden because of advancing age. Instead, participants adapted their gardening routines and continued to enjoy the gardening experience.

Anne, one of the participants, stated, "With vegetables, you have to be out there weeding. I said this year, not too much. Now I'm back to just perennial flowers and a few annuals. This is enough weeding to do."

Gloria explained why she has included more perennials in her garden: "Because I'm older I can't get down and really dig in like I used to. I can't do that because it hurts. It (the garden) gets to be too much to maintain."

The participants' ability to continue gardening and adapt to changing circumstances reflected the resilient and hardy nature of these women. Resiliency and hardiness are elements related to successful aging (Felten & Hall, 2001; Hamel-Bissel & Laferriere, 1994; Kobasa, 1979). The concept of successful aging, as opposed to normal aging, is that aging is not necessarily associated with disability (Merck, 2000). The development of certain modifiable physical and personality traits may assist in an aging process and protect older adults from the deleterious effects of aging (Wilson et al., 2004). These findings have implications that are applicable to the functional status objectives outlined in Healthy People 2010.

Theme 2: Gardening is connection

This theme encompassed three sub-themes: "Connection to friends and family," "Connection to past memories and relationships," and "Connection to nature." Through their gardening activities, participants had opportunities to develop what they described as meaningful, satisfying, and supportive relationships with themselves, with others, and with nature. Gardening provided opportunities for socialization.

Participants took pride in their gardening and enjoyed sharing their gardens with others. As Blanche described, "people stopped on the street to admire my garden, my neighbors said 'your garden looks like a catalog picture.'"

Gardening also provided opportunities to continue family traditions, inspire curiosity, and express affection for others. Anne developed a special relationship with the neighbor's three-year-old child through sharing her gardening knowledge and passing on her awareness of nature: "I showed her (the child) the flowers every time to make her aware. I try to instill what I grew up with. It's a good feeling. It's so far removed from the ugliness of the world."

Past life review can provide a way of connecting and integrating past life experiences with the present and future, deriving new meaning and satisfaction (Loving & Pacucci, 1997). This ability to self-transcend is an essential developmental task for older adults who must understand and accept their life histories. It allows increased spiritual growth and is associated with psychological well-being toward the end of life (Eliopoulos, 2001; Reed, 1992). The participants' gardens provided reminders of the past and of loved ones who had died. Gloria had irises in her garden that once belonged to her mother:

They were plants passed on to me by my mother. She had the irises for about 30 years. I have had them for about 30 years also. It encourages me to do the same with my daughter. It's like perpetuating oneself and brings back cherished memories.

For the women in this study, the lived experience of gardening enabled them to weave a web of interpersonal, intrapersonal, and transpersonal connections. As expressed by them, these relationships promoted wholeness, integration, peace, balance, and meaningfulness in their lives.

Participants were aware of their partnership with nature and described their relationship with their gardens as an “evolutionary” and “co-creative process” that involved caring, committed, mutual, and intimate connections. Gloria expressed very passionate feelings about her plants: “I love my roses. I take good care of them. Five years from now they are going to be bursting.” Patricia described gardening as “a private thing for me. When I come home, my garden hugs me.”

The garden was a space in which participants had the comfort and freedom to experiment collaboratively with nature. According to Patricia, if you support the garden naturally, nature will take care of itself. “I sort of go with the flow,” she said. “I buy compost for areas that are not doing well. Whatever is wrong will correct itself.” These connections were the context for the participants’ continued psychological growth and provided supportive social systems. Supportive social systems, hardiness, and resiliency comprise a constellation of personality characteristics identified with successful aging (Hamel-Bissel & Laferriere, 1994).

Theme 3: Gardening is continuous learning

Participants continued to inform and enrich their gardening experience through a variety of methods, including reading, taking courses, sharing knowledge with others, television, and radio. Gardening provided a lifelong context, not only for development and maintenance of basic cognitive functioning, but also for continued intellectual stimulation and growth.

Although Peggy had been scaling back her gardening activities, she said, “I am still interested in trying new stuff. Like this Gavola, it’s an annual. That was something new that I found out about. I tried that. Isn’t that nice?”

Besides providing opportunities for mental stimulation by increasing knowledge, gardening helped participants self-transcend through creative endeavors, such as cooking, poetry

writing, and crafts that allowed self-expression. Blanche spoke about her study of plants through the medium of painting: “I like flowers and like learning about the different types of leaves and the habit of growth. It’s really very interesting. Painting helps me study it.”

According to Walton (1996), older adults who have an opportunity for self-transcendence through creative endeavors have a positive outlook on life and greater spiritual development. Maintaining mental stimulation, having a positive attitude, and developing spiritually are associated with successful aging and are important developmental tasks for this age group (Fillit et al., 2002).

Theme 4: Gardening is a sensory and aesthetic experience

This theme emerged as participants described experiences ranging from stimulation of the senses to those of a spiritual nature as they watched their garden bloom and grow year to year.

Anne described watching her garden grow as “joyful” and “peaceful.” Gloria’s experience was a “religious” one. In fact, she gardened because “the beauty of God’s creation” made her “awestruck” and “joyful”: “All the variation of color and flowers make one tranquil. It ranks right up there with a magnificent sunset and the flow of water.”

Some plants’ scents and tastes brought back special memories to the participants. Satisfaction was derived from the aesthetic and sensory elements of their gardens, as well as from the variety and change the garden provided. Gloria said, “I only put in those roses that keep blooming. And I love the fragrance.” Anne “likes things so that you have in bloom...the crocus, then the hyacinth, then the tulips, and then come lots of lilies of the valley, then I have peonies and lots of iris.”

The ability to appreciate something aesthetically pleasing provides an adaptation

mechanism whereby an individual is able to endure stressful situations (Piek, 1998). Perhaps the participants in this study used gardening to transcend and endure stressful situations in their lives. If this is so, then the ability to utilize gardening as an adaptive mechanism may be one reason why these women displayed hardy and resilient personality traits.

In summary, the participants’ lived experience was that gardening consisted of multi-faceted, harmonious, and spiritual interconnections to self, others, and the environment. Because of these complex and intricate relationships, gardening helped meet the developmental needs of the participants, allowing them to integrate and transcend experiences, while finding meaning and satisfaction in life. These older women gardeners displayed the traits that characterize successful and healthy aging through their gardening experiences, including resiliency, hardiness, adaptability, creativity, self-transcendence, and a positive outlook on life. They also participated in cognitively stimulating activities such as gardening and developed supportive social systems.

Discussion

Metaphors are a way of transferring an understanding of something complex (Younger, 1990). To understand the meaning of the experience of leisure gardening among this sample of well older women, the metaphor of a spider and its web describes the connected and creative nature of the experience.

With gardening as the center of the web, these older women wove healthy relationships and connections with various aspects of their past and present lives, including relationships with themselves, nature, family and friends. It was how they stayed connected to meaningful work and the development of new knowledge. The women and their gardens were mutually supportive, providing for the growth of both.

For the women in this study, the lived experience of gardening enabled them to weave a web of interpersonal, intrapersonal, and transpersonal connections. As expressed by them, these relationships promoted wholeness, integration, peace, balance, and meaningfulness in their lives.

Implications for nursing practice

This study identified elements that characterize the phenomenon of leisure gardening in a small group of well older women. For the participants in this study, gardening appeared to support the process of successful aging. Themes from the study, which are consistent with the literature on gardening as a leisure pursuit, suggest that gardening may have beneficial effects in older women.

Participants said gardening experiences stimulated their cognitive and sensory processes. Sensory stimulation has been associated with improved cognitive and adaptive functioning and, perceptions of life satisfaction (Burgess, 1990; Komisaruk & Whipple, 1998). Gardening also stimulates memories through involvement of the senses, making it useful in the life review process, particularly among geriatric populations (Loving & Pacucci, 1997).

Creative health-promoting activities are gaining recognition as legitimate strategies to improve and maintain healthy states. Health promotion activities address relatively healthy populations and require participation from the group or individual (King, 1994). For the participants in this study, gardening became a self-perpetuating activity because it was a satisfying experience. This offers nurses a health promotion strategy to use with older women with the potential for compliance over extended periods of time.

Spiritual well-being plays an important role in the maintenance of health (Walton, 1996). According to Dossey et al. (2000), spiritual

care is an integral aspect of nursing practice. Study participants identified gardening as a way to connect with past experiences and nature. Gardening may be an activity nurses can use to assist older women to meet developmental tasks associated with aging, which include the ability to self-transcend in order to integrate life experiences and find meaning.

Limitations

One limitation of phenomenological research is that the study sample is small and purposeful, as in this case. The results of this study were meant to describe the lived experience of a specific group of women who pursued leisure gardening activities. The participants were relatively homogeneous and may be representative of only a small portion of the gardening population.

If gardening has health-promoting effects and facilitates empowerment through control of complex stimuli in the environment, it may be an appropriate activity for older women in any setting. To more fully understand the experience of gardening and its beneficial outcomes, studies must be pursued across broader older adult populations who enjoy gardening as a leisure pursuit, and with special populations (i.e., institutionalized older adults) where gardening may already be used as a therapeutic modality.

Theory development as a basis for practice is one of the goals of nursing. A sound theoretical base of knowledge is essential if nurses are to assess, plan, implement, and evaluate adequately. Nurses need to explore new and creative strategies for health promotion, such as gardening; and use a framework that guides their actions. As the role of nurses in health promotion broadens, nursing theory needs to be developed that will clarify concepts related to supporting the growth and development of older adults.

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Revolutionizing Prenatal Care: New Evidence-Based Prenatal Care Delivery Models

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Abstract

Much of prenatal care is based on tradition and expert opinion rather than on sound scientific evidence. With the increased emphasis on providing evidence-based prenatal care, new research-based models are emerging. This article describes two new models of prenatal care delivery and the evidence supporting them. A model of reduced-frequency prenatal visits is adapted from the U.S. Department of Health and Human Services (HHS) Expert Panel on Prenatal Care (1989) recommendations that healthy, pregnant women who are at low risk for pregnancy complications may attend fewer visits without negative consequences. Another emerging model of group prenatal care, CenteringPregnancy, integrates group support with prenatal care. It is important that healthcare providers are aware of these models in order to offer the highest quality, evidence-based care to pregnant women.

Modern technological advances give prenatal care providers a greater repertoire of treatment modalities. Despite these notable advances, however, the majority of pregnant women who are at low risk for pregnancy complications do not need the same level of high-intervention care received by women with such complications.

Research has demonstrated that pregnant women who are seen more frequently by healthcare professionals may, in fact, receive more unnecessary interventions with no improvement in perinatal outcomes (Berglun & Lindmark, 1997; Munjanja, Lindmark, & Nystrom, 1996).

The model of prenatal care most commonly used in the United States today was first developed over 100 years ago and is focused on early identification of symptoms of

preeclampsia. Before this model was developed, pregnancy care occurred mainly in communities where cultural tradition played an important role.

It is questionable whether highly technical care, with an increased number of interventions, meets the needs of most pregnant women today. A balance should be sought between science and technology and the psychosocial, cultural, and personal needs of women, based on the best available scientific evidence.

Today's traditional prenatal care delivery model lacks sound scientific basis and may no longer be appropriate for meeting national health objectives and the needs of diverse populations of healthy pregnant women. A growing body of evidence demonstrates that prenatal care can be safely delivered using

models that involve a reduced number of prenatal visits and group prenatal care.

Reduced-frequency prenatal care

The majority of U.S. women follow a model of prenatal care based on American Academy of Pediatrics and American College of Obstetricians and Gynecologists (2003) guidelines. These recommend that a woman with an uncomplicated pregnancy should be examined approximately every four weeks for the first 28 weeks of pregnancy, every two to three weeks until 36 weeks of gestation, and weekly thereafter, although flexibility is desirable.

In 1986 the U.S. Public Health Service's Low Birthweight Prevention Work Group convened

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an expert panel to scientifically and systematically review the content of prenatal care, its effectiveness in promoting the health and well-being of women, and effective and efficient approaches for enhancing maternal, infant, and family outcomes.

Review of the literature by panel members revealed that the most common model of prenatal care lacked a sound scientific basis (U.S. Public Health Service, 1989). The panel concluded that the specific content and timing of prenatal visits, contacts, and education should vary, depending on the risk status of the pregnant woman and her fetus.

The panel indicated that prenatal care visits could be stressful for some pregnant women and recommended fewer visits for women at low risk for complications. The recommendation was based on the assumption that high-quality care would be offered, that prenatal care providers would be easily accessible to women if they had questions or problems, and that clients would continue to be screened for changing risk status throughout their pregnancies.

A recommended schedule of fewer prenatal visits evolved from both the scientific evidence and expert clinical judgment. It proposed a schedule of approximately nine visits for nulliparous women and seven visits for parous women, almost half the number of the 14 to 16 visits most women attend in traditional prenatal care (USPHS, 1989). Table 1 presents one version of a reduced-frequency visit model that was followed by women in the study reported by Walker and Koniak-Griffin (1997).

Table 1 Visit Schedule

Reduced Frequency Visits Model (Walker & Koniak-Griffin, 1997).	Traditional Model
Visit (weeks gestation)	Visit (weeks gestation)
6-8	6-8
15 -19	10-12
24-28	14-16
32	18-20
36	22-24
38	26-28
39	30
40	32
	34
	36
	37
	38
	39
	40

Several randomized, controlled trials have investigated the effect of a reduced-frequency visit schedule on perinatal and psychosocial outcomes in the 15 years since the expert panel report was published.

Binstock and Wolde-Tsadik's (1995) prospective, quasi-experimental study in a health maintenance organization (HMO) setting with 549 low-risk women demonstrated no significant differences in perinatal health outcomes between the 13-visit control group and the eight-visit

intervention group. Women in the intervention group reported a higher level of satisfaction with their prenatal care.

McDuffie and colleagues (1996) conducted a prospective, randomized trial with 2,764 women, also in an HMO setting. Findings from this trial indicated no significant differences in maternal or neonatal outcomes between the nine-visit intervention group and the 14-visit control group.

Walker and Koniak-Griffin (1997) conducted a prospective, randomized trial with predominantly Hispanic women who were Medicaid recipients attending a free-standing birthing center ($N=81$). Results demonstrated no significant differences between the eight-visit intervention group and the 14-visit control group in terms of perinatal and neonatal outcomes. Women in the reduced-visit group reported significantly higher levels of satisfaction with the prenatal care provider and the prenatal care system.

Support for the reduced-frequency visit schedule is further strengthened by the systematic review of patterns of routine antenatal (prenatal) care for low-risk pregnancy conducted by Villar and colleagues (2001). In this review, the previously described U.S. studies were analyzed, along with 10 other trials involving more than 60,000 women.

The researchers found that a schedule of fewer prenatal visits was not associated with an increase in negative maternal or perinatal outcomes. The findings suggested that women from developed countries might be less satisfied with the reduced number of visits, but that they had a positive perception of the care provided by midwives and general practitioners. In addition, the clinical effectiveness of midwife/general practitioner-managed care was similar to that of obstetrician/gynecologist-led shared care (Villar et al., 2001).

For women who are healthy and at low risk for developing pregnancy complications, there is strong evidence supporting a reduction in the number of prenatal visits from the traditional visit schedule. Despite this evidence, adoption of this model by healthcare providers has been slow.

Several studies have examined attitudes toward the reduced-frequency prenatal visit schedule. Sikorski and colleagues (1995) surveyed 600 British midwives, obstetricians, and general practitioners, finding that most (63.8%) supported the reduction in the number of prenatal visits. Midwives were most supportive of changes in the organization of prenatal care.

Sanders (1999) and a team of investigators conducted focus-group sessions with midwives in Great Britain following a clinical trial evaluating a flexible vs. traditional schedule of prenatal care visits (Jewell et al., 2000). The midwives supported the move away from the traditional schedule, but had reservations about whether women's psychosocial needs would be sufficiently addressed by a reduced frequency of visits (Sanders et al., 1999).

In a survey of U.S. nurse midwives ($N=234$), Walker and colleagues (2002) found that the majority (72%) knew of the reduced-frequency visit schedule but few (17%) used it in practice. Midwives who did use the reduced-frequency schedule reported that it had a positive impact on pregnant women's perception of empowerment and self-care ability. The midwives also perceived that they had more control over their practice and fewer barriers to overcome in implementing the reduced-frequency schedule (Walker et al., 2002).

Group prenatal care

Group prenatal care is another emerging model of care during pregnancy. One such model, CenteringPregnancy, has been widely used and studied. As of 2004, more than 700 midwives, nurses, physicians, educators, social workers, and administrators had been trained to use the model, which was being used at more than 50 sites in the United States and Canada (Rising, Kennedy, & Klima, 2004).

CenteringPregnancy brings together the essential components of prenatal care: risk assessment, health promotion, medical and psychosocial interventions, and follow-up (USPHS, 1989), within a group setting. Developed more than 10 years ago, the program is based on the principle that consumers should be equal partners in care, working actively with care providers to reach their goals (Rising, 1998).

The CenteringPregnancy model involves ten 90- to 120-minute sessions that begin at 12 to 16 weeks of gestation and conclude with an early postpartum meeting (Rising, 1998). Care is initiated with an individual visit that includes an intake history, physical examination, and laboratory testing. Each woman is invited to join a group of 8 to 12 other pregnant women with similar estimated delivery dates. Groups are led by certified nurse-midwives, certified midwives, nurse practitioners, or other providers skilled in group process. Women take an active role in their care by weighing themselves, taking their blood pressures, and recording information on their charts. Healthy refreshments provide a natural opportunity for women to talk informally and make meaningful connections, as community-building is an important component of this model (Rising, 1998).

Each session is divided into two formal discussion and educational periods. The prenatal health assessment, an individual time with the care provider, occurs during the first 15 to 20 minutes and concludes during the mid-session break. It occurs away from the group on a floor mat, a table, or a reclining chair. This period gives each woman an opportunity to share particular concerns with the provider, to review her progress, to have the fundus measured and fetal position assessed, and to listen to the fetal heart tones (Rising, 1998).

Group prenatal visits are supported by a growing body of knowledge. Hoyer and colleagues (1994) conducted a prospective, experimental pilot study ($N=65$) of pregnant adolescents in an experimental group attending group prenatal care vs. those in a control group attending traditional prenatal care. The researchers reported no differences in self-concept or perinatal outcomes between the groups. The experimental group showed significant difference, however, in increased compliance with prenatal care visits, increased sense of mastery of the labor and delivery experience, reduced self-criticism, and reduced repeat pregnancy rate, as compared to the control group.

In piloting the CenteringPregnancy model, Rising (1998) conducted a descriptive study that involved ethnically diverse, primarily Medicaid-

eligible women ranging in age from adolescent to over thirty ($N=111$). At the study's conclusion, 96% of the women who received group prenatal care said they preferred it. Prenatal visit attendance was at least as good as for traditional care, with the teen groups averaging 92% attendance. The women were significantly less likely to visit the emergency room in the third trimester and there were no significant differences found in perinatal outcomes when compared to a control group that received traditional care (Rising, 1998).

Ickovics and colleagues (2003) evaluated CenteringPregnancy group care vs. traditional care in a prospective, matched-cohort study. Participants were primarily African-American and Hispanic women ($N=458$) of low socioeconomic status who received care at three public clinics. Participants were matched by clinic, age, race, parity, and infant birth date. Those who attended group care had higher-birth-weight babies, even among those who delivered preterm, than those who received traditional care. No significant differences were found between the two groups in the number of prenatal visits or risk characteristics such as patient age, race, or prior preterm birth.

Grady and Bloom (2004) collected data on satisfaction, health visit attendance, and perinatal outcomes (incidence of low birthweight, preterm delivery rate, breastfeeding rate, and identification of a pediatric provider) among 13 groups of adolescents ($N=124$) attending group prenatal care visits at a teen pregnancy center. They compared these data with perinatal outcomes of adolescents who received traditional prenatal care at the same hospital from 1998 and 2001. The CenteringPregnancy attendees missed fewer appointments, had fewer preterm births and low-birthweight babies, and had increased rates of breastfeeding than adolescents in the comparison groups.

The evidence base for the group prenatal care model is growing. This model shows promise as an effective means of providing prenatal care to women at low risk for health complications.

Conclusion

The reduced-frequency visit schedule and prenatal group care have the potential to revolutionize prenatal care delivery. Evidence that supports their use is important for all healthcare professionals, ranging from students to experienced providers.

Prenatal care is no longer "one size fits all." A healthcare provider today has more opportunities to tailor care to an individual woman's needs and wishes. The CenteringPregnancy model, with its incorporation of a reduced number of prenatal visits and an enhanced level of education and support, addresses many of the concerns about the reduced-frequency model reported by healthcare providers (Sikorski et al., 1995; Sanders et al., 1999; Walker et al., 2002). However, when group prenatal visits are not appropriate or desired, the reduced-frequency model of individual visits is a viable option.

Developed more than 10 years ago, the program is based on the principle that consumers should be equal partners in care...

Any radical change in how care is delivered should take into account the IOM recommendation that care should be safe, effective, patient-centered, timely, efficient, and equitable (IOM, 2001). Care should revolve around the patient, not around the system and its needs. If women are involved in prenatal care that is respectful, starts and ends on time, and provides opportunity for education and community

building, the number of visits may be less important than the content of those visits. CenteringPregnancy is addressing each of the IOM guidelines in ways that support the needs of women as well as those of providers and agencies (Rising, Kennedy, & Klima, 2004). Future studies should evaluate the difference this makes in effective healthcare delivery.

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The Influence of Individualized Music on Patients In Physical Restraints: A Pilot Study

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Abstract

This pilot study explored the relationship between listening to preferred music and the behavioral responses of patients who are physically restrained. Thirty patients, ranging in age from 65 to 93, participated in one of three groups. The first group included patients who were out of restraining devices while listening to preferred music. Patients in the second group were out of restraining devices and not exposed to music. The third group comprised patients who were in restraining devices while listening to preferred music. Listening to preferred music had no significant effect on decreasing patients' negative behaviors or on increasing positive behaviors observed during the intervention phase of the study. The higher mean scores for positive behaviors and lower mean scores for negative behaviors for the first group may indicate some benefits to patients who are out of restraints and listening to preferred music.

There is something terribly unsettling about seeing patients tethered in restraints in an acute-care setting. But it is a sight seen far too often in hospitals.

While it is difficult to obtain the exact number of patients who are physically restrained during hospitalization, some studies report that from 6% to 17% of medical patients (Macpherson, Lofgren, Granieri, & Myllenbeck, 1990) are restrained, with a higher rate of 34% for rehabilitation patients (Mion, Frengley, Jakovcic, & Marino, 1989). Minnick and associates reported that 5.8% of hospitalized patients were restrained (Minnick, A., Mion, L., Leipzig, R., Lamb, K., & Palmer, R. (1998).

The need for surgical and medical interventions increases as the population ages. Older patients may find hospital confinement

to be threatening and generally unsettling. They may become confused and disoriented in unfamiliar settings. Older patients may fall on their way to unfamiliar bathrooms, awaken in strange environments, and respond poorly to changes in their settings.

Family members depend on hospital staff to watch their family members closely and meet their needs. A shortage of hospital staff, however, can make it more difficult for nurses to check frequently on patients. This is a common reason for putting hospital patients in restraints.

Reducing physical restraints is a goal of health care. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) developed standards for restraint use, which took effect in January 2001 (JCAHO, 2001).

One standard encourages the reduction of risks associated with restraints through innovative alternatives (JCAHO, 2001). In order to comply with the standard, hospital staff should only use restraints when there is clear risk of harm to the patient or others. Hospitals must demonstrate that restraints are used as a last resort and not for the convenience of the staff (Whitman, Davidson, Rudy & Sereika, 2001).

Research has demonstrated that physical restraints are not benign devices. The use of restraints has been linked to complications and deterioration in patients (Evans & Strumpf, 1989; Marks, 1992). One study demonstrated a high association between being restrained for more than four days and the development of pressure sores and nosocomial infections (Lotgren, MacPherson, Granieri, Myllenbeck,

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& Sprafka, 1989). Nurses prefer to use alternatives to restraints in order to maintain the dignity of patients while protecting them from injury.

Background

Music has been used for centuries as a therapeutic tool. During World War II, music was used to draw the mind away from delusions and morbid emotions (Rollin, 1998). Interest in music therapy has increased in recent years, which is a reflection of society's interest in alternative or complementary therapies in health care. The goal of music therapy is the reduction of psychophysiological stress, pain, anxiety, and isolation (Guzzetta, 1991).

Physiological responses to music have been well documented. Music has been shown to positively affect pulse rate, blood pressure, breathing, and electro-encephalograph (EEG) activity (Kneafsey, 1997). In addition, music can reduce stress hormones and increase beta-endorphin, which acts as a protection mechanism against emotional excitation (Spingte, 1991).

Blood and Zatorre (2001) found that listening to music can alter how the brain functions. The subjects in the study were given positron emission tomography (PET) scans as they listened to four types of audio stimuli – selected music, other music, general noise, or silence. The researchers found that melodies could stimulate the same parts of the brain as did food and sex. They acknowledged that reaction to music was highly individualized, so that some people may respond to rock and roll while others are affected by classical music.

While music has been effectively used to reduce anxiety and enhance relaxation, the evidence has been varied. Metzler and Berman (1991) noted that when a patient's attention is diverted by music from an invasive procedure, the patient often feels less anxious and experiences less distress. Another group of researchers found that receptive music listening was subjectively helpful in alleviating anxiety in a group of cancer patients receiving chemotherapy (Weber, Nuessler, & Wilmanns, 1996).

Gerdner (2000) demonstrated the use of both classical and individualized music to reduce agitation in nursing home residents. Hamel (2001) used music therapy on patients undergoing a cardiac catheterization procedure. The results of this study demonstrated music's ability to decrease anxiety in patient's waiting for catheterization. Along with a decrease in anxiety level, there also was a reduction in heart rate and blood pressure after the music intervention.

A study by Remington (2002) was conducted on nursing home residents who had dementia and exhibited agitated behaviors. The results of this study also indicated that calming music and hand massage reduced agitation.

A different result was obtained by Bally, Campbell, Chesnick, and Tranmer (2003), who studied the effectiveness of music therapy in

decreasing anxiety and pain in patients undergoing coronary angiographic procedures. They found no significant differences in anxiety, pain, heart rate, or blood pressure in the patients who participated in the music therapy intervention. Their findings may be related to the invasive nature of angiography and to the fact they did not seek cognitive outcomes in the use of music.

Campbell's (1997) data showed that music complemented the healing process and reduced the stress of an illness. He suggested that music: 1) masks unpleasant sounds and feelings; 2) can slow down and equalize brain waves; 3) affects respiration; 4) affects heartbeat, pulse rate, and blood pressure; 5) reduces muscle tension and improves body movement; 6) affects body temperature; 7) can increase endorphin levels; 8) can regulate stress-related hormones; 9) can boost the immune function; and (10) changes one's perception of space.

In previous research, Janelli and Kanski (1997) used preferred music with 30 hospitalized restrained patients. As in the current study, preferred music was defined as individual music that had been integrated into the patient's life and was based on personal preferences. The results demonstrated that the number of positive behaviors increased significantly during the music-listening period, during which patients were not restrained, as compared to their typical restrained status. The positive observed behaviors included smiling, nodding, and humming in contrast to

negative observed behaviors such as crying, squirming, and grimacing.

In another pilot study, Janelli, Kanski, and Wu, (2002) used preferred music with 40 medical and surgical patients. The experimental group received music and the control group had no music while they were out of restraints. The 20 patients who listened to preferred music had more positive behaviors while out of restraints than the patients who were out of restraints but not exposed to music.

It is important to continue to explore the effect of music on restrained patients and to examine music as a possible alternative to restraints. The purpose of this pilot study was to further explore the relationship between listening to preferred music and the behavioral responses of patients who were physically restrained. A restraint was defined, for this study, as any method of involuntary, physical restriction of a person's freedom of movement, physical activity, or normal access to his or her own body.

Method

The pilot study was designed to explore the profiles of behavior in response to three experimental interventions. Physically restrained patients were randomly assigned to one of the following intervention groups ($n=10$): Group A – out of restraining devices while listening to preferred music; Group B – out of restraining devices with no exposure to music; or Group C – in restraining devices while listening to preferred music.

Nurses prefer to use
alternatives to restraints
in order to maintain
the dignity of patients
while protecting
them from injury.

Descriptive statistics (means, standard deviations, percentages) were tabulated for categorical variables. A one-way analysis of variance (ANOVA) was used to determine if there were any significant differences among the three groups on continuous variables. Then paired t-tests were completed to determine if there were any differences in the mean behaviors during pre-intervention, intervention, and post-intervention periods. The level of significance was set at 0.5.

Ratios of the total number of positive and negative behaviors were obtained for the pre-intervention, intervention, and post-intervention phases.

Instruments

An 18-item patient profile instrument was developed by the investigators and was used to collect demographic data such as age, length of hospital stay, type of restraint used, and type of music preferred. The Restraint-Music Response Instrument (RMRI), a 40-item behavior rating scale, also developed by the investigators, was used to record data during the observation periods. The RMRI (Fig. 1) consists of 22 positive behaviors and 18 negative behaviors.

In a previous pilot study (Janelli et al., 2002), interrater reliability for the RMRI was established at 98% of agreement level. Content validity was established through expert review of the instrument. An interrater reliability

of 90% agreement was established between the primary investigator and the nurse who collected all intervention data using the RMRI. The clinical nurse was trained in the use of the RMRI. The behavior needed to occur only once during each observation period for it to be documented.

Procedure

After approval by the hospital's Institutional Review Board, informed consent was obtained in writing from patients or from the responsible persons listed on the medical records. As each patient agreed to participate, she or he was assigned to Group A, B, or C: the first patient recruited was placed in Group A, the second patient in Group B, the third patient in Group C, and so on. A clinical nurse was trained by the investigators to perform the interventions on all patients. Another nurse obtained consents and completed the patient profiles.

Participants were recruited from a large tertiary care facility in upstate New York. For inclusion in the study, patients had to be: a) 55 years of age or more, b) on a medical-surgical unit, c) able to hear, and d) in a restraining device during the data collection period.

All patients were observed for 15 minutes during the pre-intervention phase and their behaviors were recorded on the Restraint Music Response Instrument (RMRI).

Figure 1: Restraint-Music Response Instrument (RMRI)

Level of Consciousness			Position of Patient		
	Alert	Unresponsive	Unsure	_____ Bed	_____ Lying Flat
Person	_____	_____	_____	_____ Sitting Up	
Place	_____	_____	_____	_____ Chair	_____ Slumped
Time	_____	_____	_____	_____ Sitting up	
Verbalizations					
_____ Crying (-)			_____ No verbalizations (-)		_____ Swearing (-)
_____ Echolalia (repeating) (-)			_____ Screaming (-)		_____ Whispering (-)
_____ Humming (+)			_____ Meaningful Sentences		_____ Whistling (+)
_____ Initiating conversation (+)			_____ Sighing (-)		_____ Words only (+)
_____ Laughing (+)			_____ Singing (+)		_____ Yawning (+)
_____ Moaning (-)			_____ Snoring (+)		_____ Yelling (-)
Non-Verbalizations					
_____ Avoiding eye contact (-)			_____ Making eye contact (+)		_____ Smiling (+)
_____ Body swaying (+)			_____ No body movement (+)		_____ Snapping fingers (+)
_____ Clapping hands (+)			_____ Nodding head up & down (+)		_____ Squirming (-)
_____ Clenching jaw (-)			_____ Picking/Pulling (-)		_____ Stern look (-)
_____ Closing eyes (+)			_____ Raising eyebrows (-)		_____ Tapping feet (+)
_____ Extremities relaxed (+)			_____ Scratching (-)		_____ Tapping hands/fingers (+)
_____ Frowning (-)			_____ Slacked/relaxed jaw (+)		_____ Uncooperative (-)
_____ Looking around (+)					
Observations or Comments:					
Start time: _____			Stop time: _____		
Investigator: _____			Score Ratio +/-: _____		

Table 1: Characteristics of the Participants (N=30)

Characteristic	Number	%
Age		
<70 years	5	16.6
>70 years	25	83.4
Gender		
Female	18	60.0
Male	12	40.0
Race		
Caucasian	20	66.7
African American	10	33.3
Hospital Service		
Medical	25	83.4
Surgical	5	16.6
Ambulatory Status		
Able to ambulate with assistance	23	76.7
Bedridden	7	23.3
Type of Restraint		
Vest/Posey	24	80.0
Wrist	5	16.7
Mitts	1	3.3
Length of Stay		
<25 days	22	73.6
>25 days	8	26.4
Music Selected		
Big Band	8	40.0
Gospel	4	20.0
Polka	4	20.0
New Age	3	15.0
Country-Western	1	5.0

During the intervention phase, Group A and Group C listened to preferred musical tapes for 30 minutes. The possible preferred musical selections included big band, classical, jazz, gospel, new age, country and western, popular, marches, instrumental, polka, and Broadway tunes. Music was delivered through a cushioned headset attached to a cassette, with the patient controlling the volume.

Patients in Group A had their restraints removed for 30 minutes while they listened to their preferred music. After the intervention, the restraint devices were put back in place and the nurse observed behaviors for 30 minutes using the RMRI. The 30-minute post-intervention time period was selected to determine whether behaviors persisted after the intervention.

Patients assigned to Group B had their restraints removed while they were observed for 30 minutes using the RMRI. No conversation was

encouraged during this period by the data collector. After the time period had elapsed, restraints were put back in place and the RMRI was completed for the 30-minute post-intervention period.

Patients assigned to Group C listened to their preferred music selections while in their restraints. After the time elapsed for the music intervention, patients were observed for 30 minutes in their restraints without music.

All the interventions were conducted in the patients' rooms with patients either in bed or a bedside chair. Interventions were scheduled for a time of day when there would be no interference from meals or routine care. The intervention was completed only once for each patient, with each observation lasting a minimum of 75 minutes.

Results

The major characteristics of the sample are presented in Table 1. The mean age of the 30 participants was 78.9 years (range= 65 to 93 years) ($SD=9.4$). Sixty percent of the patients were women ($n=18$), 66.7% were Caucasian ($n=20$), and 83.3% were on a medical unit ($n=25$). The primary diagnoses of the participants were cardiac, respiratory, hemotologic, and neurological disorders. Length of stay in the hospital ranged from 2 to 51 days.

Statistical analysis showed no significant differences among the three groups based on age, length of stay, race, or gender, which are not continuous variables. Participants in intervention Groups A and C selected a variety of music, with the predominant selections being big band, gospel and polka music.

Both at baseline and during the intervention and post-intervention phases, no significant differences were apparent among group means in positive behaviors displayed by patients (Table 2, page 26). No significant differences were found among the group means in the negative behaviors displayed by patients (Table 3, page 26) during the three phases of the study.

Although significant differences were not found in the selected outcome measures, the mean score of positive behaviors during the intervention was higher for Group A (7.20) than for either Group B (4.40) or Group C (4.20). The mean score of negative behaviors displayed by Group A (0.80) also was lower during the intervention than the means scores for Group B (1.22) or C (1.60).

Discussion

The purpose of this pilot study was to explore the relationship between listening to preferred music and the behavioral responses of patients who were physically restrained.

Results indicated that listening to preferred music had no significant effect on the number of positive or negative behaviors displayed by patients, as measured in this study.

The higher mean scores for positive behaviors and lower mean scores for negative behaviors for Group A may indicate some benefits to patients who are out of restraints and listening to preferred music.

Table 2: Comparison of mean positive behaviors during pre-intervention, intervention, and post-intervention phases (N = 30)

Means (SD)			
Group	Pre-Intervention	Intervention	Post-Intervention
Group A (n = 10)	3.90 (3.47)	7.20 (4.82)	5.10 (1.91)
Group B (n = 10)	4.40 (2.67)	4.40 (2.45)	4.50 (2.63)
Group C (n = 10)	2.60 (4.24)	4.20 (4.04)	2.30 (3.52)
Note:	Group A out of restraints with music Group B out of restraints with no music Group C in restraints with music		

Table 3: Comparison of mean negative behaviors during pre-intervention, intervention, and post-intervention phases (N = 30)

Means (SD)			
Group	Pre-Intervention	Intervention	Post-Intervention
Group A (n = 10)	1.40 (1.64)	0.80 (0.78)	1.10 (0.87)
Group B (n = 30)	0.90 (1.37)	1.20 (1.22)	1.30 (1.33)
Group C (n = 10)	1.40 (1.64)	1.60 (1.57)	1.90 (1.44)
Note:	Group A out of restraints with music Group B out of restraints with no music Group C in restraints with music		

Limitations

A major limitation of the study was the small sample size of 10 patients in each study group. Because of the small sample, the study lacked power. Replication of the study using a larger sample may achieve significance.

In addition, the clinical nurse who collected the observation data was not blinded to the group assignment, which could have created a potential bias in favor of the two groups receiving the music intervention. The RMRI also may not have been sensitive enough to detect all positive and negative behaviors because it relies on subjective scoring by an observer.

The intervention was conducted only once for each patient enrolled in the study. Patients might have responded differently if the intervention had been offered a second time. Lastly, the presence of the clinical nurse during the intervention phase could have lead to a Hawthorne effect.

Implications and recommendations

On the basis of this pilot study, the researchers cannot conclude that the music was the key factor in the behavior of patients in restraints. Being restrained, however, can lead to increased anxiety, stress, and confusion in the older patient. Listening to music may help to mediate those responses by causing distraction.

As physical restraints should be used only as a last resort, with alternatives being attempted first, listening to preferred music seems to be an appropriate supportive nursing intervention. Nurses caring for hospitalized older adults in restraints, for example, could determine the patient’s past association with music and then ask family members to bring in tapes or CDs of preferred music to be used when family cannot be present.

The authors recommend that research should continue to explore the effectiveness of music in enhancing positive behaviors and decreasing negative behaviors in physically restrained patients. Future studies should not only include a larger sample, but also include a group of patients who are observed in restraints without exposure to the music intervention.

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Strategies for Advancing Evidence-Based Practice in Clinical Settings

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Abstract

Evidence-based practice (EBP) is a problem-solving approach that incorporates the best available scientific evidence, clinicians' expertise, and patients' preferences and values. Melnyk and Fineout-Overholt have developed the ARCC (Advancing Research and Clinical practice through close Collaboration) model for the purpose of implementing EBP. A pilot study was conducted to test the ARCC model at two acute-care sites. This article shares information learned from the pilot study about what is necessary for successful implementation of EBP in the acute-care setting. These essentials include identifying EBP champions, redefining nurses' roles to include EBP activities, allocating time and money to the EBP process, and creating an organizational culture that fosters EBP. In addition, practical strategies for implementing EBP are presented to encourage implementation of EBP.

Evidence-based practice (EBP) is a problem-solving approach that incorporates the best available scientific evidence, clinicians' expertise, and patients' preferences and values (Melnyk & Fineout-Overholt, 2004). In two quality-related reports, the Institute of Medicine emphasized the importance of EBP to best practice (Institute of Medicine, 2001) and to the education of healthcare professionals (Greiner & Knebel, 2003).

EBP is a recognized method for improving clinical practice and has been described as "essential for nurses to establish who they are, what they do, and what effect they have on patient outcomes" (Richardson, Miller, & Potter,

2002, p. 44). Evidence-based practice also has been shown to improve the cost-effectiveness of patient care (Kitson, 2000; Madigan, 1998; Rosenfeld, Duthie, Bier, Bower-Ferres, Fulmer, Iervolino et al., 2000; Selig, 2000; Winch, Creedy, & Chaboyer, 2002).

Although these studies have identified significantly better patient outcomes when care is based on research, healthcare institutions have been slow to implement EBP (Ciliska et al., 1996; Majanian et al., 2002; Retsas, 2000). In recent years, partially due to accreditation requirements from regulatory agencies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and a desire for Magnet

Recognition from the American Nurses Credentialing Center (ANCC), healthcare organizations have begun to implement principles of EBP into performance appraisals and institutional policies. It remains to be demonstrated whether mandates and policies that reflect EBP will be translated into practice.

In New York state and across the country, opportunities for continuing education in EBP are increasing, furthering clinicians' knowledge of the process (Melnyk & Fineout-Overholt, 2002). Despite these opportunities and the apparent adoption of EBP from a system perspective, there remains a pervasive culture of practice based on tradition.

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Barriers to implementing EBP

Researchers have demonstrated that barriers to implementing EBP in acute-care environments include a lack of knowledge of the EBP process, a deficiency of critical appraisal skills to evaluate research, and a lack of administrative support for EBP endeavors (Champion & Leach, 1989; Kajermo, Nordstrom, Krusebrant, & Bjorvell, 1998; McCaughan, Thompson, Cullum, Sheldon, & Thompson, 2002; Melnyk & Fineout-Overholt, 2002; Parahoo, 2000; Retsas & Nolan, 1999).

Through surveys of nurses, Melnyk and her colleagues found that mentoring was perceived as essential to successfully implementing EBP principles (Melnyk, Fineout-Overholt, Feinstein, Li, Small, Wilcox, et al., 2004). The ARCC (**A**dvancing **R**esearch and **C**linical practice through close **C**ollaboration) model was created as a mechanism to implement and test the role of the “EBP mentor” and to define other factors that contribute to best practice (Melnyk & Fineout-Overholt, 2002).

The ARCC model for Implementing EBP in clinical settings

The ARCC model was developed by Bernadette Melnyk as part of a strategic planning initiative involving faculty from the University of Rochester (N.Y.) School of Nursing and School of Medicine & Dentistry, nurses from an academic health center, and community leaders (Melnyk & Fineout-Overholt, 2002). As Director of the Center for Research, Melnyk extended the focus of the center to include leadership in advancing EBP and renamed it the Center for Research and Evidence-Based Practice (CREP). The School of Nursing and the nursing practice department at the University of Rochester Medical Center jointly supported a CREP position of Acute-Care Associate Director for EBP.

The primary goal of the ARCC model was to enhance integration of research and clinical practice in acute-care and community healthcare settings, both locally and nationally. Nurses surveyed by the ARCC team identified several major factors that influenced their ability to base their practice on evidence, including access to expertise; presence of mentors in EBP; assistance with outcomes management; and assistance with scholarly work (Melnyk & Fineout-Overholt, 2002).

Nurses identified mentorship as a key ingredient to successfully implementing EBP. The ARCC team created and described the role of the “EBP mentor,” which is a key concept in the ARCC model. In addition, resources, the development of efficient computer search strategies, and time to conduct EBP activities were identified as influential to implementation of evidence-based care. In contrast, perceived major barriers to successful implementation of EBP included heavy patient care demands and administrative responsibilities.

The primary goal of the ARCC model was to enhance integration of research and clinical practice in acute-care and community healthcare settings, both locally and nationally.

Specific goals for the ARCC model were established: a) promoting EBP among both advanced practice and staff nurses, locally and nationally; b) establishing a cadre of EBP mentors to facilitate EBP; c) disseminating the best evidence from well-designed studies to advance an evidence-based approach to clinical care; d) conducting an annual EBP conference; and e) conducting studies to evaluate the effectiveness of the ARCC model on the process and outcomes of clinical care (Melnyk & Fineout-Overholt, 2004).

Many of these goals were achieved within the first two years through activities such as: a) one-on-one mentoring for advanced practice nurses (APNs) in both acute- and primary-care settings to initiate EBP; b) partnering with community healthcare agencies to establish outcomes management projects; c) mentoring APNs in writing and submitting research grants to answer clinical questions where adequate science did not exist; d) mentoring APNs and staff nurses in disseminating evidence at regional and national professional meetings; e) disseminating the best and latest evidence that could help answer nurses’ clinical inquiries through a listserv and regularly scheduled EBP rounds; and f) educating nurses, faculty, and administrators at all levels about the EBP process by conducting local, regional, and national workshops, training sessions, conference keynotes, and plenary sessions (Greiner & Knebel, 2003).

Pilot study designed for acute-care settings

An ongoing dialogue about how to implement the ARCC model in acute-care settings resulted in collaboration among nurse researchers at the New York State Nurses Association (NYSNA), the Foundation of the New York State Nurses Association, and two universities in New York state. This collaboration led to the design of a pilot study to test the ARCC model at two pediatric units in a 700-bed tertiary care center and four adult units in a specialty surgery hospital.

The randomized, controlled trial pilot study was designed to determine whether using the ARCC model would lead to better outcomes for both nurses and patients in an acute-care setting.

The study was preceded by meetings with chief nursing officers, nurse managers, and advanced practice nurses of the participating organizations and units for the purpose of gaining their support, informing them of the purpose of the study, and outlining their roles in the project.

During the course of conducting the pilot study, many lessons were learned about what it takes to implement EBP in an acute-care environment. This article describes lessons the authors learned and outlines possible future strategies for implementing EBP in acute-care settings.

Success can be easily hampered if the entire healthcare team is not cohesive in basing decisions on evidence.

Essentials for implementing EBP in clinical settings

During the pilot study, researchers found several strategies that were successful in implementing EBP. These strategies assisted in removing barriers that had been identified in the literature.

EBP champions

Administrative support for EBP was of paramount importance to success. Champions were necessary at all levels, from administrators to staff nurses. Champions are those who believe in EBP principles, know how to integrate them into the system culture, and can mentor others in the EBP process. Champions must have adequate knowledge of EBP principles to guide the process for others (Fineout-Overholt, Cox, Robbins, & Gray, 2005). As an initial step in developing champions, EBP knowledge and skills can be gained through both formal continuing education and self-paced, on-line tutorials. Such tutorials can be found at the Web sites of the Research Centre for Transcultural Studies in Health (2005) and the University of Rochester Medical Center (2005).

During the pilot study, the units with EBP champions had more success in collecting data and implementing EBP innovations. Units with administrative champions were more successful in achieving a greater percentage of participation in the project by staff nurses.

Physicians, including residents, also were important champions and brought interdisciplinary perspective to the team that was implementing EBP. Success can be easily hampered if the entire healthcare team is not cohesive in basing decisions on evidence. The value of current evidence in dealing with a clinical issue must be demonstrated to the entire team to facilitate practice change.

Role definition

Establishing a clear role definition for professional nurses that includes EBP is important to successful EBP implementation. In clinical settings, the focus traditionally has tended to be on the service role of professional

nurses, not on scholarship or teaching. Although continuing education has gained importance, along with the teaching and mentoring of new practitioners, the idea of scholarship typically is not considered a valued, integral part of the direct-care nurse's role.

During the pilot study, nurses reported that it was difficult to participate in the EBP process because of competing priorities. They perceived that administrators' expectations did not include EBP as a priority. For example, there were times when the mentor was present on the unit but nurses were unable to meet with the mentor because patient care was all-consuming. They reported to the mentor that they often did not have time to take a lunch or dinner break. Until a scholarly form of practice becomes vital to the role of the direct-care nurse and is part of the nursing culture, most nurses will not volunteer to take on additional responsibilities that are not valued role behaviors.

Use of resources

The pilot study revealed that an adequate infrastructure must be in place for successful implementation of EBP. Computer resources, internet access, evidence databases, and time for scholarly practice were all essential to EBP. Also, without mentorship by an expert in EBP, innovations were not accomplished.

EBP mentors

If the institution has advanced practice nurses (APNs) available, they can play a vital role in implementing EBP. The clinical nurse specialist (CNS) role traditionally has been one of an "information broker," an individual with specialized knowledge and skills who brings the latest research findings to direct care staff. With additional education and skills training, a CNS role could evolve into that of EBP mentor.

The EBP mentor should spearhead and support staff nurses and APNs to create changes in care that are based on evidence. Since EBP is just beginning to be integrated into nursing education curricula, nurses who have been in practice for even one year are likely to have a knowledge deficiency, unless they have attended continuing education

conferences on EBP or are enrolled in a graduate program that subscribes to an EBP model. An EBP mentor must therefore help nurses learn the basics of EBP, work with them to develop clinical questions, find the answers, examine and apply the evidence, and evaluate outcomes.

An EBP mentor in a clinical setting must be flexible in both time and task structure. Finding time to learn about EBP and to work on a related project is often difficult, so a rigid meeting schedule will not always be effective. Often, EBP mentorship is accomplished "as you go," taking advantage of the teachable moment. To gain credibility, an EBP mentor must be physically present on the acute-care unit in order to learn about the nurses' work, make rounds with them, and establish trust.

Doctorally prepared researchers in acute-care settings provide an additional level of mentorship by implementing EBP at a system-wide level. These EBP experts mentor the EBP mentors on the units and generate evidence to guide clinical practice when evidence does not already exist.

Time and money

Nurses' workloads involve allocation of both time and money. The pilot study included an intervention designed to address the barrier created by nurses' lack of knowledge of EBP. The nurses were expected to take time to complete the intervention in a continuing education format. However, nurses often did not have time to attend to the details of the study, including this intervention. Competing priorities, such as new initiatives directed from administration or preparing for an accreditation visit, influenced the time the nurses had available.

Some units paid nurses for the time they spent to complete the intervention and these units had a greater return on data collection. It is not uncommon for healthcare organizations to pay nurses for the time they attend formal continuing education (CE) conferences. Some organizations require participation in CE activities because they are deemed essential to best practice.

Because educational activity is supported by administrators through the investment of time and money, nurses often perceive CE activities as valued by the organization. For EBP to be integrated into the clinical setting, it is essential that administrators demonstrate the value of EBP to the organization. They can do this by supplying nurses with the time to engage in EBP activities and paying them for the time they spend on an EBP project.

Successful implementation of EBP must also be based on a determination of nurses' workloads and how they can accommodate an EBP initiative. This requires consideration of the timing of interventions and cooperation with nursing leadership to ensure that nurses have adequate time to understand and implement EBP principles. The introduction of EBP principles must be carefully timed to avoid conflict with major events such as organization-wide policy changes or practice initiatives.

Creating a culture that fosters EBP

During the pilot study, some nurses reported that if changes were to be made on the acute-care units, the APN, nurse educator, or quality assurance coordinator would tell them about them and direct them on how to make them. The nurses did not readily participate in initiating change and were not involved in formulating clinical questions or finding, critiquing, and applying the evidence.

According to Thyer (2003), the bureaucratic environment in which nurses typically practice engenders a transactional leadership style that promotes task orientation and top-down decision making. It fosters an environment in which nurses perceive themselves as powerless and creative thinking is not rewarded (Bass & Avolio, 1993; Paware & Eastman, 1997).

Although many nurse administrators are trying to introduce a transformational leadership style (Bass & Avolio, 1993) into their nursing services, it is difficult to modify attitudes and behaviors that have been ingrained into the very fabric of institutional nursing practice.

The top-down culture can foster an attitude that leads to direct-care nurses' unwillingness to be engaged in the EBP process as part of their daily work. Although an institution may base nursing protocols and procedures on evidence, these policies and procedures are developed by designated committees or quality assurance teams and then implemented by direct-care nurses on the units. This perpetuates the top-down mentality that encourages passivity among staff nurses. Without a culture that fosters clinical inquiry and independent problem-solving using the EBP process, nurses will not consider integration of research findings as an inherent part of their everyday nursing practice.

The profession of nursing traditionally has considered direct, hands-on patient care to be its priority. Hands-on care may be becoming secondary, however, to the increasingly cumbersome, time-consuming demands for documentation of nursing care. The study process highlighted the urgent need for a new culture that values EBP. Without this culture shift, direct patient care tasks cannot be best practice.

The EBP process must become the standard for "thinking at the bedside." This involves identifying patient problems when they arise; asking searchable, answerable questions; discovering valid evidence to answer the questions; and working with other members of the healthcare team, including the EBP mentor, to develop, implement and evaluate innovative practices based on the best available evidence. Administrators

must convey that EBP is essential to patient care and is valued in terms of investment of the organization's time and money.

Practical strategies for implementing EBP

The pilot study revealed essential elements for the successful implementation of EBP in acute-care settings. Practice will not be evidence-based, however, unless nurses take initiative and implement EBP with these elements in mind. For that purpose, the authors suggest three practical strategies for initiating EBP: EBP rounds, critically appraised topics, and educational prescriptions.

EBP rounds

The use of EBP Rounds is an effective way to address EBP with a larger group. The technique can engage all levels of practitioners and allows them to become involved in the discussion as much as they desire. As the healthcare team discusses patient progress, these discussions can be structured to include supporting evidence for the chosen treatment decisions. At first, it is often helpful to have the EBP mentor, usually an APN, present the evidence. As nurses' knowledge of EBP principles grows, they can take more leadership in presenting the evidence. The five steps of the EBP process (see Table 1) should be addressed during rounds. Practitioners can choose one step they want to address or one clinician can present the entire process for a given clinical scenario.

When planning and conducting EBP rounds, it is helpful to know one's audience, survey the group for interests and clinical priorities, consider appropriate timing, make the topics relevant to the audience, and determine a convenient physical location.

Table 1: The Five Steps of Evidence-Based Practice

1. Ask the clinical question in PICO format to yield the most relevant and best evidence. The PICO format includes these basic elements: P: Patient population of interest; I: Intervention of interest or Issue of interest; C: Comparison of interest; and O: Outcome of interest.
2. Collect the most relevant and best evidence to answer the clinical question, searching first for systematic reviews/meta-analyses or evidence-based clinical practice guidelines.
3. Critically appraise the evidence that has been collected for its validity, relevance, and applicability.
4. Integrate the evidence with one's clinical expertise, an assessment of patient characteristics and healthcare resources available, and patient preferences and values in order to implement an EBP decision.
5. Evaluate the EBP change

Source: Melnyk, B. M. & Fineout-Overholt, E. (2004). Making the case for evidence-based practice. In B. M. Melnyk & E. Fineout-Overholt (Eds.) *Evidence-based practice in nursing and healthcare: A guide to best practice* (p. 3-24). Philadelphia: Lippincott, Williams & Wilkins. Used with permission.

Critically appraised topics

The critically appraised topics (CAT) technique requires less group participation than EBP rounds. Often a CAT can be a one-page summary of the evidence with bottom-line recommendations for practice supported by statistics, such as the number needed to treat (NNT). Clinically relevant topics are paramount, as are comments about a study's applicability. An ideal mechanism for this approach is a poster on the patient care unit. The poster format allows all staff to participate in the CAT and to benefit from seeing the entire process posted. In addition, the CAT poster is a good place to begin dialogue about EBP initiatives and to resolve clinical problems identified and "answered."

Educational prescriptions

Educational prescriptions are self-initiated prescriptions in which individuals reflect on the EBP process and determine where their learning gaps exist. Learners then write out their own prescriptions of what they will do to bridge these learning gaps. The culmination of this activity is presentation of the process to a group, increasing accountability for the learner. The best-case scenario is for the group leadership to present a clinical case. The group members then present the clinical question, search strategy, retrieve evidence, conduct critical appraisal, and apply the evidence, along with defined outcomes, to determine the success of

the implementation. Which portion learners will present is chosen by them and addresses their learning needs.

Choosing an appropriate strategy to get started with EBP is important to success. Learners have different needs that will inform the choice and the culture may influence which strategy is chosen. Although initiating EBP requires careful thought and planning, lack of action is detrimental to quality patient care and should be avoided.

Steps toward the future

The study described in this article provided some perspective on what it takes to implement EBP in the acute-care setting. Strategies for facilitating success have been identified. Every nurse must find ways to ensure best practice in all healthcare settings through collaboration, learning, and implementation of the EBP process.

Acknowledgements

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■ Pre-Appraised Evidence for Practice

Collected by Jeanne Grace, PhD, RN, C

Associate Professor of Clinical Nursing, University of Rochester School of Nursing

The following on-line resources are available to nurses and other healthcare professionals who are seeking to implement evidence-based practice.

Systematic Reviews

Cochrane Collaboration (www.cochrane.org)

Abstracts for Cochrane systematic reviews can be searched on-line and are indexed in Medline. Reviews primarily address therapy questions and are updated as new research becomes available. Full texts of reviews are available on-line by subscription.

Examples of recently released review topics are:

- community-based interventions for the prevention of burns and scalds in children,
- effect of longer-term modest salt reduction on blood pressure,
- exercise based rehabilitation for heart failure, and
- exercise therapy for chronic fatigue syndrome.

The Cochrane Collaboration also maintains the Database of Abstracts of Reviews of Effectiveness (DARE), a central listing of meta-analyses and systematic reviews published elsewhere that meet the Cochrane standards for rigor, and the Cochrane Controlled Trials Registry (CCTR), an extensive list of references to clinical trials. Both DARE and CCTR can be searched on-line.

Clinical Evidence (www.clinicalevidence.com)

Published by the BMJ Publishing group, *Clinical Evidence* reviews bodies of evidence supporting various therapies and concludes whether the evidence supports or refutes use of that therapy. *Clinical Evidence* is organized by disease entities and includes some information on prognosis.

The Joanna Briggs Institute

(www.joannabriggs.edu.au/pubs/best_practice.php)

Both systematic reviews and “best practice” information sheets specifically relevant to nursing are available to institutional and individuals for a membership fee. Available topics include:

- Effectiveness of solutions, techniques, and pressure in wound cleansing
- Management of short-term indwelling urethral catheters to prevent urinary tract infections
- Effectiveness of strategies to manage sleep in residents of aged care facilities

Secondary Appraisal Journals

Secondary appraisal journals publish structured summaries and reviews of high-quality research with clinical importance that has been published elsewhere.

ACP Journal Club

(formerly called *Best Evidence*) (www.acpjc.org)

Indexed in Medline.

Evidence-based Nursing, Evidence-based Midwifery, Evidence-based Mental Health, Evidence-based Medicine (<http://ebn.bmjournals.com>)

All are published by BMJ Publishing group. Tables of contents, abstracts, and selected articles are available on-line without subscription.

Clinical Practice Guidelines

The Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) publishes a series of evidence-based practice resources. Titles include *Neonatal Skin Care* (2001) and *Promotion of Emotional Well-being During Midlife* (2001). The Web site for AWHONN is www.awhonn.org. These guidelines are also included and indexed in the National Guidelines Clearinghouse, discussed below.

The Agency for Healthcare Research and Quality (AHRQ) makes available EPC evidence reports on the AHRQ Web site (www.ahrq.gov).

The National Guidelines Clearinghouse (www.guidelines.gov) collects guidelines from professional organizations and governmental bodies in one searchable Web site.

For additional sources of pre-appraised evidence, as well as a listing of organizations supporting evidence-based practice, see the University of Rochester E.G. Miner Library’s on-line guide, the Nesbit Guide to Evidence-based Resources, at www.urmc.rochester.edu/HSLT/Miner/digital_library/evidence_based_resources.cfm.

BOOK REVIEW: Evidence-based practice in nursing and healthcare: A guide to best practice

Lillie M. Shortridge-Baggett, EdD, RN, FAAN, FNP

Melnyk, B. M., & Fineout-Overholt, E., (2004). *Evidence-based practice in nursing and healthcare: A guide to best practice*. New York: Lippincott, Williams & Wilkins.

This long-awaited book can be used as a text by students and a guide for teachers. In addition, the book can be a valuable resource for both new and experienced clinicians in different clinical practice specialties and settings. The authors, Bernadette Melnyk and Ellen Fineout-Overholt, are well-known experts in evidence-based practice. Until recently, they co-directed the Center for Research and Evidence-Based Practice at the University of Rochester in Rochester, N.Y.

The two forewords to the book, one by U. S. Surgeon General Richard H. Carmona and the other by the Vice-chair Janet D. Allan of the U.S. Preventive Services Task Force, clearly state how this book will assist all clinicians to provide quality healthcare. Dr. Allan states that the book will "...provide great impetus to the needed paradigm shift to evidence-based practice in nursing and related disciplines" and "... a blueprint for the future of nursing practice" (p. xix).

In addition to the main authors of the book, there are over 100 contributors and reviewers from the United States, Canada, and Australia. The book has six units with 23 chapters, 10 appendices, a glossary, an index, and a CD-ROM.

Unit 1 explains evidence-based practice, how to ask clinical questions, and finding the evidence. The steps in appraising the evidence are provided in Unit 2. This unit summarizes the steps used in both quantitative and qualitative research to assist in the critical appraisal of research. Another chapter provides an overview of the attention that should be given to patient concerns, choices, and clinical judgment.

Applying evidence to practice is the focus of Unit 3, with two chapters describing various models and tools for improving practice. Unit 4 presents the processes of generating and disseminating evidence. This unit, the longest in the book, provides an overview of the research process for quantitative, qualitative, and outcomes studies as well as how to write proposals and disseminate evidence.

Creating the climate for evidence-based practice is the focus of Unit 5, including how to teach EBP and create a vision for best practice. Unit 6 provides 40 evidence reviews on the accompanying CD-ROM. These reviews were developed by experts in various specialty areas of nursing, such as adult acute and critical care, adult primary care, aging adult care, emergency and trauma, care of high-risk children and youth, and psychiatric mental health care.

The appendices of this book provide supplemental materials as well as a variety of excellent case examples, an approved consent form, a data and monitoring plan for an intervention study, and several examples of EBP. Each of the appendices provides enough detail to assist students and clinicians to better understand the steps of EBP. The examples included throughout the books assist the reader in both understanding the process of and overcoming barriers to EBP.

Inspirational quotes are given throughout the book to motivate readers to learn and use EBP. They assist readers to believe in their ability to achieve their goals of being excellent clinicians providing high quality care. The many Web addresses provided throughout the

book permit readers to further develop their knowledge and skills. Another excellent feature is that continuing education contact hours can be earned by studying the book.

As this book is aimed at students and practitioners at all levels, using it as a textbook presents a challenge. Educators must select units or chapters to assign throughout the curriculum so that all the content, including the appendices and CD-ROM, is studied and used appropriately. The book can be used to introduce the concept of EBP, the asking of clinical questions, and appraisal of evidence from the beginning of the education program. The overview of the research methods and the section on critically appraising the research using a specific method can be read along with other texts for greater depth of content. Critiquing the approved consent form and the reviews included with the book would enhance a research and clinical course.

The content on teaching and creating the climate for EBP is appropriate for students in a leadership course at the undergraduate level or as part of a role course in a graduate program. This reviewer supports the recommendation that this book be purchased early in students' education, used throughout their studies, and then used in practice. This is an essential book for all students, faculty, practitioners, and leaders, both in nursing and other health disciplines.

Lillie M. Shortridge-Baggett is professor and co-director of international affairs, Lienhard School of Nursing, Pace University.

BOOK REVIEW: Evidence-based public health

Naomi E. Ervin, PhD, RN, APRN, BC, FAAN

Brownson, R. C., Baker, E. A., Leet, T. L., & Gillespie, K. N. (2003). *Evidence-based public health*. New York: Oxford University Press.

In the foreword to this book, Dr. Jonathan Fielding compares the use of evidence in public health to the use of evidence in judicial proceedings. He states that evidence is central to justice. We should, therefore, think about evidence as being central to public health because justice should inform judgments about “what interventions to implement, in what populations, when, and how to determine both positive and sometimes negative effects of those interventions” (p. v). The authors make a convincing case for the need to use evidence in public health. The same logic can be applied to nursing practice.

Chapters 2 through 5 provide the reader with a review of the scientific process as applied to public health problems and situations. This content would be most helpful to professionals who have taken a research course

or been involved in research projects. In Chapter 6, readers will find a useful explanation about how to search the scientific literature and organize information. This chapter would be of use to a variety of professionals, including nurses who want to examine the evidence about a specific clinical problem.

The remaining book chapters provide a brief overview of how evidence can be used to develop programs and action plans. Much of this material could be used in a general way by nurses to determine how to implement evidence in practice. The major drawback of these chapters is a lack of detail. A novice program planner would have difficulty applying the suggestions without additional reading and consultation with an experienced program planner.

The last chapter, which discusses evaluation, is a succinct approach to why and how evaluation should be performed at various stages of program implementation. This chapter has a great deal of relevance for nurses because they often do not systematically evaluate process and outcomes.

Strengths of this book are the inclusion of a glossary, lists of suggested readings and Web sites, and ample references to assist the reader. The authors have quite liberally used examples in the form of tables, figures, and boxes to illustrate various points throughout the text.

Naomi E. Ervin is assistant dean and associate professor at the College of Nursing, Wayne State University, Detroit, MI.



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May 5, 2005

Where do I begin?

At the completion of the day, participants will be able to

- Define evidence-based practice and how it relates to clinical decision-making.
- Develop a focused, searchable clinical question.
- Describe strategies for finding the evidence to answer the clinical question.
- Critically appraisal evidence for its relevance and validity.

8:30 a.m. to 9:00 a.m.	Registration and Continental breakfast provided
9:00 a.m. to 10:30 a.m.	What is EBP? How do I develop a question?
10:30 a.m. to 10:45 a.m.	Break
10:45 a.m. to 12:30 p.m.	How do I employ strategies for finding evidence?
12:30 p.m. to 1:30 p.m.	Lunch on your own
1:30 p.m. to 4:30 p.m.	How do I use technology to gather evidence? How do I appraise evidence for relevance and validity? <i>*Interactive Sessions</i>
4:30 p.m. to 5:00 p.m.	Closing Remarks and Evaluations

May 6, 2005

How can I use Evidence Based Practice?

At the completion of the day, participants will be able to

- Discuss Evidence Based Practice implementation strategies that are specific to individual work environments.
- Explore modalities of successful integration of Evidence Based Practice outcomes in an organization.
- Develop an outline proposal for implementing Evidence Based Practice in your clinical setting.

8:30 a.m. to 9:00 a.m.	Registration
9:00 a.m. to 10:30 a.m.	How to introduce a new way of being into an organization. <ul style="list-style-type: none">• Overview of modes for organization readiness for EBP• Strategies for organizational buy-in
10:30 a.m. to 10:45 a.m.	Break
10:45 a.m. to 12:00 p.m.	Assessing your own organization, selecting and applying organization – appropriate strategies <i>*Interactive Session</i>
12:00 p.m. to 1:00 p.m.	Lunch on your own
1:00 p.m. to 2:30 p.m.	How to develop and implement a proposal for a new innovation using the CURN model
2:30 p.m. to 2:45 p.m.	Break
2:45 p.m. to 4:00 p.m.	Interactive workshop to develop a proposal based on your specific clinical problem and related evidence <i>*Interactive Session</i>
4:00 p.m. to 4:30 p.m.	Closing remarks and evaluations

Distinguished Faculty:

Rona F. Levin, PhD, RN, is Project Director for the Joan M. Stout, RN, Evidence-Based Practice Initiative in the Lienhard School of Nursing. She is also professor emeritus at Felician College in Lodi, New Jersey where she was the Director of the Nursing Program and subsequently director of Health Sciences Programs for 12 years. She is currently writing a book with Dr. Harriet Feldman entitled *Teaching and Learning Evidence-Based Practice in Nursing: A Guide for Educators*.

Joanne K. Singleton, PhD, RN, CS, FNP, FNAP, is Professor and Co-Director of the Institute of Healthy Aging (IHA) at Pace University, Lienhard School of Nursing (LSN). In her role as professor, family nurse practitioner, and Director of the IHA she teaches and uses evidence-based practice. Dr. Singleton has several publications on evidence-based practice and is the lead faculty on the LSN's graduate family nurse practitioner curriculum revision that will use a evidence based practice framework.

Lillie M. Shortridge-Baggett, EdD, RN, FAAN, FNAP, is Professor and Co-director of International Affairs, Lienhard School of Nursing, Pace University. Dr. Shortridge-Baggett, the former executive Director of the Center for Nursing Research, Clinical Director of the Family Nurse Practitioner Program, led the development of the nurse managed primary care centers with evidence based clinical protocols since the mid 1980s. She has taught nursing research for many years and participated in changing the courses from requiring a master's thesis to providing opportunities for students to participate on current research projects of the faculty and clinical staff to now teaching students how to understand and use research for EBP.

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