

Effects of an Interprofessional Rural Rotation on Nursing Student Interest, Perceptions, and Intent

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Abstract

Rural areas are in critical need of nurses to meet the health needs of their residents. The problem under investigation in this study was whether a semester-long interdisciplinary rural rotation changed nursing students' interest in rural health, perceptions of their performance of selected nursing skills, and their intention to practice in a rural community. 248 senior level baccalaureate students completed pre- and post-rotation surveys. 53.6% of students reported an increased interest in rural health. Significant differences were found in students' confidence in aspects of their performance including recognizing cultural differences, community assessment, community participation, meeting the unique needs of rural patients, identifying barriers to care, and identifying the impact of socioeconomic status on health. Students who attended high school in a rural community, expressed increased interest in rural health, and evaluated the rotation favorably were more likely to practice in a rural state after graduation ($p < .05$). The findings have implications for changes in nursing education. A more comprehensive approach to rural health may be needed to attract students to nursing practice in rural communities

Keywords: Rural, Nursing Education, Nursing Practice, Intention

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Nearly 17 percent of the U.S. population lives in a rural area (U.S. Department of Agriculture, 2011c). These rural residents depend on local hospitals, clinics, and health departments to provide accessible and affordable health care. The shortage of nurses is intensified in rural areas (Van Hofwegen, Kirkham, & Harwood, 2005) and rural areas are consistently challenged to recruit from a smaller employment pool. In times of nursing shortage, rural areas report not only a reduced potential workforce but also a less-educated workforce (Cramer, Nienaber, Helget, & Agrawal, 2006). Additionally, successful recruitment and retention of nurses in rural communities are challenged by lower salaries, limited employment opportunities for nurses and their spouse, professional isolation and limited resources (Bushy & Leipert, 2005; LaSala, 2000). One strategy to improve recruitment of nurses to rural communities is to provide a rural immersion experience as part of undergraduate nursing education. The purpose of this research was to evaluate the impact of a senior-level

undergraduate rural rotation on nursing student interest in rural health, changes in beliefs and perceptions related to rural health, and intent to practice in a rural state.

Introduction

Over the past decade, there has been a major shift from acute care to community-based care in the United States, resulting in the redistribution of the nursing workforce. As this shift has occurred, rural settings seem to have been impacted more than metropolitan areas. Although rural areas may have a dedicated employment base provided by local residents, nurses are often drawn to adjacent metropolitan areas by higher salaries and a broader array of employment opportunities (LaSala, 2000).

Rural nursing can be framed as a specialty with a unique theoretical framework (Long & Weinert, 1989). The nurse practicing in a rural community is a generalist who embraces autonomy and is able to work in an environment characterized by close relationships and limited resources. Nurses practicing in rural areas need skills to respond to diverse patient needs, flexibility, and the ability to multi-task and work independently (Hunsberger, Baumann, Blythe, & Crea, 2009; McCoy, 2009).

Rural health nursing is a specialty for which few educational programs prepare students. Nevertheless, over the past decade, the rural setting has been used not only to meet the programmatic need for clinical sites but also to help students experience the unique characteristics and needs of rural populations (Yonge, Ferguson, & Myrick, 2006). Rural clinical experiences, important to the translation of theory into practice, provide students with opportunities to learn how to implement nursing interventions in an increasingly diverse world. Students working with rural nurse preceptors can experience an increased variety of individual and family situations, health needs, and health beliefs and practices.

West Virginia is a rural state that is in critical need of health care providers to practice in rural areas. Limited health care access, greater health disparity, and quality issues result in this Appalachian population having an excess of premature deaths from heart disease, all cancers, chronic obstructive pulmonary disease, diabetes, and motor vehicle accidents, relative to comparable non-Appalachian populations (Halverson, 2004). Fifty one of West Virginia's 55 counties are designated at least partially as Medically Underserved Areas (U. S. Department of Health and Human Services, n.d.).

One of the continuing challenges in research related to rural health is the definition of rurality. The rural rotation being evaluated in this work was implemented in the state of West Virginia, the only state that is fully contained within Appalachia. Forty-two percent of its counties have a population of less than 20,000 people; forty-five percent of its county seats have a population of less than 2500. Forty-seven percent of its counties are designated as non-core counties by the Office of Management and Budget (Rural Policy Institute, 2006) and 53% are assigned urban influence codes of 6 to 12 indicating counties that are adjacent to a small metropolitan area and contain one town with 2500 or fewer residents (U. S. Department of Agriculture, 2011a). In addition, over half of the counties are assigned rural-urban continuum codes of 6 or higher indicating that they contain urban centers of between 2500 and 20,000 residents or are designated as "fully rural" (U. S. Department of Agriculture, 2011b). Based on these criteria and the instrument used to evaluate the rotation, an area with less than 20,000 residents was considered rural for the purposes of this study.

In 1991, West Virginia University (WVU) received a grant from the Kellogg Foundation to develop a community based program for health professions students to address healthcare work force issues in rural and underserved areas of the state. Concurrently, the West Virginia state

legislature funded the Rural Health Initiative Act to support these new educational opportunities. In 1995, the Kellogg Community Partnerships Program and the Rural Health Initiative were combined into the West Virginia Rural Health Education Partnerships (WVRHEP), a statewide system of rural clinical training sites. All health professions students in the University system of West Virginia were required to complete a rural health rotation (Shannon et al., 2005). For nursing students, this rotation required 225 clinical hours in community and rural health education including 180 hours in an assigned clinical site, 25 hours of health-focused service learning, and 20 hours of interdisciplinary activities. In addition, students completed two didactic community health courses and designed, implemented and evaluated a community-based health promotion or disease prevention project as their Capstone experience in the nursing curriculum. Rural clinical sites provided baccalaureate and Masters prepared nursing preceptors and the WVRHEP provided housing, learning resources, and technical assistance for students. Rural training sites included critical access hospitals, community health centers, health departments, rural health clinics serving the uninsured or underinsured, home health and hospice programs, and schools. Effective July 2011, the WVRHEP structure was dismantled but the School of Nursing continues to provide rural health clinical experiences.

Literature Review

Because rural rotations for nursing students are limited, there is little nursing education research examining the affect of rural clinical experiences on students. Results from research conducted in Australia indicated that rural health rotations increased the likelihood that nursing students would select rural placements after graduation. Thirteen of 40 students (33%) responding to a post-clinical placement survey indicated a desire to work in a rural community after graduation (Lea et al., 2008). In an earlier study of undergraduate students, 89% of students who selected a rural clinical placement (n=30) expressed an intent to work in a rural community; pre- and post-test analysis of data indicated a 12% increase post rural placement (Courtney, Edwards, Smith, & Finlayson, 2002). Neill & Taylor (2002) reported that 59% of students participating in rural placements (n=33) chose employment in rural or remote sites after graduation. Research examining the impact of rural clinical experiences on students in the United States has focused on interdisciplinary rural rotations. Erkel, Nivens, and Kennedy (1995) found that 72% of students participating in a summer rural practicum (n= 11) indicated that their experience positively influenced them to consider practice in a rural community. Oneha, Yoshimoto, Bell, and Enos (2001) reported that 63% of health professions students who took part in a year-long interdisciplinary clinical experience at a rural health clinic reported plans to practice in a rural or underserved area.

Research results document multiple benefits for students participating in rural rotations. Students report having time to develop relationships with patients and to collaborate with other health professionals (Van Hofwegen et al., 2005; MacAvoy & Lippman, 2001; Oneha et al., 2001) as well as the opportunity to work with a broad range of patients and health needs (Van Hofwegen et al., 2005). Additional reported benefits include increased understanding of health care delivery from a systems perspective and greater opportunity to experience the realities of life for rural patients including the impact of socioeconomic status, isolation, service gaps, and barriers to care (Erkel et al., 1995; Van Hofwegen et al. 2005; Oneha et al., 2001). Increased appreciation for cultural aspects of care has also been a reported benefit of a rural rotation (Erkel et al, 1995.; Oneha et al., 2001). Although the research results are consistently supportive of the potential impact of rural clinical experiences, it is difficult to generalize from these studies with relatively small sample sizes.

The purpose of this study was to evaluate the impact of an interdisciplinary rural health rotation on nursing students' interest in rural health, perceptions about nursing practice in rural settings, and intent to practice in West Virginia after graduation. The specific questions for this study were:

1. Does participation in a rural health rotation change students' interest in rural health?
2. Does participation in a rural health rotation change students' perceptions of the importance of and level of confidence related to aspects of rural nursing practice?
3. What were the relationships among quality of rotation, interest in rural health, rural "home" community, intent to practice in a rural area, and intent to practice in West Virginia?
4. What learning activities were most meaningful to students?

Methods

Participant Characteristics

Two hundred and forty-eight senior level undergraduate nursing students enrolled in a rural health rotation participated. Eighty percent of respondents were under the age of 25 (mean = 24.18; $SD = 5.93$); 47.6% of respondents reported spending most of their high school years in a community they considered to be rural. 96% of participants were Caucasian; 6% of the respondents were male.

Sampling procedures

Students enrolled in the senior-level undergraduate rural health nursing course between September 2008 and December 2010 served as a convenience sample. After IRB approval was obtained by WVRHEP, baseline data questionnaires (BDQ) and post-rotation questionnaires (the Student Evaluation of Rural Field Experience – SERFE) were sent electronically to 383 students. Two hundred and forty-eight students completed both surveys for a participation rate of 64%. During orientation to the rural rotation, all students were provided with an opportunity to complete the BDQ; in addition, the WVRHEP staff sent email reminders to the students. At least 12 weeks later and prior to the end of the semester, the rural health course coordinator sent students three reminders to complete the SERFE; the survey link and completion instructions were provided to students in an email from the WVRHEP staff. Student participation and item response were voluntary and not all students answered all questions; responses were captured in a secure electronic database.

Measures

The BDQ and SERFE were developed by WVRHEP staff in 2001 to assess health professions students' attitudes and career intents over time. Included in the BDQ were questions to elicit demographic information (whether or not student attended high school in a rural community, year of birth), factors influencing the choice of nursing as a career, perceptions of nursing and nursing practice, preferred specialty, size of community for practice, likelihood of working in West Virginia after graduation, and level of confidence and importance related to selected skills (e.g., working collaboratively, recognizing cultural differences, meeting unique needs of rural patients). The same information was collected from the questions on the SERFE plus an evaluation of the overall quality of the rotation and the impact of the rotation on a student's interest in rural health. Although an analysis using data collected using the BDQ and SERFE has been published (Shannon et al., 2005), no validity or reliability data are available.

Most responses to items on the BDQ and SERFE were captured by category or measured on an ordinal scale. Pre-post rotation analyses were performed using the Wilcoxon Signed Rank test. Analyses of relationships between variables, intent to practice in a rural community, and intent to practice nursing in West Virginia were performed using Chi-Square tests. The level of significance for statistical testing was 0.05. All analyses were conducted using SPSS, Inc. Statistics Standard GradPack version 17.0 (SPSS, 2009).

Results

To learn more about the student sample, three factors related to the choice of nursing as a career were analyzed: 1) 74.9% of students rated the opportunity to exercise social responsibility as moderately or very important to their career choice; 2) 78.6% of students rated the high level of public trust as a factor of moderate or high importance in their career selection, and 3) 73.4% of students identified the need for nurses in their home area as a factor of moderate or high importance in their decision to pursue a nursing career. Students' perception of nurses' obligation to improve quality of life for people in their community was also analyzed; 92.7% of respondents strongly agreed or agreed somewhat that nurses had that obligation.

Interest in Rural Health

Data from the SERFE indicated that the rural rotation had a positive influence on students' interest in rural health: 133 students (53.6%) indicated that their interest had increased; 80 students (32.3%) indicated that their interest was the same; 32 students (12.9%) reported that their interest had decreased. Students indicated that the over-all quality of the rotation was high: 87.6% of the students rated the quality as good, very good, or excellent.

Changes in Student Perceptions

Pre- and post-rotation comparisons did not reveal significant changes in the size of community in which the student intended to practice ($Z = -.07$; $p = .943$) but did reveal a significant change in students' likelihood to work in West Virginia after graduation ($Z = -4.25$; $p = .000$). Pre- and post-rotation comparisons were performed for eight areas related to rural nursing practice – interdisciplinary collaboration, cultural influences on communication, community assessment, unique needs of patients living in poverty, unique needs of rural patients, barriers to health care, impact of socioeconomic status on health. Students were asked to rate both the importance of the skill and their confidence in performing it. There were no significant pre-post rotation differences in student perceptions of the importance of these areas. However, Wilcoxon Signed Rank test results revealed significant pre- and post-rotation changes in students' confidence in six of the eight areas measured. Detailed results are presented in Table 1.

Nursing Practice Intentions Post Graduation

Relationships among attending high school in a rural community, quality of rotation, interest in rural health, and the anticipated size of practice population and likelihood of working West Virginia were examined. Results of the Chi-square test for independence revealed that students who identified themselves as coming from a rural community selected smaller communities (< 20,000 residents) as future practice sites and were more likely to remain in West Virginia to practice.

Table 1

Pre- and Post-Rotation Differences in Perception of Importance and Confidence in Performance of Selected Skills of Rural Nursing Practice

Skill	Importance (Z score)	Ability to perform (Z score)
Work collaboratively with all types of health workers	-.20	-.40
Recognize when cultural differences affect communications between you and your patient	-.85	-2.18*
Collect information to understand a community's health needs	-1.03	-4.24**
Become an active part of the community	-1.82	-1.94
Meet the unique needs of poor patients	-1.06	-2.87**
Meet the unique needs of rural patients	-.539	-4.39**
Recognize barriers to receiving health care in community settings	-.89	-4.59**
Recognize impact of socioeconomic status on health and illness	.00	-4.37**

*Based on negative ranks, ** p < .01, * p < .05*

In addition, students who evaluated the quality of the rotation more favorably also identified smaller communities as future practice sites and were more likely to remain in West Virginia. Finally, students who reported an increased interest in rural health as a result of the rural rotation were more likely to identify a smaller community in which to practice at time of graduation and a greater likelihood to remain in West Virginia to practice. Detailed results appear in Table 2.

Table 2

Relationships between Rural Residence, Quality of Rotation, and Interest in Rural Health and Size of Practice Population and Intent to Remain in WV after Graduation

Characteristic	Size of practice population ^a (χ^2)	Intent to remain in WV (χ^2)
Attending a rural high school	11.80**	9.60*
Quality of rural rotation	5.97	40.84**
Interest in rural health	7.77*	19.17**

***p < .01, * p < .05; a Dichotomized as (1) less than or equal to 20,000 residents or (2) greater than 20,000 residents*

Value of learning activities

Students had the opportunity to respond to an open-ended statement: "Please describe one experience or activity during this rotation that taught you most about rural practice". Eighty-nine students responded to this question and their responses were categorized using content analysis. Four main categories emerged: patient interaction, interdisciplinary opportunities, community service, and addressing system issues. Within the patient interaction category, students identified the value of making home visits, working with entire families rather than just individual patients, and seeing patients multiple times across the semester. Interdisciplinary opportunities that were identified as valuable included formal activities provided by WVRHEP, informal interactions with other health professions students, and opportunities to be a part of an interdisciplinary team in the clinical site. Examples of community service that students found valuable were outreach activities to very small communities, participating in health fairs, patient education opportunities,

conducting the health promotion/disease prevention activity for their Capstone project, and participating in a statewide public health initiative (Coronary Artery Risk Detection in Appalachian Communities, 2010). Finally, students identified that confronting the social issues of health literacy, poverty, and barriers to health care taught them the most about rural practice.

Discussion

Multiple findings of this evaluative study of a large sample of undergraduate nursing students support previously reported findings from the literature. Participation in a semester-long, interdisciplinary rural rotation increased students' interest in rural health. Students reported building confidence in practice areas essential to the rural nursing role, including interprofessional collaboration, increased cultural understanding, and an appreciation for the life realities (barriers to health care, socioeconomic status) of rural residents. In addition, students identified multiple aspects of their rural experience that reflect the benefits of rural experience discussed in the literature. The analysis of the qualitative data collected revealed that students value direct patient contact, opportunities for interprofessional interaction, and community service.

The results of this analysis do not provide definitive support for findings in the literature that a rural rotation increases the likelihood of a student selecting a rural placement after graduation. The rural rotation did not influence students' choice of practice population post graduation. However, students who grew up in rural communities, reported an increased interest in rural health post-rotation, and evaluated their rotation positively were more likely to identify small communities as future practice sites and were more likely to remain in West Virginia to practice after graduation. These results have to be interpreted in light of the limitations of the instruments used. Community size was the only determinant of rurality and there was no way to validate that student perception of community size was accurate. Data were collected primarily at the ordinal level thereby precluding more extensive parametric testing and analysis. In addition, the patterns of employment in nursing changed across the course of this research because of the national economic situation. It is possible that negative economic conditions influenced student selection of community size for practice after graduation, with increased opportunities anticipated in metropolitan settings.

Multiple barriers to students' choosing a rural placement have been identified – isolation, lack of privacy, limited resources, and less access to educational opportunity (Bushy & Leipert, 2005). These barriers are compounded by the fact that nursing students often spend the majority of their clinical hours in acute care settings and are focused on working in high technology, high action intensive care settings. The slower paced rural setting with its focus on chronic disease management and lifestyle behavior change is not always an attractive alternative. Nevertheless, significant factors that influence students to select rural nursing practice have been identified: family connection to the community, a desire for rural quality of life, the opportunity to “give back” to the community, and the preference for a small hospital environment (Bushy & Leipert, 2005). Many of these are personal characteristics that may not be influenced by a semester-long clinical placement.

Implications

While this rural health rotation helped to change students' confidence in key areas of rural practice, it was not clear that it would change students' intent to practice in rural areas. Additional strategies may be needed to increase the likelihood that students will select a rural practice site after graduation. Strategies could include integrating rural theory and practice

opportunities throughout the curriculum so that students have multiple experiences in rural environments. To conserve limited clinical placements, those students who express an interest in rural practice could be offered an intense, elective rural immersion experience to increase their comfort in rural settings and broaden their understanding of the rural nursing role. Building linkages between university faculty and rural preceptors could enhance learning opportunities for students. Preceptors often need support and assistance as they work to help students appreciate their role in rural health care. Community-based participatory research efforts that involve students will demonstrate professional opportunities that might not otherwise be visible. Finally, providing opportunities for community service is one strategy for adding value to clinical experiences in rural communities. Multiple, rural-based community service activities integrated across the curriculum may help students to envision nursing opportunities available in rural communities.

Nursing workforce issues will continue to be part of the rural health care system. Changes inherent in U.S. health care reform legislation may potentiate the problem as more people in rural communities have access to care through insurance. Nursing education programs, especially those serving rural areas, will need to continue to design and evaluate innovative teaching strategies to influence and encourage students to select rural practice settings post-graduation. Success in recruiting health care professionals to rural communities is critical to eliminating health disparities and fostering optimal health for all Americans.

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