

Are rural and urban newly licensed nurses different? A longitudinal study of a nurse residency programme

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of a nurse residency programme**

Aim This study aimed to compare rural and urban nurse residency programme participants' personal and job characteristics and perceptions of decision-making, job satisfaction, job stress, nursing performance and organisational commitment over time.

Background Nurse residency programmes are an evolving strategy to foster transition to practice for new nurses. However, there are limited data available for programme outcomes particularly for rural nurses.

Method A longitudinal design sampled 382 urban and 86 rural newly licensed hospital nurses during a 12-month nurse residency programme. Data were collected at the start of the programme, at 6 months and the end of the programme.

Results At the end of the programme, rural nurses had significantly higher job satisfaction and lower job stress compared with urban nurses. Across all time-periods rural nurses had significantly lower levels of stress caused by the physical work environment and at the end of the programme had less stress related to staffing compared with urban nurses. Perceptions of their organisational commitment and competency to make decisions and perform role elements were similar.

Conclusions Differences in these outcomes may be result from unique characteristics of rural *vs.* urban nursing practice that need further exploration.

Implications for nursing management Providing a nurse residency programme in rural and urban hospitals can be a useful recruitment and retention strategy.

Keywords: job satisfaction, job stress, nurse residency programme, organisational commitment, rural/urban

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Introduction

Recruitment and retention of newly licensed nurses are critical to sustaining the nursing workforce. New nurses are particularly needed to offset the nursing

shortage that is anticipated because of the fallout from the current USA recession, the need to replace the ageing nurse workforce and the escalation of health needs of our general ageing population (Buerhaus *et al.* 2009). For the newly licensed nurse, poor work envi-

ronments, incivility and high stress levels impede nurses' role transition and assumption of professional identity (Duchscher & Myrick 2008, Pellico *et al.* 2009). As these factors contribute to nurse turnover they will further exacerbate the looming shortage. In rural settings in particular, the supply and demand of nurses is more significantly imbalanced because of the increasing proportion of rural elderly needing care and a growing trend of younger rural residents migrating to urban areas (Baernholdt *et al.* 2010, Bushy 2002, Institute of Medicine 2005, Krebs *et al.* 2008).

Nurse managers need to be cognizant of the best strategies to recruit and retain new graduate nurses. One such strategy is a nurse residency programme, which is directed at helping newly graduated nurses bridge the education to practice gap. A number of nurse residency programmes, primarily situated in urban acute-care settings, have been described in the literature (Rosenfeld *et al.* 2004, Krugman *et al.* 2006, Beyea *et al.* 2007, Bratt 2009, Ulrich *et al.* 2010). Nurse residency programmes have been shown to not only reduce turnover but also enhance quality of care and patient safety (Beecroft *et al.* 2001, Krugman *et al.* 2006, Romyn *et al.* 2009). There are only a few existing nurse residency programmes for rural nurses in the USA (Boyer 2002, Keahey 2008, MacLeod *et al.* 2008, Molinari *et al.* 2008, Bratt 2009) and evidence is sparse regarding the outcomes of these rural programmes. Therefore, the aim of the present study is to explore whether rural and urban nurse residency programmes produce different outcomes and if rural and urban new nurses have similar perceptions of their transition experience.

This study is part of a series of investigations involving newly licensed nurses in the federally funded Wisconsin Nurse Residency Programme (WNRP). Delivered through an academic-service partnership, the programme involves new nurses working in rural and urban hospitals (Bratt 2009, Bratt & Felzer 2011). Consisting of 12 monthly 8-hour educational sessions and ongoing mentoring, the residency programme begins approximately 3 months after hire. The sessions are taught primarily by practice-based nursing staff educators and the WNRP project director provides administrative oversight.

The underlying goals of the residency programme are to foster professional role transition and skill development and to promote factors that contribute to retention, such as job satisfaction. The specific programme outcomes are to increase nurse residents' decision-making ability, job satisfaction, nursing role performance, organisational commitment and to

decrease job stress. Therefore, characteristics and perceptions regarding the orientation experience, work environment, and skill development of residency programme participants who were newly licensed nurses employed in rural hospitals (rural nurse residents) and those employed in urban hospitals (urban nurse residents) were compared. Specific research questions were: (1) Do personal characteristics, post-hire job characteristics and nurse residents' perceptions of orientation differ between rural and urban nurse residents? (2) Do rural and urban nurse residents' perceptions differ across time in relationship to the programme outcomes of decision-making ability, job satisfaction, job stress, nursing performance, and organisational commitment? (3) Does hospital setting (rural *vs.* urban) moderate the relationship between time and nurse residents' perceptions of decision-making ability, job satisfaction, job stress, nursing performance and organisational commitment?

New graduate nurse transition to practice

Turnover in the new graduate population is a documented phenomenon with reports indicating that during the first year of practice new registered nurse (RN) turnover rates range from 18% to 50% (Salt *et al.* 2008, Brewer *et al.* 2009). In rural settings new nurse turnover has been reported to be as high as 60%. The primary reasons for this staggering turnover rate were attributed to nurses' lack of competency to handle conflict, make critical decisions, and function autonomously (Keahey 2008). New graduate turnover is expensive for organisations because it can approximate a nurses' annual salary (Beecroft *et al.* 2001, Keller *et al.* 2006, Bratt 2009). Given that rural health-care organisations can have up to a 22% salary differential deficit compared with urban organisations, turnover can have a more profound effect in rural hospitals. Furthermore, compared with urban settings, recruitment and retention of staff is more challenging in rural hospitals because there is a smaller population of nurses to draw from and salaries are lower (LaSala 2000, Skillman *et al.* 2007). A lack of access to higher education and continuing education programmes as well as decreased professional development support create additional barriers to cultivating and retaining a quality nurse workforce in rural practice settings (McCoy 2009, Murray *et al.* 2011).

Ineffective transition to practice and a stressful work environment are key factors causing job dissatisfaction

and turnover in nurses beginning their new career (Casey *et al.* 2004, Bowles & Candela 2005, Beecroft *et al.* 2008). New graduates entering practice experience cognitive dissonance between personal expectations and the realities of practice, with an increased expectation for rapid role assimilation to 'hit the ground running'. These new graduates express a persistent underlying fear of making mistakes (Bowles & Candela 2005, Spector & Li 2007, Pellico *et al.* 2009, Romyn *et al.* 2009). Also troublesome for new nurses is their underdeveloped skill to handle issues in the work environment, including horizontal violence, negative cultures and interactions with physicians (McKenna *et al.* 2003, Griffin 2004, Duchscher & Myrick 2008, Dyess & Sherman 2009). All of these factors cause job stress, which in turn influences job satisfaction and organisational commitment, and subsequent decision to leave a job (Casey *et al.* 2004, Bowles & Candela 2005, Coomber & Barriball 2007, Beecroft *et al.* 2008). Of significant concern is that stress not only affects retention, it is also associated with an increased risk for breaches in patient safety (Elfering *et al.* 2006, National Council of State Boards of Nursing 2009).

Challenges that are specific to new nurses in rural areas include the need to take on extended practice positions, engage in more independent decision-making, and early assumption of leadership and management roles as a result of fewer nurses and absence of other health professionals (Hegney & McCarthy 2000, Kenny & Duckett 2003). Furthermore, lack of support from preceptors and mentors, non-existence of a formal orientation or nurse residency programme and insufficient educational resources have also been identified as contributors to stress and turnover for new rural nurses (Squires 2002, Lea & Cruickshank 2005, Keahey 2008). For new urban nurses, job stress levels have been shown to peak between 3 and 9 months after hire, suggesting that retention interventions are especially crucial at that time (Beecroft *et al.* 2008, Fink *et al.* 2008). Whether this pattern is similar for new nurses in rural settings is unclear.

Nurse residency programmes

The quality of new graduates' transition experience affects retention rates (Williams *et al.* 2007) and perception of an insufficient orientation period escalates the difficulties that new nurses encounter (Squires 2002, McCoy 2009). When new graduates feel that they have had an adequate orientation they are more likely to perceive that they are able to accomplish their work tasks and have control over independent

decision-making (Unruh & Nooney 2011). Nurse residency programmes provide support during the transition period and address new nurses' lack of practice readiness. Aimed at easing the difficult role transition and diminishing the influence of stressful work demands, residency programmes decrease stress, bolster confidence and increase job satisfaction and job performance of newly licensed nurses (Beyea *et al.* 2007, Anderson & Linden 2009, Goode *et al.* 2009). Residency programmes also support professional socialization, namely transition to competent caregiver, integration into the professional nursing role and assumption of professional identity (Kramer *et al.* 2011). Organisations that have residency programmes have noted cost savings as a result of diminished turnover and decreased nurse vacancy (Halfer 2007, Pine & Tart 2007).

Rural nursing practice

A number of authors have advocated that compared with nursing in urban areas, rural nursing is itself a specialty associated with unique competencies that require particular skill in providing emergent care across the age continuum (Bushy 2000, 2006, Hurme 2009). Hence, the scope of practice for rural nurses tends to be generalized rather than focused on one specialty area. In addition, rural nurses need to initiate therapies that are typically provided by other members of the health-care team in urban settings and are expected to work with a higher degree of independence with limited or delayed access to resources (Hegney *et al.* 2002, McCoy 2009, Scharff 2010). Further distinguishing features of rural nursing practice include the high degree of community visibility that rural nurses perceive and a unique interconnectedness between nurses' professional and personal lives, leading to blurring of nurses' community and professional roles (Bushy 2000, Baernholdt *et al.* 2010). Zibrik *et al.* (2010) describe this as 'permeability between the rural workplace and the community setting' and suggest that rural nurses' sense of professionalism is inextricably linked to their workplace and their community. Experienced rural nurses tend to use their knowledge of their patients outside of the hospital to better plan their health care within the hospital (Baernholdt *et al.* 2010).

Rural health-care settings have limited monetary resources and inadequate professional support (Jukkala *et al.* 2008, Baernholdt *et al.* 2010). Therefore, continuing nursing role development in rural settings can be more challenging than in urban settings. Unlike

nurses practicing in larger health-care facilities, nurses in rural settings experience geographically induced isolation as well as professional isolation. This professional isolation has been cited as a practice barrier for rural nurses (Beatty 2001, Winters & Mayer 2002). In addition, fewer numbers of advanced practice nurses in rural settings can lead to fewer skilled mentors to guide the professional role integration of new graduate nurses. These dissimilarities in scope of practice, the relationship that rural nurses have with their community and financial constraints of rural hospitals suggest a need to explore whether the same nurse residency programme produces different results in rural and urban areas.

Method

Design, sample and procedure

Employing a longitudinal cohort design, the sample was comprised of newly licensed registered nurses working in non-unionized, not-for-profit acute care hospitals from 2005 to 2008 who were participants in a transition to practice programme provided through federal grant funding (Bratt 2009, Bratt & Felzer 2011, 2012). The total sample consisted of 468 nurse residents, 86 from 15 rural hospitals and 382 from 10 urban hospitals. The rural hospitals were located in communities with an average population under 4000 people and were members of a regional rural collaborative network. These hospitals had 15–100 beds with one to seven separate practice units and hired one to six newly licensed nurses per year. The urban residents worked in hospitals that had 237–949 beds with multiple practice units. These hospitals typically hired 20–80 newly licensed nurses per year and were located in metropolitan communities with populations over 50 000 people.

Rural and urban residents cared for predominantly medical–surgical patients and worked comparable shift types and hours. All nurse residents held the same RN practice license but were either community college graduates and held a 2-year Associate of Science Degree in Nursing (ADN) or possessed a Baccalaureate of Science in Nursing (BSN) degree from a 4-year university-based programme.

The study was approved by the Institutional Review Board of the primary investigator's university and by individual participating hospitals. After consents were obtained, data were collected from nurse residents during a scheduled educational session. Baseline data were collected at the beginning of the

residency programme (T1), again at 6 months at the residency programme midpoint (T2) and finally at 12 months when the programme concluded (T3). All nurse residents in the programme were invited to be involved in the study with 61% deciding to participate (84% of rural residents and 58% of urban residents).

Measures

Nurse resident personal characteristics, orientation experience and post-hire job characteristics

The study included measures of nurse residents' personal characteristics and orientation experience and post-hire job characteristics, which were collected using a demographic questionnaire. Along with basic demographic data, additional items focused on type of nursing degree and whether in the final year of their nurse education participants had a professional role socialization course that prepared them for transition to practice as a licensed nurse. Finally, the participants reported the number of hours they had worked with a nurse preceptor as a student. Questions about the post-hire orientation experience before entering the nurse residency programme were also included. These items referred to aspects associated with bringing new nurses into the organisation and the educational support to guide new nurses' successful transition to competent practitioners. This included hours of classroom orientation, number of weeks precepted, number of preceptors, and whether orientation objectives were met.

Instruments

Outcome variables included decision-making ability, job satisfaction, job stress, nursing performance and organisational commitment. Decision-making ability was defined as the conscious, cognitive process of being able to make decisions in clinical practice. It was operationalized by Jenkins (1985) Clinical Decision Making in Nursing Scale that consisted of 40 items on a five-point Likert scale. Cronbach's alpha has been reported at 0.78 (Jenkins 1985, Girot 2000). Job satisfaction was defined as being content with and generally liking one's job. Measured by the Nurse Job Satisfaction Scale (Hinshaw & Atwood 1983), this instrument contains 23 items, each scored on a five-point Likert scale and includes three subscales: enjoyment, quality of care and time to provide care. In previous literature with nurse samples, reliability was 0.78 (Hinshaw & Atwood 1983) and 0.86 (Bratt *et al.* 2000). Higher scores on these scales indicate

greater decision-making ability and job satisfaction, respectively.

Job stress was viewed as stress related to the work environment and being able to perform one's job. Measured by the Job Stress Scale (Hinshaw & Atwood 1983), the scale contains 22 items on a four-point Likert scale, with higher mean scores indicating greater stress. Four subscales comprise the instrument, including competence, physical work environment, staffing and team respect. Previous reliability estimates were 0.78 (Hinshaw & Atwood 1983) and 0.85 (Bratt *et al.* 2000).

Nursing performance, described as the ability to perform nursing job functions, was measured by the Modified 6-D Scale of Nursing Performance. The scale was originally developed by Schwirian (1978) and later revised by Marshalleck (1997) who reported total scale reliability estimates of 0.86–0.95. The instrument includes 61 items organised around seven areas of basic nursing competency, including managing acute emergent health problems, interpersonal relations/communications, leadership skills, planning/evaluation, professional development, teaching/collaboration and behaviours that contribute to achieving positive care outcomes and unit goals. Finally, organisational commitment, defined as the dedication or loyalty to an organisation, was measured with Mowday *et al.*'s (1979) Organisational Commitment Questionnaire. Consisting of 15 items on a seven-point Likert scale, this instrument is a valid indicator of turnover intent (Wagner 2007). Reported alpha coefficients have ranged from 0.82 to 0.90 (Mowday *et al.* 1979, Beecroft *et al.* 2001). Higher scores on both instruments indicate more positive ratings of nursing performance and organisational commitment.

Analysis

Descriptive and inferential statistical methods were employed to analyse the data using SPSS 19.0 (IBM 2010) and SAS 9.2 (SAS 2009). A repeated measures ANOVA was conducted to assess the influence of hospital setting (rural *vs.* urban) on participants' scores on decision-making ability, job satisfaction, job stress, nursing performance, and organisational commitment across the three time-periods: T1, T2 and T3. For significant main or interaction effects Tukey's least significant difference (LSD) post hoc test was used to determine at which time-period the specific differences between rural and urban residents occurred. To determine significant differences in personal characteristics, post-hire characteristics, and perception of orientation, *t*-tests and chi-square analyses were performed.

Results

Nurse resident characteristics, orientation experience, post-hire job characteristics

Rural residents were significantly older (mean = 33.4, SD 9.2) than urban residents (mean = 29.2, SD 7.9, $P < 0.001$), all were Caucasian and a larger proportion were ADNs (rural = 87.1%, urban = 48.1%) compared with BSNs (rural = 12.9%, urban = 51.9%, $P < 0.001$), as shown in Table 1. Rural nurse residents spent less hours working with a preceptor as a student (rural = 67.7, urban = 119.7, $P < 0.001$). However, there were no significant differences in participation in professional role transition coursework before receiving their nursing degree.

For the initial orientation experience following post-hire, rural nurse residents worked with significantly fewer nurse preceptors (mean = 3.8, SD = 2.3) compared with urban nurse residents (mean = 4.9, SD 3.1) No significant differences were found related to other elements of orientation, including number of hours the nurse residents spent in classroom education, weeks spent working with a preceptor or whether residents felt that their orientation goals were met. Even though there were differences in the hours of classroom orientation (rural = 39.7, SD 43.8; urban = 53.0, SD 73.5) it was not significant.

Differences within rural and urban resident groups over time

There were significant changes in all the programme outcomes over time for rural and urban residents (Table 2). For the urban sample, there were significant increases from programme midpoint (T2) to the end of the programme (T3) on the mean scores of decision-making (T2 mean = 142.1, T3 mean = 143.9, $P < 0.05$) and job satisfaction (T2 mean = 78.4; T3 mean = 81.2, $P < 0.001$). Compared with programme start (T1), urban residents' organisational commitment mean scores were significantly lower at T2 and T3 (T1 mean = 78.5, T2 mean = 74.6, T3 mean = 74.8, $P < 0.001$). Rural and urban residents demonstrated similar trends in job stress and nursing performance scores. For both populations, job stress scores at the end of the programme were found to be significantly lower than at baseline and at programme midpoint (rural: T1 mean = 47.6, T2 mean = 47.2, T3 mean = 43.0, $P < 0.01$; urban: T1 mean = 49.5, T2 mean = 49.9, T3 mean = 47.6, $P < 0.01$). Mean scores of nursing performance showed significant

Table 1

Demographic, prelicensure education and post-hire job characteristics by nurse resident group

Demographic and prelicensure education characteristics	Rural residents (<i>n</i> = 86, 18.4%), mean (SD) or %	Urban residents (<i>n</i> = 382, 81.6%), mean (SD) or %
Age**	33.4 (9.2)	29.2 (7.9)
Gender		
Female	98.8	93.2
Male	1.2	6.8
Race*		
White	100	89.6
Non-white		10.4
Asian		0.8
Black		4.3
Hispanic/Latino		2.3
More than one race		3
Degree**		
ADN	87.1	48.1
BSN	12.9	51.9
Previous non-nursing degree		
Yes	24.7	23.5
No	75.3	76.5
Prelicensure socialization course		
Yes	70.4	64.0
No	29.6	36
Hours with preceptor prelicensure**	67.7 (51.4)	119.7 (118.8)
Post-hire job characteristics		
In desired position		
Yes	86.3	76.7
No	13.7	23.3
Orientation objectives met		
Yes	92.4	88.1
No	7.6	11.9
Hours/week worked	34.3 (5.7)	35.6 (7.0)
Length of classroom orientation (hours)	39.7 (43.8)	53.0 (73.5)
Length of precepted experience (weeks)	9.7 (7.1)	9.5 (5.0)
Number of preceptors**	3.8 (2.3)	4.9 (3.1)

Groups are significantly different at

**P* < 0.01;

***P* < 0.001.

incremental increases between each of the three time-periods (rural: T1 mean = 166.4, T2 mean = 180.3, T3 = 195.5, *P* < 0.001; urban: T1 mean = 168.5, T2 mean = 178.4, T3 = 194.6, *P* < 0.001).

In further analysis of the job satisfaction subscales rural and urban differences were found. Urban residents had significantly higher scores at T3 compared with T1 and T2 in the quality of care subscale (T1 mean = 24.6, T2 mean = 24.5, T3 mean = 25.6, *P* < 0.01) and time for care subscale (T1 and T2 mean = 13.7, T3 mean = 14.5, *P* < 0.01) while rural residents had significantly higher scores at T3 compared with only T1 for the subscales of quality of care (T1 mean = 25.7, T3 mean = 27.2, *P* < 0.05) and time

Table 2

Programme outcomes: time by group means and standard error of mean (SEM)

Total scale/subscales	Time 1 (baseline), mean ± SEM		Time 2 (6 months), mean ± SEM		Time 3 (12 months), mean ± SEM	
	Rural	Urban	Rural	Urban	Rural	Urban
Decision making	144.0 ± 1.57	143.5 ± 0.65	143.3 ± 1.64	142.1 ± 0.68	145.6 ± 1.73	143.9 ± 0.72, B*
Job satisfaction	82.6 ± 1.24	79.7 ± 0.61	82.3 ± 1.33	78.4 ± 0.64	85.7 ± 1.34*	81.2 ± 0.65, B***
Enjoyment	42.6 ± 0.67	41.3 ± 0.35	41.8 ± 0.71	40.2 ± 0.34, A*	42.8 ± 0.72	41.0 ± 0.35
Quality of care	25.7 ± 0.4	24.6 ± 0.22	26.0 ± 0.5	24.5 ± 0.24	27.2 ± 0.5, A*	25.6 ± 0.24, A**, B***
Time for care	14.3 ± 0.41	13.7 ± 0.20	14.5 ± 0.44	13.7 ± 0.21	15.7 ± 0.44, A*	14.5 ± 0.22, A**, B***
Job stress	47.6 ± 0.98	49.5 ± 0.48	47.2 ± 1.05	49.9 ± 0.50	43.0 ± 1.06**, A***, B**	47.6 ± 0.52, A**, B***
Competence	14.6 ± 0.32	14.7 ± 0.16	13.6 ± 0.35, A*	14.0 ± 0.17, A***	11.7 ± 0.35, A***, B***	12.6 ± 0.17, A***, B***
Physical environment	9.0 ± 0.28**	10.2 ± 0.14	9.3 ± 0.31**	10.6 ± 0.15	9.5 ± 0.31*	10.6 ± 0.15
Staffing	13.8 ± 0.38	14.4 ± 0.19	14.4 ± 0.4	15.2 ± 0.20, A***	12.9 ± 0.4***, B*	14.8 ± 0.21
Team respect	10.2 ± 0.30	10.2 ± 0.15	9.8 ± 0.32	10.1 ± 0.16	8.9 ± 0.33, A**	9.6 ± 0.16, A***, B***
Nursing performance	166.4 ± 2.80	168.5 ± 1.38	180.3 ± 3.02, A***	178.4 ± 1.46, A***	195.5 ± 3.06, A***, B***	194.6 ± 1.50, A***, B***
Organisational commitment	76.1 ± 1.52	78.5 ± 0.74	74.1 ± 1.62	74.6 ± 0.78, A***	75.4 ± 1.65	74.8 ± 0.80, A***

Within-sample differences: A, significant difference within sample (rural or urban) from Time 1 (baseline); B, significant difference within sample (rural or urban) between Time 2 (6 months) and Time 3 (12 months). Between-sample differences: bold type indicates significant differences between rural and urban residents at a specific time; level of significance between the sample means is identified adjacent to rural mean values.

**P* < 0.05;

***P* < 0.01;

****P* < 0.001.

for care (T1 mean = 14.3, T3 mean = 15.7, $P < 0.05$). Urban residents also had significantly lower mean scores on the job satisfaction enjoyment subscale at T2 compared with T1 (T1 mean = 41.3, T2 mean = 40.2, $P < 0.05$), while rural nurses had no significant changes over time. Finally, the job stress staffing subscale scores showed that rural residents had significantly lower mean scores at T3 compared with T2 (T2 mean = 14.4, T3 mean = 12.9, $P < 0.05$) while urban residents' scores at T3 were not significantly different from either time-period and scores at T2 were significantly higher than T1 (T1 mean = 14.4, T2 mean = 15.2, T3 mean = 14.8, $P < 0.001$).

Differences between rural and urban resident groups over time

Job stress and job satisfaction total scale scores were found to be significantly different between rural and urban nurse residents at specified time-periods, as shown in Table 2 and depicted in Figures 1 and 2. Post hoc analysis revealed that rural residents had significantly higher job satisfaction scores at residency programme end as compared with urban residents (rural = 85.7, urban = 81.2, $P = 0.03$). Rural residents had significantly lower job stress scores at programme end compared with urban residents (rural = 43.0, urban = 47.6, $P = 0.002$). As seen in Figure 3 rural residents also scored significantly lower at all three time-periods on the job stress physical environment subscale (T1: rural = 9.0, urban = 10.2, $P = 0.001$; T2: rural = 9.3, urban = 10.6, $P = 0.003$; T3: rural = 9.5, urban = 10.6, $P = 0.03$) and scored significantly lower in the job stress staffing subscale at the end of the programme (rural = 12.9, urban = 14.8, $P < 0.001$), as illustrated in Figure 4.

There were no significant interactions between hospital setting (rural *vs.* urban) and time for any of the dependent variables total scale scores, although there was a significant interaction effect between hospital setting and time for the staffing subscale of the Job Stress Scale ($F_{2,571} = 4.06$, $P = 0.02$). This resulted in different patterns of change between rural and urban residents across the three measurement points (Figure 4). For both populations, mean levels of stress related to staffing peaked at the programme midpoint. However, at the programme's end, rural residents' mean stress scores were the lowest while urban residents' scores were not significantly different from either the baseline or programme midpoint levels.

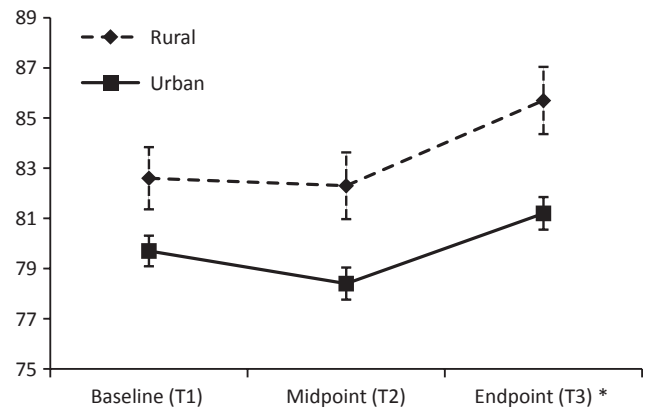


Figure 1

Job satisfaction by nurse resident group and time. Error bars indicate standard error of the mean. *Significant difference ($P < 0.05$) between rural and urban nurse residents at programme endpoint (12 months).

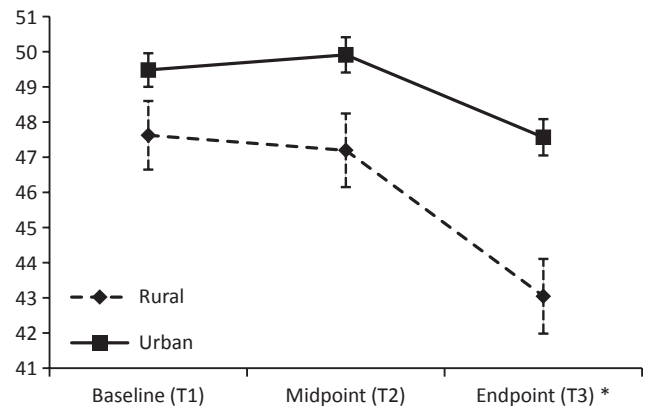


Figure 2

Job stress by nurse resident group and time. Error bars indicate standard error of the mean. *Significant difference ($P < 0.01$) between rural and urban nurse residents at programme endpoint (12 months).

Discussion

During their primary nursing education programme, rural and urban nurse residents had similar exposure to coursework that prepared them for professional role socialization; however, urban residents had greater opportunities to work with preceptors. Even though the rural residents were predominantly ADNs, who typically have fewer hours of pre-licensure education compared with baccalaureate-prepared nurses, this did not appear to adversely influence their perceptions of their transition to practice. Further exploration of the differences between educational

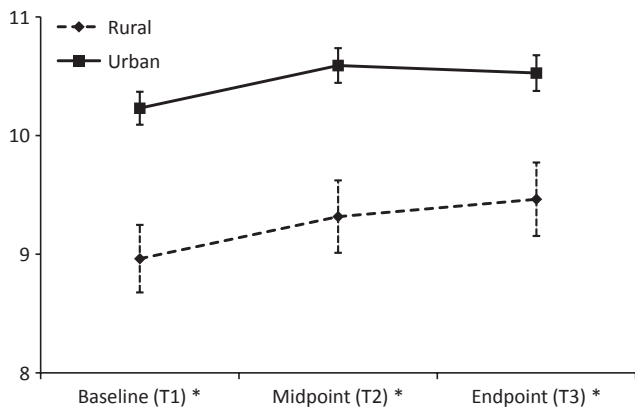


Figure 3

Job stress physical work environment subscale by nurse resident group and time. Error bars indicate standard error of the mean. *Significant differences $P < 0.01$) between rural and urban nurse residents at all times.

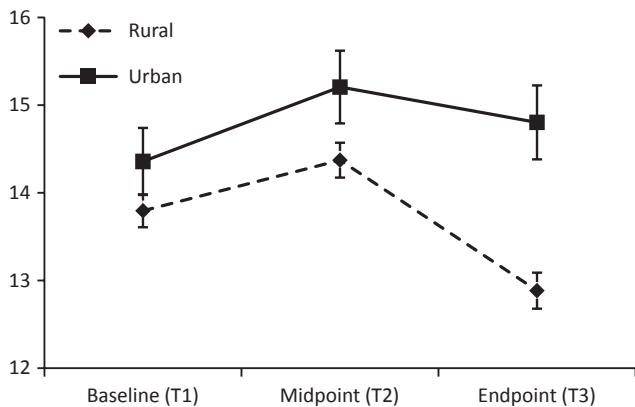


Figure 4

Job stress staffing subscale. Interaction between nurse resident group (rural vs. urban) and time. Error bars indicate standard error of the mean. *Significant at $P < 0.05$.

preparation and its influence on the transition experience of ADNs and BSNs is warranted.

Rural nurse residents reported working with fewer preceptors during their initial post-hire orientation period than their urban colleagues. This finding is not surprising as rural hospitals have smaller numbers of staff nurses and therefore a smaller preceptor pool. As increased number of preceptors has been associated with increased stress levels (Squires 2002), rural residents' exposure to fewer preceptors may provide for consistency that not only decreases stress but also accelerates achievement of the orientation goals.

Rural residents experienced higher levels of job satisfaction and lower levels of stress compared with urban residents. Other studies have mixed findings when comparing rural and urban nurses' job satisfaction (Ingersoll *et al.* 2002, Ndiwane 2003, Albion

et al. 2005, Baernholdt & Mark 2009). In our study, urban residents reported higher job stress levels related to the work environment and staffing when compared with rural residents. This confirms previous findings where urban nurses experienced higher job stress in relationship to the physical work environment and staffing (Albion *et al.* 2005).

There are several plausible explanations for the differences in both satisfaction and stress found in this study. First, the unique context of nursing care delivery and characteristics of nursing practice in rural and urban hospital settings may account for the differences in nurses' job satisfaction and job stress found in the study. In urban settings the faster work pace and higher patient acuity may be perceived as more stressful by the nurses despite having more resources readily available to them. On the other hand, the lower levels of stress found in rural nurses may be attributed to higher levels of autonomy because they are required to function more independently. More autonomy has been associated with higher positive perceptions of the work environment and enhanced job effectiveness, both of which contribute to less stress (Laschinger *et al.* 2003, Lee & Winters 2006, Krebs *et al.* 2008). Finally, job satisfaction and intention to stay have been associated with other features of rural nursing practice, such as cohesiveness and strong teamwork (Hegney *et al.* 2002, Zibrik *et al.* 2010). Nurse residency programmes can help the new graduate nurse adjust to these unique features of the work environment in rural and urban hospital settings.

Second, Karasek's (1979) model of Job Demand and Job Decision may further explain the differences in job satisfaction and job stress between rural and urban residents. In this model, high job demands coupled with decreased autonomy (job decisions) to deal with stressors and control work activity result in mental job strain and contribute to job dissatisfaction. Social support can diminish job demands and subsequently increase job satisfaction (Hausser *et al.* 2010), whereas lack of social support and work overload contribute to emotional exhaustion or burnout and turnover (Janssen *et al.* 1999). A nurse residency programme is a way to provide critical social support and collegial network throughout the first year of practice.

Third, applying the construct of job embeddedness advanced by Mitchell *et al.* (2001) may offer insight as to the variances in job satisfaction between the rural and urban residents. Job embeddedness (comprising three elements: perception of links to other people; fit with the organisation and community, and sacrifice associated with leaving the job) has been

related to job satisfaction, organisational commitment, and turnover. Because of the smaller number of staff members in rural hospitals and nurses' respected role in the community, rural nurses may perceive increased associations or links with their work group and their community, which more notably influences their job satisfaction. Nurses practicing in urban settings typically do not have this community connection. For rural nurses, community involvement is a source of pride and it has been strongly associated with rural nurses' values and perception of their professional role (Zibrik *et al.* 2010). Nurse residency programmes tailored to rural settings can help new nurses realize the advantages of the higher levels of job embeddedness in rural areas.

Lastly, it is plausible that the residency programme filled a more critical professional development void for rural residents than for urban residents. Unlike nurses in urban settings, nurses in rural health-care organisations typically have more limited professional development opportunities and fewer resources to guide their transition to practice. Based on this, the rural residents may have viewed the residency programme as the primary educational vehicle to help them learn and grow as professionals. Involvement in the programme may also have made the rural residents feel privileged and valued by their organisation, thereby increasing their satisfaction. Urban settings tend to have more continuing education options to meet staff learning needs. Hence, urban residents most likely had greater access to professional development activities and may have perceived fewer unique programme benefits, which could have led to less engagement in the learning process. The 84% response rate of rural residents participating in this study compared with only 58% of urban residents supports this notion of the different engagement between the groups. Finally, the residency programme also provided the crucial element of peer social support that rural new graduates typically lack, which may have more significantly influenced their satisfaction and promoted stress resiliency.

Rural residents' organisational commitment did not significantly change during the residency programme, whereas urban nurses' organisational commitment was significantly higher at the start of the programme than at the programme midpoint and end. As job satisfaction is a significant predictor of organisational commitment (Bratt & Felzer 2012), for rural residents, their sustained job satisfaction during the residency programme may be serving to maintain their commitment to the organisation. The stability of

organisational commitment throughout the programme for rural residents may reflect the lack of other job choices, leading to an increased dedication to their employing hospital or a commitment to their community and hospital, as described in previous studies (Baernholdt & Mark 2009, Baernholdt *et al.* 2010)

Increasing professional competency is an expected outcome during the first year of practice for new nurses. In the present study, rural and urban residents demonstrated almost identical paths in their ascent of the steep learning curve to become competent health-care practitioners. The two groups did not significantly differ in perceptions of their ability to perform activities associated with their nursing role. These findings support the idea that regardless of setting, new graduate nurses undergo significant increase in knowledge and rapid skill acquisition. It is interesting to note that decision-making at the end of the programme was not significantly different from the baseline measure for either group. However, at the programme midpoint urban residents reported significantly lower decision-making scores than at programme endpoint. Diminished decision-making scores at the programme midpoint may reflect a 'crisis in confidence'. This crisis includes feelings of inadequacy in clinical knowledge and the ability to make decisions that new graduates can experience during the process of becoming a professional (Duchscher 2008, Bratt & Felzer 2011). The lack of increase in decision-making in the nurse residents may be because it has been found that this critical skill takes longer than a year to develop (Benner *et al.* 2009).

Strengths and limitations

To our knowledge, this is the first study to compare rural and urban nurse residency programme outcomes. Our results can be used to create a residency programme that is best matched to either setting. Our findings also add to the body of knowledge about new nurses' professional role socialization and illustrate differences in nurses' perceptions based on hospital setting. It contributes to the growing evidence around the influence of a nurse residency programme in fostering effective transition to practice. The study took place in one Midwestern State in the USA, therefore the findings may not be generalizable to other States and countries. Dissimilarities in sample size, variability and response rate between the rural and urban residents are also limitations. Finally, it is not

known whether the type of education degree that residents possessed contributed to differences found between samples or whether data were biased because of possible differences between non-respondents and participants.

Conclusions

This study provides compelling evidence that rural and urban nurse residents differed in their perceptions of their work environment during the residency programme. Particularly at the end of the programme, rural residents had higher levels of job satisfaction and lower levels of stress compared with urban residents. The unique context of rural *vs.* urban nursing practice – particularly nurses' relationship with their community, aspects of the work setting, patient acuity, professional autonomy and role demands – may best account for the differences found. Furthermore, because of the professional isolation that new rural nurses experience, rural residents may have received more benefits from the social support aspect of the residency programme, which could have contributed to promoting job stress resiliency. While future studies to examine the possible impact of nurse residency programmes on patient and organisational outcomes as well as cost effectiveness of these programmes are needed, our results suggest that a nurse residency programme is a viable mechanism to guard against factors that promote new graduate nurse turnover and therefore deserves dedication of financial and staff development resources.

Implications for nursing management

These results suggest that a well-designed nurse residency programme has deeply embedded elements that retain nurses in their jobs, including maintenance of clinical skill competence, presence of a social support network, access to further training, and guidance from experienced nurses (Hegney *et al.* 2002). A residency programme is a valuable organisational investment as part of a hospital's continuing education and staff development activities, which ultimately increases organisational commitment and decreases nurse turnover (Stone *et al.* 2007, Rondeau *et al.* 2009, Dawley *et al.* 2010). Based on our results, management efforts to diminish work environment factors that cause stress (adequacy of supplies, access to resources and staffing to enable nurses to deliver care) are worthwhile. Special attention is warranted for rural settings where nurses have fewer support services and tend to rely

more heavily on managers for support. Rural nurses appear to highly value managers' assistance with physical work tasks (MacPhee & Scott 2002). As nurse staffing is associated with job satisfaction and intention to leave (Wagner 2007, Letvak & Buck 2008), it is essential to ensure that there are appropriate personnel and other resources for nurses in both rural and urban areas.

In rural settings, fitting in, having a sense of belonging and satisfaction with the community are extremely important to nurses' job satisfaction and intention to stay (Hegney *et al.* 2002, Berkus & MacLeod 2004, Penz *et al.* 2008). Therefore, it is important that rural managers take steps to ensure appropriate socialization of new nurses, not only to the workplace but also to the community. Upon hiring, rural nurse managers may find it valuable to deploy strategies that foster new nurses' connection to the community, such as providing information on community events and encouraging involvement in these activities (Stroth 2010).

Furthermore, based on the differences between rural and urban nursing practice, a nurse residency programme must take into consideration the unique attributes of nursing care delivery that are setting-driven. This will result in creation of a programme that is specifically tailored to building new nurses' competency to deliver population-specific care within the context of their respective health-care organisations and communities.

Lastly, as this study found that rural nurse residents had increased job satisfaction and decreased stress compared with urban residents, nurse residency programmes can be powerful marketing tools to attract newly licensed nurses to the rural hospital setting. In the current economic climate many recently graduated nurses are finding it increasingly challenging to find jobs in urban hospital settings. Rural hospital nursing is an extremely attractive alternative, especially if new nurses are offered the professional development education and a social support network that a nurse residency programme provides. Regardless of setting, a nurse residency programme is a powerful recruitment tool and can serve to maintain a competent nurse workforce.

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Ethical approval

This study protocol was approved for the protection of human subjects and ethical practices by the Marquette University IRB (Protocol #HR-1124).

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