Nursing Practice Environment and Registered Nurses' Job Satisfaction in Nursing Homes

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Purpose: Recruiting and retaining registered nurses (RNs) in nursing homes is problematic, and little research is available to guide efforts to make nursing homes a more attractive practice environment for RNs. The purpose of this study was to examine relationships between aspects of the nursing practice environment and job satisfaction among RNs in nursing homes. Design and **Methods:** The sample included 863 RNs working as staff RNs in 282 skilled nursing facilities in New Jersey. Two-level hierarchical linear modeling was used to account for the RNs nested by nursing homes. **Results:** Controlling for individual and nursing home characteristics, staff RNs' participation in facility affairs, supportive manager, and resource adequacy were positively associated with RNs' job satisfaction. Ownership status was significantly related to job satisfaction; RNs working in for-profit nursing homes were less satisfied. Implications: A supportive practice environment is significantly associated with higher job satisfaction among RNs working in nursing homes. Unlike other nursing home characteristics, specific dimensions of the nursing practice environment can be modified through administrative actions to enhance RN job satisfaction.

Key Words: Nursing home organization, Nurse outcome, Multilevel modeling

Background

Over the past three decades, concerns regarding the adequacy of the nursing workforce and quality of care in long-term care settings have been well documented in the literature (Castle, 2008; Collier & Harrington, 2008). Although staffing levels have received much attention as a predictor of nursing staff turnover and care quality (Castle, 2008; Collier & Harrington, 2008), job satisfaction has been found to be significantly associated with intent to leave and turnover among nursing staff in nursing homes (Castle, Engberg, Anderson, & Men, 2007; Kash, Naufal, Dagher, & Johnson, 2010), which can ultimately affect the quality of residents' care.

Registered nurse (RN) job satisfaction has been a focus of study for many years. At the individual level, job dissatisfaction has been recurrently identified as the most important reason that hospital-based RNs leave their jobs (Hayes et al., 2006; Kovner, Brewer, Greene, & Fairchild, 2009). A supportive practice environment has been found to be particularly essential for RN satisfaction and retention. A supportive nursing practice environment is defined as the presence of a core set of organizational traits that support professional nursing practice (Aiken, Clarke, & Sloane, 2002). These include high standards of quality care, adequate resources, collegial nurse-physician relationships, a supportive and competent nurse manager, and staff nurse participation in facility decisions (Lake, 2007). A large number of empirical studies have found that a supportive nursing practice environment in hospitals is associated with higher RN job satisfaction (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011; Patrician, Shang, & Lake, 2010).

Yet, unlike acute care settings, most nursing home residents are frail older people suffering from multiple chronic conditions and having cognitive or physical impairments. The care provided in nursing homes involves heavy physical care. The shortage of RNs, as well as fiscal constraints, have merged to create lower RN-to-resident ratios, higher RN workloads, and an increased dependency on certified nursing assistants (CNAs) in this important care setting (Feng, Grabowski, Intrator, Zinn, & Mor, 2008; Maas, Specht, Buckwalter, Gittler, & Bechen, 2008). Thus, the role of RNs practicing in nursing homes has become increasingly complex, involving not only resident care responsibility but also the supervision and delegation of care provided by licensed practical nurses (LPNs) and nursing assistants. Perhaps consequently, some studies have found that licensed nurses practicing in nursing homes were less satisfied with their work than nursing assistants (Lapane & Hughes, 2007; Tyler et al., 2006).

A variety of other factors related to satisfaction of RNs working in nursing homes have been identified, including work-related, demographic, and facility characteristics. Consistent with the factors identified in the studies of hospital-based RN satisfaction, a few studies have investigated some aspects of the work environment and found job conflict, rewards, care quality, staffing, and promotional opportunities to be related to nursing home RN satisfaction (Castle, Degenholtz, & Rosen, 2006; Moyle, Skinner, Rowe, & Gork, 2003; Tyler et al., 2006). In addition to the influence of work environment on job satisfaction, demographic characteristics, such as age and education, have been found to have empirical association with job satisfaction among nursing staff working in nursing homes (Karsh, Booske, & Sainfort, 2005). For example, older RNs tend to be more satisfied with their work than younger RNs.

Nursing home characteristics, including staffing levels, bed size, chain membership, Medicaid census, and ownership status, are traditional facility factors that have been found to be associated with nursing staff job satisfaction and turnover. A systematic review of the literature indicated that staffing levels and ownership status are frequently linked to nursing staff turnover and quality care in nursing homes (Bostick, Rantz, Flesner, & Riggs, 2006; Collier & Harrington, 2008). For example, lower staffing levels, lower care quality, and forprofit nursing homes are associated with higher nursing staff turnover (Castle & Engberg, 2006). In a study limited to California, Harrington and Swan (2003) found that RN staffing levels were negatively associated with nurse staff turnover and forprofit nursing homes had lower RN staffing levels. A study investigating job satisfaction among CNAs found that ownership status was related to CNAs' job satisfaction (Decker, Harris-Kojetin, & Bercovitz, 2009), in that CNAs working in for-profit nursing homes had lower satisfaction. Another study examining job satisfaction among directors of nursing (DON) in nursing homes showed that DONs working in for-profit nursing homes are less satisfied with their jobs and more likely to be planning to leave their jobs (Kash et al., 2010). Moreover, although recent findings indicate an association between ownership status and characteristics of the nursing practice environment (Flynn, Liang, Dickson, & Aiken, 2010), little is known about how nursing home characteristics affect job satisfaction among RNs working in nursing homes.

Consistent with the focus on the practice environment in acute care settings, interest in the practice environment within nursing homes has been growing in recent years. Numerous initiatives in nursing homes (e.g., Wellspring and Better Jobs Better Care [BJBC]) have been proposed to improve nursing home working conditions. However, few studies have been conducted to quantify the influence of the practice environment, overall, as well as specific dimensions of the practice environment on RN job satisfaction in nursing homes. Therefore, the purpose of this study was to examine the relationship between RNs' overall perceptions of their nursing practice environment and their job satisfaction, as well as the relationships between specific aspects of the nursing practice environment, as conceptualized in numerous hospitalbased studies (Aiken et al., 2002; Lake, 2007) and RNs' ratings of their satisfaction.

Conceptual Model

The guiding conceptual framework for this study was the Nursing Organization and Outcomes

Model (Aiken et al., 2002), which posits that the organizational context in which care takes place, as represented by the nursing work environment, mediates the impact of structural characteristics. such as staffing levels, bed size, and ownership status, on RN job satisfaction. The model is an elaboration of Donabedian's (1966) conceptualization that structure affects process, which in turn affects outcomes. The Nursing Organization and Outcomes Model posits that five dimensions of the nursing practice environment, including staff RNs' participation in facility affairs, foundations for quality care, adequate resources, a supportive manager, and collaborative RN-physician relationships, are important predictors of RN job satisfaction, even after controlling for structural characteristics, such as staffing and ownership status. The advantage of this conceptualization is the addition of potentially modifiable features of organizations, such as involvement of RNs in decision making that, if found to be related to outcomes, have direct implications for actionable changes in organizational design as compared with the more difficult to modify structural characteristics of organizations, such as size and type of ownership. The model has been supported by extensive hospital-based studies (Aiken et al., 2002; McHugh et al., 2011; Patrician et al., 2010). Thus, the relationship between the nursing practice environment and job satisfaction has been examined while controlling for facility characteristics and staffing levels. The structural variables that we examine in this study include those found in previous research to be related to quality outcomes in nursing homes: staffing levels, bed size, and ownership status (Flynn et al., 2010).

Methods

Data Sources and Sample

We conducted a secondary data analysis using a subset of nurse survey data collected in 2006 from RNs licensed in New Jersey as part of a collaborative parent study entitled the Multi-State Nursing Care and Patient Safety Study (Aiken et al., 2010). The parent study collected responses regarding nurses' working conditions from a large random sample of RNs in Pennsylvania, California, Florida, and New Jersey. The sampling frame was the state licensure lists of RNs maintaining an active license in each state. Randomly selected RNs were included in all employment settings because the licensure lists have no information about

employment. In New Jersey, the comprehensive survey, including items about employment, demographics, nurse practice environment, and job satisfaction was mailed to a random sample of 44.343 RNs, which represented 50% of all RNs licensed and living in New Jersey. A 50% response rate vielded a data set of 22,406 RN respondents. The New Jersey survey was unique; it included items not only for RNs employed in hospitals but also for RNs working in nursing homes and home health agencies. Prior to distribution, the survey items were extensively pilot tested to establish the face validity and clarity of items with focus groups of RNs working in acute care hospitals, nursing homes, and home health care. Respondents were asked to provide the name of their institutions where they worked at the time of survey.

Of the New Jersey RNs (n = 22,406) that participated in the survey, 1,143 or 5.1% of the sample indicated that they currently worked in nursing homes. Of these 1,143 RNs, a total of 880 RNs indicated that they practiced in nursing homes as staff RNs; 863 returned completed surveys. Eligible nursing homes for the current study were Medicare- and Medicaid-certified nursing homes located in New Jersey. As a result, the final sample consisted of 863 RNs working in 282 nursing homes of New Jersey's 347 certified nursing homes. The number of RN respondents per nursing home ranged from 1 to 17, with a mean of 4.92 (SD = 3.57).

The publicly available Nursing Home Compare (NHC) data for New Jersey certified nursing homes were downloaded for the same 3-month period in which RN survey data were collected to obtain concurrent nursing home–level information for the sample of 282 nursing homes included in the study. Nursing home data such as staffing levels, bed size, and ownership status were then linked to survey responses from the final sample of 863 staff RNs.

Measures

RNs' satisfaction was measured using nine items, developed and tested in previous studies (Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Aiken et al., 2002). The nine items reflect respondents' satisfaction with specific aspects of their jobs, including opportunities for advancement, work schedule, independence, salary and benefits, and overall job satisfaction. The items are scored using a 4-point Likert-type scale. The potential mean scores for job satisfaction range from 1 to 4 and higher scores indicate higher job satisfaction. The internal consistency reliability coefficient for these items was .83 in the current sample.

The Practice Environment Scale of the Nursing Work Index (PES-NWI; Lake, 2002), a nationally endorsed nursing performance measure bv National Quality Forum (2009), was used to measure the extent to which supportive practice environment attributes were present in the nursing homes. The PES-NWI comprises 31 items in five subscales, reflecting core attributes of professional nursing practice. The subscales and the example items are as follow: (a) staff RNs' participation in facility affairs, represented by items such as "there is opportunity for staff RNs to participate in policy decisions"; (b) foundations for quality care, represented by items such as "high standards of nursing care are expected by the administration"; (c) resource adequacy, represented by sample item "enough staff to get the work done"; (d) supportive manager, represented by such items as "a nurse manager who is a good manager and leader"; and (e) collaborative RN-physician relationships, indicated by items including "RNs and physicians have good working relationships." RNs were asked to rate the extent to which they agree that each item is present in their current jobs on a 4-point scale, ranging from 1 (strongly disagree) to 4 (strongly agree). In accordance with scoring instructions (Lake, 2002), we calculated mean scores on each of the five subscales, and a single composite of the PES-NWI (31 items) was calculated by averaging the means for all of the subscales. The possible scores range from 1 to 4; higher scores indicate the presence of a more supportive practice environment. Reliability and validity of the PES-NWI have been established in various settings including hospitals (Gajewski, Boyle, Miller, Oberhelman, & Dunton, 2010; Lake, 2002; Lake & Friese, 2006) and home health agencies (Flynn, 2007). Content validity of the PES-NWI was established in a sample of RNs and LPNs working in New Jersey nursing homes. At least 80% of nurses in the sample agreed that each item on the PES-NWI represented a characteristic of a supportive nursing practice environment (Flynn, Dickson, & Moles, 2007). Reliability of the total composite score and each of the five subscales of the PES-NWI were assessed for the current sample at the RN level and at the nursing home level in a previous analysis (Flynn et al., 2010). Results indicated the composite score to be highly internally consistent at the RN level ($\alpha = .95$), as were each of the five subscales, with alphas ranging from .83 to .89.

Demographic characteristics included age (in years) and highest nursing education level (diploma or associate degree = 0, bachelor's degree or higher = 1). Three nursing home characteristics were incorporated from the NHC database: number of beds as a measure of size, ownership status (for-profit = 1, not-for-profit = 0), and staffing levels of RNs, LPNs, and CNAs, as measured by minutes of care per resident day.

Analyses

The structure of the linked data set used in this study was hierarchical; RNs nested within nursing homes. RNs in the same nursing homes may tend to be more similar to each other than those in different nursing homes because they share similar experiences within the nursing home where they worked. This leads to misestimated standard error, resulting in the increase of Type I error (Bickel, 2007). Multilevel analysis is a superior technique to address this issue. Thus, hierarchical linear modeling was performed to account for the RNs nested by nursing homes. Prior to conducting the analyses, the data were screened for statistical assumptions (e.g., normality). Staffing levels had an extremely positive skewness; however, modeling with and without transformation of the variables yielded results that did not differ considerably. Thus, the decision was made to use untransformed variables. Multicollinearity was checked by examining the bivariate correlations. Consistent with previous findings (Gajewski et al., 2010; Leiter & Spence Laschinger, 2006), there were correlations among all the subscales and job satisfaction (see Table 1). In the multilevel model, collinearity among predictors is an issue when cross-level interactions are examined. Thus, all predictors were grand-mean centered to reduce the effect of multicollinearity and to increase the ability of interpretation (Bickel, 2007).

Two-level hierarchical linear models were constructed to examine the relationship of the nursing practice environment overall as well as the specific subscales of the PES to RN job satisfaction. Included in the model were three RN-level, or "Level-1", predictors (age, education, and nursing practice environment) and three nursing homelevel, or "Level-2", predictors (bed size, ownership status, and staffing levels). Individual-level composite

Table 1. Correlations Between Practice Environment Subscales and Job Satisfaction

	M(SD)	Range	1	2	3	4	5
1. Participation in affairs	2.58 (0.69)	1–4					
2. Foundation for quality	2.94 (0.61)	1-4	.832*				
3. Supportive manager	2.80 (0.77)	1-4	.823*	.763*			
4. Resource adequacy	2.61 (0.76)	1-4	.705*	.694*	.684*		
5. RN-MD relationships	3.06 (0.67)	1-4	.536*	.585*	.534*	.471*	
6. Job satisfaction	2.91 (0.58)	1-4	.591*	.557*	.568*	.561*	.363*

*p < .001.

scores of the PES-NWI and five subscale scores of the PES-NWI were used in two separate series of modeling. Model testing was conducted in several steps using restricted maximum likelihood estimation for estimating the parameters. First, in the unconditional model (a model without any predictors), RN job satisfaction was tested. Second, only Level-l predictors were examined and then each predictor was allowed to be random, one at a time. Third, only Level-2 predictors were examined. Lastly, a model including both Level-1 and Level-2 predictors was tested and then possible cross-level interactions (e.g., Ownership Status × Practice Environment) were examined. All analyses were performed using SPSS version 18. The best model was determined based on the values of $-2 \log$ likelihood in which the smallest value indicates the best model.

Results

Sample Characteristics

Characteristics of RNs and nursing homes in the sample are presented in Table 2. With respect to age and the percentage of full-time employment, the sample of RNs had similar characteristics with those of a national sample of RNs working in nursing homes as reported by the 2008 National Sample Survey of Registered Nurses (Health Resources and Service Administration, 2010). However, educational level, as indicated by the highest nursing degree, was slightly higher in the sample; a total of 35.6% of sample RNs reported a bachelor's degree or higher as their educational preparation compared with 30.5% of RNs practicing in nursing homes, nationwide. In addition, although the mean number of beds was similar to that of nursing homes nationwide, the percentage of for-profit facilities in the sample was 64.5%; a proportion that is slightly higher than 61.5% nationwide (National Center for Health Statistics, 2006).

Multilevel Analyses

Two-level hierarchical models were estimated to examine the relationship between RNs' perception of the nursing practice environment and job satisfaction in nursing homes. Of the models tested in several steps, the final full model, including both Level-1 and Level-2 predictors, was the best model with the smallest log likelihood value. Only the final models are presented here.

Table 3 shows the results from the two final models, indicating the relationships of overall and specific dimensions of the nursing practice environment to RN job satisfaction in nursing homes. The overall nursing practice environment was a significant predictor of RNs' job satisfaction (t = 21.64, p < .001), controlling for individual and nursing home characteristics. For each 1-unit

Table 2. Characteristics of the Sampled RNs (n = 863) and Nursing Homes (n = 282)

Characteristics	N (%)	M (SD)
RNs		
Age (years)		51.25 (9.87)
Gender (female)	818 (94.8)	
Full-time	385 (44.6)	
Highest educational level		
All other	556 (64.4)	
Bachelor's degree	307 (35.6)	
or higher		
Nursing homes		
Ownership status	182 (64.5)	
(for-profit)		
Bed size (range: 17-547)		171.53 (95.01)
Staffing levels (in minutes)		
RN MPRD		42.71 (24.06)
LPN MPRD		42.84 (19.78)
CNA MPRD		131.10 (25.95)

Note: All other = diploma or associate degree; CNA = certified nursing assistant; LPN = licensed practical nurse; MPRD = minutes of care per resident day; RN = registered nurse.

	Overall PES	PES subscales	
	Coefficient (SE)	Coefficient (SE)	
Fixed effects			
Intercept	2.904** (0.018)	2.903** (0.018)	
Level 1			
PES (total composite score)	0.586** (0.027)		
Participation in facility affairs		0.210** (0.049)	
Foundations for quality of care		0.055 (0.052)	
Resource adequacy		0.119* (0.039)	
Supportive manager		0.183** (0.031)	
RN–MD relationships		-0.025 (0.030)	
Age	0.001 (0.002)	0.002 (0.002)	
Education	-0.052 (0.035)	-0.060 (0.034)	
Level 2			
For-profit facility	-0.182** (0.040)	-0.182** (0.040)	
Bed size	-0.000(0.000)	-0.000(0.000)	
RN MPRD	0.000 (0.001)	0.000 (0.001)	
LPN MPRD	0.000 (0.001)	0.000 (0.001)	
CNA MPRD	0.000 (0.002)	0.000 (0.001)	
Random effects			
Intercept	0.020* (0.007)	0.019* (0.007)	
Residual	0.156 ** (0.011)	0.170** (0.010)	
-2 log likelihood	991.975	976.464	

Table 3. Results of the Final Models of Job Satisfaction Among RNs in Nursing Homes

Notes: CNA = certified nursing assistant; LPN = licensed practical nurse; MPRD = minutes of care per resident day; PES = Practice Environment Scale; RN = registered nurse. The information on intermediate analyses is available from the authors. *p < .05. **p < .001.

increase in the composite score of the PES-NWI, RN's job satisfaction increased .586 points, on average. Of the five dimensions of a professional practice environment, staff RNs' participation in facility affairs (t = 4.33, p < .001), supportive manager (t = 3.05, p = .002), and resource adequacy (t = 5.89, p < .001) were positively associated with RN job satisfaction. No statistically significant associations were found between foundations for quality of care or nurse-physician relationships and RN job satisfaction. In both models, age and education level were also not significant predictors of RN job satisfaction. Among nursing home-level predictors, only ownership status was found to be significant in relation to RNs' job satisfaction. RNs employed in for-profit nursing homes were less satisfied than those working in not-for-profit nursing homes. We examined whether the relationship between the practice environment and RN job satisfaction differs by nursing home characteristics (e.g., ownership status). None of them was found to be significant (data not shown).

Discussion

The positive relationship between a supportive nursing practice environment and RN job satisfaction has

been well demonstrated in a large body of hospitalbased research. This study extended the line of inquiry into the nursing home setting. Consistent with the relationships proposed in the Nursing Organization and Outcomes Model (Aiken et al., 2002), findings from this study indicate that a more supportive practice environment significantly contributes to higher RN job satisfaction. In particular, among five core aspects of the practice environment, participation in facility affairs, supportive manager, and adequate resources were found to be associated with job satisfaction among RNs practicing in nursing homes. Perhaps, the nurse-physician relationship was not significant because physician involvement may be less intense in the care of nursing home residents. Collaboration with physicians may be less of critical issue among RNs practicing in nursing homes compared with those who practice in acute care settings.

Participation in facility affairs refers to opportunities for staff RNs to provide input into organizational decisions on practice and policy. This aspect of a supportive practice environment is also frequently characterized by a supportive and effective administration that listens and responds to staff RNs' concerns for daily problems and procedures (Lake, 2007). Although some nursing homes are developing person-centered cultures that allow staff member involvement in decisions about resident care and organizational policies (Tellis-Navak, 2007), most decisions are still made at the administrative level. Findings from this study indicate, however, that nursing home administrators wishing to enhance RN job satisfaction should give careful consideration to implementing a selfgovernance model. A self-governance model provides staff RNs with the opportunity and responsibility to develop their own work schedules and assignments, provides input into hiring decisions, and exerts authority over the content and context of nursing care through input into policies, practices, and nursing protocols (Hess, 2004). Selfgovernance has been found to facilitate the opportunities of staff RNs to provide meaningful input into clinical and facility-level decisions and to improve job satisfaction among staff RNs in hospitals (Upenieks, 2003).

The second aspect of the practice environment associated with job satisfaction in this study involved supportive manager. This aspect of the practice environment includes the manager's ability, leadership, and support for RNs. Nursing home managers can make a significant contribution to RN satisfaction by supporting the nursing staff in practice of nursing care, promoting teamwork, and ensuring that staff RNs receive recognition for a job well done.

Lastly, adequate resources reflect the presence of appropriate support services and sufficient staffing that enable RNs to accomplish their work, spend adequate time with their residents, and provide a high level of quality care. Although findings indicated facility-reported staffing levels had no relationships with RN job satisfaction, RN-reported resource adequacy was positively associated with this outcome. Importantly, previous research indicated that resource adequacy ratings serve as a reliable proxy for staffing adequacy, especially in settings where nurse staffing ratios are not fully captured by administrative data (Lake & Friese, 2006). Concerns regarding the accuracy and validity of staffing levels reported in the NHC database have been previously reported (Harrington, O'Meara, Kitchener, Simon, & Schnelle, 2003). The positive relationship between resource adequacy and job satisfaction, as found in this study, may further support concerns regarding the accuracy of nurse staffing levels in the NHC data set.

There have been some limited attempts within the long-term care industry to redesign work

environments in an effort to improve nursing staff and resident satisfaction. Several initiatives, such as Wellspring and BJBC, similarly highlight the importance of a satisfying work environment as a key factor in improving nursing workforce retention (Brannon, Barry, Kemper, Schreiner, & Vasey, 2007; Morgan & Konrad, 2008) and residents' outcomes (Barry, Brannon, & Mor, 2005). Findings from this study provide additional support for such efforts. In particular, the Magnet Recognition and Pathways to Excellence programs are designed by American Nurses Credentialing Center (ANCC) to recognize institutions, including long-term care facilities, that have created positive work environments where RNs can flourish and patient care is of high quality. The ANCC has developed blueprints to guide health care institutions in achieving better nursing practice environments. Research suggests that institutions that implement the plan as proposed experience improved nursing practice environments and better nurse and patient outcomes (Kelly, McHugh, & Aiken, in press). Although economic constraints are a consideration in implementing any administrative initiatives, many aspects of ANCC's Pathway to Excellence in Long Term Care program require minimum financial investment. Moreover, ANCC offers a variety of low-cost pathway resources, such as a Shared Governance Toolkit for nursing homes seeking to implement a shared governance model, a Long-Term Care Self-Assessment that helps administrators in evaluating the strengths and weaknesses of their practice environments, and a Pathways Manual developed exclusively for long-term care facilities.

Limitations

Several limitations of this study must be acknowledged. The study sample was limited to one state. Thus, findings can only be generalized with caution. Moreover, this correlational study does not infer causality. In addition, other factors influencing RN job satisfaction, such as Medicaid census, current job tenure, and resident acuity, were not included in the tested model. Although many data elements, such as ownership status, chain membership, and occupancy rate, are considered reliable (Harrington & Swan, 2003), some investigators argue that staffing data contained in the NHC database might be inaccurate. The staffing data are self-reported by nursing home administrators and cover only the two weeks prior to the annual certification survey, which may lead to unrepresentative data for the entire year (Kash, Hawes, & Phillips, 2007). This may explain why staffing levels had no influence on nurses' job satisfaction in this study.

Conclusions

This study is among the first to provide empirical support for the relationship between the nursing practice environment and RN job satisfaction, as proposed by the Nursing Organization and Outcomes Model, in nursing homes. Similar to other acute care settings, a supportive nursing practice environment was associated with higher job satisfaction among nursing home RNs. Fortunately, nursing practice environments can be modified and enhanced through administrative actions. A large body of empirical evidence currently exists that demonstrates a strong link between a supportive nursing practice environment and nurse outcomes, such as job satisfaction, in hospitals. More importantly, this same body of research clearly indicated that a supportive nursing practice environment is also a predictor of superior patient outcomes including lower mortality rates and fewer adverse patient events. In extending this line of inquiry into nursing homes, the limited findings to date are promising. Similar to hospital settings, findings indicate that the presence of a supportive nursing practice environment in nursing homes may be an invaluable asset in improving RN job satisfaction and resident outcomes in this important, albeit challenging, practice arena.

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References

- Aiken, L. H., Clarke, S. P., & Sloane, D. M. (2002). Hospital staffing, organization, and quality of care: Cross-national findings. *International Journal for Quality in Health Care*, 14, 5–13. doi:10.1093/ intqhc/14.1.5
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Lake, E. T., & Cheney, T. (2008). Effects of hospital care environment on patient mortality and nurse outcomes. *Journal of Nursing Administration*, 38, 223–229. doi:10.1097/01.NNA.0000312773.42352.d7
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of American Medical Association*, 288, 1987–1993. doi:10.1001/jama.288.16.1987
- Aiken, L. H., Sloane, D. M., Cimiotti, J. P., Clarke, S. P., Flynn, L., Seago, J. A., et al. (2010). Implications of the California nurse staffing mandate for other states. *Health Services Research*, 45, 904–921. doi:10.1111/j.1475-6773.2010.01114.x
- Barry, T. T., Brannon, D., & Mor, V. (2005). Nurse aide empowerment strategies and staff stability: Effects on nursing home resident outcomes. *The Gerontologist*, 45, 309–317. doi:10.1093/geront/45.3.309

- Bickel, R. (2007). Multilevel analysis for applied research: It's just regression! New York, NY: The Guilford Press.
- Bostick, J. E., Rantz, M. J., Flesner, M. K., & Riggs, C. J. (2006). Systematic review of studies of staffing and quality in nursing homes. *Journal* of the American Medical Directors Association, 7, 366–376. doi:10. 1016/j.jamda.2006.01.024
- Brannon, D., Barry, T., Kemper, P., Schreiner, A., & Vasey, J. (2007). Job perceptions and intent to leave among direct care workers: Evidence from the better jobs better care demonstrations. *The Gerontologist*, 47, 820–829. doi:10.1093/geront/47.6.820
- Castle, N. G. (2008). Nursing home caregiver staffing levels and quality of care: A literature review. *Journal of Applied Gerontology*, 27, 375–405. doi:10.1177/0733464808321596
- Castle, N. G., Degenholtz, H., & Rosen, J. (2006). Determinants of staff job satisfaction of caregivers in two nursing homes in Pennsylvania. BMC Health Services Research, 6, 60–70. doi:10.1186/1472-6963-6-60
- Castle, N. G., & Engberg, J. (2006). Organizational characteristics associated with staff turnover in nursing homes. *The Gerontologist*, 46, 62–73.
- Castle, N. G., Engberg, J., Anderson, R., & Men, A. (2007). Job satisfaction of nurse aides in nursing homes: Intent to leave and turnover. *The Gerontologist*, 47, 193–204. doi:10.1093/geront/47.2.193
- Collier, E., & Harrington, C. (2008). Staffing characteristics, turnover rates, and quality of resident care in nursing facilities. *Research in Gerontological Nursing*, 1, 157–170. doi:10.3928/00220124-20091301-03
- Decker, F. H., Harris-Kojetin, L. D., & Bercovitz, A. (2009). Intrinsic job satisfaction, overall satisfaction, and intention to leave the job among nursing assistants in nursing homes. *The Gerontologist*, 49, 596–610. doi:10.1093/geront/gnp051
- Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, 44, 166–206. doi:10.2307/3348969
- Feng, Z., Grabowski, D. C., Intrator, O., Zinn, J., & Mor, V. (2008). Medicaid payment rates, case-mix reimbursement, and nursing home staffing 1996–2004. *Medical Care*, 46, 33–40. doi:10.1097/MLR. 0b013e3181484197
- Flynn, L. (2007). Extending work environment research into home health settings. Western Journal of Nursing Research, 29, 200–212. doi:10.1177/0193945906292554
- Flynn, L., Dickson, G., & Moles, D. J. (2007). Enhancing the nursing workplace. Provider, 33, 35–36, 39.
- Flynn, L., Liang, Y., Dickson, G. L., & Aiken, L. H. (2010). Effects of nursing practice environments on quality outcomes in nursing homes. *Journal of the American Geriatrics Society*, 58, 2401–2406. doi:10.1111/j.1532-5415.2010.03162.x
- Gajewski, B. J., Boyle, D. K., Miller, P. A., Oberhelman, F., & Dunton, N. (2010). A multilevel confirmatory factor analysis of the Practice Environment Scale: A case study. *Nursing Research*, 59, 147–153. doi: 10.1097/NNR. 0bo13e3181d1a71e
- Harrington, C., O'Meara, J., Kitchener, M., Simon, L. P., & Schnelle, J. F. (2003). Designing a report card for nursing facilities: What information is needed and why. *The Gerontologist*, 43(Suppl. 2), 47–57. doi:10.1093/geront/43.suppl_2.47
- Harrington, C., & Swan, J. H. (2003). Nursing home staffing, turnover, and case mix. *Medical Care Research and Review*, 60, 366–392. doi:10.1177/1077558703254692
- Hayes, L. J., O'Brien-Pallas, L., Duffield, C., Shamian, J., Buchan, J., Hughes, F., et al. (2006). Nurse turnover: A literature review. *International Journal of Nursing Studies*, 43, 237–263. doi:10.1016/j. ijnurstu.2005.02.007
- Health Resources and Service Administration. (2010). The registered nurse population: Initial findings from the 2008 National Sample Survey of Registered Nurses. Retrieved May 5, 2011, from http://bhpr.hrsa. gov/healthworkforce/rnsurveys/rnsurveyfinal.pdf
- Hess, R. (2004). From bedside to boardroom—Nursing shared governance. Online Journal of Issues in Nursing, 9, 1–8. Retrieved from http://www.medscape.com/viewarticle/490757
- Karsh, B., Booske, B. C., & Sainfort, F. (2005). Job and organizational determinants of nursing home employee commitment, job satisfaction and intent to turnover. *Ergonomics*, 48, 1260–1281. doi:10.1080/ 00140130500197195
- Kash, B. A., Hawes, C., & Phillips, C. D. (2007). Comparing staffing levels in the Online Survey Certification and Reporting (OSCAR) system with the Medicaid Cost Report data: Are differences systematic? *The Gerontologist*, 47, 480–489. doi:10.1093/geront/47.4.480
- Kash, B. A., Naufal, G. S., Dagher, R. K., & Johnson, C. E. (2010). Individual factors associated with intentions to leave among directors of nursing

in nursing homes. Health Care Management Review, 35, 246-255. doi:10.1097/HMR.0b013e3181dc826d

- Kelly, L. A., McHugh, M. D., & Aiken, L. H. (in press). Nurse outcomes in magnet and non-magnet hospitals. *Journal of Nursing Administration*.
- Kovner, C., Brewer, C., Greene, W., & Fairchild, S. (2009). Understanding new registered nurses' intent to stay at their jobs. *Nursing Economics*, 27, 81–98.
- Lake, E. T. (2002). Development of the practice environment scale of the Nursing Work Index. *Research in Nursing & Health*, 25, 176–188. doi:10.1002/nur.10032
- Lake, E. T. (2007). The nursing practice environment. Medical Care Research and Review, 64(2 Suppl.), 104S–122S. doi:10.1177/ 1077558707299253
- Lake, E. T., & Friese, C. R. (2006). Variations in nursing practice environments: Relation to staffing and hospital characteristics. Nursing Research, 55, 1–9. doi:10.1097/00006199-200601000-00001
- Lapane, K. L., & Hughes, C. M. (2007). Considering the employee point of view: Perceptions of job satisfaction and stress among nursing staff in nursing homes. *Journal of American Medical Directors Association*, 8, 8–13. doi:10.1016/j.jamda.2006.05.010
- Leiter, M. P., & Spence Laschinger, H. K. (2006). Relationships of work and practice environment to professional burnout: Testing a causal model. Nursing Research, 55, 137–146. doi:10.1097/00006199-200603000-00009
- Maas, M. L., Specht, J. P., Buckwalter, K. C., Gittler, J., & Bechen, K. (2008). Nursing home staffing and training recommendations for promoting older adults' quality of care and life: Part 2. Increasing nurse staffing and training. *Research in Gerontological Nursing*, 1, 134–152. doi:10.3928/19404921-20080401-04

- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs*, 30, 202–210. doi:10.1377/HLTHAFF.2010.0100
- Morgan, J. C., & Konrad, T. R. (2008). A mixed-method evaluation of a workforce development intervention for nursing assistants in nursing homes: The case of WIN A STEP UP. *The Gerontologist*, 48(Spec 1), 71–79. doi:10.1093/geront/48.Supplement_1.71
- Moyle, W., Skinner, J., Rowe, G., & Gork, C. (2003). Views of job satisfaction and dissatisfaction in Australian long term care. *Journal of Clinical Nursing*, 12, 168–176. doi:10.1046/j.1365-2702.2003.00732.x
- National Center for Health Statistics. (2006). 2004 National Nursing Home Survey: Facility tables. Retrieved May 10, 2011, from http:// www.cdc.gov/nchs/data/nnhsd/nursinghomefacilities2006.pdf#01
- National Quality Forum. (2009). NQF-Endorsed Standards. Retrieved May 5, 2011, from www.qualityforum.org/Measures_List.aspx
- Patrician, P. A., Shang, J., & Lake, E. T. (2010). Organizational determinants of work outcomes and quality care ratings among Army Medical Department registered nurses. *Research in Nursing & Health*, 33, 99–110. doi:10.1002/nur.20370
- Tellis-Nayak, V. (2007). A person-centered workplace: The foundation for person-centered caregiving in long-term care. *Journal of the American Medical Directors Association*, 8, 46–54. doi:10.1016/j.jamda.2006.09.009
- Tyler, D. A., Parker, V. A., Engle, R. L., Brandeis, G. H., Hickey, E. C., Rosen, A. K., et al. (2006). An exploration of job design in long-term care facilities and its effect on nursing employee satisfaction. *Health Care Management Review*, 31, 137–144.
- Upenieks, V. V. (2003). The interrelationship of organizational characteristics of magnet hospitals, nursing leadership, and nursing job satisfaction. *Health Care Manager*, 22, 83–98.