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Voluntary and Involuntary Nursing Home Staff Turnover

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The goal of this study was to identify nursing home characteristics that have differential associations to voluntary and involuntary turnover among formal caregivers (i.e., registered nurses, licensed practical nurses, and nurse aides). Primary data from 354 facilities from four states were merged with data from the 2004 Online Survey, Certification and Recording system. Multinomial logistic regression analyses were conducted to determine whether organizational characteristics were related to a greater probability of high or low levels of voluntary and involuntary turnover among formal caregivers. The analysis revealed that a higher ratio of nurses to beds, a smaller number of quality-of-care deficiencies, and a smaller proportion of residents using Medicaid were all associated with lower voluntary turnover but higher involuntary turnover. The findings indicate that controlling turnover is a complex process that may involve monitoring the organizational levels not only of voluntary separations but also of involuntary terminations.

Keywords: nursing home; voluntary turnover; involuntary turnover; organizational characteristics

Staff turnover has been an acute problem in the nursing home industry for decades. Numerous studies have documented the negative impact turnover has on facility spending, worker morale, and the quality of care (Harrington and Swan 2003; Knapp and Missiakoulis 1983; Parsons et al. 2003; Phillips 1987; Spector and Takada 1991; Straker and Atchley 1999). Most research on the antecedents of nursing home staff turnover has focused on individual-level explanations such as job satisfaction (Coward et al. 1995; Grau et al. 1991; Humphris and Turner 1989; Irvine and Evans 1995; Kiyak,

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Namazi, and Kahana 1997; Lambert, Hogan, and Barton 2001). Other attempts have also been made to identify organizational characteristics that are associated with turnover (Anderson, Corazzini, and McDaniel 2004; Banaszak-Holl and Hines 1996; Brannon et al. 2002; Castle and Engberg forthcoming; Chambers 1990). Despite this wealth of research, there has been a dearth of concern in the nursing home literature over the common practice of combining all types of turnover into one single category. This strategy ignores the distinction between voluntary turnover (the loss of workers who quit of their own volition) and involuntary turnover (the loss of workers whom organizations have willfully released).

In this study, we explored the importance of distinguishing between voluntary and involuntary turnover by examining whether the two types of turnover are differentially associated with several key organizational characteristics. Our findings may be significant for policy makers, who may need to consider the (in)voluntary nature of turnover when selecting remedies to alleviate its harmful effects.

Organizational Characteristics and Turnover

Interest in studying the effects of organizational characteristics on turnover in nursing homes has been growing in recent years. One such study, conducted by Banaszak-Holl and Hines (1996), found that for-profit homes had higher turnover rates than nonprofit homes and that case mix was negatively associated with staff turnover. Anderson et al. (2004) found nursing staff turnover to be associated with staffing levels and director-of-nursing tenure. Castle and Engberg (forthcoming) found that all types of formal caregivers (i.e., registered nurses [RNs], licensed practical nurses [LPNs], and nurse aides [NAs]) experienced low levels of turnover in facilities in which staffing patterns were higher, aggregate case mix was lower, the quality of care was higher, and the Medicaid census was lower.

Recognizing that some turnover is unavoidable, Brannon et al. (2002) identified organizational characteristics that have differential associations to high and low turnover levels using a middle level of turnover as a reference group. This strategy is desirable because it yields more specific information about the nature of the organizational-level associations with extreme levels of turnover. Brannon et al.'s study, which was based on 288 nursing homes in eight states, found that high levels of NA turnover are more likely to be found in for-profit homes and those that operate as part of investor-owned chains and that high and low levels of NA turnover corresponded to high and low levels of RN turnover. We replicated Brannon et al.'s (2002) approach by modeling the effects on high turnover separately from those on low turnover, although we included all types of formal caregivers (RNs, LPNs, and NAs) and examined both voluntary and involuntary turnover.

Voluntary Versus Involuntary Turnover

Identifying the causes of different types of turnover is beneficial not only because it may foster strategies for alleviating the damaging effects of turnover but also because it may lead to more comprehensive methods for lowering only the sort of turnover that is causing problems while maintaining any sort of turnover that is good for an organization. Dalton and Todor (1979, 1982) made the value of such strategies clear by demonstrating how some turnover is normally tolerable, if not welcomed, by organizations because it allows for the replacement of underperforming workers and the recruitment of new and more capable staff members. The maximization of these potentially positive effects of turnover has been the goal of some research intended to reveal optimal levels of institutional turnover rather than trying to eliminate it altogether (Abelson and Baysinger 1984).

Some precedent for studying the differential causes and effects of voluntary and involuntary turnover exists, although it is mainly found in the business and management literatures. In a study of employees in the trucking industry, Shaw et al. (1998) found that the management strategies that affected voluntary turnover were different from those that influenced involuntary turnover. McElroy, Morrow, and Ruede's (2001) research in the financial services trade revealed that voluntary, involuntary, and also downsizing-related turnover had different types of effects on organizational performance. In a rare study of different types of turnover in the nursing home industry, Abelson (1987) found that a meaningful distinction might be made between voluntary terminations, which were avoidable or unavoidable from an organizational standpoint.

These findings indicate that the ideal level of turnover may not be equal to zero and that some types of turnover may be functional for an organization. Nevertheless, the current literature on nursing home turnover focuses almost exclusively on its negative effects and tends to ignore the value of considering different types of turnover. The use of only one turnover definition may be attributable to Bluedorn's (1978) contention that voluntary and involuntary separation is sometimes an artificial distinction because turnover often occurs because of the mutual desires of organizations and workers. However, empirical support for this position is scarce, although Goodman and Boss (1999, 2002) found that levels of burnout vary only slightly among nursing home employees who voluntarily quit and those who are involuntarily relieved of their duties. Thus, the findings from the business and management literatures indicating that not all turnover is harmful motivated this investigation of whether voluntary and involuntary turnover is differentially associated with several key nursing home organizational characteristics.

Conceptual Framework and Hypotheses

Abelson and Baysinger (1984) proposed that organizations can maximize labor force efficiency by seeking industry-specific optimal levels of employee turnover. Turnover levels may be described as optimal when an organization is either spending enough of its resources to retain its most valued employees, without unintentionally inducing the retention of its less valued employees, or stimulating enough employee security and satisfaction to retain its most valued employees, without failing to closely monitor job performance through the termination of its underperforming employees. Policies for achieving these goals, however, must be framed within the context of the actual costs involved. Optimizing specific turnover levels can be a difficult challenge that may require gaining control over both the number of employees who willfully leave their jobs and the number of employees who are terminated by an organization.

Lowering the voluntary turnover of valued employees is a goal that most organizations will seek for obvious reasons. To achieve this goal, managers may choose to increase job satisfaction by raising salaries and benefits, reducing workloads, or improving the quality of workplace conditions. To ensure that less valuable employees do not unintentionally benefit from the same enhancements, however, managers may need to regularly evaluate the adequacy of job performance and reward it accordingly. Yet this approach may not always be possible or within the interest of an organization. For example, benefits such as less burdensome workloads and cleaner working conditions are likely to be shared by all employees regardless of their value to an organization. These factors suggest that less valued employees may be more effectively removed through involuntary termination, although this goal is not always accomplished without some difficulty.

Under ideal circumstances, managers would prefer to remove underperforming staff members and those whom an organization does not rely on to operate efficiently. Thus, it is in the interest of an organization to hire managers who are competent at assessing both the quality of performance and the number of staff members who are needed to care for the residents in the facility. This sort of effective management requires that staff members be periodically monitored and reassessed to determine the extent to which they are still needed. Yet these interests may be further complicated by tight conditions in the local labor market, which may prevent managers from bringing in new employees.

We expected that several types of organizational characteristics would be associated with lower voluntary turnover in nursing homes because they enhance job satisfaction by reducing burdensome workloads and enhancing

Table 1
Hypothesized Associations Between Organizational
Characteristics and Turnover

Organizational Characteristic	Voluntary Turnover	Involuntary Turnover
Higher staffing ratios	–	+
Higher quality of care	–	+
Higher Medicaid census	+	–

job stability. However, we believe that these same organizational characteristics may be associated with higher involuntary turnover because they make formal caregivers more expendable and lead to closer staff supervision. Table 1 shows a list of these characteristics and their anticipated effects on voluntary and involuntary turnover.

We begin by considering the ratio of formal caregivers to residents. Because a higher ratio of formal caregivers to residents would seem to indicate a lower level of burden being placed on the staff, we anticipated that it would be associated with less voluntary turnover. In a recent study, Anderson et al. (2004) tested this hypothesis using hours per resident day as an indicator of nurse workload. These authors found that RN turnover is higher in nursing homes in which workloads are greater but that LPN and NA turnover is lower under the same conditions. Anderson et al. attributed the negative association for LPNs and NAs to satisfaction that arises from frequent contact with residents and the positive association among RNs to be a spurious effect related to the higher number of RNs in nursing homes with higher levels of acuity. Nevertheless, Harrington and Swan (2003) found a negative association between staff-to-patient ratios and turnover among all types of formal caregivers. These contradictory findings may be explained by the difficult managerial challenge of counterbalancing voluntary and involuntary turnover. Although nursing home administrators may enjoy lower levels of voluntary turnover by maintaining high ratios of staff members to residents, they may also experience pressure to decrease the sizes of their workforces if the costs of maintaining those staff ratios become too high. Thus, we formulated the following hypotheses:

Hypothesis 1: Higher staff ratios of formal caregivers will be associated with lower voluntary turnover.

Hypothesis 2: Higher staff ratios of formal caregivers will be associated with higher involuntary turnover.

Formal caregivers who work in an environment that appears clean and safe for themselves and their residents would appear more likely to be satisfied with their jobs. Spector and Takada (1991) found an association between higher levels of functional decline among residents and higher formal caregiver turnover. This may indicate that staff members are less satisfied when they cannot see residents stabilizing or improving. Higher quality conditions may also be more conducive to feelings of closeness between staff members and residents, which has been found to lower staff turnover (Parsons et al. 2000).

Hypothesis 3: Higher quality care will be associated with lower voluntary turnover.

Higher quality may be difficult to achieve, however, unless nursing home administrators adequately monitor their staff members and replace inadequate workers. Dalton and Todor (1979, 1982) argued that turnover does not always hinder organizational efficiency and that in fact, the turnover of less skilled or less motivated employees can actually have positive effects for an organization. Pillemer (1988) also noted that closer staff supervision may be an effective safeguard against patient abuse.

Hypothesis 4: Higher quality care will be associated with higher involuntary turnover.

Nursing homes that accept higher proportions of Medicaid residents have been found to offer a lower quality of care (Spector and Takada 1991). This association has been widely attributed to low Medicaid reimbursement rates. Nursing homes that rely more heavily on Medicaid residents may be unlikely to offer higher wages or superior benefits.

Hypothesis 5: A lower Medicaid census will be associated with lower voluntary turnover.

On the other hand, nursing homes with more financial constraints may also be less capable of allocating the necessary resources to monitor staff members' behavior and adequacy.

Hypothesis 6: A lower Medicaid census will also be associated with lower involuntary turnover.

Data and Methods

Sources of Data

This analysis was based on primary data collected from a survey of nursing home administrators conducted between October 2002 and March 2003 and also secondary data from the 2004 Online Survey, Certification and Recording (OSCAR) system. The administrator survey was used to obtain information on both voluntary and involuntary turnover among RN, LPN, and NA staff members. The resulting data set was then merged with the 2004 OSCAR system to facilitate the analysis of associations between turnover and organizational characteristics. Because the 2004 OSCAR system is lagged by approximately 12 months, it should reflect nearly the exact point in time when the administrator survey was conducted. As a result, the merging of the two surveys was not likely to have resulted in bias associated with time.

The administrator survey consisted of 27 items. In developing the questionnaire, the items were pilot tested with 10 administrators. This included mailing the questionnaire to the administrators and following up with phone calls. This resulted in minor changes to the questions. Seven items asked for demographic and descriptive characteristics of the administrators, and the remaining items asked either staffing or turnover questions. Administrators were not provided with exact guidance on how to calculate turnover rates or staffing levels. So, in all cases, turnover rates and staffing levels given were on the basis of administrators' own methodologies. As is the case with most mail surveys, we do not know whether the administrators were the ultimate respondents to our questionnaire.

The main goal of the OSCAR system is to monitor the quality of care in American nursing homes on an ongoing basis. State and federal agencies collect information on the quality of care and also key organizational characteristics through regular onsite inspections and provide the information to the Centers for Medicare and Medicaid Services (CMS) for the purpose of certifying facilities for participation in the Medicare and/or Medicaid programs.

The nursing homes selected for the current analysis were all included among the approximately 17,000 facilities in the OSCAR system data set. In addition, we used several of the data elements measured by the survey for this analysis including the number of full-time equivalent (FTE) RN, LPN, and NA staff members; the current number of residents; the activities of daily living (ADL) score (or the average level of need for assistance with daily living); the number of quality-of-care deficiencies; average occupancy; profit status; chain membership; and Medicaid census.

Many researchers rely on the OSCAR system as a means of linking nursing home characteristics to other sources of data. Favorable comments regarding its reliability have come from a variety of sources (see Harrington et al. 2000; Institute of Medicine 2001). The OSCAR system has also recently become one of the primary sources of data for Nursing Home Compare, the online consumer source of information on the quality of nursing home care that is maintained by the CMS (Mukamel and Spector 2003).

Sample Selection

Using data collected in 2002 by the American Health Care Association (AHCA), we selected nursing homes from 2 states that were found to be experiencing high NA turnover and 2 states that were experiencing low NA turnover. The AHCA data were collected from 6,991 facilities in all 50 states (Decker et al. 2003). The states were first categorized as having high, medium, and low staff turnover by their tercile distributions. Two states were then randomly selected from both the top and bottom terciles of nursing staff turnover. Missouri and Texas were chosen from the high tercile. Connecticut and New Jersey were chosen from the low tercile. Missouri facilities had an average of 123% NA turnover, and Texas facilities had an average of 105% NA turnover. Connecticut facilities had an average of 49% NA turnover, and New Jersey facilities had an average of 46% NA turnover. These same states were also in the high and low tercile distributions for LPN and RN turnover.

Because the OSCAR system excludes homes that are not participating in Medicare or Medicaid certification, we also removed these facilities. The resulting sampling frame consisted of 623 nursing homes from Missouri, 1,331 from Texas, 321 from Connecticut, and 355 from New Jersey. From that list, 526 facilities (or 20% of the overall sample) were randomly selected for inclusion in the study. Each facility was sent a survey that was to be filled out and returned by an administrator.

Analysis

The analysis consisted of three sets of multinomial logistic regression models that reflected the associations between the nursing home characteristics and turnover among the three types of formal caregiver staff members (RNs, LPNs, and NAs). Multinomial logistic regression is a generalization of the more commonly used dichotomous logistic regression, which may be used when there is an alternative outcome category that may occur instead of the event of interest. A multinomial logit may be inappropriate if two of the alternatives are close substitutes (known as the independence-of-irrelevant-

alternatives assumption). A Hausman and McFadden (1984) test was used to address this issue. This test is based on the idea that if a category is dropped and the independence-of-irrelevant-alternatives assumption is true, then the estimated coefficients should not change. On the basis of this test, we found it appropriate to use multinomial logistic regression.

Each set of models presented (e.g., the set predicting RN turnover) consists of four columns representing the adjusted odds ratios for high voluntary turnover, low voluntary turnover, high involuntary turnover, and low involuntary turnover for each of the independent variables. In all cases, the ratios represent the likelihood of an extreme level (high or low) of voluntary or involuntary turnover versus the medium level.

Model Specification and Operationalization

We calculated both voluntary and involuntary turnover by dividing the total number of terminations over a six-month period by the total number of FTE staff members for each of the three types of caregiving staff members (RNs, LPNs, and NAs). These figures were then multiplied by two to obtain an estimated annual rate. This definition (and six-month time frame) was used because in prior analyses, we determined the reported rates to be more precise than other definitions of turnover. Voluntary turnover represents a self-reported measure of the loss of workers who quit of their own volition, and involuntary turnover represents a self-reported measure of the loss of workers whom an organization has willfully released.

To facilitate multinomial logistic regression, the turnover rates were grouped into three categories: low, medium, and high. These were defined as 0% to 20%, 21% to 50%, and greater than 51% turnover, respectively. The low group was used because some recent work in other sectors of health care suggests that a 0% to 20% level of turnover has different consequences from other levels (Abelson and Baysinger 1984). High levels of turnover are also commonly thought to be detrimental to organizations. An often quoted level of detrimental high turnover is 51%, which comes from the work of Price (1977), who determined that “any [turnover] figure in excess of 50% is considered problematic for the effectiveness of the organization and perhaps for its survival” (p. 45). Therefore, we used this level to define the high-turnover groups. Brannon et al. (2002) also used high and low turnover rates in their analyses, because they also proposed that these rates would have different effects on facilities.

Three measures of FTE staffing levels were used, one for each of the three types of caregiving staff members (RNs, LPNs, and NAs). In each case, the total number of staff members was divided by the total number of beds and

then categorized as either low or high relative to the median level. Resident case mix was measured using an ADL score. The OSCAR system data set provides three ADLs (eating, toileting, and transferring), to which we assigned a score from 0 to 3 by using no assistance, a moderate need for assistance, and a high degree of need for assistance, respectively. We then summed these scores, with higher scores indicating greater impairment levels.

The number of deficiency citations was used as a measure of the quality of care. The OSCAR system assesses for as many as 185 deficiency citations or violations of federal nursing home standards (see U.S. General Accounting Office 1998 for specific definitions and further explanation of the deficiency citation process). We used only those deficiencies that directly relate to care quality (19 deficiencies; e.g., facilities must ensure that residents are free of any significant medication errors and that they receive necessary treatment and specialized services). Cited deficiencies are very commonly used proxy measures of care quality (U.S. General Accounting Office 1998, 1999).

Average occupancy reflects the percentage of nursing home beds that were in use by residents at the time of the survey. The facilities were divided into high and low categories of occupancy in relation to the median. The same operation was used to define the percentage of residents who were currently covered by the Medicaid program. We categorized nursing homes by their profit status (for profit or nonprofit) and their membership in chains. Finally, we also included state dummy variables in all analyses.

Results

Three hundred fifty-four responses were received from our nursing home sample (a response rate of 67%). The response rate varied little across the states, with Missouri having a response rate of 58% ($n = 73$), Texas 71% ($n = 190$), Connecticut 66% ($n = 42$), and New Jersey 70% ($n = 49$). In general, most items on the questionnaire were answered. Missing data occurred in fewer than 1% of cases and were evenly distributed across questions and states. Using facility factors from the OSCAR system data (i.e., bed size, ownership, chain membership, Medicaid occupancy, and average census), no significant differences were found in the bivariate analysis of respondent and nonrespondent facilities. Examining the correlations between the variables and using a threshold of .80, the variables showed no problems of collinearity (not shown). In addition, the variance inflation factors suggested that multicollinearity was not problematic.

Table 2
Descriptive Statistics

Statistic	<i>M</i> (or %)	<i>SD</i>
Dependent variables		
RN voluntary turnover	47%	40.5%
LPN voluntary turnover	52%	43.3%
NA voluntary turnover	73%	57.4%
RN involuntary turnover	9%	9.2%
LPN involuntary turnover	16%	13.8%
NA involuntary turnover	27%	20.0%
Organizational characteristics		
FTE RNs per 100 residents	25.9	4.6
FTE LPNs per 100 residents	23.7	4.8
FTE NAs per 100 residents	38.5	3.6
ADL score	0.27	0.12
One or more quality-of-care deficiencies	26%	—
Average occupancy	88%	18%
For profit	75%	—
Chain membership	55%	—
Medicaid census	48%	—

Note: RN = registered nurse; LPN = licensed practical nurse; NA = nurse aid; FTE = full-time equivalent; ADL = activities of daily living.

The descriptive statistics for all of the variables in the analysis appear in Table 2. The voluntary turnover rates for RN, LPN, and NA staff members were 47%, 52%, and 73%, respectively. These rates ranged from three to five times as high as the involuntary turnover rates for the same types of staff members, which were 9%, 16% and 27%, respectively. Because there are no known previous estimates of voluntary and involuntary turnover, it is not certain how well these figures represent the national levels. The six-month NA total turnover rate (voluntary plus involuntary) was about 50%. This is consistent with the 51% six-month NA turnover rate found by Brannon et al. (2002) in a sample of nursing homes from 8 states, although it is much higher than the 32% rate found by Banaszak-Holl and Hines (1996) in an earlier sample of nursing homes from 10 states.

The results of the multinomial regression analyses for the effects of organizational characteristics on caregiver turnover can be found in Table 3. The pseudo- R^2 coefficients for each model indicate that the organizational characteristics explained between 15% and 21% of the variation in the odds of having high or low turnover for both voluntary and involuntary levels and across all three types of caregivers.

Table 3
Multinomial Logistic Regression Analyses Examining Voluntary and Involuntary Turnover of Formal Caregivers and Organizational Characteristics

Variable	High Voluntary	Low Voluntary	High Involuntary	Low Involuntary
	Turnover vs. Medium Voluntary Turnover AOR (95% CI)	Turnover vs. Medium Voluntary Turnover AOR (95% CI)	Turnover vs. Medium Involuntary Turnover AOR (95% CI)	Turnover vs. Medium Involuntary Turnover AOR (95% CI)
RNs				
FTE RNs per 100 beds (high vs. low)	0.89 (0.80 to 0.97)**	0.99 (0.82 to 1.05)	1.04 (1.00 to 1.17)*	0.99 (0.82 to 1.05)
FTE LPNs per 100 beds (high vs. low)	0.87 (0.82 to 1.08)	1.06 (0.89 to 1.18)	0.97 (0.87 to 1.10)	1.06 (0.89 to 1.18)
FTE NAs per 100 beds (high vs. low)	0.96 (0.61 to 0.98)*	1.16 (1.03 to 1.14)**	1.06 (1.01 to 1.18)*	1.16 (1.03 to 1.14)**
ADL score (high vs. low)	1.08 (1.00 to 1.15)*	0.82 (0.69 to 1.15)	1.10 (0.98 to 1.12)	0.82 (0.69 to 1.15)
Deficiency citations (high quality vs. low quality)	0.92 (0.86 to 1.05)	1.06 (1.01 to 1.14)**	1.12 (1.01 to 1.19)*	0.76 (0.61 to 0.94)**
Average occupancy (high vs. low)	1.07 (0.93 to 1.20)	1.05 (1.02 to 1.12)*	1.10 (1.03 to 1.20)*	1.05 (1.02 to 1.12)*
For profit (1 vs. 0)	1.11 (1.01 to 1.19)*	0.79 (0.68 to 0.99)*	1.07 (1.03 to 1.16)*	0.79 (0.68 to 0.99)*
Chain membership (1 vs. 0)	1.13 (1.06 to 1.29)**	0.98 (0.90 to 0.99)*	1.13 (1.06 to 1.29)**	0.98 (0.90 to 0.99)*
Medicaid census (high vs. low)	1.07 (1.02 to 1.19)*	0.77 (0.64 to 0.97)**	0.90 (0.80 to 0.99)*	1.07 (1.00 to 1.09)**
Pseudo- R^2		.19		.16
LPNs				
FTE RNs per 100 beds (high vs. low)	0.99 (0.89 to 1.07)	0.93 (0.88 to 1.10)	1.07 (1.02 to 1.11)*	1.09 (0.89 to 1.20)
FTE LPNs per 100 beds (high vs. low)	0.88 (0.84 to 1.09)	1.03 (0.91 to 1.13)	1.06 (0.89 to 1.12)	1.04 (0.96 to 1.11)
FTE NAs per 100 beds (high vs. low)	0.90 (0.56 to 0.96)**	1.12 (1.04 to 1.13)**	1.05 (1.01 to 1.15)*	0.96 (0.89 to 0.98)*
ADL score (high vs. low)	1.11 (1.02 to 1.16)*	0.84 (0.76 to 1.11)	1.12 (0.96 to 1.16)	0.87 (0.79 to 1.11)
Deficiency citations (high quality vs. low quality)	0.95 (0.89 to 0.98)	1.03 (1.02 to 1.12)*	1.20 (1.08 to 1.25)*	0.87 (0.76 to 0.94)**
Average occupancy (high vs. low)	1.04 (0.97 to 1.12)	1.05 (1.02 to 1.12)*	1.16 (1.03 to 1.22)*	1.06 (1.02 to 1.10)*

(continued)

Table 3 (continued)

Variable	High Voluntary Turnover vs. Medium Voluntary Turnover AOR (95% CI)	Low Voluntary Turnover vs. Medium Voluntary Turnover AOR (95% CI)	High Involuntary Turnover vs. Medium Involuntary Turnover AOR (95% CI)	Low Involuntary Turnover vs. Medium Involuntary Turnover AOR (95% CI)
For profit (1 vs. 0)	1.06 (1.01 to 1.09)**	0.87 (0.78 to 0.97)*	1.01 (0.91 to 1.18)	0.92 (0.78 to 0.98)*
Chain membership (1 vs. 0)	1.10 (1.03 to 1.12)**	0.99 (0.93 to 1.08)	1.09 (1.07 to 1.18)*	0.97 (0.90 to 0.99)*
Medicaid census (high vs. low)	1.02 (0.90 to 1.11)	0.95 (0.84 to 0.97)*	0.96 (0.89 to 0.98)**	1.11 (1.02 to 1.18)*
Pseudo- R^2		.17		.18
NAs				
FTE RNs per 100 beds (high vs. low)	0.90 (0.87 to 0.96)**	0.90 (0.78 to 1.10)	1.08 (1.01 to 1.18)*	1.13 (0.92 to 1.10)
FTE LPNs per 100 beds (high vs. low)	1.07 (0.92 to 1.07)	1.10 (0.91 to 1.12)	0.99 (0.90 to 1.08)	1.08 (0.92 to 1.16)
FTE NAs per 100 beds (high vs. low)	0.90 (0.76 to 0.97)**	1.19 (1.05 to 1.16)*	1.05 (1.01 to 1.14)*	1.15 (1.05 to 1.16)**
ADL score (high vs. low)	1.10 (1.02 to 1.14)*	0.87 (0.81 to 0.91)*	1.12 (1.04 to 1.13)*	0.88 (0.76 to 1.10)
Deficiency citations (high quality vs. low quality)	0.96 (0.89 to 1.06)	1.08 (1.02 to 1.10)**	1.09 (0.93 to 1.00)*	1.07 (0.91 to 1.12)
Average occupancy (high vs. low)	1.08 (0.95 to 1.17)	1.07 (1.03 to 1.11)*	1.14 (1.07 to 1.18)**	1.06 (1.03 to 1.14)*
For profit (1 vs. 0)	1.09 (1.04 to 1.11)*	0.90 (0.84 to 0.95)*	1.06 (1.01 to 1.15)*	0.88 (0.78 to 0.97)*
Chain membership (1 vs. 0)	1.15 (1.07 to 1.19)**	0.92 (0.80 to 0.93)*	1.16 (1.05 to 1.24)*	0.95 (0.91 to 0.99)*
Medicaid census (high vs. low)	1.08 (1.03 to 1.15)*	0.81 (0.66 to 0.91)**	0.93 (0.86 to 0.97)*	1.05 (0.80 to 1.19)
Pseudo- R^2		.15		.21

Note: AOR = adjusted odds ratio; CI = confidence interval; RN = registered nurse; FTE = full-time-equivalent; LPN = licensed practical nurse; NA = nurse aide; ADL = activities of daily living. State dummy variables are also included in all analyses (results not shown).

*Statistically significant at $p \# .05$ level. **Statistically significant at $p \# .01$ level. ***Statistically significant at $p \# .001$ level.

Although most of the organizational characteristics held similar associations to voluntary and involuntary turnover, there were several noteworthy exceptions. For example, a high ratio of caregivers to residents was associated with lower voluntary turnover but higher involuntary turnover in most cases. This was particularly evident when NA staff ratios were high. A greater proportion of NA staff members to residents was found to both decrease the odds of high voluntary turnover and increase the odds of low voluntary turnover across all types of caregivers. In contrast, a greater proportion of NA staff members to residents was also found to increase the odds of high involuntary turnover among all caregivers and decrease the odds of low involuntary turnover among LPN staff members. High proportions of RN staff members to residents had similar effects, but not in all cases and never among LPN staff members. These results indicate that higher NA staffing levels are associated with lower voluntary turnover and higher involuntary turnover for all types of nurses and that higher RN staffing levels are associated with lower voluntary turnover and higher involuntary turnover for RNs and NAs. Therefore, partial support for both Hypothesis 1 and Hypothesis 2 was found.

The quality of care was also found to have differential associations to voluntary and involuntary turnover. Nursing homes that offer higher quality of care were found to possess lower voluntary turnover but higher involuntary turnover. This was found among all three types of caregivers, although it was limited to the odds of low voluntary turnover versus medium voluntary turnover and high involuntary turnover versus medium involuntary turnover, indicating partial support for Hypothesis 3 and Hypothesis 4. High quality was only associated with the low extreme of voluntary turnover and the high extreme of involuntary turnover for all caregivers. In addition, both RN and LPN staff members (but not NA staff members) were less likely to experience low involuntary turnover when quality was high.

Medicaid census held the most consistently different effects on voluntary and involuntary turnover. A high proportion of Medicaid residents was found to be associated with higher voluntary turnover and lower involuntary turnover among all three types of caregivers. These findings were the same when both high and low turnover levels were compared with medium turnover levels, except in the associations between Medicaid census and high LPN turnover and low NA involuntary turnover. These results indicate partial support for Hypothesis 5 and Hypothesis 6.

Several of the remaining organizational characteristics were significantly associated with turnover, but the effects tended not to vary by the type of turnover. For-profit nursing homes and those that operated as parts of chains were generally found to have higher levels of both voluntary and involuntary

turnover. A high ADL score was positively associated with high voluntary turnover but showed little or no association to involuntary turnover. Higher resident occupancy was associated with higher odds of low voluntary turnover, but its association to involuntary turnover was less clear because it was related to both higher and lower levels relative to the median.

Discussion

Recent studies have found that staff turnover can be very high, costly, and damaging to the quality of care in nursing homes (Harrington and Swan 2003; Zimmerman et al. 2002). Despite the volume of this evidence, there is still more to be learned about the nature of turnover. By measuring turnover without regard to its most direct cause (a voluntary resignation or an involuntary release), there will always be a risk that fortuitous turnover is being labeled as a harm to an organization. For these reasons, Brannon et al. (2002) contended that both very high turnover and very low turnover can be dangerous because administrators must guard against not only the loss of valuable caregivers but also the tendency to overlook the poor performance of unsatisfactory caregivers. Although often ignored, this conclusion had already been drawn by researchers in other disciplines (e.g., Abelson 1987; Dalton and Todor 1979, 1982). Therefore, an effective strategy of balancing turnover may require implementing changes that will not alleviate one type of turnover while exacerbating the other.

To develop a plan that would yield optimal turnover, there is a need for research that will identify the distinction between turnover that is problematic and that which is advantageous for an organization. It is also important to determine which organizational characteristics are more or less conducive to different types of turnover. Although the links between organizational characteristics and total turnover have already been well established in the literature (e.g., Banaszak-Holl and Hines 1996; Brannon et al. 2002; Castle and Engberg forthcoming), this analysis is the first to consider how the associations may vary when voluntary and involuntary turnover levels are considered separately.

The results suggest that higher staffing levels among RNs and NAs, a higher quality of care, and a lower Medicaid census are all associated with lower voluntary turnover but also higher involuntary turnover. We believe that these associations with voluntary turnover reflect higher levels of job satisfaction among caregivers who are less burdened, working in higher quality facilities, and potentially more highly rewarded.

Yet these enhancements to job satisfaction appear to be associated with lower job security among formal caregivers, because the same conditions tend to be correlated with higher involuntary turnover. In the case of facilities with higher staffing levels, there may be a perceived need to make workforce reductions in the interest of fiscal efficiency, or the evidence may suggest that management is effectively demonstrating a link between performance and retention by more regularly turning over its staff. This latter explanation may also apply to higher quality nursing homes and those with lower Medicaid censuses, which are likely to hire more qualified nurses and also monitor their effectiveness very closely.

Limitations of the Current Study and Directions for Future Research

Caution must be taken when assuming that either voluntary or involuntary turnover occurs only because of such environmental conditions as workload or resident acuity. Caregivers may voluntarily quit their jobs so that they can take care of family matters or take advantage of better opportunities. Similarly, both voluntary and involuntary turnover may occur because of a failure on the part of the administration to hire the most dedicated and effective staff members. In these cases, organizational characteristics may not play a very important role. It is also likely that some measurement error exists in our definitions of voluntary and involuntary turnover. As Bluedorn (1978) mentioned, distinguishing whether some separations are voluntary or involuntary can be difficult. For example, it is unclear what classification would be used by administrators for employees laid off as part of downsizing efforts.

Future research may benefit from the inclusion of other variables unmeasured in this study, as well as the use of a more representative sample. For example, the starting salaries for NAs, LPNs, and RNs are likely to influence the level of voluntary turnover. It may also be important to consider unit turnover rates, which may vary greatly within facilities, and "context" information from facilities that would help make the distinction between one-time high levels of turnover from more normal lower rates. Finally, by limiting our sample to facilities that are in areas experiencing very high or very low turnover, we may have identified associations that occur only in areas where turnover is at its extremes. This limitation can be reduced by using a larger and more representative sample.

Conclusion

The goal of this study was to identify meaningful variation in the associations between organizational characteristics and voluntary and involuntary turnover. We found partial support for six hypotheses indicating that voluntary turnover is lessened by higher staffing ratios, a higher quality of care, and a lower Medicaid census but also that involuntary turnover was greater under the same conditions. We believe that these disparate associations indicate that the two types of turnover need to be monitored separately by nursing home managers because remedial actions designed to lower only the level of voluntary turnover may have unintended effects on the level of involuntary turnover.

Our findings may also serve to validate the notion that not all turnover is harmful. The presence of higher involuntary turnover in workplaces with lower staff burdens and higher quality care, for example, may indicate that some turnover is a necessary feature of a more efficient organization. This possibility has not been given much consideration in the current literature, which tends to negatively characterize all forms of turnover. More investigations are still needed to determine whether managerial strategies can effectively lead to desirable effects on voluntary and involuntary turnover.

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