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Getting to the bottom of CNA turnover

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A study of direct care workers in Pennsylvania has revealed some surprising results about what makes certified nursing aides tick. The positive aspects of the CNA job perceptions are striking, with 82% reporting looking forward to coming to work most days, 80% endorsing strong loyalty toward their job, and more than 90% feeling their work makes the world a better place.

With this level of job satisfaction, it is surprising that the turnover rate is so high. The main reason people leave is described as management's "disrespect." This means not simply being impolite; it is management having unrealistic expectations of the direct care worker in completing his or her daily work.

These results come from the first wave of data collection of a survey from the Center for Health and Care Work (CHCW) at the University of Pittsburgh that will encompass 1,400 direct care workers. They will be surveyed at nine-month intervals over 24 months to determine why workers stay, why workers leave and where they go after leaving. There has not been any previous study that has examined these outcomes.

We are starting with the assumption that different forces drive retention and turnover, and that understanding the dynamics will lead to interventions that can help stabilize this workforce.

The problem of staff retention and turnover is well-known to administrators and directors of nursing in facilities across the United States. This issue now has emerged as a significant concern within the national agenda. The Institute of Medicine Report, "Retooling for an Aging America: Building the Health Care Workforce," released in 2008, addresses a looming crisis in healthcare for U.S. elders. The report serves as a call to action and typically receive attention from the White House, on down.

As a geriatric psychiatrist, educator, and researcher with a focus on improving the quality of nursing home care, I concluded several years ago that the success of quality improvement processes depends on business models in concert with medical and clinical practice decisions. The best medical practices imaginable are rendered worthless in the hands of an inexperienced or inadequately trained worker.

Several important national initiatives, including "Better Jobs, Better Care," are addressing the connection between workforce stability and quality of care (Stone & Dawson, 2008). To contribute to this important workforce issue, we have recently created the Center for Health and Care Work (CHCW) as a joint initiative at the Katz Graduate School of Business at the University of Pittsburgh, and the University of Pittsburgh School of Medicine. The CHCW has a primary aim of addressing the unique interactions of the business environment, direct care workforce and clinical outcomes.

The myths (or what we think we know)

One of the initial challenges to the CHCW is to address the myths that permeate the long-term care

industry, as well as academia. The first myth we needed to address is that we have a good grasp of why the staff turnover rate is as high as it is. I have heard administrators claim that the CNA staff will go work at McDonald's for five cents per hour more. Recent data suggest that higher satisfaction with the workplace support, work schedule, work content and training is associated with lower turnover after one year (Castle, Engberg, Anderson, & Men, 2007). Pay is rarely a driving force in turnover!

However, what's noteworthy is these data do not tell us why people actually leave or where they go. The truth of the matter is that we really do NOT know why CNAs leave their jobs.

The other side of this question that has also been inadequately addressed is, "Why do they stay?" If the work is so difficult and pay is so poor, why do some CNAs remain either at their job or within this profession for decades? We are systematically evaluating the positive and negative aspects of direct care work. In addition, we are assessing the impact of personal and family factors on tenure and turnover.

Study of direct-care workers

We are now conducting a two-year study designed to follow 1,400 direct care workers in Pennsylvania. As workers decide to leave or stay on a job, they will be interviewed at regular intervals to evaluate what factors contributed to their decision to stay or to leave. We will also learn if they leave the profession, or simply go to another job within the direct care worker field.

As in earlier studies, we are interested in the key elements of job satisfaction. However, in contrast to earlier studies, we have learned from work in other caregiving arenas, such as childcare, that non-job related factors contribute significantly to turnover. Childcare or eldercare needs at home, marital changes, and health changes all may contribute to job instability among these workers. Therefore, on-the-job and off-the-job factors will be assessed in each interview.

What have we learned so far?

Initial Findings

Positive aspects of work

1. As a whole, CNAs derive emotional satisfaction from their jobs and feel they are providing a much-needed service to those under their care.
2. Factors that supported CNAs' feeling successful at work include perceiving themselves as being a residents' advocate, establishing personal relationships with residents and their families, feeling "called" to the work, and being able to "leave work at the door."
3. Successfully handling difficult situations at work is supported by a strong sense of spirituality and religion. Solid family, work and social supports are also described as important to helping them handle difficult work situations that help them get through the toughest days.
4. CNAs reported numerous positive examples of "crafting" their jobs to make them more personal or manageable to the individual CNA. Positive examples of crafting include developing personal and supportive relationships with residents, praying with patients, accessing extra resources in an effort to make patients more comfortable, and helping residents die with dignity by doing something "extra."

Negative aspects of work

1. CNAs reported leaving jobs if they felt disrespected by management or if they perceive management as incompetent.
2. CNAs described unrealistic expectations by management. Specifically, the ability to do their job effectively is hampered by management's persistent tolerance of understaffing, lack of mentorship, and inadequate education.
3. Few opportunities for career advancement within the CNA profession contribute to high turnover.
4. Negative examples of "crafting" include not washing their hands for the required amount of time between patients, as well as lifting bed-bound patients without the appropriate support in order to save time. These time-saving efforts lead to disciplinary action or injury.
5. Home life and personal responsibilities, such as child or elder care, financial problems, or difficult/conflicting obligations, have an impact on the CNAs' ability to consistently report for work.

Conclusion

Quality care requires a stable workforce. These focus group findings provide an initial window into understanding how the CNAs view the positive and the negative aspects of their jobs. We are now in the process of collecting the data for our study that we look forward to sharing with the long-term care community. To learn more about the CHCW and the work we are doing, please visit our Web site at: <http://www.business.pitt.edu/chcw/>.

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Job Satisfaction of Nurse Aides in Nursing Homes: Intent to Leave and Turnover

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Purpose: The relationship between job satisfaction of nurse aides and intent to leave and actual turnover after 1 year is examined. **Design and Methods:** Data came from a random sample of 72 nursing homes from 5 states (Colorado, Florida, Michigan, New York, and Oregon). From these nursing homes, we collected 1,779 surveys from nurse aides (a response rate of 62%). We used a job satisfaction instrument specifically developed for use with nurse aides, as well as previously validated measures of intent to leave and turnover. We used ordered logistic regression and logistic regression to examine the data. **Results:** High overall job satisfaction was associated with low scores on thinking about leaving, thinking about a job search, searching for a job, and turnover. In examining the association between the job satisfaction subscales and intent to leave and turnover, we found that high Work Schedule subscale scores, high Training subscale scores, and high Rewards subscale scores were associated with low scores on thinking about leaving, thinking about a job search, searching for a job, and turnover. High scores on the Quality of Care subscale were associated with low turnover after 1 year. **Implications:** These results are important in clearly showing the relationship between job satisfaction and intent to leave and turnover of nurse aides. Training, rewards, and workload are particularly important aspects of nurse aides' jobs.

Key Words: *Nursing homes, Quality, Turnover, Nurse aides, Staffing*

With a predicted shortfall in the number of formal caregivers needed to provide care in the coming decade (Stone, 2004), workforce issues are becoming ever more salient in the long-term-care industry. Moreover, formal caregivers in long-term care are the linchpin to helping provide quality care. Nurse aides may be of particular importance in nursing homes because they provide the vast majority of hands-on resident care (Institute of Medicine, 2001). Researchers have examined workforce issues, such as training and staffing levels of these workers (Centers for Medicare and Medicaid Services [CMS], 2002), but few studies have examined job satisfaction of nurse aides. A strong association in other health care settings between job dissatisfaction and undesirable work behaviors such as tardiness and aggression has been established (Irvine & Evans, 1995). Most significantly, job satisfaction of caregivers in other health care settings is directly associated with turnover (Irvine & Evans, 1995). Given the high nurse aide turnover in many nursing homes (Harrington & Swan, 2003), we may have an opportunity to improve these rates by further understanding the relationship between job satisfaction of nurse aides and turnover in these facilities.

Our understanding of job satisfaction and turnover of nurse aides may also be limited by the sample size, job satisfaction instruments, and turnover definitions used in prior studies. Of the few studies in this area, most have used small samples of nurse aides (e.g., Monahan & McCarthy, 1992; Moyle, Skinner, Rowe, & Gork, 2003) that were probably not representative of these caregivers. In addition, data aggregation to all nursing staff (i.e., registered nurses [RNs], licensed practical nurses [LPNs], and nurse aides) by other studies (e.g., Kiyak, Namazi, & Kahana, 1997) may be problematic, as nurse aides may have different work preferences. All previous studies in this area used generic job satisfaction instruments. Such generic instruments have generally not performed well in long-term-care settings (Coward et al., 1995). The subscales used in these instruments may have little relevance to this

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population, or respondents may not have fully understood the questions being asked. In addition, some recent work has shown substantial measurement error associated with some turnover measures (Castle, 2006). Thus, in the present research examining the relationship between job satisfaction of nurse aides and turnover, we used (a) a large sample of nurse aides, (b) a job satisfaction instrument specifically developed for use with this population, and (c) previously validated measures of intent to leave and turnover.

Job Satisfaction and Turnover

We identified a total of 14 publications examining job satisfaction in nursing homes from 1980 to 2005. However, most of these studies were descriptive, and only four studies examined the relationship between job satisfaction and turnover (or intent to leave). The most recent study was by Parsons, Simmons, Penn, and Furlough (2003). These authors examined six subscales of nurse aide job satisfaction (Personal Opportunity, Supervision, Benefits, Coworker Support, Social Rewards, and Task Rewards) using 38 questions and a 5-point Likert scale. They found that 30% of the 550 nurse aides from 70 facilities in Louisiana planned to quit.

Kiyak and colleagues (1997) used the Job Description Index (Smith, Hulin, Kendall, & Locke, 1974) in six nursing homes and with 258 staff (including RNs, LPNs, and nurse aides). This index contains five subscales: Satisfaction With Work, Opportunities for Promotion, Relationship With Coworkers, Satisfaction With Pay, and Relationship With Supervisors. Both intent to leave ($p < .05$) and turnover ($p < .05$) 1 year after completing the survey were associated with low job satisfaction scores.

Coward and associates (1995) examined 281 RNs and LPNs from 26 nursing homes. The job satisfaction scale used included subscales for Professional Status, Task Requirement, Autonomy, Interactions With Other Nurses, and Pay. These authors used a total of 18 questions with a 5-point Likert scale. Current intent to stay was highly associated ($p < .0001$) with overall job satisfaction.

Humphris and Turner (1989) used a job satisfaction instrument with three subscales (Working Conditions, Emotional Climate, and General) and 14 questions with a 6-point Likert scale. They studied 31 nursing staff (RNs, LPNs, and nurse aides) with three assessments approximately 6 months apart. Turnover was positively associated ($p < .01$) with low job satisfaction.

Conceptual Model and Hypotheses

Met expectations theory is commonly used to explain job satisfaction (Best & Thurston, 2004).

This theory proposes that individuals have expectations from work; if these expectations are not fulfilled then dissatisfaction with work results (Best & Thurston, 2004). However, this theory does not explain all of the potential consequences of dissatisfaction with work, such as turnover and intent to leave. Therefore, we used a conceptual model from the turnover literature because it more fully specifies the interrelationships between antecedents of both turnover and job satisfaction.

We modified the model of turnover initially developed by Price (Price, 1977, 2000; Price & Mueller, 1981) because it includes both turnover and intent to leave, and it is the result of extensive research in this area over several decades. We modified the model to be representative of the nursing home context; for example, we included facility characteristics that have had prior robust associations with turnover (e.g., Harrington & Swan, 2003).

According to this model (see Figure 1), intent to leave is influenced by personal characteristics, role-related characteristics, facility characteristics, turnover opportunities, and job characteristics. Intent to leave consists of a progression of three phases: (a) thinking about leaving, (b) thinking about searching for a job, and (c) searching for a job. In each of these phases, nurse aides' intent to leave increases. In turn, actual turnover is influenced by all of these factors (i.e., personal characteristics, role-related characteristics, facility characteristics, turnover opportunities, and job characteristics) and intent to leave (Price, 1977; Price & Mueller, 1981). In this investigation, personal characteristics were individual nurse aide variables such as age; role-related characteristics included tenure on the job; facility characteristics included staffing levels (Anderson, Issel, & McDaniel, 1997); turnover opportunities included contextual factors such as local unemployment rates; and job characteristics included the individual subscales used in the job satisfaction instrument, described in detail in the following paragraphs.

Thus, consistent with this theoretical model, nurse aides first become dissatisfied with their jobs; second, decide to leave; and third, terminate their employment. As Sheridan and Abelson (1983, p. 418) stated, "the termination decision process can be described as a sequence of cognitive stages starting with an initial dissatisfaction with the present job." Based on this and the prior studies in this area, Hypothesis 1, after controlling for personal, role-related, and facility characteristics and turnover opportunities, was that nurse aides with low job satisfaction would be more likely to intend to leave their current positions. In other words, these nurse aides would be more likely to be thinking about leaving, thinking about searching for a new job, and searching for a job (representing the three subscales comprising the intent-to-leave scale). Hypothesis 2, after controlling for personal, role-related, and facility characteristics and turnover opportunities, was that

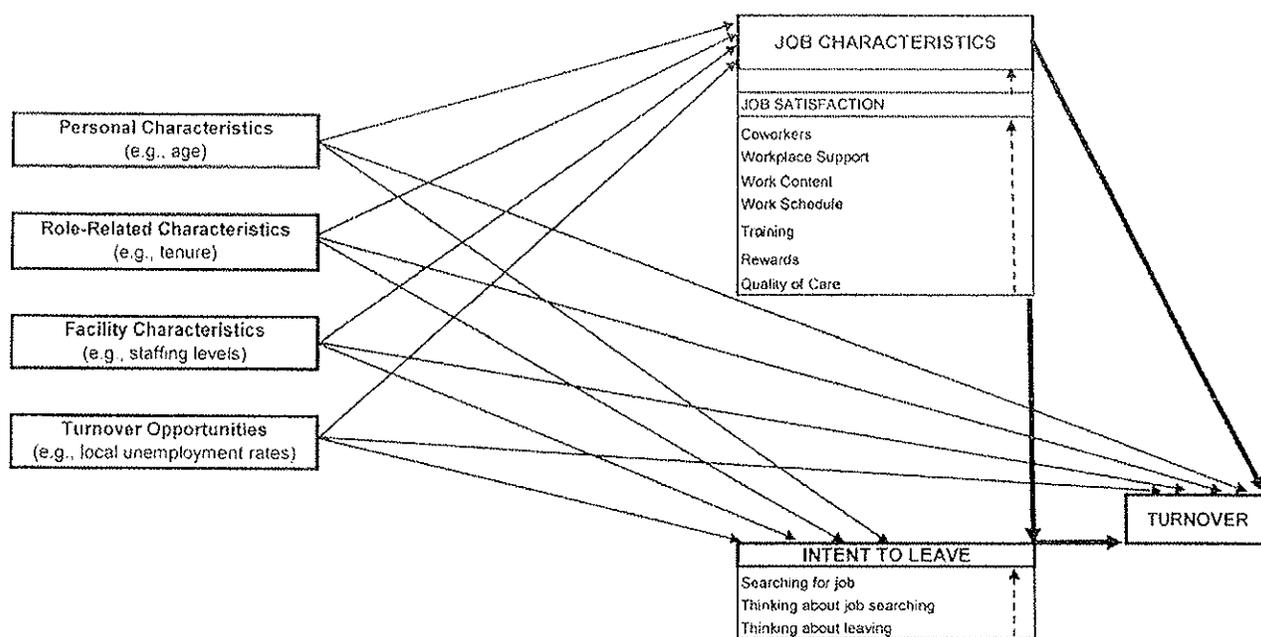


Figure 1. Proposed model for examining intent to leave and turnover of nurse aides.

nurse aides with low job satisfaction would be more likely to turnover within 1 year.

These two hypotheses examine relationships with overall job satisfaction levels. However, a better understanding of the job-satisfaction–turnover relationship comes from examining the subscales used in the job satisfaction instrument. In the present study, this approach also capitalizes on the nurse-aide-specific nature of the job satisfaction instrument used, which we describe further in the Methods section. If intent to leave does consist of a progressive sequence, then nurse aides may indicate greater dissatisfaction on a greater number of the job satisfaction subscales in each of these stages. Thus, Hypothesis 3 was that nurse aides would exhibit dissatisfaction on more job satisfaction subscales as they progressed from thinking about leaving, to thinking about searching for a new job, to searching for a job. Because the turnover decision is a sequence of stages, we also believed different job satisfaction subscales would be associated with separate stages in this process and that this would be most likely for the Rewards and Quality of Care subscales as hypothesized in the following paragraphs.

Monetary rewards and benefits for nurse aides are minimal. According to the *Occupational Outlook Handbook* (Bureau of Labor Statistics, 2002), the mean hourly wage for nurse aides is \$9.51. The Paraprofessional Healthcare Institute (2003) found that employers rarely offer health insurance coverage to nurse aides and that health insurance coverage would be an important incentive for workers entering this field. Recent work at the state level found that low wages and poor benefits are by far

the most commonly cited reasons for staff turnover (Mulliken Consulting, 2003). Thus, Hypothesis 4a was that nurse aides with low job satisfaction in the Rewards subscale would be more likely to intend to leave their current position.

Intent to leave and actual turnover are often highly correlated. For this reason, researchers often use intent to leave as a proxy for turnover; however, this does not necessarily mean the same job satisfaction subscales will be associated with both. For example, as described previously, we believed that the Rewards subscale would be associated with intent to leave, but we believed this subscale would not necessarily be highly associated with actual turnover (Bloom, Alexander, & Nuchols, 1992). This is because in most local employment markets benefits and wages for nurse aides do not vary widely. Thus, rewards may cause lower job satisfaction and intent to leave, but actually leaving for a higher paying position or one with better benefits is unlikely. Thus, Hypothesis 4b was that scores on the Rewards subscale would not be associated with turnover.

Numerous publications have identified nurse aides as having a strong concern for the quality of resident care. For example, Bowers, Esmond, and Jacobson (2003) described nurse aides' views on quality, and Anderson and colleagues (2005) described nurse aides' philosophies of care and both showed that aides were very concerned with resident care issues. Bergman and associates (1984) found staff perceptions of quality to be associated with turnover. Thus, Hypothesis 5 was that nurse aides with low job satisfaction on the Quality of Care subscale would be more likely to leave their current position.

Methods

Job Satisfaction Questionnaire

Job satisfaction is defined as "the favorableness or unfavorableness with which employees view their work" (Grieshaber, Parker, & Deering, 1995, p. 18). In this analysis, we used the Nursing Home Nurse Aide Job Satisfaction Questionnaire (NHNA-JSQ). This instrument assesses the job satisfaction of nurse aides with seven subscales: (a) Coworkers, which represents relations with other workers in the facility; (b) Workplace Support, which represents resources and demands of the job; (c) Work Content, which represents the complexity and challenge of the work; (d) Work Schedule, which represents time pressures; (e) Training, which represents preparation for the position; (f) Rewards, which represents benefits of the job; and (g) Quality of Care, which represents how well nurse aides perceive residents are being cared for. In addition, we included two global job satisfaction questions. All 21 questions in the NHNA-JSQ use a visual analogue rating scale. A visual analogue format (also called *graphic scaling*) is a pictorial scale that usually has some interval value (e.g., in this case, a scale from 1–10 with 1 representing the lowest rating and 10 representing the highest rating).

In prior testing of the NHNA-JSQ, Castle (in press) found that Cronbach's alphas for all the subscales were higher than .74, which is above the usually recommended level of .70. The percentage of nurse aides not providing responses for each question was low and averaged only 1.5%. In addition, the floor and ceiling effects on all items were negligible. This prior testing included more than 1,000 nurse aides, and the psychometric properties of the instrument have been previously described as extremely robust.

Sources of Data

We chose a random sample of approximately 10% ($N = 240$) of nursing homes from five states (Colorado, Florida, Michigan, New York, and Oregon). We selected these states randomly from all 50 states. Eligible nursing homes were those participating in Medicare and/or Medicaid certification, which includes approximately 97% of all facilities in the United States. We used this eligibility definition because these nursing homes are included in the Online Survey, Certification, and Reporting system (OSCAR) data, which we used first to randomly choose facilities for participation, and second, to identify the mailing addresses of these facilities.

We excluded hospital-based facilities and small facilities with fewer than 40 beds from the sampling frame. We made these exclusions because of the added expense of collecting data from small facilities with likely few survey responses from nurse aides,

and because hospital-based facilities tend to staff differently from other nursing homes (such as having higher staffing ratios in general and using more RNs). At the time of this study (Summer 2004), eligible facilities included 2,449 nursing homes.

In requesting participation in this study, we asked administrators if they would be willing to distribute the job satisfaction questionnaire to nurse aides and to complete a brief survey. In return, we agreed to give administrators as compensation a report with facility aggregate job satisfaction results. In all, 72 facilities agreed to participate for a facility response rate of 30%.

We gave participating facilities prepackaged mailing materials. These consisted of sealed envelopes containing the NHNA-JSQ, a letter describing the study, and a postage-paid return envelope. We asked participating facilities to distribute these prepackaged materials to all nurse aides ($N = 2,872$), including those working full-time, part-time, and on all shifts (but excluding agency staff). These aides returned 1,779 surveys for a nurse aide response rate of 62%.

Dependent Variables

Intent to leave and actual turnover after 1 year were the dependent variables of interest. Intent to leave was a self-reported measure, using a scale developed by Mobley, Horner, and Hollingsworth (1978). These seven items use a 5-point Likert scale, anchored by strongly disagree and strongly agree. The intent-to-leave questions represented three phases of this process: thinking about leaving (two questions), thinking about job searching (two questions), and searching for a job (three questions).

We measured actual nurse aide turnover 1 year after we collected the job satisfaction information. We collected this turnover information by sending a follow-up survey to nurse aides who had answered the baseline job satisfaction survey and who had given us permission to survey them again at a later date. If aides reported that they were no longer working at the nursing home, we asked them to identify whether this turnover was voluntary or involuntary. We defined voluntary turnover as having moved from the prior nursing home of one's own volition and involuntary turnover as having been willfully released from the prior nursing home. We included in our analyses only nurse aides who responded that their turnover was voluntary. For analysis, we created a dichotomous variable indicating whether an individual had left or not.

The overall nurse aide response rate of 62% varied very little by state (59%–64%) or by employment status (i.e., full time or part time; day, evening, or night shift) of nurse aides (55%–65%). However, the facility response rates were more varied: from 41% to 77%. In addition, of the 1,779 nurse aides

participating in the baseline job satisfaction questionnaire, 1,031 (or 58%) completed the 1-year follow-up survey and 492 (48%) identified that they had voluntarily left their prior position. Only 3% of nurse aides reported involuntary termination.

Independent Variables

The independent variables of interest were overall job satisfaction and those measured by the job satisfaction subscales. For each subscale score, 9 values (from 0–8) or 13 values (from 0–12) were possible because scores could range from 0 (strongly disagree) to 4 (strongly agree) for each question. The overall job satisfaction score represented the sum of the seven job satisfaction subscale scores. In addition, personal characteristics, role-related characteristics, facility characteristics, and turnover opportunities were independent variables and followed the theoretical model.

The personal variables included in the analyses were age, race, marital status, and living distance from the nursing home. The role-related variables included in the analyses were tenure in the current facility (in years), tenure in any prior facility (in years), previous number of jobs held (both as a nurse aide and in any other jobs), whether the aide worked part time, and shift worked (i.e., day, evening, or night). Nurse aides self-reported this information as part of the questionnaire.

Administrators self-reported several facility characteristics using a brief questionnaire sent to those who had agreed to participate in the study. This questionnaire asked about yearly turnover rates for RNs, LPNs, and nurse aides; as well as staffing levels (per 100 beds) for these staff. We asked for this information because turnover rates for these staff are not commonly found in secondary data sources, and secondary data sources that record staffing levels (such as OSCAR) may be error prone (Straker, 1999). Based on prior work (Castle, 2006), the definition of turnover was total number of staff (measured in full-time equivalents) who had left employment during the previous 6 months divided by the total number of staff (measured in full-time equivalents) who had been employed during this period (this calculation included all shifts, part-time staff, and voluntary and involuntary turnover). A limited number of other OSCAR-derived facility variables included ownership, chain membership, occupancy, private-pay occupancy, and case-mix (measured using activities of daily living). These specific OSCAR variables have been used in prior research studies and are considered to be reliable (Harrington & Swan, 2003).

Three variables representing turnover opportunities also came from the Area Resource File: rural location, unemployment levels, and number of nursing facilities in the local market. We also included an

opportunity variable from the nurse aide questionnaire that asked how many facilities existed in the area for which they thought they could work.

Analyses

We present descriptive analyses consisting of the percentages or means for the personal characteristics of nurse aides, role-related characteristics of nursing aides, facility characteristics of nursing homes, and opportunity characteristics in the market. We also present the means for each subscale in the NHNA-JSQ and intent-to-leave questionnaire, along with all of the item means and standard deviations. In addition, we conducted bivariate comparisons for respondent and nonrespondent facilities using the OSCAR data.

We examined multicollinearity and the level of collinearity among the predictor variables using the variance inflation factor test. Using a recommended variance inflation factor score of 2.5 or more (SAS Institute, 1999), we eliminated some variables used in the descriptive analyses (i.e., number of places employed as a nurse aide and LPN turnover) from the multivariate analyses. In addition, we excluded gender and education because almost all nurse aides were female and had a high school education.

We used multivariate analyses to examine (a) intent to leave and (b) turnover after 1 year. We used three different subscales to measure intent to leave. As described in the previous section, 9 values were possible for two of these subscales and 13 for the third one. Therefore, in these analyses we used ordered multinomial logistic regression analysis, which is appropriate for polychotomous, ordered outcomes such as these (Kennedy, 1992). We used multivariate logistic regression to examine turnover after 1 year. This estimates the probability of mutually exclusive events and, hence, is most often used with dichotomous dependent variables as in this case with turnover (0 = no, 1 = yes). In order to account for the possible correlation of variables within facilities, which can bias the standard errors of the estimates, we used the Huber-White sandwich estimator clustered by facility in all multivariate analyses.

Results

Table 1 presents descriptive statistics of the nurse aide sample, along with characteristics of the nursing homes in which they worked. Aides were most likely to be about 31 years old, be female, and have a high school diploma. Because we were able to link facilities with OSCAR data, we determined that few significant differences existed on facility characteristics (i.e., bed size, ownership, case mix, private-pay occupancy, and average occupancy) for participating nursing homes compared to nonparticipating homes.

Table 1. Characteristics of Nurse Aides ($N = 1,779$) and Nursing Homes ($N = 72$)

Characteristic	%	M (SD)
Personal characteristics of nurse aides		
Gender (female)	98%	
Age (years)		31.2 (8.5)
Race (minority)	74%	
Marital status (single)	49%	
Highest level of education		
High school	92%	
More than high school	8%	
Travel distance from nursing home (miles)		11.2 (9.9)
Role-related characteristics of nurse aides		
Tenure in current facility (years)		3.9 (4.3)
Tenure in any prior facility (years)		0.5 (5.1)
Number of prior places employed as a nurse aide		3.5 (0.8)
Number of total prior jobs (in any position)		5.5 (1.5)
Tenure as an nurse aide in all facilities (years)		12.4 (11.2)
Part-time position	78%	
Shift		
Day	61%	
Evening	22%	
Night	17%	
Facility characteristics of nursing homes		
Average yearly nurse aide turnover rate		45.2 (18.3)
Average yearly LPN turnover rate		40.4 (11.0)
Average yearly RN turnover rate		33.5 (17.1)
FTE nurse aides per 100 residents		25.3 (8.6)
FTE LPNs per 100 residents		11.2 (9.4)
FTE RNs per 100 residents		8.5 (8.1)
Facility size (number of beds)		137.2 (81.1)
For-profit ownership	49%	
Chain membership	32%	
Average occupancy	93%	
Average private-pay occupancy	16%	
Case mix (activities of daily living)		2.6 (0.9)
Opportunity characteristics in market ($n = 59$)		
Rural location	18%	
Average unemployment rate in county		6.3 (1.8)
Number of nursing homes in county		18.2 (14.1)
Number of facilities nurse aides think they could work at in the area		7.5 (2.3)

Notes: LPN = licensed practical nurse; RN = registered nurse; FTE = full-time equivalent; SD = standard deviation.

However, respondent facilities were less likely than nonrespondent facilities to be members of a chain. Nursing home participation rates varied little by state and ranged from 27% (New York) to 35% (Michigan).

Table 2 presents descriptive statistics of the NHNA-JSQ and intent-to-leave questions. For the NHNA-JSQ, the mean score for the Work Content subscale was the highest (7.8), followed by scores for the Quality of Care (7.5), global ratings (7.4),

Training (6.9), Coworkers (6.8), Workplace Support (5.7), Work Schedule (5.5), and Rewards (5.3) subscales. For the intent-to-leave subscales, the mean score for the Searching for a Job subscale was highest (2.63), followed by scores for the Thinking About Leaving (2.17) and the Thinking About Job Search (2.11) subscales. In support of the notion that these three intent-to-leave subscales represent a sequence of stages, the scores on these subscales were only moderately correlated.

Table 3 presents regression results examining the association between nurse aides' overall job satisfaction, intent to leave, and turnover. We found that high job satisfaction scores were associated with low scores on thinking about leaving, thinking about job search, searching for a job, and turnover. This was consistent with Hypotheses 1 and 2. In general, few variables were significant in the intent-to-leave analyses, and this is reflected in the low pseudo- R^2 scores. In contrast, many variables were significant in the 1-year turnover analyses, and the pseudo R^2 was relatively high.

Table 4 also presents regression results examining the association between nurse aides' job satisfaction, intent to leave, and turnover. We found that for job satisfaction, high Work Schedule, Rewards, and Training subscale scores (all indicating higher job satisfaction) were associated with low scores on thinking about leaving, thinking about job search, searching for a job, and turnover. High scores on the Quality of Care subscale (indicating higher job satisfaction) were associated with low scores on searching for a job. This progression of significant subscales was consistent with Hypothesis 3, and the significant Quality of Care subscale score supported Hypothesis 4a.

In addition, Table 4 shows that high Rewards subscale scores (indicating higher job satisfaction) were also associated with low turnover. This was contrary to Hypothesis 4b. High scores on the Quality of Care subscale (indicating higher job satisfaction) were associated with low turnover, which supported Hypothesis 5. High scores on the Work Schedule and Work Content subscales (both indicating higher job satisfaction) were also associated with low turnover. Following the pattern of findings from the previous analyses, few variables were significant in the intent-to-leave analyses, whereas many more variables were significant in the turnover analyses, and the pseudo- R^2 scores again were relatively low and high, respectively.

Discussion

As the U.S. population ages, we will need more caregivers; yet an inadequate number of caregivers are entering the health care workforce (American Nurses Association, 2001), and a significant number of nurse aides are leaving nursing homes (Seavey,

Table 2. Job Satisfaction and Intent to Leave Scores for Nurse Aides

Item/Subscale	Subscale <i>M</i>	Item <i>M</i>	<i>SD</i>	Range
Job satisfaction ^a ($\alpha = .78$)				
Coworkers ($\alpha = .77$)	6.8			
Rate the people you work with		7.5	1.2	1-10
Rate whether you feel part of a team effort		6.2	1.8	1-10
Rate cooperation among staff		6.9	2.4	1-10
Workplace support ($\alpha = .72$)	5.7			
Rate the support you get when doing your job		6.8	1.2	1-10
Rate the chances you have to talk about your concerns		5.2	1.6	1-10
Rate the demands residents and family place on you ^b		5.8	2.4	1-10
Work content ($\alpha = .74$)	7.8			
Rate how much you enjoy working with residents		7.1	1.7	1-10
Rate how your role influences the lives of residents		8.6	1.2	1-10
Rate your closeness to residents and families		8.0	1.2	1-10
Work schedule ($\alpha = .73$)	5.5			
Rate your workload ^b		5.9	2.8	1-10
Rate your work schedule		5.3	2.5	1-10
Rate the amount of time you have to do your job		5.1	2.0	1-10
Training ($\alpha = .75$)	6.9			
Rate whether your skills are adequate for the job		6.5	2.1	1-10
Rate the training you have had to perform your job		7.4	1.3	1-10
Rate the chances you have for more training		6.8	1.5	1-10
Rewards ($\alpha = .83$)	5.3			
Rate how fairly you are paid		6.6	2.4	1-10
Rate your chances for further advancement		4.3	1.1	1-10
Quality of care ($\alpha = .81$)	7.5			
Rate the care given to residents		6.4	1.4	1-10
Rate the impact you have on residents' lives		8.2	1.6	1-10
Global ratings	7.4			
Rate your overall satisfaction with your job		7.6	1.7	1-10
Would you recommend working at this facility to a friend?		7.3	1.1	1-10
Intent to leave ^{c,d,e} ($\alpha = .82$)				
Thinking about leaving ($\alpha = .76$)	2.2			
All things considered, I would like to find a comparable job in a different organization		2.6	1.4	0-4
I am thinking about quitting		1.9	1.1	0-4
Thinking about job search ($\alpha = .88$)	2.1			
It is likely that I will actively look for a different organization to work for in the next year		2.0	1.1	0-4
I will probably look for a new job in the near future		2.2	1.8	0-4
Searching for a job ($\alpha = .75$)	2.6			
The results of my search for a new job are encouraging		2.6	1.3	0-4
At the present time, I am actively searching for a job in another organization		2.5	1.7	0-4
I intend to quit		2.8	1.8	0-4

Notes: Data were collected from 1,779 nurse aides in Colorado, Florida, Michigan, New York, and Oregon using the Nursing Home Nurse Aide Job Satisfaction Questionnaire. *SD* = standard deviation.

^aAll job satisfaction questions used a 10-point visual analogue rating format scale.

^bReverse coded; higher scores indicate positive job satisfaction.

^cMeasured using scale developed by Mobley, Horner, and Hollingsworth (1978).

^dAll intent-to-leave questions used a 5-point Likert scale anchored by strongly disagree (0) and strongly agree (4).

^eThe correlations among the three intent-to-leave subscales were low or moderate, indicating that the subscales measured distinct dimensions of intent to leave (i.e., thinking about leaving and thinking about job search, $r = .45$; thinking about leaving and searching for a job, $r = .42$; thinking about job search and searching for a job, $r = .37$).

Table 3. Regression Results for Nurse Aides' Job Satisfaction, Intent to Leave, and Turnover Examining Overall Job Satisfaction Scores

Variable	Thinking About Leaving ^a		Thinking About Job Search ^a		Searching for a Job ^a		Turnover ^{b,c}	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Job satisfaction								
Overall score ^a	0.78	0.66–0.91**	0.82	0.70–0.95**	0.87	0.73–0.99*	0.41	0.26–0.65***
Personal characteristics								
Age ^d	1.06	0.93–1.21	1.00	0.89–1.14	1.00	0.88–1.14	1.29	0.89–1.89
Minority ^e	0.92	0.68–1.23	1.00	0.73–1.35	1.18	0.81–1.72	0.38	0.06–0.47***
Marital status ^e	0.84	0.63–1.12	0.90	0.68–1.18	0.72	0.54–0.98*	1.23	0.48–3.12
Travel distance ^f	0.99	0.97–1.00	1.00	0.73–0.99*	1.18	0.81–1.00	1.21	1.03–1.42***
Role-related characteristics								
Number places employed as nurse aide ^d	1.34	1.12–1.59***	1.39	1.17–1.67	1.39	1.13–1.71***	2.06	1.13–3.76*
Total number prior jobs ^d	1.09	0.91–1.31	1.08	0.89–1.29	0.79	0.71–1.00	0.88	0.55–1.41
Tenure as nurse aide (all positions) ^d	0.81	0.74–0.91***	0.80	0.71–0.91***	0.80	0.72–0.90***	2.59	0.76–3.82***
Part-time position ^e	0.56	0.37–0.87**	0.57	0.39–0.83***	0.64	0.43–0.95**	1.26	1.00–1.42**
Shift ^e	1.21	0.79–1.85	1.07	0.69–1.66	1.02	0.69–1.51	0.31	0.07–1.31
Facility characteristics								
Nurse aide turnover ^d	0.98	0.71–1.35	1.09	0.80–1.48	1.17	0.85–1.60	1.13	1.02–2.15*
Registered nurse turnover ^d	1.02	0.78–1.33	1.10	0.89–1.09	1.16	0.96–1.13	0.90	0.43–1.14
Nurse aide staffing levels ^d	1.04	0.83–1.32	1.14	0.86–1.36	0.88	0.71–1.38	1.03	0.63–1.86
Licensed practical nurse staffing levels ^d	1.06	0.78–1.44	0.90	0.73–1.11	1.18	0.90–1.54	0.58	0.27–1.65
Registered nurse staffing levels ^d	0.92	0.74–1.14	0.90	0.71–1.51	0.91	0.76–1.09	0.96	0.38–1.24
Facility size ^d	0.87	0.66–1.16	1.50	0.99–1.14	1.23	0.85–1.10	0.62	0.14–2.42
For-profit ownership ^e	1.32	0.82–2.11	1.50	1.00–2.29*	1.16	0.82–1.79	1.46	0.29–2.83
Chain membership ^e	0.98	0.62–1.57	0.72	0.50–1.47	0.78	0.54–1.62	1.42	0.40–7.37
Average occupancy ^d	0.80	0.51–1.26	0.72	0.50–0.99*	1.23	0.92–1.12	1.20	0.39–5.09
Average private-pay occupancy ^d	1.27	0.88–1.84	1.00	0.86–1.79	0.97	0.84–1.65	0.88	0.63–3.67
Case mix (activities of daily living) ^d	1.03	0.88–1.21	1.09	0.80–1.17	1.17	0.85–1.11	2.13	0.69–1.23
Turnover opportunities								
Rural location ^e	0.74	0.45–1.23	0.76	0.49–1.17	0.91	0.60–1.37	0.25	0.02–3.76
Unemployment rate ^d	0.90	0.76–1.07	0.87	0.75–0.99*	0.91	0.79–1.04	0.76	0.32–1.77
Number of nursing homes in county ^d	0.62	0.47–0.81***	0.66	0.51–0.84***	0.71	0.58–0.88**	1.90	0.76–4.77
Number of facilities nurse aide could work in ^d	0.94	0.83–1.05	0.91	0.81–1.03	0.91	0.80–1.03	0.92	0.69–1.22
Intent-to-leave subscales								
Thinking about leaving ^f							1.01	0.78–1.31
Thinking about job search ^f							0.90	0.70–1.16
Searching for a job ^f							0.90	0.80–0.99*
Pseudo R ²	0.05		0.06		0.09			0.67

Notes: Data were collected from 1,779 nurse aides in Colorado, Florida, Michigan, New York, and Oregon using the Nursing Home Nurse Aide Job Satisfaction Questionnaire. All analyses used the Huber-White sandwich estimator clustered by facility. AOR = adjusted odds ratio; CI = confidence interval.

^aExamined using ordered logistic regression.

^bExamined using logistic regression.

^cThe 1-year turnover rate for nurse aides was 48%.

^dAdjusted odds ratio reported for a 1-SD change.

^eAdjusted odds ratio reported for 1 vs 0.

^fAdjusted odds ratio reported for 1-unit increment.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

2004). The General Accounting Office (2001, p. 12) gave one reason for this shortage as “decreased job satisfaction.” This shortage of workers is clearly significant for the nursing home industry, which

expects an increased future need for these workers (Stone, 2004).

It is recognized that “fundamental flaws in the environment, design, and culture of long-term-care

Table 4. Regression Results For Nurse Aides' Job Satisfaction, Intent to Leave, and Turnover Examining Job Satisfaction Subscales

Variable	Thinking About Leaving ^a		Thinking About Job Search ^a		Searching for a Job ^b		Turnover ^{b,c}	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Job satisfaction subscales ^{d,g}								
Work schedule	0.79	0.68–0.92**	0.81	0.69–0.96**	0.79	0.68–0.92***	0.58	0.27–0.74**
Workplace support	1.17	0.98–1.41	1.10	0.92–1.31	1.17	0.98–1.41	0.17	0.10–0.29***
Coworkers	0.97	0.73–1.29	1.17	0.89–1.55	0.97	0.73–1.29	2.38	0.99–4.30
Work content	1.04	0.83–1.31	0.99	0.80–1.22	1.04	0.83–1.31	0.35	0.16–0.78**
Training	0.79	0.65–0.95**	0.72	0.60–0.87***	0.79	0.65–0.95**	0.29	0.12–0.73***
Rewards	0.61	0.44–0.72***	0.84	0.68–0.96*	0.75	0.64–0.87**	0.91	0.67–0.99*
Quality of care	0.99	0.94–1.05	0.98	0.92–1.05	0.99	0.94–0.99*	0.48	0.33–0.71*
Personal characteristics								
Age ^e	0.90	0.78–1.03	0.91	0.80–1.04	0.90	0.78–1.03	1.81	1.07–2.21**
Minority ^f	0.63	0.39–1.41	0.52	0.33–0.82**	0.63	0.39–1.03	0.34	0.25–0.64***
Marital status ^f	0.97	0.67–1.01	1.20	0.84–1.73	0.97	0.67–1.41	1.15	1.08–1.43*
Travel distance ^g	0.90	0.78–1.23	0.91	0.80–1.04	0.90	0.78–0.99*	1.81	1.07–1.21*
Role-related characteristics								
Number places employed as nurse aide ^e	1.05	0.90–1.02	1.02	0.86–1.20	1.05	1.00–1.09**	0.39	0.26–1.31
Total number prior jobs ^e	1.30	1.07–1.39*	1.33	1.11–1.59**	1.30	1.07–1.57*	2.22	1.21–2.67**
Tenure as nurse aide (all positions) ^f	0.86	0.73–1.23	0.86	0.72–1.02	0.68	0.42–1.10	2.12	1.77–2.79*
Part-time position ^f	0.68	0.42–0.89**	0.52	0.34–0.80***	0.86	0.73–0.99*	0.11	0.01–0.54***
Shift ^f	1.16	0.81–1.08	1.23	0.81–1.88	1.16	1.02–1.21*	0.39	0.26–1.03
Facility characteristics								
Nurse aide turnover ^e	1.15	0.84–1.02	1.06	0.77–1.45	1.15	0.84–1.57	2.90	0.73–3.21
Registered nurse turnover ^e	1.17	0.98–1.26	1.11	0.90–1.36	1.17	0.98–1.39	1.23	0.55–1.36
Nurse aide staffing levels ^e	0.88	0.71–0.95*	0.91	0.73–1.12	0.88	0.71–0.99*	1.01	0.45–1.06
Licensed practical nurse staffing levels ^e	1.17	0.89–1.07	1.14	0.85–1.51	1.17	0.89–1.54	0.76	0.31–0.89*
Registered nurse staffing levels ^e	0.92	0.76–0.99*	0.90	0.71–1.15	0.92	0.76–1.11	1.21	0.37–1.39
Facility size ^e	1.23	0.84–1.21	1.50	1.00–2.31*	1.23	0.84–1.82	0.63	0.12–0.87**
For-profit ownership ^f	1.20	0.85–1.39	1.00	0.66–1.52	1.20	0.85–1.68	1.14	0.16–1.20
Chain membership ^f	0.78	0.54–1.04	0.71	0.49–0.99*	0.78	0.54–1.12	0.92	0.19–0.99*
Average occupancy ^e	1.21	0.91–1.43	1.28	0.94–1.75	1.21	0.91–1.62	1.65	0.41–1.92
Average private-pay occupancy ^e	0.97	0.84–1.19	1.00	0.86–1.17	0.97	0.84–1.12	0.64	0.42–1.02
Case mix (activities of daily living) ^f	1.15	0.84–1.04	1.06	0.77–1.45	1.15	0.84–1.57	2.90	0.73–1.30
Turnover opportunities								
Rural location ^f	0.94	0.61–1.43	0.80	0.52–1.22	0.94	0.61–1.43	0.14	0.01–3.51
Unemployment rate ^e	0.91	0.79–1.05	0.87	0.75–1.01	0.91	0.79–1.06	0.75	0.28–2.00
Number of nursing homes in county ^e	0.72	0.58–0.90***	0.66	0.51–0.85***	0.72	0.58–0.90***	1.44	0.50–4.17
Number of facilities nurse aide could work in ^e	0.91	0.80–1.04	0.91	0.81–1.02	0.91	0.80–1.04	1.14	1.03–1.13**
Intent-to-leave subscales								
Thinking about leaving ^b							0.80	0.55–1.02
Thinking about job search ^b							0.95	0.72–1.03
Searching for a job ^b							1.05	1.00–1.20*
Pseudo R ²	0.12		0.11		0.10		0.72	

Notes: Data were collected from 1,779 nurse aides in Colorado, Florida, Michigan, New York, and Oregon using the Nursing Home Nurse Aide Job Satisfaction Questionnaire. All analyses used the Huber–White sandwich estimator clustered by facility. AOR = adjusted odds ratio; CI = confidence interval.

^aExamined using ordered logistic regression.

^bExamined using logistic regression.

^cThe 1-year turnover rate for nurse aides was 48%.

^dReverse coded; higher scores indicate positive job satisfaction.

^eAdjusted odds ratio reported for a 1-SD change.

^fAdjusted odds ratio reported for 1 vs 0.

^gAdjusted odds ratio reported for 1-unit increment.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

work contribute to vacancies and high turnover” (Davis & Dawson, 2003, p. 4). Staff job satisfaction likely reflects these flaws. Researchers have established a strong association between job satisfaction and turnover in other health care settings (Irvine & Evans, 1995), yet it would be useful to better understand this relationship as it relates to nursing homes. In this research, we examined both intent to leave and turnover after 1 year and their relationship with overall job satisfaction and seven job satisfaction subscales.

Given the often-reported poor quality of care in nursing homes (Institute of Medicine, 2001) and difficult work undertaken by caregivers (Tellis-Nayak & Tellis-Nayak, 1989), one may not have expected the descriptive results showing moderately high job satisfaction scores of nurse aides on some items. These results may reflect the fact that many nurse aides consider their work to be a profession and not merely a job (Davis & Dawson, 2003).

We do note, however, that some other job satisfaction studies have produced similar results, highlighting the enjoyment staff receive from relationships with residents (e.g., Parsons et al., 2003). Our results are similar to those of previous studies that have identified satisfaction with relationships with residents and shown that nurse aides are aware that their roles influence the lives of residents. The challenge is to capitalize on these positive aspects of the work environment to enhance job satisfaction and retention.

Overall, in the multivariate analyses, we found that low job satisfaction is associated with both intent to leave and turnover, which supports Hypotheses 1 and 2. These findings are consistent with research results in other areas of health care (e.g., Irvine & Evans, 1995) and findings from prior nursing home studies (e.g., Parsons et al., 2003). Nevertheless, the strength of our findings is weak, and in all cases the results have low adjusted odds ratios. We believe these weak relationships exist because nurse aides are likely more sensitive to some areas of their work than others, a fact that is reflected in the job satisfaction subscale scores rather than in aggregate scores. Indeed, the Training, Rewards, and Work Schedule subscales show stronger associations with both intent to leave and turnover.

Regarding intent to leave, findings show that nurse aides are dissatisfied on progressively more job satisfaction subscales as they move from thinking about leaving, to thinking about searching for a new job, to searching for a job. The findings also support Hypothesis 4a, namely that rewards (low pay and opportunity for advancement) would be associated with intent to leave. However, rewards are also associated with actual turnover, which is contrary to Hypothesis 4b.

Scores on the Quality of Care subscale were associated with turnover but not intent to leave, supporting Hypothesis 5. The Quality of Care

subscale taps the nurse aides' assessment of the impact they are able to have on residents. Prior researchers have shown that aides have a strong concern for the quality of resident care (e.g., Bowers, Esmond, & Jacobson, 2003) and have described the frustration nurse aides express when they feel that providing high-quality care is not possible given their workload (Anderson et al., 2005). Findings from this research add that this concern can also manifest as turnover.

Implications for Practice and Policy

Training, rewards, and work schedule are important aspects of nurse aides' jobs. Aides are required to undergo a minimum of 75 hr of initial training. Our results suggest that improvements in this training requirement may be important for retention efforts. However, the findings do not indicate whether providing more training or changing the content or the method of training would be most advantageous in improving the scores on this Training subscale. Nevertheless, our results lend support to advocacy efforts for more and/or different nurse aide training (Davis & Dawson, 2003).

The results for work schedule also have practical implications. Work schedule scores were likely representative of the staffing characteristics of the facilities investigated. The federal government regulates staffing levels in Medicare-/Medicaid-certified nursing homes, and mandates require that a facility provide services by a sufficient number of nursing personnel on a 24-hr basis in order to provide the required care in accordance with care plans. Nevertheless, experts consider resident-to-staff ratios in many facilities to be low (Harrington, 2005), which may influence resident care (Health Care Financing Administration, 2000). Our results also suggest that nurse aides are especially dissatisfied with staffing levels, as indicated by their dissatisfaction with workload and the amount of time they have to do their jobs. Higher staffing levels are an added expense, but given the considerable cost of hiring new staff (Seavey, 2004), lower turnover rates may offset at least some of this expense. Moreover, workload may have an interaction effect with training. That is, nurse aides with high workloads may not have the ability to follow care regimens in the way that they were taught. This may cause further discontent with both the high workload and prior training.

Regarding dissatisfaction with rewards (i.e., pay), it is widely acknowledged that nurse aides are paid at lower rates relative to workers in other areas of health care and in other industries (e.g., the fast food industry). Nurse aides are often the working poor, many being single-parent minorities. Although higher pay will likely improve retention efforts, this may be a difficult proposition: Some facilities operate under bankruptcy, and Medicaid reimbursement

rates are close to the actual cost of providing care. However, state-initiated wage pass-throughs using Medicaid funds to increase the pay of nurse aides may be a promising approach (Paraprofessional Healthcare Institute, 2003).

Several initiatives are underway to improve the job satisfaction and retention of nurse aides. For example, the Better Jobs Better Care demonstrations (Better Jobs Better Care, 2006) involve five state-based coalitions of providers who use peer mentoring (Iowa), higher wages and benefits (North Carolina), career advancement (Oregon), uniform training requirements (Pennsylvania), and improvements to organizational culture (Vermont) to improve direct care workers' jobs. In addition, CMS has awarded 10 grants under a demonstration to improve the direct service community workforce (New Freedom Initiative, 2006). The interventions used in these demonstrations include a mix of health care coverage, enhanced training, career ladders, worker registries, and enhanced recruitment strategies. Harmuth and Dyson (2004) describe more state initiatives. These initiatives may also show that states can influence the work life, and possibly retention, of nurse aides; but they have yet to be evaluated. However, our findings suggest that the areas concerning training and rewards will be beneficial.

Federal policy development in this area may also be influential. The CMS nursing home report card Nursing Home Compare reports on quality measures in 15 areas of resident care, (Nursing Home Compare, 2006) and CMS has proposed adding other quality measures, including a measure of staff turnover (CMS, 2003). This may foster increased attention to the working conditions of nurse aides.

Limitations

Our analyses are subject to the following limitations. The data came from only five states and a limited number of facilities. Therefore, we acknowledge that this may limit the generalizability of our findings. In addition, the response rate of facilities was low at 30%; thus, our nursing home sample may be subject to bias.

Most significantly, we propose that intent to leave precedes actual turnover; however, with the cross-sectional data available for job satisfaction and intent to leave, it is not possible to validate such a causal model. Thus, one must interpret cautiously the relationships between these dependent and independent variables.

Scores on items should not be interpreted as measuring job satisfaction or dissatisfaction. However, higher scores imply that nurse aides rated the area under consideration closer to excellent, and lower scores imply a rating of very poor.

The NHNA-JSQ is subject to some limitations. For example, the developers purposefully chose not

to use negatively worded items because, in the developmental stages, negatively worded items confused some nurse aides (Castle, in press). However, this approach may result in a response set bias wherein a respondent may use the same response for all questions within a category.

It is also clear that our analyses were not effective in explaining intent to leave but were more robust in explaining actual turnover. This may represent the difficulty in explaining intentions as opposed to actions. Nevertheless, this casts some doubt both on whether nurse aide intent to leave is a suitable proxy for turnover and on the conceptual model used for intent to leave. Intent to leave was influenced by personal characteristics, role-related characteristics, facility characteristics, and job characteristics, but not turnover opportunities. The conceptual model, however, did seem appropriate in examining turnover, because turnover was influenced by all of these factors in addition to intent to leave.

Finally, our analyses included a self-report of voluntary turnover from nurse aides. This measure may not be precise, given the potential embarrassment in being fired as opposed to voluntarily leaving. Thus, it is likely that this measure under represents involuntary turnover.

Conclusion

Despite these potential limitations, we believe the analyses are advantageous because they use a large sample of nurse aides, a job satisfaction instrument specifically developed for this population, and previously validated measures of intent to leave and turnover. Our results clearly show that training, rewards, and workload are important aspects of nurse aides' jobs. This may be important: As Davis and Dawson (2003) state, "at its best, caregiving is a personal relationship; it thrives on familiarity and the intimate knowledge of both parties of the other's routines and preferences. Constant churning of staff interrupts this relationship as consumers and new workers must continually reorient to each other" (p. 31). Examining the potential association between job satisfaction and quality of care seems like a necessary next research step.

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Effect of Staff Turnover on Staffing: A Closer Look at Registered Nurses, Licensed Vocational Nurses, and Certified Nursing Assistants

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Purpose: We examined the effects of facility and market-level characteristics on staffing levels and turnover rates for direct care staff, and we examined the effect of staff turnover on staffing levels. **Design and Methods:** We analyzed cross-sectional data from 1,014 Texas nursing homes. Data were from the 2002 Texas Nursing Facility Medicaid Cost Report and the Area Resource File for 2003. After examining factors associated with staff turnover, we tested the significance and impact of staff turnover on staffing levels for registered nurses (RNs), licensed vocational nurses (LVNs) and certified nursing assistants (CNAs). **Results:** All three staff types showed strong dependency on resources, such as reimbursement rates and facility payor mix. The ratio of contracted to employed nursing staff as well as RN turnover increased LVN turnover rates. CNA turnover was reduced by higher administrative expenditures and higher CNA wages. Turnover rates significantly reduced staffing levels for RNs and CNAs. LVN staffing levels were not affected by LVN turnover but were influenced by market factors such as availability of LVNs in the county and women in the labor force. **Implications:** Staffing levels are not always

associated with staff turnover. We conclude that staff turnover is a predictor of RN and CNA staffing levels but that LVN staffing levels are associated with market factors rather than turnover. Therefore, it is important to focus on management initiatives that help reduce CNA and RN turnover and ultimately result in higher nurse staffing levels in nursing homes.

Key Words: Nursing homes, Nurse staffing, Staff turnover

The positive relationship between low staffing levels and low quality of care in U.S. nursing homes has been demonstrated in prior research studies (Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000; Rantz et al., 2004; Schnelle et al., 2004). Possibly as a result of this research, government policy and nursing home resident advocates have increasingly paid attention to staffing levels in nursing homes as an indicator of quality. Nursing homes also have historically suffered from high staff turnover rates (Centers for Medicare and Medicaid Services [CMS], 2001). High turnover is troubling for many reasons, including decreased continuity of care for residents and the additional costs associated with recruitment and training. Moreover, research suggests that this turnover has adverse effects on both staffing levels and resident outcomes (Castle, 2001; Castle & Engberg, 2005; Harrington & Swan, 2003). A recent Institute of Medicine (IOM, 2004) report called for the identification of the causes of staff turnover, yet, to date, few studies have responded to this invitation.

Current minimum staffing requirements specified in state and federal laws that govern nursing homes have not been able to ensure acceptable quality of care. In fact, the vast majority of nursing homes do not have sufficient nursing staff (Harrington,

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Kovner, et al., 2000; Harrington, Mullan, & Carrillo, 2004; Walshe & Harrington, 2002). Potential reasons for this might be that (a) staffing requirements have been neither uniformly implemented by facilities nor enforced by regulatory agencies, and (b) written staffing standards alone may be insufficient to influence staffing levels, because other policies, such as reimbursement rates, and facility-specific features, such as resident case mix, ownership, and turnover, may affect staffing levels (Mueller et al., 2006). In addition, existing nursing home regulations fail to address the issue of staff turnover, despite its known association with quality of care. Because public policy has yet to achieve adequate staffing levels and lower turnover rates, it is important to explore methods other than staffing standards to address these problems.

Previous research on nursing home staffing has not fully accounted for the apparent reciprocal relationship between staffing levels and turnover. The assumption traditionally made is that low staffing levels will result in overburdened staff and poor quality, leading to increased staff turnover, which in turn increases vacancies (Harrington & Swan, 2003). However, the relationship may be more complex. Indeed, our approach assumes that staff turnover affects staffing levels rather than only the reverse. Further, we believe that it is possible to identify organizational factors that affect turnover but not staffing levels, allowing for a more appropriate staffing and turnover modeling approach.

Two factors led us to believe that staff turnover affects staffing levels. First, as several studies and reports have demonstrated, there is a shortage of individuals willing to work in nursing, and most health care providers, from hospitals to nursing homes, are grappling with these shortages (IOM, 2004; Seago, Spetz, Alvarado, Keane, & Grumbach, 2006). This factor alone may account for the effect of staff turnover on staffing levels, as new vacancies become increasingly difficult to fill with new hires (Staw, 1980). Second, however, high staff turnover also may be due to specific conditions that make a facility an unattractive place to work, such as poor management and staff mix. These factors may not directly affect staffing levels, but, when turnover occurs, they make it difficult to recruit new staff to fill vacancies and thus negatively affect staffing levels over time (Bowers, Esmond, & Jacobson, 2003; Castle & Engberg, 2006). This type of relationship is often called *endogeneity*. Endogeneity occurs when, as a result of omitted variables, an independent variable (staff turnover) is correlated with the error term in the staffing prediction model (Wooldridge, 2003). The presence of endogenous variables can lead to biased results; in our case, the underlying causes of low staffing levels and high turnover may be misidentified.

Clarifying the relationship between staffing levels and turnover, as well as understanding the factors associated with each, is critical to improving nursing

home quality. In this study we attempt to clarify the underlying relationship by including staff turnover (an endogenous variable) in models that predict staffing levels. This involves the use of instrumental variables, that is, identifying predictors of staff turnover that are not associated with staffing levels (Wooldridge, 2003). Thus, in this study we attempted to build upon the research of previous studies (e.g., Harrington & Swan, 2003) on staffing and turnover by correcting for the endogenous relationship through the use of instrumental variables for staff turnover in two-stage least squares (2SLS) models that predict staffing levels. We used results from previous studies on staff turnover to identify facility-specific characteristics (instrumental variables) that are associated with staff turnover rates but not related to staffing levels. In addition to this methodological approach, we examined direct care staffing levels by focusing on three staff categories: registered nurses (RNs), licensed vocational nurses (LVNs), and certified nursing assistants (CNAs).

Literature Review

Many studies have examined staffing levels in U.S. nursing homes, but only a limited number have attempted to explain staffing levels as a function of staff turnover. Most studies have used staffing as a predictor variable in models of nursing home quality. We found only five published articles (from 1990 to 2005) that used a measure of staffing level as the dependent variable (Cohen & Spector, 1996; Grabowski, 2001; Harrington & Swan, 2003; Konetzka, Yi, Norton, & Kilpatrick, 2004; Zinn, 1994).

A 1994 study of RN staffing aggregated facility information to the county level, which helped with the identification of market factors related to staffing levels but lacked focus on facility-level factors affecting staffing and turnover (Zinn, 1994). The focus of the most recent studies has been on the effect of reimbursement systems and level on quality in nursing homes. Cohen and Spector (1996) found that reimbursement level was associated with higher staffing levels, which was associated with better quality of care. Using a more recent dataset and alternative methodology, Grabowski (2001) confirmed these findings and concluded that a retrospective-based reimbursement system was associated with a higher average number of RNs than a prospective-based system. Another recent study considered the effect of policy variables related to Medicare-payment changes on staffing levels (Konetzka et al., 2004). That study of skilled nursing facilities concluded that Medicare's Prospective Payment System had a negative effect on professional staffing (RNs and LVNs). None of these studies explored the effect of staff turnover on staffing levels.

The study of California nursing homes by Harrington and Swan (2003) did consider staff

turnover as a predictor of staffing levels; it examined the apparently reciprocal relationship but did not offer instrumental variables for staff turnover when examining this relationship. The analysis of staffing levels as a function of staff turnover may produce biased results if one does not identify instrumental variables for staff turnover first. Further, this study found that the Medicaid-reimbursement level and the proportion of residents whose care is paid for by Medicare or Medicaid versus private insurance are significant predictors of facility decisions about hiring and retention of direct care staff (Harrington & Swan, 2003).

These prior studies examining the staffing of nursing homes have stressed the concept of resource dependency in the process of decision making by facility operators about staffing levels. The argument is that decisions about staff intensity and configuration are often influenced by the level of available resources to the nursing homes, and that additional research on a broader and more specific array of organizational characteristics that affect staffing levels and turnover is necessary to fully understand these decisions (Harrington & Swan, 2003; Konetzka et al., 2004).

The literature currently supports the idea that staff turnover has an adverse effect on a variety of quality measures in nursing homes (Burgio, Fisher, Fairchild, Scilley, & Hardin, 2004; Castle, 2001; Castle & Engberg, 2005; Zimmerman, Gruber-Baldini, Hebel, Sloane, & Magaziner, 2002). Additional consequences of high turnover in nursing homes have been lower standards of care, increased workload for the remaining staff, and higher costs for the facility (Caudill & Patrick, 1991; Knapp & Missiakoulis, 1983; Staw, 1980). Despite these findings, there has been insufficient attention to the relationship between staff turnover and staffing levels. We attempted to identify organizational characteristics (instrumental variables), beyond those affecting both staffing levels and staff turnover, that influence staff-turnover rates only. These instrumental variables, we believe, are facility factors that are realized by direct care staff after the initial hiring period.

Development of Hypotheses

Experts have recommended that nursing homes dedicate financial resources to the support of nurse training and skill improvement in order to ensure quality of care and patient safety (IOM, 2004). We expect these recommended measures, such as staff training and improved management practices, to also reduce staff turnover rates in nursing homes. Studies of nursing home staff turnover have identified specific factors associated with turnover rates. These include staff benefits, in-house CNA training, and management continuity, and these are potentially important organizational factors that are useful

in the development of retention strategies (Bowers et al., 2003; Castle, 2005). On the basis of these selected results from prior research on factors affecting staff turnover, we were able to identify predictors of turnover (instrumental variables) before we evaluated the effects of turnover on staffing levels. We expected to find a significant relationship between staff turnover and staffing levels for all three staff types.

Hypothesis 1: RN turnover has a negative association with RN staffing levels.

Hypothesis 2: LVN turnover has a negative association with LVN staffing levels.

Hypothesis 3: CNA turnover has a negative association with CNA staffing levels.

Methodology

We attempted to build upon prior staffing studies (e.g., Harrington & Swan, 2003) that examined staffing and turnover rates and addressed the endogeneity of staff turnover. In addition, because we believe that policy interventions targeted at staffing levels and turnover might have to be different, depending on staff type, we conducted the analyses for RNs, LVNs, and CNAs separately. We tested the hypotheses by applying ordinary least squares (OLS) and 2SLS models of staffing for RNs, LVNs, and CNAs.

Data Sources

We drew our population of nursing homes from the 2002 Texas Nursing Facility Medicaid Cost Report, which included 1,017 facilities. We dropped 3 facilities because they had extremely low occupancy rates related to a relatively short period of operation; this reduced the sample size to 1,014. This study does not include hospital-based facilities, because these are not included in the Texas Nursing Facility Medicaid Cost Report and would constitute a different population of residents and staff. Because the cost report was corrected and audited by the Texas Health and Human Services Commission (THHSC), the data did not include any omitted variables or observations; we calculated facility-level measures, such as occupancy rates and reimbursement rates, by following commission instructions.

We extracted county-level market factors from the 2003 Area Resource File, which combines 2000 Census data with the most recent data from the Bureau of Labor Statistics and other health-care-specific data sources. Because county codes from the two data sources did not correspond, we manually recoded all Area Resource File county codes before we merged the two data sources.

Dependent Variables

The first dependent variables of interest were direct care staffing levels. Direct care staff included RNs, LVNs, and all CNAs (including medication and respiratory aides). We measured staffing levels for each staff type by using the commonly used hours per resident day measure of staffing levels. This measure of staffing takes into account both staff hours and resident days, which captures the amount of direct care provided to each resident per day.

The second dependent variable of interest was staff-turnover rate. We measured staff turnover by dividing the number of employees who are no longer employed (total number of W2 forms filed minus the number of employees at the end of the reporting period) by the number of employees at the end of the reporting period for each category of direct care staff. This calculation is close to the formula recommended by the Bureau of Labor Statistics, which is defined as "the number of total separations for the year divided by the average employment level for the year" (Department of Labor, 2005).

Independent Variables

Organizational Factors Affecting Staffing and Turnover.—Facility-level variables included profit status and chain membership; number of licensed beds; occupancy rate; level of resources (Medicare, Medicaid, and private-pay resident day percentages as well as Medicaid-reimbursement rates); and hourly wages for the three direct care staff categories. We included the facility's average case-mix index (CMI) to control for the level of the residents' needs for staff assistance, supervision, and monitoring. The CMI is a composite measure of resident acuity at the facility level, based on the average Texas Index of Level of Effort, a case-mix classification system similar to the Resource Utilization Groups used for Medicaid-reimbursement purposes in other states and in the Medicare program (Fries et al., 1994).

Demographic and Labor Market Factors That Affect Staffing and Turnover.—Following the example of Harrington and Swan (2003), we included covariates in the prediction models. These include demographic variables, such as the proportion of individuals in the population who are aged 85 years and older, the proportion of racial or ethnic populations, and per capita personal income. We also included labor market variables such as the percentage of women in the labor force; county unemployment rates; the proportion of RNs, LVNs, and CNAs in the population; and female unemployment rates for women in our staffing and turnover models. Using the market share of facility beds in the county, we measured level of market concentration

with the Herfindahl index, which is a capacity-based market-concentration measure. We also included the urban influence code, which rates level of urban influence at the county level on a scale from 1 (most urban) to 9 (least urban). Many of these demographic and market variables have been reported to be significant in prior studies of nursing home quality and staffing (Cohen & Spector, 1996; Harrington & Swan, 2003; Zinn, 1994). We expected staffing levels and turnover rates to be more affected by organizational factors and less affected by market factors.

Instrumental Variables That Affect Turnover.—

The facility-level characteristics that we used as predictors of staff turnover were staff training expense ratio (total resident-care-staff training expense/net resident revenues), direct care staff benefit expense ratio (direct-care-staff employee-benefits expense/net resident revenues), professional staff ratio (RN and LVN hours/CNA hours), contracted staff ratio (contracted direct-care-staff hours/employed direct-care-staff hours), administrative expense ratio (total administrative and central office expenses/net resident revenue), RN turnover rates, and in-house CNA training (a dummy variable). We included RN turnover as a potential negative predictor of LVN and CNA turnover on the basis of recent research findings that linked administrator (management) turnover to direct care staff turnover (Castle, 2005). Research has also shown that in-house CNA training may have a negative effect on retention, and therefore we examined this variable as a possible instrumental variable for CNA turnover (Brannon, Zinn, Mor, & Davis, 2002).

Analysis

The variables of interest in this study were staff turnover rates for RNs, LVNs, and CNAs. We modeled staffing levels for the three nurse types by using a set of organizational characteristics including the respective nurse-type wages and a set of demographic and labor market variables (which also included the respective nurse-type populations). We included respective staff turnover rates as the variable of interest in both OLS and 2SLS models for each of the three nurse-type staffing models. We performed formal tests of endogeneity and concluded that staff turnover was indeed endogenous in all three staffing-level prediction models. We followed the commonly recommended residual analysis steps in testing for endogeneity (Wooldridge, 2003).

We addressed staff-turnover endogeneity by applying 2SLS models, using groups of instrumental variables associated with staff turnover but not staffing levels (Wooldridge, 2003). We included instrumental variables as predictors of staff turnover in the first-stage models, but not in the second-stage staffing-level regressions. We first started with all

potential instrumental variables in the turnover models and tested for the significance of groups of instrumental variables by using series of *F* tests. Next, we evaluated the significance of staff turnover as a predictor of staffing levels for all three staff types by using OLS and 2SLS. In order to answer the question of how important staff turnover is as a predictor of staffing levels when compared with other significant factors that affect staffing, we calculated fully standardized beta coefficients from the OLS results. The standardized beta coefficient is a useful measure of the relative impact of each independent variable on staffing levels, because it eliminates the units of measurement (metrics) and just reports effect size in terms of standard deviations (Long & Freese, 2003). Finally, we ruled out CMI endogeneity by performing formal statistical tests for endogeneity, and we treated CMI as an exogenous variable in the OLS and 2SLS models. We tested for CMI endogeneity by following the same procedures used to test for turnover endogeneity (Wooldridge).

Results

Descriptive statistics for all dependent and independent variables, including the proposed instrumental variable used in the staff-turnover models, are presented in Table 1.

The average number of RN hours per resident day for Texas nursing homes was 0.25. We found an average staffing level of 0.86 and 2.12 hours per resident day for LVNs and CNAs, respectively. These three staff types add up to an average of 3.23 hours of direct care per resident day. Staff-turnover rates among Texas nursing homes were relatively high at 133% for RNs, 108% for LVNs, and 160% for CNAs. These turnover rates were slightly higher than the reported turnover rates for a Texas nursing home sample used in a 2002 survey of nursing homes (Decker et al., 2003). We noticed a relatively large variation in staff wages. A further examination of staff wages showed that for-profit facilities offered significantly higher wages and had lower staffing levels compared with not-for-profit facilities. For-profit facilities, possibly not as desirable as not-for-profit facilities in terms of working environment, might compensate with higher wages while controlling total labor costs by hiring fewer staff.

Staff Turnover

On the basis of the first-stage regression results presented in Table 2, our attempt to explain staff turnover was very successful for LVNs, somewhat successful for CNAs, and not successful for RNs. Instrumental variables actually used in the first-stage turnover regressions are those with coefficient estimates in Table 2.

None of the instrumental variables for staff turnover explained RN turnover rates. RN turnover

was mostly affected by other organizational characteristics, including ownership status, case-mix complexity, and Medicaid-reimbursement level. For-profit facilities experienced higher levels of RN turnover, even after we controlled for all other covariates. Surprisingly, higher reimbursement rates were associated with higher turnover rates, and a higher CMI had a negative association with RN turnover; this is possibly a result of the strong association between CMI and reimbursement. Overall, we were not able to explain RN turnover rates well, considering the low adjusted R^2 value indicating that only 7% of RN turnover variation was explained by the independent variables.

The LVN turnover model, in contrast, was useful in explaining LVN-turnover variation, as we can see from the adjusted R^2 value of 22%. RN turnover was a highly significant predictor of LVN turnover, confirming results from previous studies on management-turnover effects (Castle, 2005). We found that the ratio of professional staff to nonprofessional staff and the ratio of contracted to employed staff were both significant predictors of LVN turnover. A higher professional staff ratio reduced LVN turnover, whereas a higher contracted staff ratio (agency staff) mix increased LVN-turnover rates. For-profit nursing homes were associated with higher LVN turnover—a consistent pattern across all staff types.

We were also successful in explaining CNA-turnover rates by using a selected group of instrumental variables. The significant predictor of CNA turnover was the administrative expense ratio, which had a negative association with CNA turnover. This result confirms previous research results linking better management practices and capacity with reduced CNA-turnover rates (Banaszak-Holl & Hines, 1996; Castle, 2005). We did not observe the expected negative correlation between staff training expense and CNA turnover. For-profit facilities and higher proportion of Medicare resident days were associated with higher CNA-turnover rates. One important observation is that higher CNA wages did indeed reduce CNA turnover, a relationship that is unique to CNAs only.

Staffing Levels

Results from both OLS and 2SLS models (second-stage results) for RN, LVN, and CNA staffing intensity are presented in Table 3. We were able to identify instrumental variables for LVN and CNA turnover, but not for RN turnover. Therefore, we recommend the use of OLS models for RN staffing levels.

The results of the staffing models mirror the results from previous staffing studies in terms of the significance of organizational characteristics affecting the recruitment and retention of direct care staff (Harrington & Swan, 2003). All three staff types

Table 1. Descriptive Statistics for Texas Nursing Homes

Variable Name	Variable Definition	<i>M</i>	<i>SD</i>
Dependent variables			
Total RN hours per resident day	Total RN hours per day divided by the average number of residents per day	0.251	0.112
Total LVN hours per resident day	Total LVN hours per day divided by the average number of residents per day	0.858	0.211
Total CNA hours per resident days	Total CNA hours per day divided by the average number of residents per day	2.118	0.425
Variables of interest			
RN turnover rate	Proportion of RNs not employed at the end of the reporting year	1.332	1.750
LVN turnover rate	Proportion of LVNs not employed at the end of the reporting year	1.077	1.167
CNA turnover rate	Proportion of CNAs not employed at the end of the reporting year	1.597	1.445
Instrumental variables			
Training expense ratio	Direct care staff training costs divided by net revenues	0.001	0.003
Benefits expense ratio	Direct care staff benefits divided by direct care staff wages	0.034	0.037
Professional staff ratio	Total RN and LVN hours divided by CNA hours for facility	0.545	0.191
Contracted staff ratio	Contracted direct care staff hours divided by employed direct care staff hours	0.012	0.033
Administrative expense ratio	Total administrative expenses (includes central office) divided by net revenues	0.134	0.051
In-house CNA training	CNA Training and Competency Evaluation Program offered (yes = 1, no = 0)	0.302	0.459
Organizational characteristics			
For-profit facility	Dummy variable for ownership status (for profit = 1 and not for profit = 0)	0.830	0.375
Chain facility	Multifacility system member with the same owner (yes = 1, no = 0)	0.644	0.479
Number of beds	Total number of licensed beds	110.813	42.811
Occupancy rate	Average annual occupancy rate for facility	0.747	0.164
Case-mix index	Average level of resident needs, based on ADL level and TILE	0.986	0.107
Proportion of Medicare days	Medicare days divided by total days of service	0.062	0.051
Proportion of Medicaid days	Medicaid days divided by total days of service	0.704	0.140
Proportion of private days	Private insurance days divided by total days of service	0.006	0.037
Reimbursement rate	Medicaid reimbursement rate for facility	94.521	7.720
Staff wages (\$)			
RN	Average hourly wage for RNs	24.037	3.326
LVN	Average hourly wage for LVNs	16.135	2.134
CNA	Average hourly wage for all CNAs	8.191	1.158
Demographic variables			
Population aged 85+	Proportion of population aged 85 and older in the county	1.643	0.816
Black population	Proportion of population African American in the county	10.016	7.544
Hispanic population	Proportion of population Hispanic in the county	25.401	19.968
Personal income (\$1,000s)	Average (per capita) income in the county (in \$1,000s)	24.543	5.993
Labor market variables			
Women in labor force	Percentage of women in the labor force in the county	0.454	0.018
Unemployment rate	Proportion of labor force unemployed in the county	4.674	2.064
Unemployment rate of women	Proportion of female labor force unemployed in the county	2.914	0.986
RNs in 1,000 population	Total number of RNs per 1,000 population in the county	8.185	4.194
LVNs in 1,000 population	Total number of LVN or LPN per 1,000 population in the county	1.848	1.140
CNAs in 1,000 population	Total number of CNAs per 1,000 population in the county	8.185	4.194
Other market variables			
Urban Influence Code	Urban Influence Code (ordinal variable: most urban = 9, most rural = 1)	3	3
Herfindahl Index	Capacity-based measure of market concentration (ranges 0–10,000)	2391	2463

Notes: RN, LVN, and LPN = registered, licensed vocational, and licensed professional nurse, respectively; CNA = certified nursing assistant; ADL = activity of daily living; TILE = Texas Index of Level of Effort; *SD* = standard deviation. Number of facilities = 1,014.

Table 2. OLS Regression Results for Direct Care Staff Turnover by Staff Type

Variable	Coefficient		
	RN Turnover	LVN Turnover	CNA Turnover
Potential instrumental variables for turnover			
Training expense ratio			
Benefits expense ratio	0.4723		
Professional staff ratio	-0.1763	-0.4303*	0.1513
Contracted staff ratio	-0.6351	2.0717*	
Administrative expense ratio	-1.1404		-2.296*
RN turnover rate		0.2826**	
In-house CNA training			0.0971
Organizational characteristics			
For-profit facility	0.6006**	0.2531**	0.6843**
Chain facility	0.1819	0.0696	0.1022
Number of beds	-0.0004	-0.0012	-0.0016
Occupancy rate	0.2611	0.0562	0.6784*
Case-mix index	-2.9193**	-0.4466	-1.3337
Proportion of Medicare days	4.6801**	1.9251**	3.9116**
Proportion of Medicaid days	0.8099*	0.3072	0.2374
Proportion of private days	-0.5403	0.1967	-0.1154
Reimbursement rate	0.0317**	0.0082	0.0071
Staff wages			
RN, LVN, and CNA wages, respectively	0.0329	-0.0219	-0.211**
Demographic variables			
Population aged 85+ (proportion)	0.0227	0.0473	-0.1209
Black population (proportion)	0.0108	-0.0008	-0.0042
Hispanic population (proportion)	0.0121**	-0.0012	0.0023
Personal income	0.0051	0.0121	0.0245*
Labor market variables			
Percentage of women in labor force	-6.1693	2.4211	0.0994
Unemployment rate	-0.0308	0.0143	-0.0238
Unemployment rate for women	0.0159	-0.0403	-0.0891
Number of RNs, LVNs, and CNAs in 1,000 Population	0.0169	0.0318	0.0277
Other market variables			
Urban Influence Code (1 = least urban and 9 = most urban)	-0.0543	-0.0237	-0.0450
Herfindahl Index (10,000)	-0.3070	-0.1997	-0.4379
Adjusted R ²	0.07	0.22	0.08

Notes: OLS = ordinary least squares; RN and LVN = registered and licensed vocational nurse, respectively; CNA = certified nursing assistant.

*Statistically significant at $p < .05$.

**Statistically significant at $p < .01$.

were negatively and significantly affected by for-profit ownership, percentage of Medicaid days, and higher wage rates. Although the association between higher wages and lower staffing levels may seem surprising, higher wages can have a negative effect on staffing levels because facility administrators make hiring and resource allocation decisions based on the labor costs within a market. Thus, the negative association between wages and staffing levels may be due to labor demand at the facility level. Further, proprietary facilities may need to offer higher wages to attract nursing staff but compensate by hiring fewer staff to control cost.

Higher occupancy rates had a negative effect on RN and LVN staffing and a significantly positive effect on CNA staffing levels. Nursing home size had a negative effect on RN staffing levels and a positive

effect on LVN and CNA staffing; this is possibly an adverse effect of the minimum standards on RN staffing imposed by current regulations. Reimbursement rate was a significant and positive predictor of staffing levels, confirming resource dependency of staffing decisions (Harrington & Swan, 2003). As we expected, the percentage of Medicaid days had a significant negative effect on staffing levels, whereas the percentage of Medicare days had a significant positive effect on both RN and LVN staffing. Significant results related to demographic and market factors were detected for RNs and LVNs only. There seemed to be a positive relationship between the county's per capita income and the nursing home's ability to hire RNs. Higher proportions of women in the labor force and more LVNs in the county population had a significant positive

Table 3. OLS and 2SLS Regression Results for Direct Care Staffing Hours per Resident Day by Staff Type

Independent Variables	RN Model Coefficient		LVN Model Coefficient		CNA Model Coefficient	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Variables of interest (endogenous)						
RN, LVN, and CNA turnover rate, respectively	-0.0071**	-0.2189	-0.0048	-0.0155	-0.0238**	-0.2435*
Organizational characteristics						
For-profit facility	-0.0343**	0.0919	-0.0743**	-0.0698**	-0.1949**	-0.0423
Chain facility	0.0251	0.0581	0.0185	0.0193	0.0544	0.0631
Number of beds	-0.0006**	-0.0007*	0.0003*	0.0003*	0.0014**	0.0011*
Occupancy rate	-0.1854**	-0.0987	-0.3087**	-0.3058**	0.3328**	0.4936**
Case-mix index	-0.0347	-0.6612	0.1523	0.1381	-0.0350	-0.3814
Proportion of Medicare days	0.2711**	1.2238	0.3032*	0.3361*	-1.7460**	-0.8632
Proportion of Medicaid days	-0.0912**	0.0895	-0.1954**	-0.1898**	-0.4015**	-0.3345**
Proportion of private days	0.0298	-0.0768	0.1386	0.1379	-0.1913	-0.1852
Reimbursement rate	0.0039**	0.0107	0.0045**	0.0047**	0.0122**	0.0146**
Staff wages						
RN, LVN, and CNA wages, respectively	-0.0095**	-0.0024	-0.0162**	-0.0164**	-0.0864**	-0.1349**
Demographic variables						
Population aged 85+ (proportion)	0.0031	0.0072	0.0006	0.0012	-0.0497	-0.0761
Black population (proportion)	0.0008	0.0031	-0.0005	-0.0005	0.0022	0.0011
Hispanic population (proportion)	0.0004	0.0029	-0.0006	-0.0005	-0.0001	0.0002
Personal income (\$1,000s)	0.0018*	0.0026	0.0030	0.0031	-0.0014	0.0037
Labor market variables						
Percentage of women in labor force	0.2144	-1.1932	1.2712**	1.2689**	-1.5803	-1.6475
Unemployment rate	-0.0003	-0.0069	0.0047	0.0047	-0.0018	-0.0079
Unemployment rate for women	-0.0060	-0.0016	-0.0003	-0.0007	0.0127	-0.0053
Number of RNs, LVNs, and CNAs in 1,000 population	-0.0014	0.0024	0.0217**	0.0221**	0.0015	0.0048
Other market variables						
Urban Influence Code (1 = least urban and 9 = most urban)	-0.0034	-0.0146	-0.0084	-0.0087	0.0119	0.0016
Herfindahl Index (10,000s)	0.0458*	-0.0193	0.0082	0.0051	-0.0850	-0.1784
RSS	9.34	136.55	36.73	36.88	139.83	232.02
Adjusted R ² (for OLS only)	0.25		0.17		0.22	

Notes: OLS = ordinary least squares regression; 2SLS = two-stage least squares regression; RN and LVN = registered and licensed vocational nurse, respectively; CNA = certified nursing assistant. Adjusted R² values are not shown for the 2SLS models; although the value is a good measure of overall model strength for OLS, it is not useful or meaningful in 2SLS models.

*Statistically significant at $p < .05$.

**Statistically significant at $p < .01$.

association with LVN staffing levels. This might indicate that LVN staffing levels are more sensitive to labor supply factors than are the other direct care staff categories. As we can see from the OLS and 2SLS regression results, significant factors affecting staffing levels are consistent across models and parameter estimates are very similar.

Finally, the analysis of staff turnover as a predictor of staffing levels revealed mixed results, depending on staff type. RN turnover was associated with RN staffing ratios, but this relationship was only significant in the preferred OLS model. Therefore, we find support for Hypothesis 1 and conclude that RN turnover might indeed be a significant predictor of RN staffing levels. LVN turnover was not associated with LVN staffing levels. This result was consistent across OLS and 2SLS models. Therefore, we could not support Hypothesis 2 and concluded

that there is no significant association between LVN turnover and LVN staffing levels. Results from OLS and 2SLS regressions confirmed that CNA turnover is indeed a significant predictor of CNA staffing levels in nursing homes. Therefore, we find support for Hypothesis 3 and conclude that CNA turnover and CNA staffing levels are related and the relationship is significant even after we correct for the endogeneity of CNA turnover and control for all covariates.

Relative Impact of Staff Turnover on Staffing Levels

We examined the relative impact of staff turnover on staffing levels compared with other significant predictors of staffing levels by calculating fully standardized beta coefficients (Long & Freese, 2003). We present and compare standardized coefficients

from the OLS regression for all three staff types in Table 4.

Looking at the predictors of RN staffing levels, we find that the most important factors associated with higher RN hours were lower RN wages, higher reimbursement rates, and smaller facilities. Next, proportion of Medicare days was important (positive association), followed by for-profit facility (negative association) and proportion of Medicaid days (negative association). RN turnover ranked seventh, followed by occupancy rate (negative association) and per capita income (positive association).

LVN staffing levels were most affected by occupancy rates (negative association), LVN wages (negative association), and reimbursement rates (positive association). The next most important predictors of LVN staffing were for-profit ownership and percentage of Medicaid days (both had negative association with LVN staffing levels). Number six and seven in terms of highest impact were the supply of LVNs and the proportion of women in the labor force. LVN turnover was not a significant predictor of LVN staffing levels.

In the case of CNAs, we see that the predictor variable with the highest relative impact on CNA staffing was reimbursement rate (positive association), followed by ownership type, facility size (positive association), and proportion of Medicaid days (negative association). The next two variables with the highest relative impact were occupancy rate (positive association) and CNA turnover (negative association). We see that CNA turnover ranked sixth when it is compared with other significant predictors of CNA staffing levels, which are mostly related to facility resources and capacity.

Discussion

A prior study on staffing concluded that total average staff turnover had a significant and negative effect on both RN staffing and total staffing levels (Harrington & Swan, 2003); however, that study did not focus on a detailed examination of turnover for each type of staff. We believe that the results from our study offer additional information about staffing and turnover by examining three separate categories of staff, testing additional facility-level factors that could affect turnover rates, and offering results from another state with a large number of nursing homes.

Our results confirmed that the most significant predictors of staffing levels and staff turnover were organizational characteristics, making staffing intensity less dependent on market factors and more sensitive to ownership status and facility resources. LVN turnover was not associated with LVN staffing levels, although we were very successful in identifying instrumental variables for LVN turnover. RN turnover rates were an important predictor of LVN turnover. We also found that LVN staffing intensity

Table 4. Standardized Coefficients for Significant Predictors of Staffing Levels by Staff Type

Independent Variables	OLS Model: Std. β		
	RNs	LVNs	CNAs
Variables of interest (endogenous)			
RN, LVN, and CNA turnover rate, respectively	-0.111		-0.081
Organizational characteristics			
For-profit facility	-0.115	-0.132	-0.172
Number of beds	-0.230	0.070	0.141
Occupancy rate	-0.027	-0.240	0.128
Proportion of Medicare days	0.122	0.073	-0.021
Proportion of Medicaid days	-0.114	-0.130	-0.133
Reimbursement rate	0.265	0.167	0.223
Staff wages			
RN, LVN, and CNA wages, respectively	-0.282	-0.164	-0.024
Demographic variables			
Personal income (\$1,000s)	0.094		
Labor market variables			
Percentage of women in labor force		0.109	
Number of RNs, LVNs, and CNAs in 1,000 population		0.117	
Other market variables			
Herfindahl Index (10,000s)	0.100		

Notes: OLS = Ordinary least squares regression; RN and LVN = registered and licensed vocational nurse, respectively; CNA = certified nursing assistant. Coefficients are fully standardized and measure the relative impact of independent variables.

is indeed affected by important market factors, such as the proportion of female workers in the labor force and LVN labor supply. The insight this study has added to our understanding of nursing home staffing and turnover is that management (RN) turnover is a significant predictor of LVN turnover, and that turnover does not necessarily affect staffing levels when staffing levels are highly sensitive to market factors, as in the case of LVNs.

This analysis of Texas nursing homes reveals a significant relationship between CNA wages and CNA turnover rates, and a negative correlation of wages and staffing levels in general. Although wages seem not to be effective recruitment incentives in a market dominated by for-profit nursing homes, they do reduce turnover rates for CNAs significantly. Therefore, higher wage rates can be a disincentive to hire more staff at the facility level and an incentive to continue working at a nursing home for CNAs. This result would seem to lend some support to a recent CMS (2001) report suggesting that a \$2 per hour pay increase would reduce high CNA turnover.

CNA turnover was also affected by administrative expenses (a measure of management capacity). Our results show that higher administrative expenses,

including central office expenses related to multi-facility administration, were associated with lower CNA turnover rates. These results may suggest that better management, in the form of qualified administrators and higher management capacity, as well as higher wages would help with CNA retention. This finding supports research showing the possible spillover effects in the nursing home setting coming from top management (Castle, 2001, 2005). Moreover, as Castle (2005) asserts, improving top management issues in nursing homes also represents another tool available to reduce staff turnover.

Policy Implications

Most attempts to achieve “good” staffing levels have focused on specifying minimum standards and factors that may affect facility hiring decisions, such as reimbursement rates. However, our findings suggest that more research is needed to understand the dynamics of turnover and that attempts to achieve and maintain adequate staffing levels in nursing homes should include policies specifically aimed at improving retention rates.

Nursing home staffing and turnover, according to these Texas facilities, were not always related as we had expected. RN turnover was associated with RN staffing, and CNA turnover was associated with CNA staffing; while LVN turnover was not significantly related to LVN staffing levels. Therefore, it is important for policy incentives to affect both staffing levels and turnover rates, since both have proven to be associated with quality of care in nursing homes and are not always associated with one another.

In order to improve CNA retention, incentives should be directed toward an increase in CNA wages and the development of management capacity and better management practices in nursing homes. Policy incentives at the facility level should also focus on increasing the number of RNs and LVNs compared with CNAs and reducing the reliance on contracted staff in order to improve LVN retention. LVN turnover rates were also highly sensitive to administrative factors, such as management continuity measured by RN turnover rates. Therefore, policy initiatives that involve management capacity building in nursing homes could improve both LVN and CNA retention.

At the market level, policy could be directed toward improving the ability of nursing homes to hire more LVNs. LVN staffing levels were affected by market factors, such as supply of licensed nurses in the county population and percentage of female workers in the labor force. This might explain the relatively high vacancy rates for LVNs compared with other staff types, based on a recent survey of nursing homes (Decker et al., 2003). The observed market dependency of LVN staffing is potentially amendable to policy interventions such as better public access to

licensed nursing programs and promotional activities in high schools and community colleges to encourage licensed nursing careers in nursing homes.

Limitations

Texas has a large number of nursing homes compared with other states with a high percentage of for-profit facilities. Texas also has a well-established Medicaid-cost-report process, allowing for a thorough examination of expense categories, staffing levels, and turnover rates by staff type. Looking at quality-enforcement activity compared with other states, we see that Texas falls in the lower third quartile (Harrington et al., 2004), and therefore it is expected to be less affected by enforcement and more by organizational and market factors when it comes to staffing levels. Nevertheless, we cannot make the case that our findings are nationally representative.

Other limitations include the lack of information about the kind of training offered to staff. We assumed that all training expenses were strictly for long-term-care-specific training of CNAs. Further, we attempted to measure “management capacity” by using an administrative expense ratio. Ideally, higher administrative expenses should be associated with higher management capacity, but this relationship cannot always be assumed. In order to detect the true effects of management capacity on staff turnover, organizational-level data on administrator qualifications, educational attainment, experience, and management styles would be necessary.

Conclusion

Prior research has stressed the importance of understanding the factors associated with staff levels and turnover in nursing homes. This study of Texas nursing homes provides a detailed analysis of the relationship between staffing levels and staff turnover. Our findings show that staff turnover is not always associated with staffing levels. Therefore, policy initiatives should be directed toward improving staff levels as well as retention. Results from this study offer new information for policy affecting RN, LVN, and CNA recruitment and retention. On the basis of our analysis, staffing levels have a strong association with reimbursement rates and ownership type. Better management capacity and practices combined with higher CNA wages can help improve CNA retention. Increasing the population of licensed nurses can improve the ability of nursing homes to hire more LVNs.

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Turnover Begets Turnover

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Purpose: This study examined the association between turnover of caregivers and turnover of nursing home top management. The top managers examined were administrators and directors of nursing, and the caregivers examined were registered nurses, licensed practical nurses, and nurse aides. **Design and Methods:** The data came from a survey of 419 nursing facilities and the Online Survey, Certification, and Reporting system. Multinomial logistic regression analyses were used to examine the association between turnover of nursing home top management and turnover of caregivers. **Results:** A 10% increase in top management turnover is associated ($p < .05$) with a 21% increase in the odds that a facility will have a high turnover rate of nurse aides and is associated ($p < .05$) with an 8% decrease in the odds that a facility will have a low turnover rate of nurse aides. A 10% increase in top management turnover is associated ($p < .1$) with a 30% increase in the odds that a facility will have a high turnover rate for registered and licensed practical nurses. **Implications:** This study provides preliminary evidence that the turnover of top managers may have an important influence on caregiver turnover in nursing homes.

Key Words: Turnover, Top management, Nursing home staff

The turnover rate of nursing home personnel is clearly important. Previous research has shown the turnover rate of registered nurses (RNs), licensed practical nurses (LPNs), and nurse aides to be an important influence on the quality of care of nursing home residents (Davis, 1991). Likewise, some research has determined that the turnover of top management in nursing homes may affect quality of care (Anderson, Issel, & McDaniel, 2003; Castle, 2001; Singh, Amidon, Shi, & Samuels, 1996;

Zimmerman, Gruber-Baldini, Hebel, Sloane, & Magaziner, 2002).

Not surprisingly, given the chronic nature of the problem, researchers have examined interventions to reduce turnover. These interventions include training (Accorinti, Gilster, & Dalessandro, 2000), preemployment screening (Kettlitz, Zbib, & Motwani, 1997), team-care processes (Chapman, 1999), job design (Teresi et al., 1993), and staff support (Riggs & Rantz, 2001). Nurses and nurse aides provide the majority of resident care, so most research and interventions are directed toward these caregivers. Few studies have examined the turnover rate of top management, which in this case is defined as the administrator and director of nursing (DON). However, this may be a significant omission from the literature, because top management turnover may affect caregiver turnover.

Levels of Staff Turnover in Nursing Homes

Recent studies addressing turnover rates of staff in nursing homes are shown in Table 1. Focusing solely on Veterans Affairs nursing homes, Brennan and Moos (1990) found the average annual turnover rate of all staff to be 46%. In their study, set in 254 nursing homes, Banaszak-Holl and Hines (1996) found an average annual nurse aide turnover rate of 32%. In 1998, an American Health Care Association (AHCA) study of 12 nursing home chains reported an annual turnover rate of 59% for RNs and 50% for LPNs (Buck Consultants, 1999). Other studies have also shown RN and LPN turnover to be high. Anderson, Issel, and McDaniel (1997) found LPN turnover to be 103% per year, and RN turnover to be 64% per year.

Most estimates of top management turnover rates are quite high. These rates are also shown in Table 1. Studies published by trade magazines have identified the average turnover rate of administrators to be 33% per year (Rubin & Shuttlesworth, 1986), 20% per year (Gilbert, 1995), and between 20% and 30% per year (Gilbert, 1996). More recent studies in the scientific literature are quite consistent and have shown high turnover rates, with rates of 40% (Singh & Schwab, 1998), 43% (Angelelli, Gifford, Shah, & Mor, 2001), and 43% per year (Castle, 2001).

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Table 1. Reported Staff Turnover Levels in Nursing Homes: 1985–2003

Author(s)	Turnover Rate (% per Year)	Sample Size and Setting
Nurse aides		
Wagnild (1988)	143	11 facilities in Texas
Caudill and Patrick (1991)	93	26 facilities in western states
American Journal of Nursing (1991)	37	National survey
Banaszak-Holl and Hines (1996) ^a	32	250 facilities in 10 states
Anderson et al. (1997)	179	469 facilities in Texas
Buck Consultants (1999)	94	12 nursing home chains
Brannon et al. (2002) ^a	51	288 facilities in 8 states
Licensed practical nurses		
American Journal of Nursing (1991)	19	National survey
Anderson et al. (1997)	103	469 facilities in Texas
Buck Consultants (1999)	50	12 nursing home chains
Registered nurses		
Caudill and Patrick (1991)	45	26 facilities in western states
American Journal of Nursing (1991)	19	National survey
Anderson et al. (1997)	64	469 facilities in Texas
Buck Consultants (1999)	59	12 nursing home chains
Brannon et al. (2002) ^a	22	288 facilities in 8 states
Top Management		
Directors of nursing		
Larsen (1993)	35	80 facilities in Colorado
Olson (2001) ^b	46	230 rural facilities in the Midwest in 1994
Olson (2001) ^b	16	230 rural facilities in the Midwest in 1994
Decker et al. (2003)	50	National survey
Administrators		
Rubin and Shuttlesworth (1986)	33	72 administrators in Texas
Gilbert (1995)	20	National survey
Christensen and Beaver (1996)	70	147 facilities in Oregon
Gilbert (1996)	20–30	National survey
Singh et al. (1996)	40	173 facilities in South Carolina
Singh and Schwab (1998)	40	552 administrators in Michigan and Indiana
Singh and Schwab (2000)	38.5	552 administrators in Michigan and Indiana
Angelelli et al. (2001)	43	832 facilities in New York
Castle (2001)	43	420 facilities in 5 states

^aA 6-month period was used in this study to calculate the turnover rate.

^bThese are unpublished studies by Winters, cited by Olson.

Although few studies have examined DON turnover rates, one found a turnover rate of 50% per year (Decker et al., 2003).

Linking Top Management Turnover and Caregiver Turnover

I propose that the turnover rates of top management can influence subsequent caregiver turnover rates in three ways. First, top management turnover will have a destabilizing influence within the facility. Second, top management turnover will influence employees' commitment to the organization. Third, top management turnover will influence how resident care and services are provided.

Singh and Schwab (1998) state that high administrative turnover may have a "destabilizing influence" (p. 310). Indeed, both the general management literature and nursing home management literature have consistently identified negative organizational performance to be associated with top management turnover (e.g., Dreher, 1982). In the management literature, Finkelstein and Hambrick (1990) show that executive turnover leads to less consistent organizational outcomes, whereas Clingermayer and Feiock (1997) identify it with increased subsequent transaction costs for the organization.

In the nursing home literature, researchers have associated longer DON tenure with better resident outcomes (Anderson et al., 2003; Zimmerman et al., 2002). One further destabilizing influence of top management turnover could be dissatisfaction of other staff. It is intuitive that if top managers are repeatedly seen as not wanting to work at a facility (as shown by their exodus), then other members of the staff may likewise come to question their own institutional loyalty. Grau, Chandler, Burton, and Kolditz (1991) have shown that nursing home top management can influence the institutional loyalty of nurse aides.

Empirical studies suggest that top managers influence employees' commitment to the organization, as well as their turnover rates (e.g., Mathieu & Zajac, 1990). Although they did not examine top management turnover rates, numerous hospital-based studies also have shown that RN turnover rates are associated with managers' leadership attributes (e.g., Boyle, Bott, Hansen, Woods, & Taunton, 1999) and supervisors' leadership attributes (Taunton, Krampitz, & Woods, 1989).

Moreover, caregivers' dissatisfaction with top management, leading to their turnover, may manifest itself in other ways. Top managers of nursing homes do not directly provide resident care, but they are responsible for the care provided by caregivers in their facilities. In this way, they can have a significant impact on the types of services provided and the quality of those services (Castle, 2001). They do, for example, have significant influence over the facility

budget and can control the distribution of monies for care and services. A leadership void, resulting from top management turnover, could negatively influence care and services (Castle, 2001). For example, Castle (2001) recently determined that shorter top management tenure was associated with poor resident outcomes. In turn, because of this negative influence on care and services, resident caregivers may be more inclined to leave the facility.

Top managers, upon joining a facility, need to become accustomed to the basic practices of the new facility. While they are doing this, their attention to staff concerns, pay, and benefits may fall by the wayside (at least initially). This may be a third way that top management turnover affects resident caregiver turnover. Indeed, some recent research by Brannon, Zin, Mor, and Davis (2002) would suggest that supervision, leadership, and rewards are important influences on the turnover rates of nurse aides. The hospital nursing literature also would seem to support this view (e.g., Taunton et al., 1989).

Conceptual Framework and Research Hypothesis

For this analysis, I found no empirical studies examining the association between nursing home top management turnover rates and caregiver turnover rates. Nevertheless, the aforementioned literature suggests that the turnover rate of top management can influence subsequent caregiver turnover rates. I hypothesize that high (low) levels of top management turnover will be associated with high (low) levels of resident caregiver turnover.

To examine this hypothesis, I used a conceptual model developed by Banaszak-Holl and Hines (1996). I chose this model first because it was developed specifically in nursing homes, and second because other authors have successfully used similar models in the nursing home setting (Anderson et al., 1997; Brannon et al., 2002).

Numerous conceptual and theoretical models of turnover exist in the literature (e.g., Bluedorn, 1982). These models examine both actual turnover and intent to turnover; they also include a wide variety of variables including demographic, job, organizational, wage, and market variables. In reviewing turnover studies, Price (2001) further codified these variables as belonging to three basic factors: individual, structural, or environmental. Individual factors (e.g., demographic variables) are characteristics of the individual worker; structural factors (e.g., job and organizational variables) are characteristics of the work setting; and, environmental factors (e.g., market variables) are characteristics external to both the individual and organization.

Similar to several other turnover models, the model developed by Banaszak-Holl and Hines (1996) includes both structural and environmental factors, and it utilizes variables for job design, organizational

characteristics, residents, and the market. This model is not intended to explain turnover of individual staff; rather, its utility lies in its ability to explore "very high and very low facility turnover, drawing on factors identified in prior work to be correlated with facility turnover rates" (Brannon et al., 2002, p.159). This conceptual model is germane to this investigation because I am most interested in examining the influence on aggregate (high and low) facility-level caregiver turnover of one additional structural variable, the turnover of top management.

Methods

Sources of Data

Data used in this investigation came from a survey of nursing homes and the Online Survey, Certification, and Reporting (OSCAR) database. The primary data collection consisted of a questionnaire mailed to the administrators of 470 nursing homes during the spring of 1999. The OSCAR data were from 1997, matching the time of interest for top management turnover (subsequently described).

I collected primary data from facilities in five states: Kansas, Maine, Mississippi, South Dakota, and Texas. I chose these states because they participated in the Centers for Medicare and Medicaid Services (CMS) Multi-State Case-Mix and Quality (NHCMQ) Demonstration Project and thus have been of interest to researchers. These states have no conceptual or theoretical relevance to this study and may not be representative of all states. For example, they likely overrepresent rural areas. I used only five states because resources were limited for this initiative and consequently the sample had to be limited as well.

I stratified facilities by state and then chose a random sample of approximately 50% of facilities from each state's pool of eligible facilities. The turnover questionnaire was included as part of a larger study examining nursing home outcomes. This limited my study because hospital-based facilities and facilities that were part of a retirement center were excluded from this other nursing home outcomes initiative. Eligible facilities included 74 nursing homes from Kansas, 23 from Maine, 81 from Mississippi, 16 from South Dakota, and 632 nursing homes from Texas.

The OSCAR procedure is conducted by state licensure and certification agencies as part of the yearly Medicare–Medicaid certification process, and it includes approximately 17,000 facilities. I used data only from those facilities that participated in primary data collection. Facility information in the OSCAR data is lagged by between 6 and 18 months. Therefore, I used data from both 1997 and 1998 to identify information representing the 1997 status of the facilities that participated in primary data collection.

There are approximately 300 data elements in the OSCAR database, the majority of which are either organizational or aggregate resident data. Facility data relevant to this study are chain membership, occupancy rate, and ownership characteristics. Resident data elements relevant to this study include the number of residents who have limitations in activities of daily living (ADLs).

The OSCAR data constitute a widely used secondary source of nationally representative nursing home data. A recent Institute of Medicine (IoM) report from 2001 advocated the use of OSCAR data for research, but it also cautioned that these data do have some limitations. These limitations have been described elsewhere (Castle, 2001). Most notably, these limitations include limited observation by surveyors when they visit a facility. Resident characteristics are obtained only partially by direct observation by the surveyors. The facility provides information on resident characteristics and the surveyors select a small sample of residents to verify the information. In addition, the information the surveyors report is pertinent only for the time they make rounds in the facility, which usually occurs during the day shift; although it should be noted that Hughes, Lapane, and Mor (2000) found the facility characteristics in the OSCAR system to be similar to those reported in the 1997 National Nursing Home Survey.

I also used the 2002 Area Resource File (ARF). This is a publicly available data set summarizing a large array (several thousand variables) of census, health, and social resource information for all counties in the contiguous United States (Stambler, 1988). In this investigation, I used the ARF to measure economic conditions in the county, including the unemployment rate, per capita income, and number of nursing home beds. The 2002 data include these figures for 1997, so the OSCAR database and ARF could be matched with presumably little measurement error.

Analytic Approach

The subject of this investigation is the association of caregiver turnover with top management turnover. Brannon and colleagues (2002) have previously shown that high and low turnover rates may have different antecedents. To account for this possibility, I use multinomial logistic regression models, with one model examining nurse aide turnover and the other model examining RN and LPN turnover. In both models, the (adjusted) risk of high caregiver turnover is estimated relative to another group, and the (adjusted) risk of low caregiver turnover is estimated relative to another group. In both analyses, the referent other group is nursing homes with medium levels of caregiver turnover. In this way, the "competing" outcomes of high and low turnover

are controlled for. 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.

Levels of caregiver turnover can be divided in many ways. To facilitate multinomial logistic regression, I used tercile scores to define high, medium, and low turnover levels of caregivers. I defined facilities with an average of 9–37% nurse aide turnover per year as nursing homes with low nurse aide turnover, facilities with an average of 38–69% turnover per year as medium turnover facilities, and facilities with an average of more than 69% turnover per year as nursing homes with high nurse aide turnover. I defined facilities with an average of 5–21% RN and LPN turnover per year as nursing homes with low RN and LPN turnover, facilities with an average of 22–45% turnover per year as medium turnover facilities, and facilities with an average of more than 45% turnover per year as nursing homes with high RN and LPN turnover. These levels are arbitrary, but in sensitivity analyses varying the cutoff values (not shown), the results presented were robust.

I examined the correlations between the variables (not reported), and, based on a threshold of .8, they showed no problems of collinearity (Kennedy, 1992). Values for regression tolerance statistics (not reported) also showed no problems of multicollinearity.

Model Specification and Operationalization

Following the turnover model developed by Banaszak-Holl and Hines (1996), I included job design, facility, resident, and market variables. The job design variables included were nurse and nurse aide staffing levels; resident variables were ADLs and dementia; facility variables were size, chain membership, ownership, private-pay census, and occupancy; and market variables were the unemployment rate, per capita income, and number of nursing home beds in the county. I included rural location, as workers in rural facilities may have fewer alternative employment opportunities (Decker et al., 2003; Harrington & Swan, 2003). I included top management turnover as the independent variable of interest.

The definitions for variables are given in Table 2. For nurse aide turnover, administrators were asked to report the turnover rate for the previous year (1998), including aides who were full time, part time, or on contract. For RNs and LPNs, a similar question asked administrators to report the turnover rate for the previous year (1998), including RNs and LPNs who were full time, part time, or on contract. Turnover was defined as the number of staff no longer employed by the facility (e.g., terminated or resigned) divided by the number of established

Table 2. Definitions and Descriptive Statistics of Dependent and Independent Variables

Variable	Operational Definition	M or % (SD)
Dependent variables ^a		
Nurse aide turnover	Average turnover of nurse aides (in 1998), including those that are full or part time or on contract. Turnover is defined as the number of staff no longer employed by the facility (e.g., terminated or resigned) divided by the number of established positions.	58% (26)
RN and LPN turnover	Average turnover (in 1998) of RNs and LPNs including those that are full or part time or on contract. Turnover is defined as the number of staff no longer employed by the facility (e.g., terminated or resigned) divided by the number of established positions.	32% (21)
Independent variables		
Staffing factors and job design ^b		
Top management turnover ^a	Nursing home administrator and DON turnover (in 1997), including those that are full or part time or on contract	39%
FTE administrative staff	No. of FTE hours of administrative staff, including those that are full or part time or on contract	3.61 (3.33)
FTE RNs and LPNs	No. of FTE hours of RNs and LPNs, including those that are full or part time or on contract	33 (18)
FTE nurse aides	No. of FTE hours of nurse aides, including those that are full time or part time or on contract	49 (17)
Resident Factors ^b		
ADLs	For each of three ADL questions (eating, toileting, and transferring) in the OSCAR data, I sum the percent of residents with a high degree of need for assistance. Increasing scores indicate a greater average ADL impairment within the facility.	27.9 (12.2)
Dementia	Proportion of residents diagnosed with dementia	0.44 (0.18)
Organizational Factors ^b		
Size	No. of beds	116 (25)
Chain member	Member of a nursing home chain	61%
For profit	For-profit ownership	73%
Private pay	% of beds with private-pay residents	26% (19)
Occupancy	% of beds utilized by residents	88% (13)
Rural location ^c	Facility located in a rural (as defined by a Census nonmetropolitan county) area	38%
Market Factors ^c		
Unemployment rate	Proportion of civilian labor force unemployed in the county	5.69 (7.23)
No. of nursing home beds	Total no. of nursing home beds in the county	4,522 (3,029)
Per capita income	Average per capita income in the county (\$)	24,532 (4,005)

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

^aThese are from primary data gathered by the author.

^bThese are from the Online Survey, Certification, and Reporting (OSCAR) data; N = 419.

^cThese are from the Area Resource File.

positions. A similar definition of turnover was recently used by Decker and associates (2003).

I measured top management turnover as the percent turnover of administrators and DONs per year. A question on the survey asked for the number of administrators or DONs that had moved from the facility (for any reason) during the past 5 years. Facilities also were asked for the approximate date (month and year) that each top manager left the facility, so I could calculate a top management turnover rate for each facility for each of the previous 5 years. Respondents were not asked to calculate a yearly turnover rate. In this analysis, I used the 1997 top management turnover rate, a rate preceding the caregiver turnover rates by 1 year. I used this figure first because I believe top manage-

ment turnover will influence subsequent caregiver turnover, and second because I was concerned that respondents would be unable to accurately respond to this question over the relatively long 5-year time frame. However, the use of top management turnover 1 year preceding caregiver turnover has no empirical basis, and other time periods could be used.

In administering the questionnaire, I took a narrow definition of nursing home top management and included only the administrator and DON of record. However, the study included a broad scope of individuals that could be in these positions, including whether they were full time, part time, or on contract with the nursing home. I did not include assistant administrators and assistant DONs in the

Table 3. Multinomial Logistic Regression Models Examining Staff Turnover in Nursing Homes

Variable	Nurse Aide Turnover vs Other AOR (95% CI)		RN and LPN Turnover vs Other AOR (95% CI)	
	High	Low	High	Low
Turnover				
Top management turnover (AOR per 10% increase)	1.21 (1.12–2.16)**	0.92 (0.77–0.99)**	1.30 (1.15–1.91)*	—
Staffing and job design factors				
FTE RNs and LPNs/10 residents (AOR per 10% increase)	0.97 (0.75–0.99)**	—	0.77 (0.63–0.92)**	—
FTE nurse aides/10 residents (AOR per 10% increase)	—	1.19 (1.08–1.22)*	—	1.13 (1.01–1.26)*
Resident factors				
ADLs (AOR per 10% increase)	1.31 (1.04–1.43)**	0.79 (0.50–0.93)*	1.23 (1.04–1.35)**	0.82 (0.71–0.99)*
Dementia (AOR per 10% increase)	1.12 (1.02–1.24)**	—	1.16 (1.01–1.21)*	—
Organizational factors				
Size (AOR per 10 bed increase)	1.07 (1.01–1.16)**	—	1.03 (1.01–1.15)**	—
Chain membership (AOR for 1 vs 0)	1.40 (1.11–1.59)**	—	1.32 (1.10–1.50)*	—
For profit (AOR for 1 vs 0)	1.10 (1.03–1.18)**	0.77 (0.69–0.92)**	1.19 (1.03–1.26)*	0.87 (0.65–0.97)**
Private pay (AOR per 10% increase)	0.71 (0.59–0.89)**	1.25 (1.02–1.29)**	0.82 (0.72–0.95)**	1.26 (1.05–1.42)*
Occupancy (AOR per 10% increase)	—	0.93 (0.81–0.98)*	—	1.09 (1.00–1.21)*
Rural location (AOR for 1 vs 0)	—	1.07 (1.00–1.21)*	0.94 (0.87–0.99)*	—
Market factors				
Unemployment rate (AOR per 10% increase)	—	—	—	—
No. of nursing home beds (AOR per 10% increase)	1.13 (1.02–1.22)**	0.95 (0.88–0.99)*	1.11 (1.03–1.24)*	0.96 (0.87–0.99)*
Per capita income (AOR per 10% increase)	—	—	—	—
Pseudo-R ²	0.20		0.18	
Likelihood ratio	209, <i>p</i> < .01		181, <i>p</i> < .01	

Notes: AOR = adjusted odds ratio; CI = confidence interval; ADL = activities of daily living; RN = registered nurse; LPN = licensed practical nurse; FTE = full-time equivalent; *n* = 419.

*Statistically significant at *p* < .1; **statistically significant at *p* < .05; ***statistically significant at *p* < .01.

turnover rate, because in many facilities these staff perform more of a clerical role than an administrative role. In addition, assistant administrators and assistant DONs are not employed by smaller facilities.

Results

There were 423 facilities that responded to the survey (response rate = 85%). In comparing the facility characteristics of staffing, ownership, and size (using OSCAR data), I found that the non-respondents were not significantly different from the respondents. Of the 423 survey respondents, missing data were present for the dependent variables of interest (nurse aide and RN and LPN turnover) in only 4 cases, leaving an analytic sample of 419. Missing cases for the independent variables represented less than 1% for all of these variables.

Table 2 presents the descriptive data. Of particular interest, nurse aide turnover rates averaged 58% in 1998, and RN and LPN turnover rates averaged

32%. Top management turnover was quite frequent. Overall, top management turnover rates averaged 39% in 1997. Turnover of administrators and DONs varied slightly (not shown), with administrators having an average turnover rate of 42% per year and DONs 36% per year. However, across all 5 years of data, administrator and DON turnover rates were correlated (*r* = .76).

Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for the multinomial logistic regression models examining the association between caregiver turnover and top management turnover are presented in Table 3. The second and third columns of results in this table examine turnover rates for nurse aides. The results show that top management turnover is significantly associated with high nurse aide turnover. Specifically, a 10% increase in top management turnover rates is associated (*p* < .05) with a 21% increase in the odds that a facility will have high nurse aide turnover rates (relative to the medium turnover group). In addition, top management turnover is significantly associated with low nurse aide turnover. A 10% increase in top

management turnover rates is associated ($p < .05$) with an 8% decrease in the odds that a facility will have low nurse aide turnover rates (relative to the medium turnover group).

The final two columns of results in Table 3 examine RN and LPN turnover. The results show that top management turnover is significantly associated with high RN and LPN turnover. Specifically, a 10% increase in top management turnover rates is associated ($p < .1$) with a 30% increase in the odds that a facility will have high RN and LPN turnover rates (relative to the medium turnover group), although, in this case the significance level is less stringent than the more usual .05 level. No significant association between top management turnover and low RN and LPN turnover was identified.

Among the control variables, in both multinomial logistic regression analyses, ADLs, for-profit ownership, private-pay census, and number of nursing home beds in the county were consistently significantly associated with caregiver turnover. In both multinomial logistic regression analyses, full-time-equivalent RNs and LPNs, dementia, size, and chain membership were significantly associated with high caregiver turnover, but not low caregiver turnover. The AORs for chain membership were particularly noteworthy, with an AOR of 1.40 ($p < .01$) for high nurse aide turnover and an AOR of 1.32 ($p < .1$) for high RN and LPN turnover. In both multinomial logistic regression analyses, full-time equivalent nurse aides and occupancy were significantly associated with low caregiver turnover but not high caregiver turnover.

Discussion

General Accounting Office (2001) investigators noted that "High turnover can disrupt the continuity of patient care—that is, aides may lack experience and knowledge of individual residents or clients. Furthermore, when turnover leads to staff shortages, nursing home residents may suffer harm because of the increased number of residents the remaining staff must care for, resulting in less time to care for each resident" (p. 15). Although the more general issue of nursing home staffing shortages has been examined by many researchers and policymakers over the past several years, the issue of nursing home staff turnover is an equally important part of the staffing equation.

Results show that top management turnover is associated with resident caregiver turnover. With cross-sectional data I am not able to show a causal relationship; nevertheless, this result may be significant. It would seem to highlight the importance of top managers in nursing homes. The commitment that top managers show to the organization clearly influences other staff. It follows that reducing top management turnover or more appropriately man-

aging facilities experiencing such turnover may be beneficial.

The literature search did not produce any interventions in long-term care settings designed to reduce top management turnover. More research is needed in this area. Singh and Schwab (2000) have provided an interesting start to this kind of work. They suggest profiling top managers and hiring those with a low turnover "profile." The management literature also may provide some clues to help reduce top management turnover. For example, having fair compensation practices, implementing executive development activities, and encouraging a sense of fit with the organization are cited as important components to retention (Mitchell, Hotom, & Lee, 2001). Corporate offices of chain facilities also may benefit from initiating formalized transfer policies (Dalton & Todor, 1993). These policies may promote some initial top management turnover, but in the long run they will increase organizational commitment and eventually reduce turnover (Dalton & Todor). Corporate offices and individual owners also could review their termination policies. Little is known about this involuntary form of turnover, but on the basis of anecdotal evidence we believe involuntary turnover of top management may be high.

These results provide few clues as to how or why top managers influence the turnover of other staff. Top management may have a general destabilizing influence on the organization, may influence employees' commitment to the organization, and may influence resident care and services. On the basis of recent reviews of the turnover literature (e.g., Price, 2001), we speculate that all of these factors probably play a role in staff turnover following the departure of top managers. However, incoming top managers could lessen some of these negative influences.

When top managers leave the nursing home, the general destabilization increases transaction costs for their replacements (Clingermayer & Feiock, 1997). This destabilization can be reduced if corporate offices or individual owners focus on succession planning for top management (Ocasio, 1999). In addition, research on reducing transaction costs could focus on identifying policies and procedures to be used in facilities when top managers depart (Clingermayer & Feiock, 1997).

The importance of employees' commitment to the organization is clear from empirical studies. Less committed employees are more likely to leave the organization (Grau et al., 1991). Network exchange theory suggests that commitment comes from frequent staff interactions (Lawler & Yoon, 1998). As Van Der Merwe and Miller (1971) describe, "satisfying interactions are unlikely in groups which are temporary in nature, and are constantly in a state of erosion and replacement as a result of high labor turnover" (p. 239). Clearly, one high priority of the new top manager should be to foster organizational commitment. Positive influences in this regard

include encouraging employee participation in decision making, promoting teamwork (Lok & Crawford, 2001), and interacting frequently with staff (Lawler & Yoon).

Turnover of top management also may influence resident care and services (Castle, 2001). However, the job satisfaction literature tells us that caregivers can become dissatisfied when care quality declines (Irvine & Evans, 1995). Again, one high priority for the new top manager should be resident care (Irvine & Evans, 1995). Admittedly, resident care should always be a priority for top management, but for a new top manager acculturating with the facility and no doubt involved in immediate day-to-day crises and problems, resident care could become a lesser concern.

If we assume that my speculations as to how and why top managers influence the turnover of other staff are correct, then these proposed remedial actions would seem almost trivial to implement. However, Castle and Banaszak-Holl (2003) remind us that nursing home management structures are characteristically flat and generally understaffed. Therefore, many top managers may be overburdened with daily operational concerns, thus making the additional tasks a significant addition to the daily workload. Castle and Banaszak-Holl proposed that we may need both more and better top managers in nursing homes. I add that we probably also need more and better administrative protocols, similar to those already discussed.

Given the high number of significant variables and relatively high pseudo- R^2 levels in both analyses, the turnover model used would appear to have some utility to the nursing home setting. Using a similar model, Banaszak-Holl and Hines (1996) found that for-profit ownership ($p < .05$) and resident case mix ($p < .10$) were associated with nurse aide turnover rates. Similarly, Brannon and associates (2002) found that for-profit ownership ($p < .00$) and chain membership ($p < .09$) were associated with high nurse aide turnover rates, and RN turnover ($p < .03$) was associated with low nurse aide turnover rates. I find similar robust results for for-profit ownership and resident case mix. In addition, private-pay census and number of nursing home beds in the market were consistently significant in my models.

Results of this study also provide further evidence that high and low turnover in nursing homes can be influenced by different factors, as Brannon and associates (2002) assert. For example, the results show that bed size and chain membership are associated with high caregiver turnover rates but not low ones. Analyses further show that not only are high and low turnover rates in nursing homes influenced by different factors, but these factors also differ for different staff. Both high and low nurse aide turnover rates were found to be significantly associated with top management turnover, but only high RN and LPN turnover rates were significantly

associated with top management turnover. It is not entirely clear why these different relationships exist, but these results suggest that professionals (i.e., RNs and LPNs) and paraprofessionals (i.e., nurse aides) may have different expectations of top management. Professionals may expect top management stability, whereas paraprofessionals may not; however, when stability occurs, paraprofessionals' expectations are exceeded and they remain at the facility. Alternatively, using Price's (2001) model of turnover, one could speculate that top management stability influences paraprofessionals' job involvement, job stress, or promotional chances, thereby reducing their turnover.

Limitations of the Study and Suggestions for Further Research

The dependent variables, nurse aide and RN and LPN turnover rates, may benefit from further refinement. I found no consensus in the literature on an operational definition of caregiver turnover, and several options exist in the literature. Indeed, Price (1977) described the accession rate, stability rate, and wastage rate as alternative methods to measuring turnover. It also should be noted that turnover measures staff participation in the facility, but an interdependent measure of staff participation that could be examined in the future is the absence rate (Dalton & Todor, 1993).

Although I believe the questions on turnover were relatively well conceived, some measurement error is likely to exist. I do not know whether the administrators in the sample monitored caregiver turnover, or whether they simply provided a best guess. I also have no idea whether the turnover rates that administrators provided accurately matched the staff and staff characteristics provided in the questions.

Including a measure limited only to voluntary turnover for both caregivers and top management may be useful in future studies. Top management turnover would be expected to influence voluntary caregiver turnover, but will probably have little influence on involuntary turnover. Thus, using only voluntary turnover rates of caregivers would provide a more robust analytic approach. Unfortunately, in this study, information on voluntary and involuntary turnover was combined.

In the case of top managers, involuntary turnover may be perceived by staff as beneficial if administrators or DONs were terminated because of poor performance, although, using this approach, one has to be careful with regard to what constitutes "performance." Financial measures rather than measures of resident outcomes may be more important performance measures in involuntary top management turnover.

Turnover data were examined for administrators and DONs combined. Both of these top managers are responsible for the daily operation of the facility.

However, DONs in general are more involved with clinical issues. For example, they determine clinical policies and protocols, and, what is more important for this study, they may be more directly involved with caregivers. This may make caregivers influenced more by DON turnover than administrator turnover. In sensitivity analyses (not shown), no such relationship was found. Nurse aide and RN and LPN turnover seemed to show the same relationship with top management turnover, irrespective of whether the top management turnover came from the administrator or DON. Similarly, sensitivity analyses using an interaction term for administrator and DON turnover were not noteworthy (not shown).

Conclusions

In conclusion, the reasons for staff turnover in nursing homes are of interest to the industry and policymakers. These findings add one further important factor to the body of literature examining turnover—top management. One has to be careful in drawing conclusions from these cross-sectional analyses, but I believe this study provides preliminary evidence that the turnover of top managers of nursing homes has an important influence on staff turnover.

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Staff Turnover and Quality of Care in Nursing Homes

Nicholas G. Castle, PhD,* and John Engberg, PhD†

Purpose: In this work, the association between nurse aide (NA) plus licensed practical nurse (LPN) and registered nurse (RN) turnover and quality indicators in nursing homes is examined.

Design and Methods: Indicators of care quality used are the rates of physical restraint use, catheter use, contractures, pressure ulcers, psychoactive drug use, and certification survey quality of care deficiencies. In addition, we used a quality index combining these indicators. Turnover information came from primary data collected from 354 facilities in 4 states and other information came from the 2003 Online Survey, Certification and Reporting data. The turnover rates were grouped into 3 categories, low, medium, and high, defined as 0% to 20%, 21% to 50%, and greater than 50% turnover, respectively.

Results: The average 1-year turnover rates identified in this study were high at 85.8% for NAs and LPNs and 55.4% for RNs. Multivariate analysis shows that decreases in quality are associated with increases in RN turnover, especially increases from low-to-moderate levels of turnover, and with increases in NA and LPN turnover, especially increases from moderate-to-high levels of turnover.

Implications: These findings are significant because the belief that staff turnover influences quality is pervasive. The cross-sectional results are only able to show associations, nonetheless, few empirical studies in the literature have shown this relationship.

Key Words: turnover, quality indicators, Online Survey, Certification and Reporting (OSCAR)

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Several studies in the 1970s identified the high rate of staff turnover in nursing homes to be an issue of concern.^{1,2} Since this time, studies have consistently cited average annual staff turnover rates to be 74% to 100%, with rates as high as 400% in some facilities for nurse aides (NAs).³ This level of turnover has caused concern because nursing home care is inherently labor intensive. Not surprisingly, when care is so

labor intensive, high staff turnover can have far-reaching consequences.

These consequences of high staff turnover include increased costs and lower job satisfaction. For the facility placed in the situation of hiring replacement staff, turnover can be expensive. Replacing a NA can cost \$2200 and a Registered Nurse (RN) \$7000.⁴ Staff remaining at the facility often have to increase their workload until replacement staff are found. This can lower their job satisfaction.⁵ However, the most serious consequence of turnover is the potential negative health outcomes for residents.

Nursing home residents are characteristically frail, and many are highly dependent upon caregivers for their physical, mental, and social needs. In many cases, this dependence can last for several years. The scope and duration of residents' dependence on caregivers likely predisposes them to adverse outcomes resulting from staff turnover. Knapp and Missiakoulis⁶ and Staw⁷ in reviewing staff turnover determined that this turnover is likely to influence quality of care through at least 6 mechanisms. That is, turnover will interfere with continuity of care; increase the number of inexperienced workers; weaken standards of care; cause psychologic distress for some residents; be expensive for the facility, therefore diverting dollars from care; and increase the work load for remaining staff.

Thus, it is not surprising that several studies cite the belief that staff turnover influences quality of care in nursing homes.^{8,9} Indeed, staff turnover in nursing homes often is itself used as a quality indicator.^{10,11} Nonetheless, based on empirical studies in the literature, this use may be premature because the association between staff turnover and quality is generally inconclusive. In our literature review, only 5 studies examining the impact of caregiver turnover on quality of care were found, and few identified any significant associations between staff turnover and quality of care.^{12–16} The fact that we could not find many studies in this area and that the results generally were inconclusive provided the motivation for this study.

In this study, data from 354 nursing homes are used to examine the association between staff turnover and quality. The caregiving labor force consists primarily of NAs, who provide 80% to 90% of resident care, but also includes licensed practical nurses (LPNs), and RNs. Because of their

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higher skill levels and different turnover patterns, we examine the impact of RN turnover separately from the combined turnover of NAs and LPNs. Six indicators of care quality are examined as well as a composite quality index formed by combining the 6 indicators. These 6 quality indicators are the rates of physical restraint use, catheter use, contractures, pressure ulcers, psychoactive drug use, and certification survey quality of care deficiencies.¹⁷⁻²²

DATA AND METHODS

Data used in this investigation came from 2 sources, first, from a survey of nursing home administrators conducted in March 2003 and second from the 2003 Online Survey, Certification and Reporting (OSCAR) data. The information regarding staff turnover came from the administrator survey, and quality indicators examined came from the OSCAR.

Primary Data Collection and Sample Selection

The questionnaire was mailed to administrators of 526 nursing homes from facilities located in 4 states: Missouri (MO), Texas (TX), Connecticut (CT), and New Jersey (NJ). These states were chosen because 2 were reported to have high staff turnover (MO and TX) and the remaining 2 states were reported to have lower staff turnover (CT and NJ).

Information regarding levels of staff turnover in each state was obtained by examining American Health Care Association data from 2002, which includes information from 6991 facilities in all 50 states.²³ By using the tercile distributions of NA turnover, we divided these states into high, medium, and low staff turnover. The 2 high staff turnover states included in this investigation were chosen randomly from the top tercile and the remaining 2 states in the sample were selected randomly from the low tercile.

The facility sample consisted of a random sample of approximately 20% ($n = 529$) of nursing homes chosen from each state's pool of eligible facilities. Eligible facilities were defined as nursing homes participating in Medicare and/or Medicaid certification and included 623 facilities from MO, 1331 from TX, 321 from CT, and 355 from NJ.

The information on staff turnover was collected as part of an ongoing study investigating the accuracy of turnover reporting by nursing homes.²⁴ Annual turnover was defined using the US Department of Labor, Bureau of Labor Statistics measure as, "the number of total separations for the year divided by the average monthly employment for the year, times 100."²⁵ Information was collected regarding turnover of NAs, LPNs, and RNs. This also included the shift worked, part-time staff, and voluntary and involuntary turnover. These rates were collected by number of full-time equivalent staff. A 35-hour week usually is considered to be a full time position (or 1 full-time equivalent). In the questionnaire administrators were asked to report the turnover rates, thus these rates represent a self-reported measure calculated by the

administrator. This primary data collection was necessary because turnover information is generally not found in commonly used secondary sources of nursing home information.

Information on staffing levels of NAs, LPNs, and RNs also was collected. This information was considered necessary because although this information is included as part of the OSCAR data, it is less reliable than most other data elements.²⁶

Secondary Data Source

The OSCAR is conducted by state licensure and certification agencies as part of the Medicare and/or Medicaid certification process, and includes most facilities in the United States. In 2003, approximately 17,000 facilities were included in the data, including all of the facilities used in this analysis. These data often are used by researchers as a secondary source of nursing home characteristics and are available to the public on the Centers for Medicare and Medicaid Services (CMS) web site.²⁷ Some OSCAR data elements are included in the federal Nursing Home Compare (NHC) report card initiative.^{27,28} Most OSCAR data elements are considered reliable,¹⁸ and the data have been recommended for more extensive use by a recent Institute of Medicine long-term care expert panel.²⁹

Quality Indicators (QIs)

A variety of QIs could have been used in the analyses. For example, the QIs developed by the Center for Health Systems Research and Analysis at the University of Wisconsin for use by surveyors during the survey and certification process.³⁰ Alternatively, the quality measures publicly reported on the NHC web site could have been used.^{27,28} Our selection of QIs was based on their availability in the OSCAR data and previous use by researchers. The indicators reflect contemporary research about quality of nursing home care and the collective knowledge of professionals in long-term care. They also are considered important by nursing home surveyors. In addition, as discussed by Spector and Mukamel,³¹ systematically rare events can be problematic as QIs. As shown by the mean values in Table 1, none of the QIs used in this investigation could be considered systematically rare events.

Physical restraints include the use of vests, wrist restraints, ankle restraints, and/or geri-chairs. Facility prevalence rates vary from 0% to 59%.³² Physical restraints are an important quality indicator because they are associated with an increased risk of morbidity and mortality in nursing home residents.³³

Urethral catheters are used for residents with continence problems. Facility prevalence rates of use in nursing homes range from 1% to 32%.³² However, high use of urethral catheters increases the risk of functional decline of residents.¹² Thus, high catheterization rates imply lower quality of resident care.³⁴

TABLE 1. Descriptive Statistics of Quality Indicators, Turnover Characteristics, and Control Variables*

	Mean (or %)	Standard Deviation	Range
Quality indicators			
Use of physical restraints	19.3%	8.3	0-37
Catheter use	15.1%	7.1	3-34
Contractures	11.5%	6.3	2-22
Pressure ulcers	7.4%	4.7	1-24
Use of psychoactive drugs	42.1%	7.7	32-67
Deficiency citations	6.1	5.6	0-31
Independent variables of interest			
RN turnover	55.4%	46.7	5-245
LPN turnover	66.8%	50.9	5-300
NA turnover	98.6%	75.3	10-300
Facility characteristics			
FTE RNs/100 residents	25.9	4.6	14-39
FTE LPNs/100 residents	23.7	4.8	2-36
FTE NAs/100 residents	38.5	3.6	30-48
FTE Administration/100 residents	3.8	2.9	1.5-5.9
Bed size	116	68	7-611
For-profit	75%	---	---
Chain membership	55%	---	---
Average occupancy	88%	18	55-100
Medicaid census	48%	22	0-95
Market characteristics			
Competition (Herfindahl index)	0.23	0.22	0.02-1.0
Resident characteristics			
ADL score	6.9	2.4	3-9
Incontinent bladder	52%	15	0-86
Incontinent bowel	46%	15	0-87
Psychiatric diagnoses	18%	14	0-84
Mental retardation	4%	5	0-35
Dementia	41%	19	0-100

*Statistics presented come from the analytic file consisting of 354 facilities and 271 markets.

ADL indicates Activities of Daily Living; FTE, full-time equivalent.

Contractures are an abnormal shortening and stiffening of muscle tissue that can decrease the range of motion at a joint. Facility level prevalence rates of contractures in nursing homes range from 2% to 54%.³² They can produce a change in gait and decrease in walking velocity, which in turn are

major risk factors for falls. Contracture rates were used as a QI because they are effectively postponed and corrected by exercise programs, massage, and physical therapy.³⁵

A pressure ulcer is a sore that develops as a result of ischemia (insufficient oxygen) in the skin tissue.³⁶ Most often this is the result of prolonged pressure on one area of the body. The facility level prevalence of pressure ulcers in nursing homes ranges from 1% to 31%.³² Pressure ulcers affect the comfort, quality of life, and the medical outcomes of nursing home residents.³⁷ Pressure ulcer rates were used as a QI because they are preventable in many cases and are indicative of poor care practices.

Facility level prevalence rates of psychoactive drug use vary from 25% to 89%.³² The general concern with 3 classes of these drugs (antianxiety, sedative/hypnotic, and antipsychotic)³⁸ is that the rates of use may be excessive and/or clinically unjustified, to the degree that they are used to chemically restrain residents.³⁹ Thus, these 3 classes of psychoactive drugs were used as a QI.

Nursing home deficiency citations are departures from federal nursing home standards, as identified by state or federal inspectors. These deficiencies address approximately 185 areas of care.¹⁸ Only quality-related deficiencies were used in this analysis, which includes 19 deficiencies. These deficiencies are resident centered and are frequently used as proxy measures of care quality.^{40,41}

Finally, we also combined these 6 indicators to form a single index of quality. The high correlation among the 6 QIs suggests that combining them into single indicator was appropriate. We created the single index using factor analysis after transforming the quality indicators to be more normally distributed. The indicators were quite skewed; therefore, we used a logarithmic transformation and then extracted the first principle factor. The pairwise correlations of the 6 transformed quality indicators ranged from 0.29 to 0.88, with a median correlation of 0.73. The first principle factor has an eigenvalue of 3.93, whereas the eigenvalue of the second factor is 0.19, suggesting that a single factor capture much of the variation of the 6 measures.

Analyses

We used negative binomial regression for the multivariate analysis examining the impact of turnover on the 6 quality indicators. The quality indicators are counts of specific negative events per nursing home. Negative binomial regression is similar to Poisson regression in that it accounts for the skewed nature of count data. Negative binomial regression is based on a generalization of the Poisson distribution that allows for more unmeasured heterogeneity among the observations in the sample, which can be manifested by more observations with 0 events than would be predicted by the Poisson distribution. Given that larger nursing homes have more patients to whom the negative outcomes could occur,

TABLE 2. Operational Definition of Variables

Variable	Operational Definition
Quality indicators*	
Use of physical restraints	Percent use of vests, wrist restraints, ankle restraints, and/or geri-chairs.
Catheter use	Percent of residents with urethral catheterization.
Contractures	The percent of residents with contractures.
Pressure ulcers	The percent of residents with pressure ulcers.
Psychoactive drug use	The percent of residents given 3 categories of drugs were combined, antianxiety, sedative/hypnotic, and antipsychotic.
Deficiency citations	The number of quality of care deficiency citations given during the survey visit. These include 19 deficiencies with F-tags of 309, 310, 311, 312, 314, 316, 317, 318, 319, 321, 322, 323, 324, 325, 328, 329, 330, 333, 353.
Quality index	Created as a principal factor of the aforementioned 6 quality indicators.
Independent variables of interest[†]	
RN turnover	Sum of RN terminations for 6 months divided by sum of established positions. Collected by number of full-time equivalent (FTE) staff, including staff on all shifts, part-time staff, and voluntary and involuntary turnover.
NA + LPN turnover	Sum of LPN (NA) terminations for 6 months divided by sum of established positions. Collected by number of FTE staff including staff on all shifts, part-time staff, and voluntary and involuntary turnover. The weighted average based on the number of FTEs of each staff category (ie, NA or LPN) was used.
Facility characteristics	
RN staffing [‡]	FTE RNs per 100 residents.
LPN staffing [‡]	FTE LPNs per 100 residents.
NA staffing [‡]	FTE NAs per 100 residents.
Organizational size	Number of beds.
Ownership	For-profit or not-for-profit.
Chain	Whether member of a nursing home chain, or not.
Census	Average daily occupancy rate.
Medicaid occupancy	Average daily Medicaid occupancy rate.
Market characteristics	
Competition	Herfindahl index. The sum of each facility's squared percentage share of beds in the county for all facilities in the county (0-1). Higher values indicate a less competitive market.
Aggregate resident variables used for risk-adjustment*	
ADL score	Eating, toileting, and transferring to and from the bed, chair, wheelchair, or a standing position were used to create an ADL score. Three categories are used in the OSCAR for each of these variables, no assistance, moderate need for assistance, and high degree of need for assistance. We coded these as 1, 2, and 3, respectively, so when added together a score of 3 would indicate the lowest level of dependency and 9 the highest level of dependency. ¹³
Bladder incontinence	The percent of residents experiencing bladder incontinence.
Bowel incontinence	The percent of residents experiencing bowel incontinence.
Mental retardation	The percent of residents with mental retardation.
Dementia	The percent of residents with dementia.
Psychiatric diagnosis	The percent of residents with a psychiatric diagnosis.
Depression	The percent of residents with depression.

*All variables were determined by surveyor inspection, and the percent for each facility was calculated for the analyses (except quality of care deficiencies which is a count of the number of deficiencies).

[†]These variables come from primary data collection, all others come from the Online Survey, Certification and Reporting (OSCAR) data. ADL indicates Activities of Daily Living.

TABLE 3. Spline Regression Analyses Examining Staff Turnover and Quality Indicators

	Use of Physical Restraints	Use of Catheters	Contractures	Pressure Ulcers	Use of Psychoactive Drugs	Deficiency Citations	Quality Index
Independent variables of interest							
RN turnover (0–20%)	0.022* (0.012)	0.018* (0.011)	0.017 (0.012)	0.006 (0.010)	0.010* (0.006)	-0.118* (0.037)	0.026*
RN turnover (21–50%)	0.006 (0.004)	0.014* (0.004)	0.012* (0.004)	0.008* (0.004)	0.001 (0.002)	0.027* (0.015)	0.015* (0.006)
RN turnover (>50%)	0.001 (0.001)	0.001* (0.001)	0.002* (0.001)	0.002* (0.001)	0.001 (0.001)	-0.006 (0.004)	0.002 (0.002)
NA + LPN turnover (0–20%)	-0.006 (0.022)	0.008 (0.019)	0.018 (0.020)	0.016 (0.021)	0.008 (0.009)	0.017 (0.092)	0.024 (0.025)
NA + LPN turnover (21–50%)	0.000 (0.0003)	-0.005 (0.004)	-0.004 (0.005)	-0.002 (0.005)	-0.003 (0.002)	0.002 (0.017)	-0.008 (0.005)
NA + LPN turnover (>50%)	0.002* (0.001)	0.002* (0.001)	0.002* (0.001)	0.002* (0.001)	0.001* (0.000)	0.001 (0.003)	0.003* (0.001)
Facility characteristics							
FTE RNs/100 beds	-0.001 (0.007)	-0.002 (0.006)	-0.006 (0.007)	-0.008 (0.007)	-0.004 (0.004)	0.008 (0.026)	-0.007 (0.010)
FTE LPNs/100 beds	0.001 (0.005)	-0.000 (0.006)	0.004 (0.007)	0.003 (0.008)	-0.002 (0.003)	-0.032 (0.025)	-0.003 (0.009)
FTE NAs/100 beds	-0.009 (0.010)	0.000 (0.010)	-0.002 (0.009)	-0.012 (0.009)	-0.003 (0.005)	-0.027 (0.041)	-0.003 (0.014)
FTE Administration/100 beds (tercile 2) [†]	-0.001 (0.053)	-0.116* (0.063)	-0.109* (0.062)	-0.149* (0.072)	-0.044 (0.030)	0.173 (0.315)	-0.189* (0.092)
FTE Administration/100 beds (tercile 3)	0.048 (0.063)	0.019 (0.080)	-0.016 (0.077)	-0.161* (0.088)	0.031 (0.048)	-0.049 (0.367)	0.013 (0.113)
Bed size (tercile 2)	-0.050 (0.049)	0.050 (0.056)	0.069 (0.063)	0.054 (0.073)	0.015 (0.029)	-0.533* (0.254)	-0.082 (0.081)
Bed size (tercile 3)	0.025 (0.068)	0.037 (0.073)	0.084 (0.078)	0.083 (0.085)	0.034 (0.048)	-1.031* (0.293)	-0.115 (0.108)
For-profit	0.079* (0.046)	0.044 (0.065)	0.071 (0.067)	0.099 (0.085)	0.015 (0.035)	0.383 (0.305)	0.059 (0.094)
Member of chain	0.053 (0.050)	-0.045 (0.057)	-0.105* (0.063)	-0.098 (0.069)	0.024 (0.028)	0.103 (0.244)	-0.069 (0.084)
Average occupancy (tercile 2)	-0.513* (0.065)	-0.523* (0.063)	-0.581* (0.078)	-0.540* (0.093)	-0.419* (0.043)	-0.624* (0.306)	-0.968* (0.101)
Average occupancy (tercile 3)	-0.595* (0.080)	-0.643* (0.086)	-0.847* (0.104)	-0.680* (0.117)	-0.532* (0.043)	-0.587 (0.383)	-1.240* (0.125)
Average Medicaid occupancy (tercile 2)	-0.154* (0.053)	-0.117* (0.061)	-0.073 (0.078)	-0.083 (0.092)	-0.146* (0.033)	-0.231 (0.322)	-0.233* (0.096)
Average Medicaid occupancy (tercile 3)	-0.095 (0.065)	-0.102 (0.077)	-0.048 (0.093)	-0.129 (0.103)	-0.116* (0.035)	-0.188 (0.427)	-0.152 (0.108)
Market and state characteristics							
Connecticut	-0.036 (0.099)	-0.058 (0.094)	0.116 (0.082)	0.166* (0.092)	-0.081* (0.048)	-2.133* (0.405)	-0.129 (0.138)
New Jersey	0.240* (0.074)	0.115 (0.100)	0.217* (0.106)	-0.051 (0.133)	-0.014 (0.047)	-0.455 (0.377)	0.114 (0.138)
Missouri	0.130* (0.059)	0.039 (0.061)	0.015 (0.069)	0.011 (0.084)	0.005 (0.039)	-0.476 (0.303)	0.049 (0.101)
Competition (tercile 2)	-0.055 (0.057)	0.009 (0.065)	0.065 (0.076)	0.138* (0.084)	-0.009 (0.035)	0.130 (0.291)	0.037 (0.095)
Competition (tercile 3)	-0.004 (0.069)	0.076 (0.074)	0.112 (0.072)	0.126 (0.082)	0.039 (0.042)	0.197 (0.295)	0.098 (0.103)

(continued)

TABLE 3. (continued) Spline Regression Analyses Examining Staff Turnover and Quality Indicators

	Use of Physical Restraints	Use of Catheters	Contractures	Pressure Ulcers	Use of Psychoactive Drugs	Deficiency Citations	Quality Index
Aggregate resident characteristics							
ADLs	0.085 (0.278)	0.141 (0.328)	0.061 (0.351)	-0.058 (0.510)	0.145 (0.169)	2.293** (1.063)	0.213 (0.467)
Incontinent bladder	-0.012 (0.151)	-0.047 (0.198)	0.304 (0.222)	-0.214 (0.282)	-0.054 (0.088)	0.197 (0.683)	-0.183 (0.280)
Incontinent bowel	-0.226 (0.147)	-0.102 (0.191)	-0.247 (0.201)	-0.046 (0.273)	-0.140 (0.099)	-0.371 (0.820)	-0.225 (0.260)
Psychiatric diagnosis (tercile 2)	-0.008 (0.057)	0.032 (0.062)	-0.036 (0.066)	-0.110 (0.079)	0.012 (0.040)	-0.127 (0.257)	0.007 (0.098)
Psychiatric diagnosis (tercile 3)	-0.047 (0.065)	0.021 (0.065)	-0.036 (0.068)	-0.051 (0.088)	-0.004 (0.043)	0.072 (0.280)	-0.010 (0.095)
Mental retardation (tercile 2)	-0.042 (0.050)	-0.055 (0.057)	-0.044 (0.069)	-0.063 (0.076)	-0.048 (0.037)	-0.188 (0.245)	-0.159* (0.085)
Mental retardation (tercile 3)	-0.131* (0.060)	-0.130* (0.065)	-0.104 (0.076)	-0.173* (0.080)	-0.077† (0.037)	-0.634† (0.287)	-0.252‡ (0.095)
Dementia	-0.177 (0.168)	-0.042 (0.159)	-0.206 (0.170)	-0.091 (0.172)	0.026 (0.100)	-0.015 (0.807)	-0.193 (0.229)
Constant	-0.952 (0.705)	-1.773‡ (0.648)	-2.173‡ (0.629)	-1.701* (0.653)	-0.204 (0.313)	-1.981 (2.617)	0.433 (0.928)
Observations	346	346	346	346	346	346	346
No. variables	34,000	34,000	34,000	34,000	34,000	34,000	32,000
Model degrees of freedom	32,000	32,000	32,000	32,000	32,000	32,000	32,000
Log likelihood	-1208.510	-1117.533	-1050.886	-928.792	-1295.467	-251.879	-----
Adjusted R ²	-----	-----	-----	-----	-----	-----	0.60

Robust standard errors are in parentheses.
 All terciles used in the analyses are ordered from low to high, for example, tercile 1 represents low FTE levels of administration, tercile 2 represents medium FTE levels of administration, and tercile 3 represents high FTE levels of administration.
 *Statistically significant odds ratio at the 0.10 level or better.
 †Statistically significant odds ratio at the 0.05 level or better.
 ‡Statistically significant odds ratio at the 0.01 level or better.
 ADL indicates Activities of Daily Living; FTE, full-time equivalent.

the negative binomial regression uses the number of patients to capture the exposure of each facility to the risk for negative events. For the QI created using factor analysis, we used ordinary least squares regression because its distribution is approximately normal. To account for possible correlation of outcomes within markets, which can bias the standard errors of the estimates, the Huber-White sandwich estimator clustered by county was used for all the analyses.

To aid in the interpretation of the magnitudes of the coefficients, graphs indicating the relationship between each type of staff turnover and the quality indicators are also presented. These graphs show the predicted values of turnover for each type of nursing staff, calculated using turnover values ranging from zero to the maximum value found in the primary data collection, with all other explanatory variables set to their mean values in the sample. In particular, the other staff turnover rate is set to its mean value.

Model Specification and Operationalization

The independent variables, NA + LPN and RN turnover rates, and quality indicators used as dependent variables, are discussed above. We group the turnover rates into 3 categories, low, medium, and high. These are defined as 0% to 20%, 21% to 50%, and greater than 50% turnover, respectively. These 3 categories were used because some recent work in other sectors of health care suggest that low turnover does not necessarily reduce productivity or effectiveness.⁴² The level at which turnover can be beneficial will likely vary for different industries, but is commonly quoted to be between 10% and 20%.⁴³ In this analysis we use the higher figure. This higher figure was not chosen because of any specific theoretical concern, rather 20% turnover was chosen, first, because of the analytic consideration of having very few facilities with lower rates of turnover, and second, because of the high rate of involuntary turnover.

Similarly, the level at which turnover adversely influences quality is unknown. An often quoted level is 50%,⁸ which comes from the work of Price,⁴⁴ who determined "any (turnover) figure in excess of 50% is considered problematic for the effectiveness of the organization and perhaps for its survival (p.45)." Thus, this level of greater than 50% turnover was used in this investigation.

To detect the possibly nonlinear relationship between turnover and quality, we allowed the relationship to differ among the 3 levels of turnover by using a spline functional form, also known as a piece-wise linear functional form. Therefore, we estimated a separate coefficient on turnover within each of the ranges: low (0–20%), medium (21–50%), and high turnover (>50%). Three turnover coefficients for 2 types of staff (RNs and NAs + LPNs) led to 6 coefficients that together capture the relationship between staff turnover and quality.

In examining the effects of turnover on resident outcomes, we controlled for the severity of physical illnesses among residents using an activities of daily living (ADL) score and percents of residents' bladder incontinent, bowel incontinent, with mental retardation, dementia, psychiatric diagnoses, or depression.

We know from other nursing home studies that facility factors can have a strong impact on QIs.^{17–22} These factors provide a "context" in which the facility operates. For example, not-for-profit facilities are thought to provide more resources for resident care, thereby promoting higher quality of care. Therefore, staffing, occupancy, chain membership, ownership, size, and Medicaid census were included as facility level variables. These variables were chosen because they represent facility factors with robust associations with quality indicators.^{17–22} Likewise, market factors also can influence quality indicators. The Herfindahl index was used as a measure of market competition from other nursing homes.²² The county was the market area used in this analysis (Table 2 for specific definition).

RESULTS

Three hundred fifty-four responses were received from the nursing home sample (response rate = 67%). The response rate varied across the states, with MO having a response rate of 58% (n = 73); TX, 71% (n = 190); CT, 66% (n = 42); and NJ, 70% (n = 49).

Table 2 presents descriptive statistics for the variables used in the analysis. The values for the quality indicators are similar to values reported by other studies using these factors.^{17–22} The annual RN and LPN + NA turnover rates were 55.4% and 85.8%, respectively. For RN turnover, 23% of the facilities had low turnover (0–20%), 31% had medium turnover (21–50%), and 46% had high turnover (>50%). The percentages for low, medium, and high NA + LPN turnover were 9%, 30%, and 61%, respectively. In addition, the control variables were not highly correlated among themselves or with the turnover variables of interest.

Table 3 presents the coefficient estimates for the turnover variables and for the other control variables for each of the quality indicators. Standard errors, adjusted for clustering within market, are in parentheses below the coefficient estimates. Graphs showing the relationship between each type of staff turnover and the quality indicators are given in the panels of Figure 1.

For RNs, there was a negative relationship between turnover and quality for all 6 quality indicators, either at the low or medium levels of turnover. Increases in turnover from 0% to 20% were associated with more residents being physically restrained, catheterized, or treated with psychoactive drugs. Increases from 21% to 50% were associated with more residents being catheterized, having contractures, pressure ulcers, and with the facility being more likely to have defi-

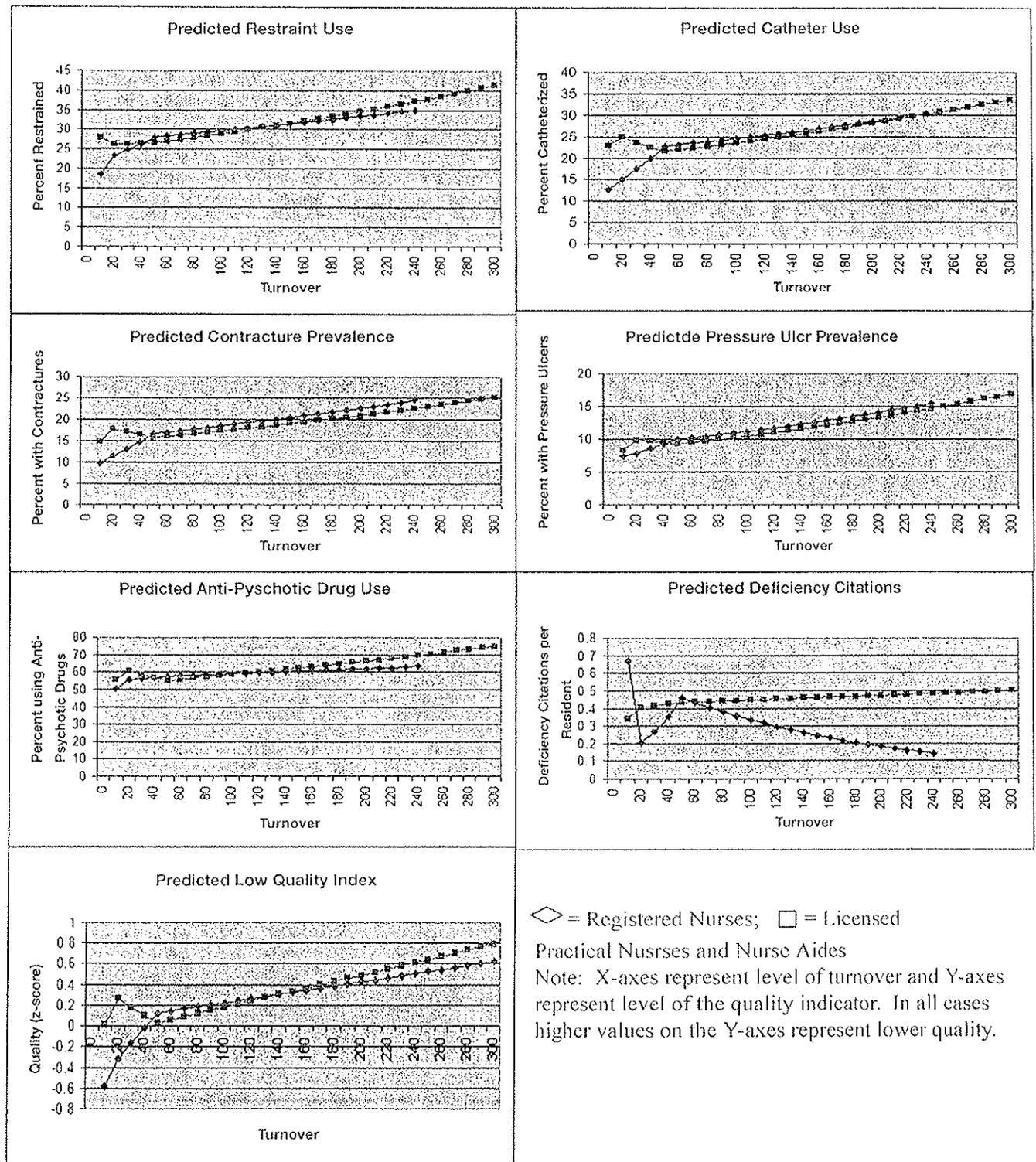


FIGURE 1. Relationship between RN and LPN + NA turnover and quality indicators.

ciency citations. Increases in turnover greater than 50% were associated with more residents being catheterized and having contractures or pressure ulcers. The combined QI indicates that quality has a negative and significant association with RN turnover at low and medium levels but not at high levels. As can be seen in Figure 1, increases in turnover from 0% to 50% lead to approximately a doubling of adverse events for restraint use, catheter use, contractures, and pressure ulcers and an increase in the quality index z-score from less than -0.6 to almost +0.2.

The relationship between NA + LPN caregivers and quality also was negative, but only at higher levels of turnover. At low and medium levels of turnover, there was not a significant relationship between quality and turnover. In fact, the point estimates suggested a positive relationship between turnover and quality at medium levels of turnover for most quality indicators, although these estimates were not statistically significant. However, when turnover exceeds 50%, there was a significant negative relationship between turnover and quality as measured by 5 of the 6 quality indicators and by the quality index. The predicted z-score for the QI was 0 at 50% turnover but 0.8 at 300% turnover.

DISCUSSION

In our literature review, 2 studies were identified examining NA turnover.^{12,13} However, neither study found any association between NA turnover and nursing home quality. No studies were identified showing a significant relationship between LPN turnover and quality of care. Three studies were identified examining RN turnover and quality of care, but all had equivocal findings.¹²⁻¹⁴ Thus, from this literature review we determined that it is not clear whether staff turnover influences quality of care. We believe the results of these previous studies are equivocal, first, because in all cases linear measures of turnover were used, and second, because the definitions of turnover used were subject to a considerable degree of measurement error. In this investigation, we examined turnover using a nonlinear functional form and a measure of turnover previously shown as less prone to measurement error.

There is some evidence to suggest that the turnover-quality relationship should be modeled as a nonlinear functional form. First, studies coming from the general turnover literature show that low turnover does not necessarily improve quality of care.⁴³ Second, in nursing homes, Halbur and Fears¹³ show that some staff turnover can be beneficial to the organization. For example, involuntary termination of workers who abuse residents or are poor caregivers, will likely improve quality of care. Third, Brannon and associates⁴⁵ show high and low NA turnover may have different antecedents. However, Brannon et al⁴⁵ do not examine the relationship between turnover and quality of care, and they use arbitrarily defined levels of high and low turnover.

There is also some evidence to suggest measurement error is significant in previous studies of nursing home staff turnover. In prior research, we were able to show extremely wide variation in staff turnover rates depending on what factors were used to calculate the rate.²⁴ Rates differed by as much as 50%. Our conclusion was that by asking questions in an incremental fashion (and including part-time and full-time staff, and voluntary and involuntary turnover) a more accurate rate was obtained. This was the approach used in this investigation.

In general, we find nonlinear relationships between turnover and quality indicators for RNs. We find a negative relationship between turnover and the quality indicators for RNs at levels of turnover up to 50%, but little evidence of further decreases in quality associated with increases in turnover above 50%. This suggests that among RNs, a very stable workforce leads to the highest quality. One possible explanation for the lack of further degradation of quality at very high RN turnover is that the less trained nursing staff, even without stable RN leadership, can maintain minimal levels of quality.

We find little evidence of any relationship between NA and LPN turnover and quality at low and medium levels of turnover. We speculate that nursing homes may have adapted to levels of turnover up to 50% and that quality is not reduced by increases in turnover within this range. In fact, our point estimates of a negative relationship between turnover and quality in this range are consistent with the theoretical literature that hypothesizes that very low levels of turnover reduce quality caused by the retention of unmotivated workers. However, increases in NA + LPN turnover greater than 50% appear to be associated with lower quality. At these high levels of turnover, it is apparently more difficult to maintain quality with such a rapid influx of new workers.

Limitations and Suggestions for Further Research

Despite these potential improvements over previous research in this area, we do feel that further methodological improvements could be made in future studies. For example, for some facilities turnover can be isolated in a few positions, while at the same time the majority of the staff do not turnover. Turnover may come from repeat resignations from staff on one unit. Looking at the effects of turnover from a unit level, or better still using a measure of staff-resident turnover, may prove productive.

The notion that different levels of staff turnover have different influences on quality also could be explored further. For example, low levels of turnover (<5%) may also negatively influence quality of care. This may be the result of an insufficient influx of new knowledge from recent hires, for example. Likewise, the 3 levels of turnover used in our analyses came from the literature review but may also benefit from

further refinement. For example, the tipping point from a positive influence on quality to a neutral influence may not occur at exactly 20% turnover. As our results indicate, this tipping point may also be different for different categories of staff.

It should be recognized that the OSCAR data does have some limitations. Examinations of the facility characteristic data have shown it to be reliable;⁴⁶ but no comprehensive psychometric analyses of the aggregate resident data are available. In future analyses, the use of Minimum Data Set (MDS) data may produce more robust results. These data are collected on each resident, are updated quarterly, and provide more resident detail than can be found in the OSCAR. However, the MDS is not readily available, and some quality indicators from this data source may have reliability issues.⁴⁷

QIs could be used from other data sources, such as NHC. Nevertheless, NHC measures are not yet stable, and have changed over time. These quality indicators also have other limitations, including possible changes in risk-adjustment and numerous facilities with blank fields.

It is worth noting, that because of concerns with staffing level data reported in the OSCAR we used these items from our primary data collection. Using paired-sample correlations, we compared these reported levels with the OSCAR data and found levels of correlation between them of approximately 0.71, which does not meet the 0.80 minimum reliability standard often used.

Recently, concerns have been raised about the possible endogeneity of turnover and staffing.¹⁶ Quality, turnover, and staffing will all be endogenous variables if their values are determined jointly in the model. This can occur for 2 reasons. First, there could be omitted factors that affect all of these variables, leading them to be correlated even if there is no causal relationship among turnover, staffing, and quality. Second, causality might, at least in part, run in the other direction. For example, higher quality of care might make staff less likely to quit or might make it easier to recruit new staff. Identification and estimation of the impact of turnover and staffing on quality in a simultaneous equations (or structural) model may thus be advantageous in future studies.

CONCLUSION

The 1-year turnover rates identified in this study were 98.6%, 66.8%, and 55.4% for NAs, LPNs, and RNs, respectively. This adds to a rather large body of research during the past 20 years also showing high rates of staff turnover. Most importantly, we also show that very low or very high levels of NA + LPN turnover are associated with lower quality of care and that moderate to high levels of RN turnover are associated with lower quality of care.

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Turnover Reinterpreted

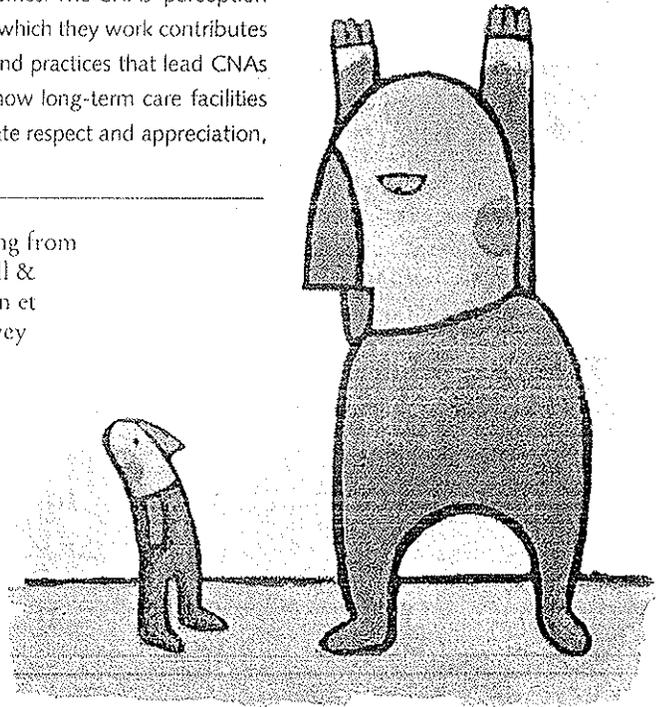
CNAS TALK ABOUT WHY THEY LEAVE

ABSTRACT

This study's purpose was to contribute to the development of a theory of turnover by understanding how CNAs employed in long-term care facilities conceptualize the factors that cause them to leave their jobs. Using grounded dimensional analysis, the authors conducted in-depth interviews with CNAs currently and formerly employed by three nursing homes. The CNAs' perception that they are unappreciated and undervalued by the organizations for which they work contributes significantly to turnover. The origins of this perception lie in policies and practices that lead CNAs to feel personally and professionally dismissed. The authors suggest how long-term care facilities might change their staffing and personnel policies to better demonstrate respect and appreciation, thus reducing turnover and enhancing the quality of work and care.

Estimates show that close to 90% of direct patient care in nursing homes is provided by certified nursing assistants (CNAs) (Institute of Medicine, 1986; Waxman, Carner, & Berkenstock, 1984). Consequently, keeping a full staff of CNAs is crucial to providing high quality care. Nursing home administrators have long identified turnover among CNAs as one of the most important issues they face (Pecarchik & Nelson, 1973; Tynan & Witherell, 1984; Wagner, 1998). In the 1980s, studies in different regions of the United States showed rates of

yearly turnover ranging from 40% to 400% (Caudill & Patrick, 1991; Waxman et al., 1984). A 1997 survey estimated that the average annual turnover rate for CNAs was 93% (Wagner, 1998). Long-term care researchers and nursing home administrators maintain that such high rates of turnover can have



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adverse effects on staff morale, cost, and the quality of care delivered to residents (Banaszak-Holl & Hines, 1996; Caudill & Patrick, 1991; Rubin & Shutlesworth, 1986; Schwartz, 1974; Stryker, 1981; Wagnild, 1988).

This study is part of a larger project exploring caregiving and perceptions of quality in several long-term care settings in the United States. Like most facilities around the country, the nursing homes studied had high turnover among CNAs, with rates ranging from 85% to 110% per year. In interviews, caregivers and care recipients alike cited turnover as a factor that negatively affected the quality of care. The importance and apparent intractability of the problem led to the examination of turnover among CNAs in greater depth. Although facility administrators speculated that turnover was primarily caused by the nature of the work, specifically, to its difficulty and low pay, the authors found the difficulty of the work and low pay were not the main determinants of CNAs' decisions to leave, as identified by CNAs themselves. In fact, many CNAs leave one nursing home to take jobs in other nursing homes or to work for home care agencies in which the work is equally difficult and the pay comparable.

The current research shows the factor that most influenced turnover was the widespread perception among CNAs that, despite what administrators might say, CNAs were not appreciated or valued by the organization. In-depth interviews located the origins of this perception in organizational policies and practices that led CNAs to feel personally and professionally dismissed.

LITERATURE REVIEW

The literature defines turnover as the voluntary termination of employment by the employee, usually (but not always) within a short period of time after being hired (Halbur & Fears, 1986; Schwartz, 1974). Research about turnover often has focused on identifying those employees most likely to leave, uncovering their reasons for leaving, and suggesting ways to remedy the problem.

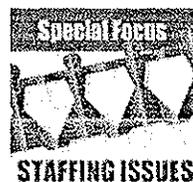
Investigations into the causes of turnover among CNAs have conceptualized two general categories of factors: intrinsic and extrinsic (Banaszak-Holl & Hines, 1996). The intrinsic factor category includes attributes and characteristics related to CNAs' biographies—their demographics, knowledge, and attitudes. Studies of these factors have shown turnover is more common among younger, better-educated CNAs who have a history of short-term employment in previous positions (Bergman, Eckerling, Golander, Sharon, & Tomer, 1984; Wallace & Brubaker, 1982) and among men (Bergman et al., 1984; Caudill & Patrick, 1991-1992). The CNAs who leave their jobs have less intention to make nursing a career, and rank their skill levels lower than do CNAs who stay in their jobs (Caudill & Patrick, 1991-1992).

Those who leave find gratification in salary, rather than in relationships with residents and coworkers (Caudill & Patrick, 1991-1992; Garland, Oyabu, & Gipson, 1988; Monahan & McCarthy, 1992), and tend to express greater frustration with the imbalance

between the demands placed on them and their ability to control their work (Banaszak-Holl & Hines, 1996; Monahan & McCarthy, 1992). The CNAs who leave are more likely to express negative attitudes toward nursing homes and less likely to have had experience caring for a relative (Garland et al., 1988). In another study, however, CNAs who left their jobs were more likely to have cared for a relative. They left nursing home employment when they found institutional conditions made it impossible to recreate the experience of caring for someone at home (Bowers & Becker, 1992).

Extrinsic factors are conceptualized as related to the organizational context of nursing home employment. Turnover is more common in proprietary (i.e., for-profit) homes that pay low salaries and offer few benefits (Pecarchik & Nelson, 1973; Wagnild, 1988). The CNAs are more likely to leave nursing homes that practice a highly centralized, authoritarian management style, which leaves little room for CNAs to make care suggestions (Waxman, Carner, & Berkenstock, 1984).

Other organizational characteristics contributing to turnover include restricted chances for advancement, inadequate training or orientation, inadequate resources to provide care (including chronic understaffing), lack of opportunity to contribute to care planning, and lack of acknowledgement or reward for good work (Banaszak-Holl & Hines, 1996; Caudill & Patrick, 1991-1992; Wagnild, 1988). Turnover also has



been shown to increase when the local economy offers more choices for employment both within and outside the long-term care sector (Banaszak-Holl & Hines, 1996).

Examination of these intrinsic and extrinsic factors has led researchers to the following theory of the "cycle of turnover": Characteristics of individual aides and of the organizational environment interact to reduce CNAs' job satisfaction. As they grow dissatisfied, CNAs begin to leave, thus exacerbating poor working conditions for those who stay and creating further dissatisfaction, which, in turn, causes more staff members to leave (Banaszak-Holl & Hines, 1996; Pecarchik & Nelson, 1973; Stryker, 1982; Wagnild, 1988; Waxman et al., 1984).

Nursing home administrators and researchers have devoted much attention to finding ways to reduce turnover. Most turnover reduction strategies are directed at increasing recruitment efforts, focusing efforts on specific worker characteristics, changing orientation programs, and changing management practices related to CNAs. Examples include:

- Making efforts to increase the size of the candidate pool.
- Seeking to recruit candidates with certain characteristics (e.g., compassion, commitment) (Stryker 1982; Wagner 1998).
- Improving the orientation, training, and supervision of new employees (Stryker, 1982; Tynan & Witherell, 1984).
- Revising personnel policies pertaining to benefits and grievances.
- Reducing the use of personnel pools (Stryker, 1982).
- Reducing the frequency of assignment changes.
- Providing opportunities for CNAs to participate in care planning (Banaszak-Holl & Hines, 1996; Caudill & Patrick, 1991-1992).
- Developing paths to employee leadership and ownership (Wagner, 1998).

Published intervention studies that have used these strategies report some improvement in turnover rates (Stryker, 1982; Tynan & Witherell, 1984).

Although several studies of turnover have focused on the point of view of CNAs, whose decisions to stay or to leave drive turnover rates, most of this research has relied on survey instruments or structured interview schedules for data collection (Caudill & Patrick, 1991-1992; Garland et al., 1988; Monahan & McCarthy, 1992; Wagnild, 1988; Waxman et al., 1984). Though the authors of these studies are to be commended for going to the source to gather information (other studies have sought to understand turnover by speaking with administrators or by using data collected for other purposes), the use of such structured methods may constrain respondents' answers, limiting their responses to those factors pre-selected by researchers. Certainly these methods provide CNAs little opportunity to explain how particular factors influence their decisions to leave their jobs.

METHODS AND DATA COLLECTION

The researchers of this study sought to understand turnover by investigating how CNAs themselves conceptualize the factors that lead them to leave their jobs. The methodological approach used in the research was grounded dimensional analysis, an interpretive methodology combining the basic elements of grounded theory (Glaser & Strauss, 1967; Strauss, 1987) with dimensional analysis (Caron & Bowers, 2000; Schatzman, 1991). Grounded dimensional analysis is used to discover the perspectives of research informants. It is particularly well suited to identifying the linkages between informants' understandings of a phenomenon and their actions in relation to that phenomenon.

The CNAs at three nursing homes participated in the study.

Nursing home size ranged from 137 to 166 beds. Two facilities were urban, one rural; two were for-profit enterprises, one was non-profit. All were located in the midwestern region of the United States. Invitations to participate in the study were mailed to CNAs currently or formerly employed at the three facilities. The invitation packet contained a brief description of the study, an invitation to participate in an individual interview, and a postage-paid return form indicating willingness to volunteer.

Although the nursing home staff mailed the invitations, the researchers provided the enclosed materials, and the volunteer return forms were sent directly to the researchers. Invitations were sent to 169 CNAs. Sixty-seven CNAs indicated a willingness to participate. A total of 41 CNAs were interviewed individually. Of these, 32 were currently employed in the three participating nursing homes and 9 were formerly employed as CNAs in the same homes. Ninety percent of the CNAs interviewed were women, 80% were high school graduates, and their average age was 33.5. Interviews took place at locations away from CNAs' workplaces so their participation would remain confidential. Interviews generally lasted between 45 minutes and 1½ hours.

Interviews conducted early in the process were highly unstructured and open; CNAs were asked to discuss their work. Throughout the data gathering process, general questions were used to initiate interviews. As analyses of early interviews provided the researchers with theoretical direction, however, follow-up questions became much more focused. For example, when early interviews pointed to the role played in turnover by CNAs' belief that they were unappreciated, follow-up questions sought to elucidate what led CNAs to feel unappreciated, as well as what determined how they

responded when they perceived the organization did not appreciate them.

Although recruitment procedures limited the researchers' ability to conduct theoretical sampling of subjects (Glaser & Strauss 1967), comparisons between theoretical dimensions were facilitated using interview questions designed to elicit comparative responses. In addition, the inclusion of long-term employees (24% of the participants had been employed for more than 3 years), new employees (24% had been employed for less than 1 year), and CNAs who had recently left their jobs (22% had left within the past 6 months) provided adequate comparison groups.

Human subjects approval of this research was provided by the Institutional Review Board of the researchers' home institution. After obtaining informed consent from participants, all interviews were taped, transcribed, and analyzed by a research team experienced in the grounded-theory method. Line-by-line dimensional analyses were conducted of the first seven interviews. The remaining interviews were analyzed more selectively, allowing researchers to elaborate the theoretical categories already identified.

FINDINGS

The CNAs participating in this study confirmed the importance of many of the factors described in the literature as causes of turnover. In interviews, CNAs described their dissatisfaction with a range of organizational policies and practices, including staffing policies, absenteeism policies, training and orientation practices, and low compensation. The current analysis revealed, however, that it was not these policies and practices (or the dissatisfaction they provoked) alone that prompted CNAs to leave. The important additional factor was what these policies and practices represented to CNAs—that CNAs were not appreciated or valued by the organization. It was CNAs' interpre-

DISMISSING		
	<i>Minimizing</i>	<i>Leveling</i>
Professional	Devaluation of the work that CNAs do. Failure to recognize their skill and expertise.	Failure to distinguish between CNAs on basis of skill and expertise.
Personal	Disparagement of CNA's character. Belief that they lack integrity, intelligence, and commitment.	Failure to distinguish between CNAs on basis of integrity, intelligence, and commitment.

tation of this underlying message, and the gulf they saw between organizational rhetoric and organizational policy, rather than the policies themselves, that CNAs identified as the reasons they left their jobs.

Further exploration allowed the authors to understand how CNAs interpreted facility policies and practices as evidence that they were not appreciated or valued. The CNAs consistently reported feeling dismissed by the messages embedded in organizational policies and practices. These messages of dismissal took two interrelated forms, minimizing and leveling, and encompassed two domains—the professional and the personal (Sidebar).

Minimizing reflected assumptions made about CNAs as a group. Professional minimizing was a general devaluation of the work the CNAs do, in particular, a failure to recognize the skill and expertise CNAs bring to their jobs and to acknowledge the effect of their work on residents' quality of care. Personal minimizing was a general disparagement of CNAs' character—the belief that they lack integrity, intelligence, and commitment.

Leveling was the result of applying these general assumptions to individual CNAs. Professional leveling occurred when facility managers and supervisors failed to draw distinctions between individual aides based on their varying levels of skill and expertise. Similarly, personal leveling

resulted when facility managers and supervisors treated CNAs as indistinguishable from one another in terms of honesty, intelligence, and commitment. Both professional and personal leveling reflected the low opinions of CNAs in the assumptions that defined minimizing. The CNAs believed facility managers and supervisors treated them individually as if they were all unskilled, dishonest, lazy, and stupid.

The CNAs often perceived dismissing (i.e., minimizing and leveling) in the contradictions between organizational rhetoric and everyday practices. Although facility managers and supervisors made rhetorical statements that made claims for the respect and value accorded CNAs, organizational decisions as enacted in actual policies and practices and personal interactions often sent contradictory messages.

To elucidate the dismissing described by CNAs, three examples are used. Two are drawn from organizational policies and one from personal interactions between CNAs and supervisory level staff. The two organizational policies examined are how the organization defines adequate staffing and how it compensates CNAs. These examples were chosen because they show the range and complexity of the behaviors and responses that define dismissing, and because these issues have become central to national policy discussions of long-term care (Institute of

Medicine, 1996). The personal interaction examples were selected to illustrate how even seemingly minor incidents can contribute to CNAs' decisions to leave their jobs.

DEFINITION OF ADEQUATE STAFFING

In the facilities studied, as is common throughout the country, administrators defined adequacy of staffing by calculating staff-resident ratios. They sought to remedy the problem of low staff ratios (i.e., too many residents per staff member) by employing a number of strategies, including rotating staff (i.e., "pulling" staff from fully staffed units to make up staff shortages in other units), use of pool staff, and constant recruitment. Managers believed they were merely addressing the problem of short staffing by using these strategies. The CNAs, however, often saw these management strategies as professionally dismissive. Although this perception may seem unreasonable, it is important to understand how CNAs interpret these strategies as both minimizing and leveling.

When facility managers made decisions to rotate experienced CNAs out of their usual assignments to cover short-staffed units, CNAs felt the decision was a contradiction of the organizational rhetoric, which claimed CNAs' were valued for their experience, skill, and knowledge. The CNAs cited cases where aides had been praised for their work with a particular resident on one day, and rotated the next, effectively disrupting their contact with the resident. By demonstrating a willingness to take an aide away from his or her usual residents, the CNAs believed managers were discounting the way CNAs' skill, experience, and knowledge of the residents contributed to the quality of their care.

In addition, because CNAs defined "good caregiving" as based on the establishment and maintenance of good relationships with res-

idents (Bowers, Esmond, & Jacobson, 2000), CNAs felt any disruption to these relationships was detrimental to the quality of the care provided and the quality of residents' lives. The ease with which organizations decided to rotate staff sent a message to CNAs that, despite what supervisors said, the nature of their work and the depth of their commitment to residents were neither understood nor valued.

The CNAs interviewed for this study perceived organizations' use of pool staff as another form of dismissing. Although pool staff have a range of skill and experience, they often lack familiarity with the residents to whom they are assigned. Use of pool staff reflected leveling because it suggested that management felt CNAs were interchangeable, and minimizing because it failed to acknowledge the skills CNAs use in applying their knowledge of residents to the provision of care. When facility management brought in unfamiliar, temporary help to make up a staffing shortage, the message to regular CNAs was that management was concerned only with the number of workers on the unit (the ratio of workers to residents).

By that reckoning, regular staff and pool staff "counted" exactly the same. The CNAs' familiarity and experience with residents did not factor in the equation. If management understood and valued the importance of familiarity, CNAs reasoned, the calculation would be changed to reflect divergent levels of expertise and familiarity. For example, the organization might make it a policy to replace each missing aide with two pool staff.

The use of rotation and pool staff are examples of what CNAs perceived as the gap between the organization's rhetoric and its practices. Although supervisors, particularly charge nurses, and management often gave CNAs verbal recognition of the importance of their skill, knowledge, experience, and commitment, the same acknowledgement was not

apparent in the management's staffing decisions. To CNAs observing this kind of disparity, actions were more important than words. The message was that the facility did not really value them or recognize their individual strengths. For CNAs, this implicit message cast suspicion on all statements to the contrary.

Efforts to recruit new CNAs were often perceived as professionally dismissive by CNAs already employed by organizations doing the recruiting. The CNAs believed that dismissing was at work when organizations did not screen new CNAs to find "the right kind of person." The CNAs expressed the opinion that management would "take just anyone off the street." This lack of discrimination in hiring practices sent a message to CNAs that management believes that they, too, might as well be "just anyone."

After new CNAs were hired, the training and orientation they described being given by the organization often failed (either through ignorance or design) to present a true picture of the work. When new employees were assigned to units, they often had not been prepared for the amount or type of work required. One aide talked about a common phenomenon with newly hired aides:

And, so they'd be getting a dose [of working on the unit] and lots of them would quit then, because they'd figured out right then, because they'd see the list that we had of residents that we were supposed to be taking care of, and then the care plans, and what we were supposed to do with each resident, and stuff. And that would scare them away...and it's like, we don't even have to say anything, all we had to do is show them the list, and then what we [laughing] have to do during the day.

As this example suggests, "just anyone" usually lacked the expertise and commitment CNAs believed necessary to make a "professional" aide. That organizations counted

such “green” workers as equivalent to experienced CNAs in calculating staff ratios minimized the contributions made by more experienced aides, thereby leveling individual aides.

In contrast to administrators’ (and federal and state policymakers’) emphasis on identifying and maintaining staff ratios, CNAs’ definitions of adequate staffing recognize the varying levels and kinds of skills, knowledge, experience, and commitment. Adequacy in staffing means having a match between these professional attributes and the needs and desires of particular residents. Different residents and varying conditions on different units require different skills, knowledge, and experience. Assuring adequate staffing is about being able to make distinctions among staff to determine which workers are best suited to which jobs and, only then, how many of these particular staff are required to complete the work.

COMPENSATION

Discussions with CNAs revealed they viewed compensation practices as demonstrations of dismissing in both the professional and personal domains. Although facility administrators recognized low wages offered to CNAs adversely affected their ability to recruit and retain workers, they conceptualized the problem as the gap between the amount paid to CNAs and the amount constituting a living wage. In this study, however, the CNAs citing low wages as a reason for leaving tended to do so in the context of contrasting the salary with the professional expertise required by the work. That is, they felt low wages were yet another minimization of the skill, knowledge, experience, and commitment of CNAs, rather than as (solely) a problem of amount. For CNAs, the compensation problem was not just about making a living wage, but about seeing in their wages a reflection of the value of their work.

The leveling impact of compensation was perceived when pay rates made little or no distinction for CNAs’ different levels of expertise, commitment, or length of employment. One CNA said:

And this one aide, and I find this just appalling, um, is a very, very good aide. She’s been here 16 months, um, she makes 12 more cents an hour than I do. Starting out fresh doesn’t...I don’t know what I’m, you know, basically don’t know what I’m doing, 12 cents an hour more. I think that’s terrible.

When no, or only minimal, differences in wages existed for new workers and more experienced workers, or skillful workers and less skilled workers, or those who were doing the work with great commitment and those who were just showing up, CNAs viewed the compensation policy as unfair and indiscriminate, citing it as one more example of dismissing. A similar message was sent when regular CNAs learned that pool staff, whom they perceived as lacking both the commitment and the skill born of familiarity with residents, were paid a higher hourly rate than regular staff.

Unfortunately, as was the case with short staffing, efforts to remedy the compensation problem could backfire. In these facilities, the authors observed that “across-the-board” pay increases did not always have the intended effect of improving morale and retention. Instead, when facility managers and supervisors attempted to address the compensation problem by instituting across-the-board raises, the redress effort was itself perceived by many CNAs as dismissive. Although they welcomed the extra money, some CNAs described feeling “minimized” because the raise implied that they were motivated solely by money. Additionally, an across-the-board increase was perceived as leveling because it did not acknowledge and reward individual differences in performance and expertise.

The CNAs had similar reactions when administrators turned to non-monetary forms of group acknowledgement (e.g., special meals, facility parties, movie passes), or “herd” recognition. As they did with pay increases, CNAs focused on the indiscriminate nature of the reward, noting that when something was given both to those who “go the extra mile” and those who are “just showing up,” it lost all meaning. One CNA said:

We, everybody got this [pizza restaurant] coupon....You know, yeah, it was kinda nice to get....But then, you know, everyone got one, you know? And maybe there are people on the team that really shouldn’t have gotten one...and so it really doesn’t mean anything...to the other people.

Perhaps compensation, more than any other issue, demonstrated the gulf in perception between facility administrators and CNAs. While administrators were likely to perceive the wage problem as one of “not enough”—a problem to be solved by increasing the amount—CNAs were more likely to view the issue as one of symbolic appreciation and of equity. When CNAs viewed wages and other rewards as symbols of their absolute and relative worth, an across-the-board salary increase was an overly simplistic solution. It solved one problem, but created others.

PERSONAL INTERACTIONS WITH SUPERVISORS

Kruzich and Clinton (1990) reported that the quality of relationships between CNAs and their charge nurses affects residents’ perceptions of the care they receive. The present study found that supervisory relationships were also central to the problem of turnover. The CNAs reported many instances when interactions with charge nurses and other supervisory personnel led them to feel personally and professionally dismissed. For example, it was common to hear stories in which CNAs

felt supervisory personnel treated them as nonentities, such as:

From the RN up, they treat us like we're stupid. They have no respect for us at all...they'll walk right past you in the hall, and you'll say hi to them, and it's like they don't even know you're there. They're just like, they ignore us. And to me, that makes me feel like they don't, we're not, we're not appreciated, or they don't care that we're there.

Feeling invisible was both leveling (because it made aides feel they were seen only as "just one of the CNAs") and minimizing (because it implied CNAs, as a group, were not worthy of the courtesy of being addressed by name).

Because charge nurses and other supervisory personnel were CNAs' main points of contact with administration, they were perceived as agents of the organization and their behavior was seen as representative of how the organization viewed CNAs as workers and as people. For CNAs, organizational policies were often confounded with the ways in which they were implemented and enforced. That is, the extent to which a policy was perceived as dismissive was often affected by the nature of the personal interactions accompanying its implementation and enforcement. For example, rules pertaining to resident care might be resented by some CNAs because the way the policies were enforced seemed dismissive. One CNA said:

Well, I mean like not doing something right like forgetting to use a gait belt or forgetting to use a walker in front of somebody. Instead of taking that person aside, she [the supervisor] would yell at them in front of everybody. That's very unprofessional. Very. And I've seen it happen more than once.

DISCUSSION

Some of the factors leading CNAs to leave their jobs have been identified in the literature, and have been categorized as either extrinsic or

intrinsic factors. A popular theory developed to explain turnover is that some interaction between extrinsic and intrinsic factors exists, but the theory fails to develop the relationship. The current research with CNAs who work (or have worked) in long-term care facilities suggests the relationship is best understood by exploring the processes of professional and personal dismissing and the potential gaps between rhetoric and organizational policy.

The theory of turnover derived from an understanding of dismissing and its subprocesses, minimizing and leveling, examines how organizational policies are experienced and interpreted by CNAs. The CNAs hear facility management saying the right things (e.g., "we value you and your expertise"), but this rhetoric is belied by CNAs' daily experiences as workers, and human beings, in the organization. The messages they perceive in this dissonance are demeaning and mutually reinforcing. In myriad ways, management decisions show CNAs that their work is unimportant and they are indistinguishable and easily replaced.

An understanding of dismissing dissolves the distinction between intrinsic and extrinsic factors. The importance of extrinsic conditions lies in CNAs' experiences. The authors suggest that extrinsic factors, such as organizational policies, act both directly and indirectly to affect CNAs' decisions to leave. Policies may make the work more difficult or less rewarding directly. Indirectly, organizational policies may create conditions in which CNAs are more likely to "take it personally." When CNAs perceive the organization neither respects nor values their work, any unpopular policy may be interpreted as demonstrating a lack of appreciation and can become a reason to leave.

The CNAs' negative examples reveal that breaking the cycle of turnover requires creating a human environment in which rhetoric and

practice are congruent. They want to feel respected and that they are being treated fairly. Respect and fairness can be demonstrated both through organization policy and interpersonal interactions. In particular, CNAs want tangible evidence that their individual expertise and commitment are recognized and valued by supervisors and administrators.

IMPLICATIONS

The findings from this study have important implications for the way administrators and supervising nurses relate to and make decisions related to CNAs. For example, when determining staffing levels, nursing home administrators might consider CNAs' definitions of adequate staffing. This would result in the reduction or elimination of rotation as a strategy to "cover" a unit that is not adequately staffed. In addition, the use of pool staff must be carefully reconsidered, perhaps requiring more creativity in the use of internal pools and recalculating the value of external pool staff, such as using a one-regular-staff to two-pool-staff replacement ratio. Such a calculation explicitly acknowledges the value of training and experience and, at the same time, leads to better care.

The results of this study also suggest wage scales be revised to demonstrate a logical articulation between compensation and value. First, the lowest wage offered CNAs must be a living wage. On top of this basic salary, facility managers and supervisors might offer raises and bonuses based on individual contribution, and eliminate or reduce the use of herd acknowledgment. Finally, nursing homes must develop a culture of respect, one in which CNAs' work is understood and valued at all levels of the organization, and in which it becomes unacceptable for supervisors or administrators to demean or humiliate their colleagues. Staff nurses acting as direct or indirect supervisors can help build this culture of respect

by influencing both the organizational policies described in this article and the general tone of interactions on their units.

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KEYPOINTS

TURNOVER: WHY CNAS LEAVE

Bowers, B.J., Esmond, S., Jacobson, N. Turnover Reinterpreted: CNAs Talk About Why They Leave. *Journal of Gerontological Nursing*, 2003, 29(3): 36-43.

- 1 The CNAs in this study, both those employed and those who had left, felt generally undervalued and unappreciated by the organization in general and by their supervisors in particular.
- 2 The CNAs described how organizational policies and practices are based on beliefs that CNAs are all the same, discounting important differences among front line staff.
- 3 Strategies for determining staffing levels and reward systems for CNAs reflect a general lack of respect for CNAs and the work they do.
- 4 Interactions between CNAs and their supervisors frequently demonstrate to CNAs the lack of respect that others have for them.

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Determinants of Satisfaction and Turnover among Nursing Assistants

THE RESULTS OF A STATEWIDE SURVEY

ABSTRACT

This research is an examination of job satisfaction and turnover among nursing assistants employed in nursing homes. Using a statewide sample with 550 nursing assistants responding, the results indicated that 60% were satisfied with their jobs and 30% planned to quit. The nursing assistants participating in this study identified the relationship with the resident as the most important work issue, and their major reason for staying in the job. They were most dissatisfied with pay, benefits, and recognition and appreciation. Although the respondents were dissatisfied with benefits and salary, these work issues could not explain overall satisfaction or turnover. The multivariate analysis confirmed that professional growth and involvement in work-related decisions, supervision, and management keeping employees informed were significantly related to both turnover and overall satisfaction.

One of the more critical and difficult challenges of the 21st century will be responding to the needs of a "graying America." As the baby boom generation ages, more attention is focused on the major formal provider of long-term care for older adults—nursing homes. Given the questionable track record of the nursing home industry, many doubt their ability to adequately meet the future demand. There is a general concern that the industry will be preoccupied with profits and will neglect patient care issues (Adams, 1995). In particular, many are skeptical about the ability of those in the industry to hire and retain the staff required to provide the needed quality of care.

Such skepticism is warranted. Unlike hospitals, the majority of nursing homes are heavily dependent on low-paid, semi-skilled nursing assistants. This industry, with one of the poorest performance records for keep-

ing employees, must not only hire more nursing assistants to meet the baby boom demand, but also compete increasingly with newer health care providers (e.g., home health agencies, non-health service sector), for the same labor pool. The U.S. Department of Labor, Bureau of Labor Statistics (1997 to 1998) indicates that nursing and personal care facilities have projected rates of employment that place them among the fastest growing industries in the nation.

Attracting quality staff will solve only half of the problem. Nursing homes must also address the dismal turnover rate among nursing assistants, which annually ranges from 50% to 300% (Almquist & Bates, 1980; Bowers & Becker, 1992; Caudill & Patrick, 1992; Schwartz, 1974; Stryker, 1981) with the national reported average of approximately 100% (Helmer, Olson, & Heim, 1993).

Turnover, for the most part, is an outcome of work dissatisfaction (Ruble, 1986). Job satisfaction is the key not only to employee retention, but also to organizational effectiveness (Mottaz, 1988). Job satisfaction affects morale, productivity, burnout, organizational alienation, and customer satisfaction (Schlesinger & Heskett, 1991). When jobs are dissatisfying, some employees do not quit, but begrudgingly stay with the job for a variety of reasons. Unhappy employees are more likely to exhibit withdrawal

(e.g., late for work, leave early, use more sick leave [Greenberg & Baron, 1997]) and not participate in organizational citizenship behavior (e.g., unwilling to help coworkers and employers [Spector, 1997]). Organizational citizenship behavior, as well as many other aspects of job satisfaction, are often related to equity issues—the



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perceived fairness of treatment in the workplace (McNeely & Meglino, 1994). If employees feel the organization is taking advantage of them, they often seek to balance the perceived injustice by reducing their performance or by undermining the efforts of other employees (Nahavandi & Malekzadeh, 1999). Disgruntled employees may also seek a "payback" for perceived inequities by other counterproductive behaviors that hurt the organization. Those behaviors include aggression against coworkers or the employer, sabotage, and theft (Spector, 1997).

Unfortunately, not only is turnover common in nursing homes, but payback is also a problem among disgruntled nursing assistants. Employee theft in health care settings is common, and the physical and psychological abuse of residents in nursing homes is an industry-wide problem (Kavaler & Spiegel, 1997). More important, the relationship between dissatisfied nursing assistants and residents may be strained, and worker disgruntlement may, presumably, be at the root of many of the incidences of resident and patient neglect and abuse, especially among workers who believe they have no or little control at work (Perlow & Latham, 1993; Spector, 1997).

The first step in addressing job satisfaction is identifying which work issues, among the numerous possibilities, are problematic. The purpose of this study is to examine job satisfaction and turnover among nursing assistants employed in nursing homes. The objectives of this research include:

- Determining overall level of satisfaction among these nursing assistants.
- Identifying the work issues of greatest satisfaction and dissatisfaction.
- Analyzing the association between employee characteristics, work issues, turnover, and satisfaction.

Louisiana was selected as the site for this study because of persistent concerns related to the quality of care in nursing homes in the state (Adams, 1995).

With numerous studies dedicated to job satisfaction, why conduct one

more? What does the present study contribute? First, only a fraction of the studies about job satisfaction have focused on nursing assistants. With nurse aides providing most of the resident care in nursing homes, the high turnover rate poses a serious problem in terms of cost and quality of care. Second, most of the studies on nursing assistants examine a narrow group of issues and include only one or a handful of nursing homes, which limits the ability to generalize the findings. The present study uses a statewide sample and includes a full array of work issues in the analysis.

REVIEW OF THE LITERATURE

This brief review of the literature identifies the numerous work issues and employee characteristics associated with turnover, and presents a profile of the "typical" nursing assistant. This profile is used to ensure the sample conforms to the general population.

The literature suggests nursing assistants tend to be women, Black, head of one-parent households, paid minimum wage, and to have high a school education or less (Garland, Oyabu, & Gipson, 1988; Mullins & Moody, 1994). In a 1993 study, Breedlove found that nursing assistants tend to live below the poverty level and are dependent on public assistance.

Studies about nursing assistants have identified three major employee characteristics related to turnover. Wallace and Brubaker (1982) linked age, education, and marital status to employment tenure. They suggested that older employees tend to stay in their job longer. Other researchers also have concluded that longer tenure is related to having less education (Halbur & Fears, 1986) and to being married (Wallace & Brubaker, 1982).

The research on the relationship between work issues and turnover among nursing assistants has produced an extensive list of culprits. Many studies indicate inexperience, and poor job orientation and training influence the desire to leave (Bales, 1975; Handschu, 1973; Hyerstay, 1978;

Kraus, 1973; Reagan, 1986). Monahan and McCarthy (1992) also stress the importance of training, adding that nursing homes should ensure staffing levels are adequate and employees are supplied with proper equipment.

In other studies, higher turnover rates were associated with RNs and social service workers feeling overextended (Parsons, Prestage, & Plum, 1998), limited career opportunities, poor supervision (Reagan, 1986), low recognition, feeling incompetent, and pay (Bales, 1975). Pay was found to be a major contributor to turnover in studies by Hyerstay (1978) and Winston (1981). However, Holz (1982) suggested pay could not explain the length of job tenure.

Halbur and Fears (1986) found reduced turnover was related to positive relationships with supervisors and coworkers. Several studies reinforce the importance of gaining employee input (Monahan & McCarthy, 1992) and including nursing assistants in decision-making and in patient care issues (Caudill, 1989; Handschu, 1973; Waxman, Carner, & Berkenstock, 1984).

DATA AND METHODS

To analyze job satisfaction and turnover among nursing assistants, a survey was conducted in Louisiana in the spring of 1996. Two major steps were taken in constructing the survey. First, work issues relating to job satisfaction were identified through a review of the literature. Second, a draft instrument was constructed and revised based on comments and field testing. The survey contained 67 questions in a mixed format, and was divided into two sections: employee and work characteristics, and work issues. The first section (25 questions) included demographic information (i.e., age, race, sex, marital status, education and educational goals, family responsibilities) and four questions about moonlighting, four questions about work status and schedule, six questions about employment history and tenure, one question about current salary, two questions about caring for elderly fam-

ily members and special training, and two questions about patient care assignments. Also included in this section were two dichotomous questions (yes = 1, no = 0): "Do you plan to quit this job?" and "Are you currently looking for a job to replace this job?". These questions are highly correlated with turnover and, therefore, serve as a proxy for actual turnover (Rublec, 1986; Wagnild & Manning, 1986).

The second section contained a list of 35 work issues in a Likert-type format (1 = strongly disagree, 5 = strongly agree). In the analysis, the negatively phrased questions were recoded so the higher the number, the more positive the response. These 35 questions were subdivided into five major categories representing two primary concepts: extrinsic and intrinsic work issues. The framework for identifying and organizing the work issues was adapted from Herzberg's (1966) research on job motivation and studies specific to nursing assistants.

The first category was task rewards (e.g., examining intrinsic issues such as freedom and flexibility, perceptions about competency, input into the residents' program of care). The remaining four categories examined extrinsic issues (i.e., external to the job itself), including social rewards (e.g., relationship with patients and coworkers), supervision, management, and organizational issues (e.g., employee input into management decisions, support, workload, opportunities for advancement), and pay and benefits (Table 1).

This section also included three questions, in the same Likert-type format, examining overall satisfaction:

- "Overall, I am satisfied with my job."
- "If I could start over, I would choose the same type of work."
- "Generally speaking, most employees are satisfied working here."

Last, in another section, three questions were used to identify the most important work issue (from a list of 14 work issues), the major problem with this job, and the major reason for staying in this job.

The 259 members of the Louisiana Nursing Home Association represent approximately 75% of the nursing homes in the state. Of these 259 members, 70 facilities agreed to participate. Eighty-three percent of the 70 facilities are for-profit and 17% are non-profit (5% church-related, 11% secular, and 1% government-owned). On average, the 70 facilities have 125 beds (range, 15 to 300 beds) and employ a staff of 89 full-time equivalents (range, 6 to 239).

From the 70 facilities, two random samples were drawn. The first sample included every third facility, and all nursing assistants in all shifts were mailed surveys in those facilities. For the second sample, the remaining facilities were randomly selected with evening and night shifts given more weight, so those shifts would be well represented. In total, 1,660 nursing assistants were mailed surveys with self-addressed, stamped envelopes attached for the return mailing. Of the surveys distributed, 550 were returned for a response rate of 33.1%.

ANALYSIS AND FINDINGS

Sample Profile

As expected, the respondents fit the profile presented in the literature. The sample was overwhelmingly women (95.6%) and 407 (75.4%) were Black. Forty-five percent ($n = 240$) were not married, 38.5% were married, and 16.8% were divorced or widowed. The average age was 36.9, and 73.6% ($n = 351$) were high-school graduates with 67.4% ($n = 354$) planning to further their education. Ninety percent were full-time employees, with 50% of the respondents working day shifts. The length of current employment ranged from 1 week to 30 years, with the average tenure approximately 4.6 years. Only 16.5% ($n = 89$) were moonlighting, but 46.6% ($n = 144$) were looking for an additional job.

Nearly 80% ($n = 425$) had experience taking care of an older family member, and 94.9% of those found the experience rewarding. More than half of the population ($n = 276$) reported that the group of residents under their

care changed at least once a month, but a similar percentage (52.5%) responded that they would prefer their patient assignments were rarely or never changed. Also, 29.1% ($n = 152$) responded that they planned to quit, and 33.8% ($n = 178$) indicated that they were looking for a job to replace their current job.

Overall Satisfaction and Work Issues of Greatest Satisfaction and Dissatisfaction

When asked, "Overall, I am satisfied with my job," 60.3% responded they were either satisfied or very satisfied with their job. The remaining 40% were either unsatisfied or neutral ($M = 3.56$) (Table 1). More than half (54%) would choose the same type of work if they could start over, and 33% (i.e., disagree and strongly disagree) would not ($M = 3.3$). Nearly 30% thought most employees were not satisfied where they worked ($M = 2.63$).

Of the 35 variables measuring worker satisfaction, the respondents were most satisfied with their closeness to residents ($M = 4.56$), their affect on residents ($M = 4.49$), the belief that their job is important ($M = 4.43$), and their own competence in providing resident care ($M = 4.48$) (Table 1).

The respondents were generally dissatisfied with managerial and organizational work issues and with pay and benefits. For example, nearly half of the respondents (46.5% disagree and strongly disagree) thought they did not have sufficient input into management decisions ($M = 2.70$), and 45.4% thought they were not involved in making changes and improvements ($M = 2.74$). Further, the respondents were most dissatisfied with health insurance ($M = 1.97$), pay ($M = 2.05$), sick leave benefits ($M = 2.07$), the regularity of pay increases ($M = 2.22$), and recognition and appreciation ($M = 2.30$).

The final part of the univariate analysis forced respondents to select only one work issue for each of the three questions from a list of 14 choices. When asked to identify the most important work issue, 44.7% chose

TABLE 3

MEANS FOR WORK ISSUES AND EMPLOYEE SATISFACTION AND BIVARIATE ANALYSIS BETWEEN TURNOVER AND SATISFACTION WITH INDIVIDUAL WORK ISSUES

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Tau C</i>	<i>r</i>	<i>N</i>	<i>p</i>
Task rewards							
Job freedom and flexibility	3.19	1.44	534	-.173	-.198	496	.000
Patient care competence and knowledge	4.48	0.92	536	-.060	-.095	499	.033
Coworker competence and knowledge	3.69	1.36	529	-.070	-.071	492	.114
Job importance	4.43	1.26	532	.066	.001	495	.988
Job challenge, reward, and interest	3.82	1.49	527	-.127	-.155	490	.001
Program of care input	3.63	1.41	531	-.120	-.142	494	.002
Recognition and appreciation	2.30	1.51	541	-.205	-.229	503	.000
Performance feedback	2.87	1.48	534	-.174	-.203	496	.000
Social rewards							
Effect on residents	4.49	0.94	543	-.005	-.049	505	.277
Closeness to residents	4.56	0.79	536	-.030	-.062	498	.166
Teamwork among coworkers	3.33	1.46	540	-.136	-.169	502	.000
New employees feel at home	3.15	1.41	539	-.201	-.230	502	.000
Resolution of coworker conflict	3.28	1.40	526	-.073	-.079	490	.080
Honesty and dependency of coworkers	3.31	1.32	536	-.178	-.194	499	.000
Supervision							
Level of supervision	3.50	1.46	535	.002	.012	498	.794
Supervisory support	3.29	1.40	533	-.270	-.316	503	.000
Equality in supervision	3.10	1.57	540	-.251	-.298	503	.000
Supervision competence and skills	3.43	1.48	539	-.255	-.308	503	.000
Management and Organizational Issues							
Employee control	2.84	1.48	530	-.085	-.096	495	.033
Employee input in management issues	2.70	1.39	531	-.182	-.216	495	.000
Employee involvement in change	2.74	1.46	531	-.184	-.221	494	.000
Employee information from management	3.00	1.50	534	-.099	-.123	497	.006
Loyalty of management	2.77	1.41	531	-.212	-.253	494	.000
EEO* in hiring and promotion	2.93	1.50	535	-.271	-.317	498	.000
Quality of equipment and supplies	3.00	1.55	538	-.134	-.164	502	.000
Building and room condition	3.68	1.26	535	-.079	-.098	498	.029
Work load	3.29	1.46	536	-.192	-.244	501	.000
Work schedule	3.81	1.36	537	-.233	-.312	500	.000
Opportunity for advancement and growth	2.65	1.52	538	-.274	-.321	501	.000
Pay and Benefits							
Adequacy of salary	2.05	1.49	537	-.145	-.153	500	.001
Pay increases	2.22	1.42	528	-.124	-.142	494	.002
Health insurance	1.97	1.42	514	-.052	-.042	482	.358
Vacation benefits	2.64	1.57	531	-.130	-.155	495	.001
Sick leave benefits	2.07	1.46	539	-.119	-.138	490	.002
Paid holidays	2.98	1.60	533	-.159	-.185	498	.000
Satisfaction							
Choose the same employment again	3.30	1.64	539	-.260	-.337	501	.000
Most employees are satisfied	2.63	1.51	534	-.117	-.129	497	.004
Overall, I am satisfied	3.56	1.38	538	-.341	-.424	501	.000

*EEO = equal employment opportunity.

relationship with the residents. Relationship with residents was also the main reason respondents stayed in their job (35.2%). The second most important issue was relationship with coworkers (20%). Other issues listed as important included convenience, working conditions, and pay. Pay was identified by the plurality of the respondents (44.9%) as the major problem with the job.

Bivariate Analysis

This section of the analysis identified the employee and work characteristics associated with turnover (Table 2). Not surprisingly, employee characteristics related to turnover included:

- Age ($r = -.277$)
- Plan to further education ($r = .258$)
- Length of employment ($r = -.197$)
- Length of employment in the previous job ($r = -.177$)
- Years of experience as a nursing assistant ($r = -.191$)
- Pay ($r = -.122$).

Characteristics not related to the intent to quit included prior employment in a nursing home ($r = .070$), the number of nursing homes worked in previously ($r = -.015$), outside employment ($r = -.002$), and employment prior to current job ($r = .077$).

Next, bivariate analysis was used to examine the relationship between satisfaction ("Overall, I am satisfied with my job") and turnover ("Do you plan to quit this job?" summed with "Are you currently looking for a job to replace this job?"). As expected, the results revealed that as overall satisfaction decreases, turnover increases ($p < .000$, $r = -.424$).

The final part of this section shows the associations between turnover and satisfaction with the individual work issues in each cluster (Table 1). In every cluster most of the variables were related to turnover—in other words, as satisfaction with the work issue increased, the intent to quit decreased. Within the cluster of task issues, recognition and feedback were most related to turnover, and the competence and knowledge of

TABLE 2

BIVARIATE ASSOCIATIONS AMONG TURNOVER, DEMOGRAPHIC AND WORK CHARACTERISTICS, OVERALL SATISFACTION, AND FACTORS OF WORK ISSUES

Variable	Tau C	r	N	p
Age	-.239	-.277	497	.000
Plan to further education	.244	.258	489	.000
Length of current employment	-.114	-.197	499	.000
Current pay	-.069	-.122	487	.007
Employed before	.059	.077	507	.081
Length of employment last job	-.117	-.177	372	.001
Previous employment in nursing home	.086	.070	356	.185
Number of nursing homes worked	.041	-.015	501	.735
Total years nursing experience	-.134	-.191	495	.000
Moonlighting?	-.002	-.002	504	.970
Overall Satisfaction	-.341	-.424	501	.000
Areas of Satisfaction				
Personal opportunity	-.321	-.369	460	.000
Supervision	-.287	-.333	497	.000
Benefits	-.155	-.161	470	.000
Coworker support	-.227	-.259	490	.000
Social rewards	-.024	-.053	497	.242
Task rewards	-.112	-.097	483	.033

coworkers and job importance were not related to turnover.

In the analysis of the second cluster, social rewards exhibited varied results. Three of the issues (i.e., teamwork, new employees feeling welcome, dependability of coworkers) were significantly and negatively related to turnover ($p = .001$). Other studies have found that job satisfaction and turnover are influenced by relationships with coworkers and residents. However, this study found the respondents' attitude related to the residents was not associated with their intent to quit. This is an important finding. As stated previously, the relationship with residents is the most important work issue to these respondents. However, as indicated by this analysis, it is not associated with their intent to quit, or in the reverse, their intent to stay. All but one of the supervisory issues, the level of supervision, was related to turnover.

Each of the management and organizational work issues was significant-

ly related to turnover ($p = .000$ to $p = .033$). Of those work issues, opportunities for advancement, fairness in hiring and promotion, and work schedule were the most strongly related to turnover. In the last cluster of work issues, pay and benefits, only health insurance benefits was not related to turnover. Interestingly, most of the relationships between pay and benefits and turnover were relatively weak.

Factor Analysis and Bivariate Analysis with Resulting Factors

Based on previous research, the 35 work issues had been divided into five categories:

- Task rewards.
- Social rewards.
- Supervision.
- Management and organizational issues.
- Pay and benefits.

Factor analysis was conducted to determine if these categories fit the current sample. The authors found the

variables loaded best on seven factors, not five, and that the new variables grouped slightly different than in previous studies. The first factor, Personal Opportunity, included variables associated with personal and professional growth and involvement in decisions on the job. The second factor, Supervision, included three variables about supervision. The third factor, Benefits, included the four variables concerned with fringe benefits. The fourth factor, Coworker Support, pertained to the relationship with coworkers. The fifth factor, Social Rewards, included two variables: "My job really makes a difference in the lives of the residents," and "I feel close to the residents here, they need me." The sixth factor, Task Rewards, included two variables involving the importance and challenge of the job.

Finally, the seventh factor included salary and management keeping employees informed. However, because there is no sufficient theoretical explanation for this grouping, these two variables were separate in the following analysis. The remaining six factors were used to create scales for further analysis. The scales were made up of averages of the variables in each factor. Analysis of these scales showed the current sample was most satisfied with Social Rewards and Task Rewards and least satisfied with Personal Opportunities and Benefits.

Table 2 also shows the bivariate association between turnover and the six work issue factors. The factor most related to turnover was Personal Opportunity ($r = -.369$). Those respondents who felt they did not have opportunities for personal growth or input were more likely to be looking for another job and planning to quit. Each of the other scales was also significant and negatively related to turnover ($p = .000$ to $p = .003$), except for Social Rewards.

Multivariate Analysis

Finally, multivariate analysis was conducted to determine the influence of individual areas of work satisfaction

on overall satisfaction and turnover, while controlling for demographic and work characteristics. First, the authors conducted ordinary least squares (OLS) regression with Overall Satisfaction as the dependent variable. In general, the regression equation fit the data quite well ($R^2 = .421$, $p = .000$). Not surprisingly, several of the satisfaction scales were strongly related to Overall Satisfaction. The most significant was Personal Opportunity ($B = .312$), followed by Supervision ($B = .153$), Social Rewards ($B = .148$), and Coworker Support ($B = .138$). Also, the question of whether management keeps employees informed ($B = .111$) was also significant. Task Rewards and Satisfaction with Salary were not significant when controlling for the other satisfaction scales and demographic and work characteristics. Finally, the results of the regression analysis indicated that none of the control variables were significantly related to overall satisfaction, controlling for the specific satisfaction scales.

The second step in the multivariate analysis was to conduct a multinomial logit analysis with Turnover as the dependent variable. With this method, the authors were able to determine which variables were significantly related to turnover while controlling for each of the satisfaction scales and the employee and work characteristics. The most important variable for predicting turnover was Personal Opportunity. Those respondents who were not satisfied with their job-related personal and professional growth and involvement in decisions on the job were most likely planning to look for another job. The other two variables significantly related to turnover were Supervision and Management Keeping Employees Informed. In contrast, Benefits, Satisfaction with Salary, and Current Pay, were not significantly related to turnover.

DISCUSSION AND CONCLUSION

This study on job satisfaction and turnover was a massive undertaking, spanning more than 2 years in the

development of the instrument and data collection alone. The goal of this project was to produce results useful for nurse managers and nursing home administrators.

The 550 individuals responding represented nursing assistants in all shifts from nursing homes across the state. Further, the analysis of the population characteristics indicates that the sample fits the national nursing assistant profile. Nursing assistants employed in Louisiana nursing homes are mainly Black women who are unmarried with children, and the sole supporters of their families. Although few were moonlighting, almost 50% were looking for an additional job.

With 30% of the respondents planning to quit, what is the profile of the person most likely to stay in the job? Again, the results of this study parallel the findings in the literature. Those most likely to remain in a job are older, not planning to further their education, are not new in the current job, have a longer tenure in the previous job, have more total years in their occupation, and are less interested in moonlighting.

What is notable about these findings? First, even though moonlighting is common among health care professionals, interest in moonlighting has rarely been analyzed as a component in retention. However, looking for an additional job was, by far, the most related to the intent to quit. It is possible that looking for an additional job may be another expression of intent to quit and, therefore, can serve as an additional proxy for turnover.

The analysis indicated that turnover was linked to job satisfaction, and that a large percentage of the population were either neutral or dissatisfied with their job. What factors were responsible for this dissatisfaction, and increased the intent to quit? Multivariate analysis confirmed that Personal Opportunity was most significantly related to both overall satisfaction and turnover. Supervision was the second most important grouping of work issues, followed by Management Keeping Employees

Informed. Additionally, the relationship with coworkers and coworker support were associated with overall satisfaction, but not turnover.

These results agree, in particular, with Reagan's 1986 findings. However, it appears that little has changed during the time between Reagan's study and the present research. Nursing assistants are still frustrated about the lack of career ladders or other professional growth opportunities, inadequate supervision, and poor communication between management and nursing assistants. One of the major contributions of the current study is that it clearly demonstrates that these factors are responsible not only for turnover, but also for worker dissatisfaction.

The work issues not related to turnover are also important to note. Among those, the following are conspicuous: job importance, feeling that the job makes a difference in the life of residents, and feelings of closeness to those residents. This finding suggests that the social rewards of working with residents are rather independent from the intent to quit. What does this imply? From the data analysis, it is apparent that one link to the choice of occupation is that the vast majority of this population had experience taking care of an elderly relative—an experience that was meaningful for the respondents. Although that experience might be a motivator in the choice of occupation, it is not necessarily a factor in job tenure.

Logically, nursing assistants will expect to find this social reward from one nursing home to the next. As a word of caution, it should not be interpreted from this finding that social rewards are unimportant. The bond between employees and residents is powerful for both parties. Remember, these respondents identified the relationship with residents as the most important work issue. Further, it was the main reason the respondents stayed in their job. Therefore, nurse managers must vigilantly promote that social reward.

For example, more than half of the respondents expressed a desire to rarely

or never have their resident care assignments change. It is a point that should be heeded. How can a bond be established between a nursing assistant and resident if the assignments are changed daily, weekly, or even monthly?

How important is pay to turnover and satisfaction? Pay was the major source of dissatisfaction. A majority of the respondents were dissatisfied with their pay, and this work issue was identified as the major problem with the job. However, in the multivariate analysis, salary was not significantly related to turnover or overall satisfaction. All in all, pay may be the major source of dissatisfaction, but it is not the primary reason for turnover among this population.

The authors believe pay is important, but may be relatively inconsequential unless it is coupled with a perception of inequity, poor recognition, or distrust. In such cases, pay can gain significance as "proof of being valued" if the organization does a poor job of recognizing or appreciating an employee's contribution to the organization. Pay and other organizational rewards may gain prominence if employees suspect their output exceeds their rewards, or if they perceive management pays them unfairly compared to coworkers.

The results of this study indicated that trust and organizational justice (i.e., fairness) were a problem. In the bivariate analysis, turnover was related to the belief that management does not follow through on its promises, and also related to concerns about the fairness of supervisors and administration. Does this suspicion indicate that management is, in reality, acting unfairly? Often the perception of unfairness and distrust is fueled by the absence of effective policies, inconsistency in the application of policies, and poor communication.

What should be done to address the problems identified by this study? Nurse managers and nursing home administrators must carefully guard hiring practices, and more selectively recruit applicants who fit the profile of

"stayers." Based on the profile of those most likely to turnover, the recommendations offered by the literature are reinforced. Nursing home managers should attempt to attract employees who:

- Believe working with older adults is their occupation of choice.
- Are less interested in pursuing educational advancement.
- Are in their 30s, 40s, or older.
- Have a longer work history in their previous job.

However, this will help solve only half the problem. Nursing home managers also must create an environment that encourages employees to stay. That environment should include:

- Career ladders and other professional growth strategies.
- Employee involvement and participation.
- Input into decisions, feedback and keeping employees informed.
- Supervisory training.
- Employee recognition.

The results of this study clearly indicate that these four factors must be the cornerstone of any effort to increase job satisfaction and reduce turnover.

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KEY POINTS

TURNOVER AMONG NURSING ASSISTANTS

- 1 The relationship with residents is the most important work issue to nursing assistants and the major reason they stay in the job.
- 2 Nursing assistants who are less likely to quit are those who are older, not planning to further their education, have a longer tenure in their current and past jobs, have worked in their occupation longer, and are less interested in moonlighting.
- 3 Turnover and job satisfaction of nursing assistants can be reduced if nursing assistants are afforded meaningful opportunities to be involved in work-related issues and if their prospect of professional growth on the job is enhanced.
- 4 Nurse managers in long-term care facilities should also be mindful that the quality of their supervision and the quantity and quality of communication with their employees affect both the rate of turnover and job satisfaction of nursing assistants.

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