Administrator Turnover and Quality of Care in Nursing Homes

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Purpose of the Study: In this article, I examine the association between turnover of nursing home administrators and five important quality of care outcomes.

Design and Methods: The data came from a survey of 420 nursing facilities and the 1999 Online Survey, Certification, and Reporting System. Using multivariate logistic regression analyses, I looked at the effects of turnover of administrators in nursing homes belonging to chain organizations and in nursing homes not belonging to chain organizations.

Results: I found the average annual turnover rate of administrators to be 43%. The multivariate logistic regression analyses show that in nursing homes belonging to chains, administrator turnover is associated with a higher than average proportion of residents who were catheterized, had pressure ulcers, and were given psychoactive drugs and with a higher than average number of quality-of-care deficiencies. In nursing homes not belonging to chains I found that turnover of administrators is associated with a higher than average proportion of residents who were restrained, were catheterized, had pressure ulcers, and were given psychoactive drugs.

Implications: There is a need to improve understanding of how and why better outcomes are achieved in some nursing homes. This investigation serves to focus attention on nursing home administrators. I believe this study provides preliminary evidence that the turnover of administrators may have an important association with quality of care in nursing homes.

Key Words: Quality, OSCAR, Administrators

Caregivers in nursing homes have an important influence on quality of care. Previous research has shown turnover, staffing levels, and even the caregiving culture of registered nurses (RNs), licensed practical nurses (LPNs), and nurse aides to be influential in the quality of care (Curry, Wakefield, Price, Mueller, & McCloskey, 1985; Davis, 1991; Prescott, 1986; Sheridan, White, & Fairchild, 1992; Spector & Takada, 1991). Researchers have paid scant attention to whether other nursing home personnel affect the quality of resident care. For example, little research has determined if nursing home administrators actually make a difference within their institutions in terms of quality outcomes.

This is surprising given that a large body of management research has determined that top managers make a difference in the success or failure of their firms (e.g., Weiner & Mahoney, 1981). For example, unsuccessful firms have been shown to be headed by weak chief executive officers (CEOs; Miller & Friesen, 1977). Conversely, strong CEOs have been shown to turn around failing organizations (Whitney, 1987). Weiner and Mahoney (1981) examined 193 manufacturing firms over 20 years, and identified top managers as having a significant influence on outcomes such as the debt-to-equity ratio (Weiner & Mahoney, 1981). Other researchers have suggested that “not only the institution’s welfare but also that of the residents in the health service area is influenced by the . . . chief executive” (Hofmann, 1977, p. 86).

In this article I examine the impact that turnover rates of nursing home administrators have on resident outcomes. Turnover rates are important because job performance can decrease with high rates (Etzioni, 1964). For an administrator, determining the needs of residents may not be encouraged by high turnover rates (Riter, 1995). In addition, many nursing homes are in financial difficulty, and others are operating close to the break-even point (Childs, 2000). A recent report indicates that 48% of nursing facilities in some states are operating under bankruptcy proceedings (Childs, 2000). Thus, the cost of training and recruiting new administrators could divert needed resources from care processes in many facilities (Curry et al., 1985) and could affect resident care.

A second important reason for examining administrator turnover is that these rates are high in some nursing homes, making understanding whether a link to resident outcomes exists even more pressing. Published literature on administrator turnover is rare. Rubin and Shuttlesworth (1986) determined the av-
verage turnover of administrators to be 33% per year. However, they examined few administrators (N = 72) with specialized training. A long-term care trade-magazine poll determined the turnover rate of administrators to average 20% per year (Gilbert, 1995). A similar poll of the American Health Care Association and the American Association of Homes and Services for the Aging estimated turnover rates to be between 20% and 30% per year (Gilbert, 1996). A recent study of administrators in Michigan and Indiana found annual turnover rates to be approximately 40% (Singh & Schwab, 1998).

Little research has examined the impact administrators may have on resident outcomes. Christensen and Beaver (1996) determined that nursing homes with lower administrator turnover rates had less deficiency citations (N = 147). Singh, Amidon, Shi, and Samuels (1996) also examined deficiency citations (N = 173) and found the same relationship as Christensen and Beaver (1996). Although significant, these prior studies examined only one type of outcome and used relatively few observations. I examined the impact turnover of nursing home administrators has on the proportion of residents who are physically restrained, the proportion of residents who are catheterized, the proportion of residents who have pressure ulcers, the proportion of residents who are given psychoactive drugs, and the number of quality-of-care code violations. These are well-recognized indicators of quality in nursing homes (Garr-ard, Makris, Dunham, et al., 1991; Graber & Sloane, 1995; Spector & Takada, 1991). Shortell and associates have shown that a narrow focus on single outcome measures is misleading and may lead to erroneous, or incomplete, conclusions. By including five performance measures and more cases than previous studies, I felt my approach might better capture the overall effect of nursing home administrator turnover (Shortell, Zimmerman, Rousseau, et al., 1994).

I hypothesized that the turnover of nursing home administrators would be associated with quality of care. That is, high administrator turnover would be associated with facilities with a higher proportion of residents who are physically restrained, catheterized, have pressure ulcers, or are given psychoactive drugs, and with a higher number of quality-of-care code violations than facilities with lower administrator turnover.

Nursing home administrators do not directly provide resident care, but they are responsible for the care provided by caregivers in their facilities. As such, they can have a significant impact on the types of services provided and the quality of those services (Hofmann, 1977). They do, for example, have significant influence over the facility budget and can control the distribution of monies for care and services. It would seem reasonable to believe that newly hired administrators will first attend to essential activities needed to keep the institution viable, such as staffing, billing, and purchasing. Indeed, the behavior of top managers is often characterized as reactive, and short run agendas, often consisting solely of financial objectives, consume the majority of the top manager’s time (Kotter, 1982). As Mintzberg (1990) has described, “if you ask a manager what he (she) does, he (she) will most likely tell you that he (she) plans, organizes, coordinates and controls. Then watch what he (she) does. Don’t be surprised if you can’t relate what you see to those four words” (p. 49). Because administrators, on joining a facility, probably need to become accustomed to the basic practices of the new facility, they are especially likely to attend to staffing, billing, and purchasing prior to planning and coordinating resident care.

I examined nursing facilities belonging to chains and those not belonging to chains separately. When a facility is a member of a chain some economies of scale may be achieved. For example, the purchasing of equipment and supplies may be less expensive and, more importantly for this study, may be directed by the chain owners. This may be advantageous for the administrator in terms of time savings, because he or she may be freed from activities such as price negotiations, sales calls, and finding of reliable vendors. These time savings may then free the administrator to attend to resident care. In addition, some chains may rotate administrators through member facilities, promote from within member facilities, or use specialist “turnaround” administrative staff in poor performing or newly acquired institutions. Administrators working in chain facilities may also be subject to centralized administrative policies and have less autonomy. On the basis of these differences, I believe administrator turnover in nursing homes belonging to chains and homes not belonging to chains may not be directly comparable, and I therefore examined them separately in my analyses.

**Methods**

**Sources of Data**

Data used in this investigation came from the 1999 On-Line Survey, Certification, and Reporting (OSCAR) System and from a survey of 420 nursing facilities. The OSCAR is conducted by state licensure and certification agencies as part of the yearly Medicare/Medicaid certification process, and includes approximately 17,000 facilities (Government Accounting Office [GAO], 1998). I used data only from those 420 facilities that participated in my primary data collection.

The OSCAR contains facility data and aggregated resident data. Resident data elements relevant to this study include the measures of quality I examined, that is, the number of residents who are physically restrained, catheterized, have pressure ulcers, or are given psychoactive medications. Facility data relevant to this study are the number of certification survey quality-of-care deficiencies (the sixth quality outcome I investigated), occupancy rate, and ownership.

The OSCAR data are a widely used secondary source of nationally representative nursing home
data (Harrington & Carrillo, 1999; GAO, 1998, 1999a, 1999b, 1999c). A recent Institute of Medicine (IOM) report (IOM, 2001) advocated the use of OSCAR data for research, but also cautioned that it does have some limitations.

Three limitations of the OSCAR may bias my investigation. First, much of the data are self-reported by the nursing home administrator and director of nursing. This may be a minor limitation as it is doubtful whether facility factors such as ownership are subject to reporting bias.

Most data elements pertaining to resident characteristics are verified by the surveyors, for example, the use and nonuse of psychoactive drugs and physical restraints. However, the information the surveyors report is pertinent only for the time they make rounds in the facility, which usually occurs during the day shift—24-hr observation is not used. This may bias some of my quality measures. For example, the use of physical restraints may be biased because other shifts may not follow day-shift practices. Restraint use may be higher at night when staffing levels are lower. I cannot determine whether my analysis is biased in this way, but if this is the case then the analysis is most representative of day-shift practices in the nursing home.

A third limitation of the OSCAR is that facility practices may change when an inspection is anticipated. No prior notice is given when surveyors inspect facilities, but inspections are conducted within a fairly narrow window every 9 to 15 months.

My primary data collection consisted of a questionnaire mailed to the administrator of 470 nursing facilities during the spring of 1999. The OSCAR data were from October 1999, but because of delays in compiling the data they match the time of my primary data collection. Facilities were from five states: Kansas, Maine, Mississippi, Texas, and South Dakota. These states were chosen merely because they participated in the Health Care Financing Administration’s (HCFA) Multi-State Case-Mix and Quality Demonstration Project, and as such have been of interest to researchers. Facilities were randomly chosen, but I excluded hospital-based facilities and facilities that were part of a retirement center because they tend to be unrepresentative of other nursing homes in terms of both staff and clients (Burns & Taube, 1984). These facilities are also predominantly not for profit (Singh & Schwab, 1998).

Quality Measures

The documented prevalence rates of physical-restraint use vary widely. Recent studies have reported that 0% to 59% of residents are restrained (Ejaz, Folmar, Kaufmann, Rose, & Goldman, 1994). Evidence shows that physical restraints are associated with an increased risk of morbidity and mortality (Dube & Mitchell, 1986; McHutchion & Morse, 1989; Phillips, Hawes, & Fries, 1993; Rovner, Edelman, Cox, & Shmuely, 1992; Tinetti, Wen-Liang, Marottoli, & Ginter, 1991). Documented morbidity includes an association with more frequent falls (Robbins et al., 1987), nosocomial infections (Rosen & DiGiacomo, 1978), agitation (Marks, 1992), and cognitive decline (Burton, German, Rovner, & Brant, 1992). Moreover, Miles and Irvine (1992) estimated that at least 1 in every 1,000 nursing home deaths is the direct result of restraint use. They also suggested that these deaths are both underrecognized and underreported. Thus, lower levels of restraint use are generally regarded as beneficial.

Prevalence rates of urethral catheterization in nursing homes range from a low of 1.5% of residents to a high of 21% (Riberio & Smith, 1985). Spector and Takada (1991) found that urethral catheterization was associated with functional decline of residents. Thus, catheterization rates can have a significant effect on the quality of resident care (Ouslander & Kane, 1984).

Pressure ulcers can be a significant factor in the quality of life of nursing home residents. They may take months to heal, and are associated with much suffering and increased risk of death (Allman, 1989; Berlowitz, Bezerra, & Brandeis, 2000; Brandeis, Morris, Nash, & Lipsitz, 1990). Even though guidelines for the prevention and treatment of pressure ulcers are well established and circulated by organizations such as the Agency for Health Care Policy and Research, their prevalence and incidence vary widely. Those nursing homes with the lowest prevalence of pressure ulcers have rates close to 0%, whereas those nursing homes with the highest prevalence have rates as high as 20% (OSCAR, 1999).

A variety of studies have shown that the use of psychoactive drugs varies significantly between nursing homes (Kane, Williams, Williams, & Kane, 1993). Some of this variation was shown to be due to factors unrelated to resident status or to inappropriate use (Ray, Federspiel, & Schaffner, 1980; Beers, Avorn, Soumerai, et al., 1988). For example, Beers and associates (1988) found that 61% of residents taking antidepressants did not have a recorded diagnosis of depression. Similarly, Burns and Kamerow (1988) found that 30% of residents for whom psychoactive drugs were ordered did not have any symptoms that necessitated their use. One reason for these discrepancies was that in nursing homes psychoactive drugs were sometimes used to control disruptive behavior and nocturnal restlessness (Garrard et al., 1991; Ray et al., 1980)—because they were used in this way these drugs became known as “chemical restraints.” These drugs are also problematic, in that, although they do reduce acute agitation, they are less efficacious for long-term control of chronic behavior problems, are often accompanied by errors in prescription, and have documented adverse side effects (Burns & Kamerow, 1988). Thus, when case mix is taken into account, lower levels of psychoactive drug use are generally regarded as beneficial.

Finally, nursing home code violations (deficiencies) are problems in quality as identified by state or federal nursing home inspectors. HCFA is responsible for ensuring nursing homes meet quality stan-
Analytic Approach

I examined the correlations between the variables (not reported). The correlations between most variables were small, and on the basis of a threshold of .8 showed no problems of collinearity (Kennedy, 1992). Also, values for regression tolerance statistics (not reported) showed no problems of multicollinearity (SAS, 1990).

I conducted two sets of analyses. In the first set of analyses I looked at the effects of turnover of administrators in nursing homes belonging to chain organizations, in the second set of analyses I looked at the effects of turnover of administrators in nursing homes not belonging to chain organizations. For each of these groups of nursing homes five multivariate logistic regression analyses were used, one for each of the dependent variables.

Multivariate logistic regression estimates the probability of mutually exclusive events (e.g., citation or no citation) and as such is most often used with dichotomous dependent variables (Demaris, 1992). To create dichotomous dependent variables, I used the overall mean scores of these variables as cutoff points, giving for each dependent variable two groups of facilities, one with higher than average deficiencies (coded as 1) and one with lower than average deficiencies (coded as 0).

The questionnaire was part of an ongoing study examining nursing home outcomes. Facilities were previously provided with detailed outcome materials; this prior relationship may explain the high response rate (85%) of the study. In comparing the facility characteristics of staffing, ownership, and size, the nonrespondents to the survey were not significantly different from the respondents. Of the 423 survey respondents, missing data were present for the independent variable of interest (turnover) in only 3 cases, giving an analytic sample of 420. Missing cases for the other independent variables represented less than 1% for all of these variables.

Model Specification and Operationalization

The definitions for the dependent variables are given in Table 1. The definitions for the proportion of residents who are physically restrained, the proportion of residents who are catheterized, the proportion of residents having pressure ulcers, and the number of quality-of-care related deficiencies are evident from the table; the proportion of residents given psychoactive drugs needs further explanation. Psychoactive drugs are defined as medications “that affect psychic function, behavior, or experience” (Harrrington, Tompkins, Curtis, & Grant, 1992, p. 823). They are generally classified as one of four types of medication: anti-anxiety, sedative/hypnotic, antipsychotic, or antidepressant. As discussed previously, the general concern with the first three groups of psychoactive drugs is that the rates of use may be excessive and/or clinically unjustified; however, there is also a concern that antidepressants may in some cases be underused in nursing homes (Harrington et al., 1992). Thus, antidepressants were not included in this investigation, and the remaining psychoactive drugs were grouped together.

Administrator turnover is measured as the percent turnover of administrators per year. A question on my survey asked for the “number of administrators that had moved from the facility (for any reason) during the past 5 years.” I did not ask administrators to calculate a yearly turnover rate, rather I used the 5-year figure provided to calculate this rate. I was concerned that administrators would be unable to accurately respond to this question because of the relatively long time frame, therefore an “unable to ascertain” option was provided in the questionnaire. Only three administrators used this option; nonetheless I am unable to verify the degree of measurement error associated with the dependent variable. In administering the questionnaire, I took a narrow definition of nursing home administrators and included only the administrator of record, whether they were full time, part time, or on contract with the nursing home. Assistant administrators and staff ancillary to the administrator were not included in the turnover rate.

In examining the effects of turnover of administrators on resident outcomes, I controlled for the sever-
ity of physical illnesses among residents using the Katz Activities of Daily Living (ADLs). For each of the six ADL questions (difficulty with bathing, dressing, toileting, transferring, feeding, or walking) in the OSCAR, I assigned a score from 0 to 1 by summing the responses regarding the proportion of residents with these difficulties. The average of these proportions was used. A variable percent of residents with skilled-care needs and with dementia was also used to further case-mix adjust the resident populations in each nursing home (Mor, Banaszak-Holl, & Zinn, 1996). These skilled-care needs include the percent-age of residents on respiratory therapy, intravenous blood transfusions, suctioning, tracheostomy, and tube fed. The number of residents with these conditions was divided by the total number of residents to create a variable indicating the percentage of residents with these needs.

I also controlled for staffing levels within facilities, because increased staffing levels will enable individual staff to increase the time they spend in direct patient care, and in turn will benefit residents (Rudman, Slater, Richardson, & Mattson, 1993; Davis, 1991). Staffing may also be associated with defi-

Table 1. Definitions and Descriptive Statistics of Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operational Definition</th>
<th>Chain²</th>
<th>Nonchain³</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restraint use</td>
<td>Proportion of residents physically restrained</td>
<td>0.19 (0.12)</td>
<td>0.18 (0.10)</td>
</tr>
<tr>
<td>Pressure ulcers</td>
<td>Proportion of residents with pressure ulcers</td>
<td>0.06 (0.05)</td>
<td>0.06 (0.05)</td>
</tr>
<tr>
<td>Urethral catheterization</td>
<td>Proportion of residents with indwelling catheters</td>
<td>0.07 (0.08)</td>
<td>0.06 (0.06)</td>
</tr>
<tr>
<td>Psychoactive drug use</td>
<td>Proportion of residents taking psychoactive drugs</td>
<td>0.35 (0.21)</td>
<td>0.34 (0.19)</td>
</tr>
<tr>
<td>Nursing home code violations</td>
<td>Number of quality of care deficiencies. 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 (GAO, 1999a)</td>
<td>3.71 (3.91)</td>
<td>3.95 (3.97)</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrator turnover per year</td>
<td>Nursing home administrators, including those that are full time, part time, and on contract, that moved from the facility during the previous 5 years³</td>
<td>45% [0–200]</td>
<td>41% [0–180]</td>
</tr>
<tr>
<td><strong>Staffing Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTE administration</td>
<td>Number of FTE hours of administrative staff including those that are full time, part time, and on contract</td>
<td>3.91 (3.33)</td>
<td>4.25 (3.67)</td>
</tr>
<tr>
<td>FTE medical director</td>
<td>Number of FTE hours of medical director(s) including those that are full time, part time, and on contract</td>
<td>0.12 (0.20)</td>
<td>0.12 (0.17)</td>
</tr>
<tr>
<td>FTE RN and LPNs</td>
<td>Number of FTE hours of RNs and LPNs including those that are full time, part time, and on contract</td>
<td>30 (18)</td>
<td>32 (21)</td>
</tr>
<tr>
<td>FTE nurse aides</td>
<td>Number of FTE hours of nurse aides including those that are full time, part time, and on contract</td>
<td>48 (17)</td>
<td>49 (11)</td>
</tr>
<tr>
<td><strong>Resident Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADLs</td>
<td>Based on six items from the OSCAR including transfer, locomotion, dressing, eating, toilet use, bathing, and bladder continence</td>
<td>0.52 (0.22)</td>
<td>0.51 (0.24)</td>
</tr>
<tr>
<td>Skilled-care needs</td>
<td>Average percent of residents: on respiratory therapy, IV blood transfusions, suctioning, tracheostomy, and tube fed</td>
<td>0.22 (0.24)</td>
<td>0.21 (0.24)</td>
</tr>
<tr>
<td>Dementia</td>
<td>Proportion of residents diagnosed with dementia</td>
<td>0.42 (0.19)</td>
<td>0.42 (0.19)</td>
</tr>
<tr>
<td><strong>Facility Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>Number of beds</td>
<td>112 (24)</td>
<td>110 (52)</td>
</tr>
<tr>
<td>For-profit</td>
<td>For-profit ownership</td>
<td>76% [157]</td>
<td>64% [127]</td>
</tr>
<tr>
<td>Private-pay</td>
<td>Proportion of beds with private-pay residents</td>
<td>0.24 (0.19)</td>
<td>0.27 (0.22)</td>
</tr>
<tr>
<td>Occupancy</td>
<td>Proportion of beds used</td>
<td>0.86 (0.12)</td>
<td>0.88 (0.17)</td>
</tr>
</tbody>
</table>

Notes: FTE = full-time equivalent; ADLs = activities of daily living.
²n = 221 (53%).
³n = 199 (47%).
²From primary data gathered by Nicholas G. Castle, all other data come from the 1999 On-Line Survey, Certification, and Reporting System.
ciency citations (Harrington & Carrillo, 1999; Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000). I included full-time equivalent (FTE) per resident LPNs and RNs, nurse aides, and medical directors. Although they are not involved in resident care, I also included the FTE per resident of administrative staff with the belief that in understaffed facilities the administrator will be more likely to turn over.

I know from other long-term care outcome studies that facility factors have a strong impact on clinical outcomes. Therefore, I also controlled for several of these factors. Occupancy, ownership, size, and private-pay census were included as facility-level variables (Holmes, 1996; Mukamel, 1997; Spector & Takada, 1991).

**Results**

Table 1 presents the descriptive data. There were 221 nursing homes belonging to chains. The average proportions of residents who were restrained, had pressure ulcers, were catheterized, and were taking psychoactive drugs were 0.19, 0.06, 0.07, and 0.35, respectively. These nursing homes also had an average of 3.71 quality-of-care related deficiencies. There were 199 nursing homes not belonging to chains. The proportions of residents who were restrained, had pressure ulcers, were catheterized, and were taking psychoactive drugs were 0.18, 0.06, 0.06, and 0.34, respectively. These nursing homes had an average of 3.95 quality-of-care related deficiencies. Of particular interest, administrator turnover was quite frequent. In chain facilities administrator turnover averaged 45% per year, with one facility reporting having employed 10 different administrators in 5 years. In non-chain facilities administrator turnover averaged 41% per year, with three facilities reporting having employed nine different administrators in 5 years.

Adjusted odds ratios (AOR) and 95% confidence intervals (CI) for the five logistic regression models for restraint use, catheterization, pressure ulcers, psychoactive drugs, and quality-of-care related deficiencies in chain nursing homes are presented in Table 2. Using the same dependent variables, I present AOR and 95% CI for five logistic regression models in freestanding nursing homes in Table 3. First, it should be noted that the pseudo-$R^2$ values in these 10 logistic regression analyses range from .16 to .30. Values in this range are common in examining quality-of-care outcomes (Shea, Smyer, & Streit, 1994).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Higher than Average Physical Restraint Use vs. Lower</th>
<th>Higher than Average Catheterization vs. Lower</th>
<th>Higher than Average Pressure Ulcers vs. Lower</th>
<th>Higher than Average Psychoactive Drug Use vs. Lower</th>
<th>Higher than Average Quality of Care Deficiencies vs. Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator turnover (× 10)</td>
<td>ns</td>
<td>1.07</td>
<td>(1.01–1.13)**</td>
<td>1.05</td>
<td>(1.01–1.17)*</td>
</tr>
<tr>
<td>Staffing Factors</td>
<td>FTE Administration/10 Residents</td>
<td>0.97</td>
<td>0.99</td>
<td>ns</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>FTE Medical Director/10 Residents</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>(0.74–0.99)***</td>
</tr>
<tr>
<td></td>
<td>FTE RNs and LPNs/10 Residents</td>
<td>0.91</td>
<td>0.94</td>
<td>0.93</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>FTE Nurse Aides/10 Residents</td>
<td>0.92</td>
<td>ns</td>
<td>0.98</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>ADLs</td>
<td>1.17</td>
<td>(1.03–1.22)***</td>
<td>1.11</td>
<td>(1.01–1.17)***</td>
</tr>
<tr>
<td></td>
<td>Skilled Care</td>
<td>1.14</td>
<td>1.09</td>
<td>1.06</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>Dementia</td>
<td>1.04</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>1.02</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Facility Factors</td>
<td>For-Profit</td>
<td>1.12</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>Private-Pay</td>
<td>0.96</td>
<td>0.97</td>
<td>ns</td>
<td>(1.04–1.11)***</td>
</tr>
<tr>
<td></td>
<td>Occupancy</td>
<td>1.04</td>
<td>(0.81–0.99)*</td>
<td>(0.79–0.99)***</td>
<td>(1.02–1.11)**</td>
</tr>
</tbody>
</table>

Notes: 95% confidence intervals appear in parentheses. FTE = full-time equivalent; ADLs = activities of daily living; ns = nonsignificant findings.

*p ≤ .05; **p ≤ .01; ***p ≤ .001.
Table 3. Multivariate Regression Models for Physical Restraint, Catheterization, Pressure Ulcers, Psychoactive Drugs, and Quality-of-Care Deficiencies in Freestanding Nursing Homes (n = 199)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Higher than Average Physical Restraint Use vs. Lower</th>
<th>Higher than Average Catheterization vs. Lower</th>
<th>Higher than Average Pressure Ulcers vs. Lower</th>
<th>Higher than Average Psychoactive Drug Use vs. Lower</th>
<th>Higher than Average Quality of Care Deficiencies vs. Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator turnover (× 10)</td>
<td>1.07 (1.01–1.10)**</td>
<td>1.02 (1.00–1.16)*</td>
<td>1.05 (1.01–1.12)**</td>
<td>1.07 (1.03–1.15)**</td>
<td>ns</td>
</tr>
<tr>
<td>Stafﬁng Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTE Administration/10 Residents</td>
<td>0.94 ns</td>
<td>0.97 ns</td>
<td>0.98 (0.84–0.99)**</td>
<td>0.99 (0.81–0.98)**</td>
<td>0.99</td>
</tr>
<tr>
<td>FTE Medical Director/10 Residents</td>
<td>(0.82–0.99)*</td>
<td>ns</td>
<td>(0.83–0.99)**</td>
<td>(0.70–0.99)**</td>
<td>(0.81–0.99)**</td>
</tr>
<tr>
<td>FTE RNs and LPNs/10 Residents</td>
<td>0.97 ns</td>
<td>0.91 ns</td>
<td>0.91 (0.71–0.98)**</td>
<td>(0.81–0.98)**</td>
<td>0.92</td>
</tr>
<tr>
<td>FTE Nurse Aides/10 Residents</td>
<td>0.97 (0.73–0.96)**</td>
<td>0.91 ns</td>
<td>(0.71–0.98)**</td>
<td>(0.81–0.98)**</td>
<td>ns</td>
</tr>
<tr>
<td>Resident Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADLs</td>
<td>1.11 (1.05–1.19)**</td>
<td>1.06 (1.02–1.13)**</td>
<td>1.16 (1.03–1.19)**</td>
<td>1.10 (1.03–1.15)**</td>
<td>ns</td>
</tr>
<tr>
<td>Skilled Care</td>
<td>1.14 (1.02–1.19)**</td>
<td>1.13 (1.02–1.13)**</td>
<td>1.04 ns</td>
<td>(1.00–1.09)**</td>
<td>ns</td>
</tr>
<tr>
<td>Dementia</td>
<td>1.09 (1.02–1.12)**</td>
<td>1.09 ns</td>
<td>1.29 (1.03–1.21)**</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Facility Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>1.04 (1.01–1.17)**</td>
<td>1.02 (1.01–1.12)**</td>
<td>1.02 ns</td>
<td>1.02 (1.00–1.14)**</td>
<td>1.03 (1.00–1.14)**</td>
</tr>
<tr>
<td>For-Profit</td>
<td>ns</td>
<td>1.07 (1.02–1.16)**</td>
<td>1.08 (1.01–1.14)**</td>
<td>1.08 (1.01–1.12)**</td>
<td>1.10 (1.03–1.14)**</td>
</tr>
<tr>
<td>Private-Pay</td>
<td>1.03 (1.01–1.27)**</td>
<td>1.02 (1.00–1.09)**</td>
<td>1.01 (1.00–1.14)**</td>
<td>1.01 (1.00–1.15)**</td>
<td>1.01 (1.00–1.19)**</td>
</tr>
<tr>
<td>Occupancy</td>
<td>1.02 (1.00–1.13)**</td>
<td>1.02 (1.00–1.13)**</td>
<td>1.02 (1.00–1.14)*</td>
<td>1.01 (1.00–1.19)**</td>
<td>ns</td>
</tr>
<tr>
<td>Pseudo-R²</td>
<td>0.30 ns</td>
<td>0.21 ns</td>
<td>0.20 ns</td>
<td>0.26 ns</td>
<td>0.17 ns</td>
</tr>
</tbody>
</table>

Notes: 95% conﬁdence intervals appear in parentheses. FTE = full-time equivalent; ADLs = activities of daily living; ns = nonsignificant ﬁndings.

*p ≤ .05; **p ≤ .01; ***p ≤ .001.

Table 2 shows administrator turnover was signiﬁcantly associated with four of the ﬁve quality-of-care outcomes examined. Speciﬁcally, administrator turnover was signiﬁcantly associated with the proportion of residents who were catheterized, the proportion of residents given psychoactive drugs, and the number of quality-of-care related deﬁciencies in chain nursing homes. In all cases the odds ratios were in the expected directions; that is, as administrator turnover increased the association with the dependent variables increased. For example, a 10% increase in administrator turnover was associated with a 9% increase in the odds that a facility will have higher than average physical restraint use compared with lower than average. Among the control variables, ADLs, special care needs, FTE RNs and LPNs per resident, FTE nurse aides per resident, ownership, and private-pay census were consistently signiﬁcantly associated with the dependent variables. Staffing levels of RNs and LPNs, staffing levels of nurse aides, and for-proﬁt ownership were particularly noteworthy. As FTE staffing levels of RNs and LPNs and staffing levels of nurse aides increased, the association with the dependent variables decreased, whereas for-proﬁt ownership was consistently associated with an increase in the dependent variables.

Table 3 shows administrator turnover was signiﬁcantly associated with four of the ﬁve quality-of-care outcomes examined. Speciﬁcally, administrator turnover was signiﬁcantly associated with the proportion of residents who were restrained, the proportion of residents given psychoactive drugs in nonchain nursing homes. In all cases the odds ratios were in the expected directions; that is, as administrator turnover increased the association with the dependent variables increased. For example, a 10% increase in administrator turnover was associated with a 7% increase in the odds that a facility will have higher than average physical restraint use compared with lower than average. Among the control variables, ADLs, special care needs, FTE RNs and LPNs per resident, FTE nurse aides per resident, ownership, and private-pay census were consistently signiﬁcant in the expected directions. As with the results for the chain facilities, staffing levels of nurses and nurse aides and for-proﬁt ownership were particularly noteworthy. As staffing levels of RNs, LPNs and nurse aides increased, the association with the dependent variables...
Discussion

Recent government reports indicate that 25% of the nation’s nursing homes have serious quality problems that can harm residents; moreover 40% of these facilities are consistently of poor quality (GAO, 1998, 1999a, 1999b, 1999c). Clearly, there is a need to improve the quality of nursing home care. Numerous public and private entities are actively involved in this improvement process. Recent developments include using total quality management, outcomes information, and best practices (Mukamel, 1997). Legislation, such as the Nursing Home Reform Act (NHRA) may also influence the quality of nursing home care. To date, many of these initiatives have ignored the impact top management may have on quality. I believe this study provides preliminary evidence that the turnover of administrators in nursing homes may have an important effect on the quality of care.

Because of administrators’ potential influence on resident care, Kurowski and Shaughnessy (1985) suggest that management is likely to be important in accounting for outcomes. Singh and Schwab (1998) stated that high administrative turnover may have a “destabilizing influence” (p. 310). But in the long-term care literature I identified few studies using administrators as the focus of analysis (c.f., Angelelli, Gifford, Petrisek, & Mor, 2001; Singh & Schwab, 1998, 2000). This paucity of research regarding the top management in nursing homes is surprising given that top managers are very frequently the focus of analysis in the management literature.

In one of the few studies addressing turnover of administrators in nursing homes, Singh and Schwab (1998) determined the annual turnover rate to be 40%. Although I used a larger sample, my finding of an average annual turnover rate of 43% is consistent with the findings of this previous study. It is also worth noting that Singh and Schwab determined that in 6.5% of facilities two administrator changes occurred within 1 year. My study results are again close to this finding. I found 9% of facilities to have an average of two administrator changes within 1 year.

Expanding on the work of Christensen and Beaver (1996) and Singh and colleagues (1996), I sought to examine the effects of administrator turnover on six quality-of-care outcomes. The analysis shows that in nursing homes belonging to chains administrator turnover is associated with a higher than average proportion of residents who were catheterized, had pressure ulcers, and were given psychoactive drugs and with a higher than average number of quality-of-care related deficiencies. In nursing homes not belonging to chains I found that turnover of administrators is associated with a higher than average proportion of residents who were physically restrained, decreased, whereas for-profit ownership was consistently associated with an increase in the dependent variables.

Clearly, the results show some differences between chain and nonchain nursing homes. For example, turnover is more prevalent in chain facilities (45% vs. 41%). With only five dependent variables and a sample size of 420 facilities, I cannot accurately determine whether chain or nonchain affiliation is beneficial to nursing homes with regard to quality outcomes. The difference in administrator turnover between chain-affiliated and nonchain-affiliated nursing homes does, however, provide some evidence that management practices may be different in chains.

An important consideration is the strength of the findings associated with administrator turnover. In all cases the effects I identify are small. For example, in chain facilities the largest effect identified is for psychoactive drug use, with a 10% increase in administrator turnover associated with a 9% increase in the odds of higher than average psychoactive drug use. In freestanding facilities the largest effects identified are for physical restraint use and psychoactive drug use. A 10% increase in administrator turnover is associated with a 7% increase in the odds of higher than average physical restraint use and a 7% increase in the odds of higher than average psychoactive drug use. Clearly, many other factors are more influential on quality of care than administrator turnover; but, I argue that overall these effects are important. Unlike many other factors that influence quality, administrator turnover has a pervasive influence. Administrator turnover is associated with all of the quality measures examined. For this reason I feel the results are important.

Many of the control variables in the analyses were significant. The results for nurse staffing and for-profit ownership were noteworthy. Consistent with several recent studies, higher levels of nurse staffing were associated with better outcomes (IOM, 2001). The literature examining the association between ownership status and quality outcomes is not consistent (Davis, 1991), but in the analyses, for-profit status was clearly associated with worse outcomes.

My dependent variable, turnover, may benefit from further refinement. In the analyses I present, respondents were asked for the number of administrators employed by the facility for the previous 5 years. I was concerned that some administrators would be unable to accurately answer for this period of time. However, additional analyses using a similar open-ended question, for which administrators determined the time frame during which they could accurately determine the previous number of administrators, produced similar results. Also, by using an annual average of 5 years of turnover data against the results of one cross-sectional OSCAR data set the results are probably most representative of the cumulative effects of administrator turnover. But, it should be noted that my choice of 5 years was arbitrary. Analyses using other time frames may be useful.

The analyses of chain and nonchain nursing homes may also benefit from further refinement. As
expected, I did find some differences between chain and nonchain facilities. However, these divisions could be improved. Facilities belonging to a chain may be either for profit or not for profit; they may also consist of just several facilities or several hundred. This is one area that could be explored in greater detail.

By including five measures my approach might better capture the overall effect of administrator turnover on quality. However, other quality measures are often used in nursing homes, including resident satisfaction and other survey deficiencies; these should also be examined. For example, although previous research has used quality-of-care deficiencies (GAO, 1999a), this measure consists of a count of only 19 of a total of 170 different deficiencies. The deficiencies I used are also not weighted in any way to reflect their seriousness.

Two refinements may be useful in future studies of administrator turnover. First, administrators may turn over because they are high performers. As such, they may be promoted or sought by other facilities. Conversely, they may be terminated because of poor performance. The reasons for turnover, and whether these affect quality outcomes, should be examined in future research. However, when using this approach, research has to be careful with regard to what constitutes “performance,” as financial measures rather than measures of resident outcomes may be most important in turnover (see Snow & Hrebinjak, 1980, for a discussion of performance). In this study, I did not account for the performance of administrators prior to turnover.

The second refinement that may be useful in future studies of administrator turnover is distinguishing between voluntary and involuntary turnover. Others have noted potential problems in not distinguishing between voluntary and involuntary turnover (Gauci-Borda & Norman, 1997). Although in nursing homes this is not necessarily problematic, in the Singh and Schwab (2000) study, 21 of 25 involuntary transfers were actually promotions.

Despite these possible study refinements, I feel that from a quality-of-care perspective aggregate turnover is important. I was concerned with the effects of turnover on quality outcomes, irrespective of whether the turnover was voluntary or involuntary or for reasons of performance.

I speculate that nursing home administrators may influence the quality of resident care, by influencing the organizational culture, by inefficient or efficient management practices, or through a combination of these factors. However, one drawback of this study is that I did not investigate how nursing home administrators influence the quality of nursing homes. This study also has other weaknesses.

As with all of the OSCAR data in this study, data were collected from staff interviews and from reviews of resident records at one point in time. The collection of data in this way is limited in that the prevalence of factors may be underestimated. However, this limitation is endemic to all cross-sectional research. With the cross-sectional data used it was also not possible to disentangle causal direction. I found an association between administrator turnover and quality outcomes, and believe administrator turnover may cause poor quality. However, I cannot discount the alternative possibility that this association is due to nursing homes with higher quality retaining nursing home administrators. Indeed, Singh and Schwab (2000) indicated that this may be the case.

As noted when describing the OSCAR, these data are subject to some limitations and possible biases. As such, additional analyses using the minimum data set data when they become more widely available, and use of the accompanying quality indicators, would be beneficial (Zimmerman et al., 1995).

Adjustments to the findings for making multiple comparisons may be warranted. For example, a Bonferroni correction in testing the significance of the results could be used (Kennedy, 1992). On one hand, this would control for the possibility of overinterpretation of the results because of chance findings (Kennedy, 1992). On the other hand, in relatively unexplored areas of research, not making adjustments for multiple comparisons may be preferable (Rothman, 1990). This ensures researchers do not penalize themselves by missing findings of importance (Rothman, 1990). Because I feel the relationship between administrator turnover and quality is unexplored, I chose the latter approach. However, it should be noted that if I had used a Bonferroni correction, four of my eight significant associations between administrator turnover and the quality measures would no longer be significant at the level of $p \leq .05$. These nonsignificant findings would be for pressure ulcers and catheterization in Table 2 and catheterization and restraint use in Table 3. Clearly, this has an important effect on the robustness of the results.

The IOM estimated that more than half of the nursing homes in the United States provided low standards of care (IOM, 1986). Although the NHRA addressed many quality issues, and the overall quality of nursing homes is believed to have increased (Atchterberg, van Campen, Pot, Kerkstra, & Ribbe, 1999), there is still a need to improve understanding of how and why better outcomes are achieved in some nursing homes. This investigation serves to focus attention on nursing home administrators.

In conclusion, the reasons for performance gaps in quality between nursing homes remain largely unexplained, but are of interest to the industry and policy makers. My findings add to the body of literature on quality in nursing homes. Clearly, there is a need to be careful in drawing conclusions from these cross-sectional analyses, but I believe this study provides preliminary evidence that the turnover of administrators of nursing homes may have an important influence in the quality of care. However, as with most research, several intriguing questions follow from this study. First, consideration may be given to the question of whether individual, organizational, and mar-
Work characteristics affect the rate of turnover. Second, examining job satisfaction and pay may offer further insight into the mechanics of administrator turnover. Third, the effects of turnover may be nonlinear and should be examined in studies with a higher power than this one. For example, administrators with longer tenure may perform more poorly than they have in the past, because of emotional exhaustion, outdated skills, or lack of motivation. As such, turnover of some poorly performing administrators may actually improve quality of care. It may also be useful to examine what period of stability is needed to increase quality in a facility with prior high turnover, and whether the initial quality of a facility is important. Clearly, longitudinal data are needed to answer many of these questions.

References


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