Linking Resident Satisfaction to Staff Perceptions of the Work Environment in Assisted Living: A Multilevel Analysis

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Purpose: This study examines the relationship between resident satisfaction and staff perceptions of the work environment in assisted living. Staff perceptions were assessed at the facility level, using aggregate measures of staff job satisfaction, organizational commitment, and views of organizational culture. Design and Methods: The sample included 335 residents and 298 staff members in 43 assisted living facilities. Data were collected by means of self-administered questionnaires. Two-level hierarchical linear models were used to test the hypotheses. With resident age, gender, and education controlled for, the relationships between resident satisfaction (Level 1 variable) and staff perceptions of the work environment (Level 2 variables) were assessed. Results: Greater resident satisfaction in the facility was associated with higher staff job satisfaction and more positive staff views of organizational culture (e.g., greater teamwork and participation in the decision making). From resident characteristics, only education was significantly related to satisfaction. More educated residents were less satisfied with assisted living. Implications: These findings suggest that a good quality of work environment for the staff contributes to a better quality of care for the residents. More research is needed to examine the causal nature of this relationship.

Key Words: Resident satisfaction, Work environment, Staff work-related attitudes, Quality of care

There is a growing interest in the relationship between the quality of care for the residents and the quality of the work environment for the staff in long-term care facilities (Eaton, 2000). Poor working conditions, inefficient work organization, inadequate staffing, and managerial practices that devalue staff have been linked to staff turnover, negative resident outcomes, or both (Banaszak-Holl & Hines, 1996; Cohen-Mansfield, 1989; Eaton; Harrington, 1996). Conversely, work environments that foster staff job satisfaction and commitment have been associated with greater staff retention, higher resident satisfaction, and better quality of care (Barry, Brannon, & Mor, 2005; Bowers, Esmond, & Jacobson, 2000). To promote better quality of care, advocates for “culture change” in nursing homes stress the importance of good working conditions for staff as a key factor to increasing staff retention and improving resident outcomes (Eaton; Barba, Tesh, & Courts, 2002).

A similar link between the quality of the work environment for staff and the quality of care for residents has been noted in assisted living (Ball et al., 2000; Gurnik & Hollis-Sawyer, 2003). Assisted living, as a combination of housing and services, promotes a social model of care that stresses the importance of resident or consumer satisfaction (Hawes & Phillips, 2000; Mollica & Johnson-Lamarche, 2004). Research suggests that resident satisfaction is greatly influenced by the quality of resident relationships with staff, which in turn are shaped by staff working conditions (Ball et al.; Gurnik & Hollis-Sawyer). Little, however, is known about the relationship between resident satisfaction and the quality of work environment for staff in assisted living. The purpose of this study is to examine this relationship.

Resident satisfaction represents an important measure of the quality of care from the resident’s perspective (Lowe, Lucas, Castle, Robinson, & Crystal, 2003; Mattiasson & Andersson, 1997). Similar to the concept of consumer satisfaction, resident satisfaction implies the person’s positive
evaluation of long-term care services (e.g., personal care, social life, and relationships with staff; see Sikorska-Simmons, 2001). The theoretical models of consumer satisfaction were developed in the marketing literature (Cadotte, Woodruff, & Jenkins, 1987; Cardozo, 1965; Oliver, 1980; Woodside, Nielsen, Walters, & Muller, 1988). According to these models, satisfaction is a complex evaluative process, which is a function of consumer evaluation standards and service quality. Evaluation standards (i.e., expectations, norms, and values) are complex and difficult to measure directly. They tend to be associated with consumer sociodemographic characteristics, such as age, gender, and socioeconomic status. Research suggests that older adults report higher levels of satisfaction with services than younger adults; women tend to be less satisfied than men; and less educated (or lower socioeconomic status) individuals express higher levels of satisfaction than their more educated counterparts (Chou, Boldy, & Lee, 2003; Jackson, Chamberlin, & Kroenke, 2001; Sikorska, 1999). In the present study, I use resident age, gender, and education as control variables in the assessment of resident satisfaction.

Research indicates that the quality of the work environment for staff influences resident satisfaction indirectly, through its impact on staff attitudes and relationships with residents. In service-based business organizations (e.g., banks, security firms), higher levels of employees’ job satisfaction have been predictive of higher customer satisfaction, presumably because satisfied employees tend to provide better quality services (Zabawa Ford, 2003; Schmit & Allscheid, 1995). Similarly, in long-term care facilities, higher levels of staff job satisfaction and better staff working conditions have been linked to higher levels of resident satisfaction (Eaton, 2000). Bowers and colleagues (2000, p. 62) noted that adequate staffing levels contribute to a better quality of care, because proper staffing enables nurse aides to spend more time with residents and “unbundle care procedures into discreet, personalized, and slower-paced cares.” According to Barry and colleagues (2005), work environments that foster nurse aides’ participation in the decision-making process are associated with greater resident social engagement. Through the involvement in care planning, nurse aides gain a better understanding of residents’ “likes and dislikes,” and they are better able to meet resident needs and preferences (Barry et al., p. 315). Furthermore, work environments characterized by high levels of staff job satisfaction and organizational commitment have been linked to greater staff empathy and more positive attitudes toward residents, which in turn are predictive of higher levels of resident satisfaction and better quality of care (Astrom, Nilsson, Norberg, Sandman, & Winblad, 1991; Maslach, 1982).

Organizational literature suggests that employee job satisfaction, organizational commitment, and perceptions of organizational culture can be used as indicators of the quality of the work environment (Fields, 2002). Job satisfaction implies the positive subjective evaluation of one’s job experience, whereas commitment indicates the strength of identification or loyalty to the organization (Knoop, 1995). Both job satisfaction and organizational commitment are shaped by organizational culture (i.e., values and assumptions that guide the behavior of people in organizations; see Schein, 1996). In particular, humanistic cultures that value employee empowerment, teamwork, and participation in decision making have been linked to higher levels of employee job satisfaction and organizational commitment (Eaton, 2000). In the present study, I assess the quality of the work environment for staff in terms of staff job satisfaction, organizational commitment, and perceptions of organizational culture.

In summary, there is a growing interest in the relationship between the quality of the work environment for staff and the resident perception of quality in assisted living. Little, however, is known about this relationship. This study examines the relationship between resident satisfaction and staff perceptions of the work environment in assisted living. Staff perceptions of the work environment are assessed in terms of job satisfaction, organizational commitment, and views of organizational culture. On the basis of the literature, I hypothesize that higher levels of resident satisfaction in the facility will be associated with more favorable staff perceptions of the work environment (i.e., higher job satisfaction, stronger organizational commitment, and more positive views of organizational culture). Because resident satisfaction tends to be a function of sociodemographic characteristics, I examine the hypothesized relationships between resident satisfaction and staff perceptions of the work environment, controlling for resident age, gender, and education.

The study will contribute to a better understanding of the relationships between resident satisfaction and the quality of the work environment for staff. This knowledge can be used to improve the quality of care in assisted living.

**Methods**

**Sample and Procedure**

Data presented here were collected from residents and staff in 43 assisted living facilities that participated in a larger study, which examined organizational determinants of resident autonomy (NIA Grant 1RO3 AG-22100-0). In total, 61 facilities participated in the larger study, but I excluded 18 facilities from the multilevel analysis (because of missing resident or staff data), resulting in the effective sample of 43 facilities used in this analysis.

I defined assisted living as a residential care program that provides housing, supervision, and
health-related services to elderly individuals who need assistance in the activities of daily living (Hawes & Phillips, 2000; Mollica & Johnson-Lamarche, 2004; Zimmerman, Sloane, & Eckert, 2001). I conducted the study sampling in two stages. First, I drew a sample of assisted living facilities, and then I selected samples of residents and staff from each facility.

Sample of Facilities.—I selected the facilities from licensed assisted living programs in Maryland (Maryland Department of Health and Mental Hygiene [MDHMH], 2001). The primary criterion in the sample selection was organizational diversity (e.g., size, length of operation, and level of care). To obtain an organizationally diverse sample, I used Zimmerman’s typology to select facilities. According to this typology, assisted living programs nationwide can be classified (based on size, length of operation, and level of care) into three groups: small, traditional, and new model homes (Zimmerman et al., 2001). Small facilities are defined as having fewer than 16 beds. New model facilities are purpose built after 1986 with 16 or more beds and meet at least one of these four criteria: (a) different private-pay monthly rates; (b) at least 20% of the resident population requires assistance with transfer; (c) at least 25% of the residents are incontinent daily; and (d) there is a registered nurse or licensed practical nurse on duty around the clock. Traditional facilities include homes with 16 or more beds that could not be classified as a new model.

In total, I selected 100 facilities from the MDHMH listing of assisted living programs, including 27 small facilities, 31 traditional facilities, and 42 new-model facilities. I sent letters to facility administrators, explaining the study and assuring confidentiality. This mailing was followed by a telephone call from the principal investigator to further explain the study and to schedule an interview. Of the 100 facilities that were contacted, 61 (61%) agreed to participate, including 22 (36%) small facilities, 17 (28%) traditional facilities, and 22 (36%) new-model home. Because some data were missing, I excluded 18 facilities from the hierarchical linear model (HLM) analysis, resulting in the effective sample size of 43 facilities. The characteristics of the facilities are presented in Table 1.

The majority of the 43 facilities were located in suburban areas (74%), more than half (25 or 58%) were operated as for-profit corporations, and approximately one third (13 or 30%) were affiliated with an assisted living chain. The mean facility size was 37 residents (SD = 24), with a range of from 6 to 129 residents.

Sample of Residents.—The sample consisted of 335 residents in 43 facilities; all cognitively alert residents in these facilities were selected and asked to participate. I made the initial determination of resident “cognitive alertness” with input from staff through the use of a single screening item (i.e., Do you think that Mrs. Y is able to complete this questionnaire?). Of the 435 resident questionnaires distributed in 43 facilities, 335 questionnaires were returned, accounting for the response rate of 77%. A research assistant approached each resident in person, explained the study, and asked him or her to participate. Each resident received a survey packet consisting of a cover letter, a consent form, and a questionnaire with an addressed, stamped envelope. The assistant asked residents to return the completed questionnaire in the attached envelope. I used identifying numbers on questionnaires instead of names in order to maintain anonymity. The completion of the resident questionnaire took 15 to 30 min. Of the 435 residents who were approached, 100 (23%) were unable to complete the questionnaire because of cognitive impairment (e.g., they appeared to be disoriented and unable to give an informed consent to participate in the study). The number of residents who completed the questionnaire in each facility varied from 2 to 21, with a mean of 8 residents per facility. The characteristics of the participating residents in 43 facilities are presented in Table 2.

Most residents were women (74%) and widowed (70%), and almost all were White (94%). The mean age was 83 years, and 71% were 80 years of age or older. With regard to education, half of the residents had a high school or lower education, and 26 (8%) of the residents were college graduates. These resident characteristics were similar to the characteristics of assisted living residents that were observed in larger

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**Table 1. Characteristics of Facilities (N = 43)**

<table>
<thead>
<tr>
<th>Facility Characteristics</th>
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<td>Size</td>
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<tr>
<td>19 or less</td>
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<tr>
<td>Ownership</td>
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<tr>
<td>Nonprofit</td>
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<tr>
<td>For-profit</td>
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<tr>
<td>Chain Membership</td>
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<tr>
<td>Part of a chain</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Not part of a chain</td>
<td>30</td>
<td>70</td>
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<tr>
<td>Location</td>
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<tr>
<td>Urban</td>
<td>8</td>
<td>19</td>
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<tr>
<td>Suburban</td>
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<td>74</td>
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<tr>
<td>Rural</td>
<td>3</td>
<td>7</td>
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<tr>
<td>Facility Type</td>
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<tr>
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<tr>
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<td>New Model</td>
<td>17</td>
<td>39</td>
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Sample of Staff. — The staff sample consisted of 298 staff members in 43 facilities. All staff members, who were hired and paid by the facility and who had daily contact with residents, were invited to participate. A research assistant distributed staff questionnaires in each facility. The assistant approached staff members individually or in a group meeting, and they were asked to return the completed questionnaires in the attached stamped envelopes. To maintain anonymity, I used identifying numbers on questionnaires instead of names. The completion of the staff questionnaire took 10 to 15 min.

A total of 454 questionnaires were distributed among staff in 43 facilities, and 298 questionnaires were returned. The number of questionnaires distributed in each facility varied from 3 to 25, with a mean of 11. The number of completed staff questionnaires in each facility ranged from 3 to 17, with a mean of 7 questionnaires per facility. The characteristics of the participating staff in 43 facilities are presented in Table 3.

As shown in Table 3, almost all staff (91%) were women, slightly more than half were White (57%), and the majority were not married (68%). The mean age was 43 years, and 12% of the staff members were 60 years old or older. Approximately one third of the staff (31%) held a bachelors or graduate degree. Nursing assistants constituted the largest group of the participating staff (44%), followed by administrative staff (14%) and activity staff (10%). These staff characteristics were comparable with the characteristics of assisted living staff reported by Hawes and Phillips (2000) and Zimmerman and colleagues (2001).

Measures

I assessed the relationship between resident satisfaction and staff perceptions of the work environment at two levels: the resident level (Level 1) and the facility level (Level 2). Variables measured at the resident level included resident satisfaction, age, gender, and education. Variables measured at the facility (aggregate) level included job satisfaction, organizational commitment, and perceptions of organizational culture. Table 4 shows descriptive
statistics and reliability estimates for the measures used in the study.

**Resident-Level Measures.** I measured resident satisfaction (dependent variable) with a short version of the Resident Satisfaction Index, which was developed for assessing resident satisfaction with assisted living (Sikorska-Simmons, 2001). The short version of the RSI consists of six items that focus on resident perceptions of services, staff, and social environment in the facility (e.g., Is the staff kind and caring? Do you feel like at home here?). Each item was scored on a 4-point scale (with responses from 1 = never to 4 = always). I summed the individual item scores to create a total satisfaction score (with higher scores indicating greater satisfaction). The Cronbach alpha for the index was $\alpha = 0.67$ in the present study.

Controlling for resident characteristics, such as age, gender, and education, I assessed the relationships between resident satisfaction and staff perceptions of the work environment. I coded gender as a dichotomous variable (female = 1 and male = 0). I measured education on a 5-point scale, according to five educational levels: 1 = grade school or some high school, 2 = high school diploma, 3 = post-secondary or technical degree, 4 = bachelor's degree, and 5 = graduate degree.

**Facility-Level Measures.** I used measures of job satisfaction, organizational commitment, and organizational culture to assess staff perceptions of the work environment (i.e., independent variables). I measured job satisfaction by means of the three-item Overall Job Satisfaction Scale from the Michigan Organizational Assessment Questionnaire (Seashore, Lawler, Mirvis, & Cammann, 1982). The scale was developed to measure an employee’s overall affective response to his or her job (e.g., All in all, I am satisfied with my job). The scale has been used in a variety of organizational settings, and its validity and reliability have been established (Fields, 2002). The scale’s items are scored on a 7-point scale with responses ranging from 1 = strongly disagree to 7 = strongly agree. Higher summative scores reflect greater satisfaction. In the present study, Cronbach’s alpha for the scale was $\alpha = 0.79$. Seashore and colleagues reported a similarly high alpha of $\alpha = 0.77$ for the scale.

I assessed organizational commitment with a nine-item scale developed by Cook and Wall (1980) to measure commitment among blue-collar workers. The scale’s construct and predictive validity have been supported (Fields, 2002; Oliver, 1990). Although the scale has not been used in long-term care facilities, I selected it here because of its practicality and adequate construct validity. The scale can be easily completed by respondents with low educational attainment (e.g., paraprofessional staff), and it assesses the key components of organizational commitment, including identification (pride in the organization), involvement (willingness to invest personal effort), and loyalty (a wish to remain with the organization; see Mowday, Steers, & Porter, 1979). I scored each scale item on a 7-point Likert-type scale, with responses ranging from 1 = no, I strongly disagree to 7 = yes, I strongly agree. I obtained scale scores by summing responses across items, with higher scores reflecting greater organizational commitment. In the present study, Cronbach’s alpha for the scale ($\alpha = 0.79$) compares favorably with alphas reported in the literature ($\alpha = 0.71$ and $\alpha = 0.87$; see Fields).

I assessed staff perceptions of organizational culture with the 36-item Organizational Culture Survey (OCS) developed by Glaser, Zamanou, and Hacker (1987). The OCS assesses organizational culture according to dimensions that are relevant to health care organizations (Scott, Mannion, Davies, & Marshall, 2003). These dimensions include employees’ perceptions of teamwork, morale, information flow, involvement, supervision, and quality of meetings (e.g., People I work with function as a team; this organization respects its workers). Glaser and colleagues established OCS validity by using observations and 45-min critical incident interviews. Each OCS item was scored on a 5-point scale (1 = to a very little extent to 5 = to a very great extent) and summed across items. In the present study, the Cronbach alpha for the entire OCS was $\alpha = 0.98$, and the reliability estimates for the separate subscales ($.92$ to $.95$) were higher than the estimates ($.63$ to $.91$) reported in the original research (Glaser et al.).

I summed and averaged individual staff scores on the work environment measures within each facility to create facility-level (aggregate) scores. I computed intraclass correlation coefficients (ICCs) to assess the amount of agreement between individual staff scores and average staff scores. The ICCs for the average staff scores were as follows: $.78$ for job satisfaction,
components) are based on 43 facilities. The chi-square statistics are based on 27 out of 43 facilities that had sufficient data (more than 5 cases) for comparison.

### Data Analysis

I used two-level HLMs, which take into account the nested (hierarchical) structure of the data (i.e., residents nested within facilities), to test the hypotheses (Raudenbush & Bryk, 2002). Level 1 variables included resident satisfaction and sociodemographic characteristics (i.e., age, gender, and education), whereas Level 2 variables were represented by facility-level (aggregate) scores of staff job satisfaction, organizational commitment, and organizational culture.

I conducted the data analysis in two steps. First, I calculated a one-way analysis of covariance (ANCOVA; Level 1 hierarchical regression model) with random effects, controlling for resident characteristics, to examine variation in resident satisfaction within and across facilities. The model was specified as follows:

\[
Y_{ij} = B_{0j} + B_{1j}(\text{AGE})_{ij} + B_{2j}(\text{GENDER})_{ij} + B_{3j}(\text{EDUCATION})_{ij} + r_{ij}
\]

For ease of interpretation, I made each independent variable center at (i.e., group centered). Here \(Y_{ij}\) depicts the resident satisfaction score \(i\) in the facility \(j\) (\(j = 1, \ldots, 43\) facilities); \(B_{0j}\) is the intercept for the \(j\)th facility and represents the adjusted mean resident satisfaction score for facility \(j\) after resident characteristics have been controlled for. The coefficient \(B_{1j}\) indicates the degree to which age influences resident satisfaction in the facility \(j\), \(B_{2j}\) is the mean difference in satisfaction of women and men in facility \(j\), and \(B_{3j}\) is the influence of education on resident satisfaction in facility \(j\). I specified the model as random, and I assumed the error term \(r_{ij}\) to be normally distributed with a mean of zero and a constant Level 1 variance.

Subsequently, I used three separate Level 2 intercept-as-outcome hierarchical regression models to assess the hypothesized relationships between resident satisfaction and staff perceptions of the work environment (i.e., job satisfaction, organizational commitment, and culture), controlling for resident characteristics. To avoid collinearity (the selected measures of work environment were strongly correlated), I regressed resident satisfaction separately on each facility-level measure, ignoring in this way the confounding effects of the other measures. I specified the relationships between Level 1 and Level 2 variables described in the hypotheses (1 through 3) as follows:

- **H1**: \(B_{0j} = \gamma_{00} + \gamma_{01}(\text{JOB SATISFACTION}) + \mu_{oj}\)
- **H2**: \(B_{0j} = \gamma_{00} + \gamma_{01}(\text{ORG. COMMITMENT}) + \mu_{oj}\)
- **H3**: \(B_{0j} = \gamma_{00} + \gamma_{01}(\text{ORG. CULTURE}) + \mu_{oj}\)

In each of the three intercept-as-outcome regression (Level 2) models, the adjusted mean level of resident satisfaction in the facility (i.e., the intercept \(B_{0j}\)) was a function of the grand mean (\(\gamma_{00}\)), a facility Level 2 variable (\(\gamma_{01}\)), such as staff job satisfaction, and a unique facility effect (error term \(\mu_{oj}\)).

### Results

I calculated a random effects one-way ANCOVA model to examine variation in resident satisfaction within and across facilities, controlling for resident characteristics. The ANCOVA results are presented in Table 5.

Controlling for resident characteristics, I found that the mean level of resident satisfaction (\(M = 19.33\)) varied significantly across facilities (\(t = 97, df = 42, p < .001\)). At the facility level, the variance of the true facility mean (\(B_{0j}\)) around the average (grand) mean (\(\gamma_{00}\)) was .678 (\(\chi^2 = 41.3, p < .05\)). The portion of total variance in resident satisfaction attributed to between-facility variation was 8.4% (i.e., the intraclass correlation). The overall reliability of the sample mean (as an indicator of the true facility mean) was .444. The 95% confidence interval for facility means ranged from 17.7 to 20.9, indicating a relatively small magnitude of the variation the mean levels of resident satisfaction across facilities. From resident characteristics, only education was significantly related to satisfaction.

<table>
<thead>
<tr>
<th>Table 5. Results of Fitting a One-Way ANCOVA Model with Random Effects</th>
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<tr>
<td><strong>Fixed effects</strong></td>
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<td>Facility mean satisfaction,</td>
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<td>Age</td>
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<td>Education</td>
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<tr>
<td><strong>Random effects</strong></td>
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<td>Facility mean satisfaction, (\mu_{0j})</td>
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<td>Age</td>
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<td>Gender</td>
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<tr>
<td>Education</td>
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<td>Level 1 effect, (r_{ij})</td>
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**Notes:** ANCOVA = Analysis of covariance; SE = standard error. The chi-square statistics are based on 27 out of 43 facilities that had sufficient data (more than 5 cases) for computation. Fixed effects and random effects (i.e., variance components) are based on 43 facilities.

.76 for organizational commitment, and .98 for organizational culture. The ICC values indicate that the average staff scores adequately represented individual staff scores on the work environment measures (McGraw & Wong, 1996; Nichols, 1998).
More educated residents were less satisfied with assisted living ($B_3 = -.412, p < .05$). The effects of education on satisfaction also varied across facilities ($\chi^2 = 37.6, p < .10$).

I tested Hypotheses 1 through 3 by using three separate intercept-as-outcome hierarchical regression models, controlling for resident characteristics. The results of these models are presented in Table 6.

The results of the three separate mean-as-outcome hierarchical regression models indicated that, with resident characteristics controlled for, there was a significant relationship between resident satisfaction and job satisfaction ($\gamma_{01} = .25, t = 2.4, p = .021$), and between resident satisfaction and organizational culture ($\gamma_{01} = .02, t = 2, p = .047$). The estimated proportion of variance in the mean facility levels of satisfaction, explained by job satisfaction, was 10.5% $[(.678 - .607)/.678 = .105]$, and by organizational culture it was 14% $[(.678 - .583)/.678 = .14]$. These results provided support for Hypotheses 1 and 3. Controlling for resident characteristics, I found that higher levels of resident satisfaction in the facility were associated with greater staff job satisfaction and more positive staff perceptions of organizational culture. I detected no statistically significant relationship between resident satisfaction and staff organizational commitment.

### Discussion

In this study, using HLM analysis, I examined the relationship between resident satisfaction and staff perceptions of the work environment in assisted living (Raudenbush & Bryk, 2002). Controlling for resident characteristics (i.e., age, gender, and education), I found that greater resident satisfaction in the facility was associated with higher aggregate levels of staff job satisfaction and more positive views of organizational culture (e.g., high morale, teamwork, and participation in the decision-making process). These findings are consistent with research in nursing homes, indicating that greater staff job satisfaction and more positive views of organizational culture are associated with higher resident satisfaction and better quality of care (Astrom et al., 1991; Banaszak-Holl & Hines, 1996; Barry, Brannon & Mor, 2005; Eaton, 2000).

I found no relationship between resident satisfaction and aggregate levels of staff organizational commitment. This might be because organizational commitment (as an indicator of the quality of the work environment) may have limited influence on staff relationships with residents and, subsequently, resident satisfaction. Eaton (2000) noted that, despite poor working conditions and lack of identification with the employing organization, many nurse aides choose to work in long-term care facilities. Staff attitudes toward residents may be shaped more by overall job satisfaction (which is partially influenced by their relationships with residents) than by commitment to the employing organization. As one nurse aide said, “I could go down the street and get a job at Burger King. But I care about these residents. If I weren’t here, they would be worse off” (Eaton, 2000, p. 597). Future studies should examine which staff work-related attitudes are most relevant to resident-care outcomes and perceptions of quality.

From resident characteristics, only education was significantly related to resident satisfaction. Less educated residents were more satisfied with assisted living than their more educated counterparts. This finding is consistent with previous research, which indicates that education is inversely related to resident satisfaction with assisted living (Chou et al., 2003; Sikorska, 1999). Research suggests that this is because less educated residents might be less critical or have fewer expectations concerning service quality (Jackson et al., 2001; Woodside et al., 1988). It is unclear if or to what extent assisted living residents are similar to consumers of health care services (Owens & Batchelor, 1996). More research is needed to examine how education and socioeconomic status influence residents’ perceptions of quality in assisted living.

The main methodological limitations of this research are related to its cross-sectional design, the simple conceptual framework, the biased sample of residents, the nonrepresentative sample of facilities, and the assessment of resident satisfaction as a quality indicator. Because of the cross-sectional...
design, the study findings can be interpreted only as associations, rather than causal relationships. The study's conceptual framework did not address the mechanism through which the quality of the work environment for staff influences the quality of care. Consequently, staff job satisfaction and organizational culture may represent "correlates" rather than "determinants" of resident satisfaction, or the detected relationship might be spurious. Future studies should include a broader set of organizational factors and identify the mechanism (i.e., causal pathways) through which the quality of the work environment for staff influences the quality of care for residents in assisted living.

In addition, the sample of residents who participated in the study was biased in favor of those who were cognitively intact and functionally independent. Perceptions of those independent residents may be different from perceptions of their more impaired counterparts. Furthermore, the small numbers of residents "nested" within the 43 facilities \( (M = 8, \text{ range} = 2–21) \) contributed to the low reliability of the sample mean of resident satisfaction (i.e., the observed mean level of resident satisfaction in the facility as an indicator of the true facility mean). Consequently, the low reliability of the sample mean may have reduced the study's ability to detect significant relationships between Level 1 and Level 2 variables. According to Raudenbush and Bryk (2002, p. 46), when the sample mean is unreliable, the estimated grand mean \( \gamma_{00} \) has more impact on \( B_{0j} \) than Level 2 variables \( (\gamma_{01}) \). Furthermore, the selected facilities were located in one state (i.e., Maryland) and were not representative of assisted living settings in other states.

Another limitation of this study is related to the assessment of resident satisfaction as a quality of care indicator. Research suggests that satisfaction, as a subjective evaluation, is influenced by psychological well-being and functional ability, and it may not be a valid indicator of the quality of care (Owens & Batchelor, 1996). In assisted living, depressed and disabled residents tend to be less satisfied than their "happier" or more independent counterparts (Sikorska, 1999). Because the present study did not control for resident psychological well-being or functional ability in the assessment of satisfaction, it is unknown to what extent these characteristics influenced resident perceptions.

Future studies should include resident psychological well-being and functional ability in the assessment of resident satisfaction. More research is needed to better understand how residents evaluate quality, and how psychological well-being and functional ability influence residents' perceptions of services. Whereas psychological well-being (e.g., depression) may interfere with resident cognitive ability to evaluate services, functional ability (i.e., impairments in activities of daily living) may directly influence how residents view these services. For example, depressed or cognitively impaired residents may report lower levels of satisfaction because they don't want to evaluate or are unable to evaluate services, whereas physically impaired residents may be less satisfied because they need more assistance and their needs are not met. Further, while evaluating the quality of services, dependent residents might use different criteria than their more independent counterparts. Tellis-Nyak and Tellis-Nayak (1989, p. 307) pointed out that "dependent residents pay less attention to the qualification, training, and skills of aides; but they indeed appreciate when the aides assist readily without complaint, take time to listen, show sympathy without condescension, and respect both the frailty and dignity of old age." Better understanding of how functionally dependent residents evaluate the quality of services could strengthen the validity of resident satisfaction as an indicator of the quality of care in assisted living.

The study findings have practical implications for administrators and policy makers who are interested in increasing resident satisfaction with assisted living. Because resident satisfaction is related to staff perceptions of the work environment, efforts to increase resident satisfaction should also focus on improving the quality of the work environment for staff. As proponents of the "culture change" point out, work environments that value and respect staff are likely to foster positive work-related attitudes and good-quality services, which residents seek (Eaton, 2000). Interventions to improve staff working conditions might focus on promoting teamwork, participation in the decision-making process, and high morale (Paraprofessional Health Care Institute, 2001).

In conclusion, this study points to a positive relationship between resident satisfaction and the quality of the work environment for staff in assisted living. Researchers need to perform more well-designed research in order to understand this relationship better. They could use a higher level of knowledge of this relationship to improve both the quality of care for residents and the quality of the work environment for staff in assisted living.

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