

The Influence of Organizational Context on Quitting Intention

*An Examination of Treatment Staff in
Long-Term Mental Health Care Settings*

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This study uses multilevel methods to investigate the effects of organizational context on job satisfaction and quitting intention among staff working in long-term mental health care settings. Two types of organizational features are examined: group job satisfaction and structural features of the work unit (unit size, workload, and level of client functioning on the unit). A review of the organizational literature reveals that most empirical research has investigated job satisfaction at the individual level of analysis rather than the group level. The authors argue that the affective context of a group has real and measurable consequences for individual attitudes and behavior, independent of individual attitudes toward the job. Using multilevel modeling, study findings support the premise that group job satisfaction exercises effects on intention to quit independent of individuals' dispositions toward their jobs. These effects are both direct and interactive. The findings underscore the importance of affective context in shaping individual attitudes and behavioral intentions.

The demand for long-term care continues to grow, particularly for that segment of the population of older adults with complex care needs (Robertson and Cummings 1996). Coupled with this increasing demand is a longstanding and continuing shortage of qualified and committed caregivers in long-term care. Recruiting and retaining qualified

AUTHORS' NOTE: This work was supported by RAND and the Serious Mental Illness Treatment Research and Evaluation Center, Health Services Research and Development Program, Ann Arbor Veterans Affairs Medical Center, sponsored by the Department of Veterans Affairs Mental Health Strategic Health Group.

RESEARCH ON AGING, Vol. 21 No. 2, March 1999 176-204
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long-term care (LTC) staff continue to pose a significant challenge to managers of nursing homes and other LTC facilities (Halbur 1983; Harrington 1991). To address these issues, more attention is being focused on aspects of the work environment that might make for a more attractive and satisfying practice setting (Robertson, Herth, and Cummings 1994).

This study examines how the work environments of staff working in long-term mental health care settings affect their propensity to quit. Compared to staff working in other types of health care settings, treatment staff caring for the chronically mentally ill have displayed lower levels of job satisfaction and a higher propensity to quit their jobs (Cameron, Horsburgh, and Armstrong-Stassen 1994; Depp et al. 1983). These staff working in long-term mental health care settings serving the serious and persistently mentally ill share much in common with staff working in long-term care settings serving an elderly population with chronic illnesses. In general, these individuals experience a lack of social and economic rewards, often engage in menial and repetitive tasks, and endure close supervision (Tellis-Nyak and Tellis-Nyak 1989). Furthermore, treatment staff working in long-term psychiatric settings tend to spend a considerable amount of time caring for severely disabled patients with intense needs and are consequently highly susceptible to burnout. Importantly, Melchior et al. (1997) make the case that burnout and other dysfunctional consequences of working in long-term care settings may have more to do with the work environment than the attitudes and orientations of individual workers.

This study examines a number of unit-level characteristics and their relationship to quitting intention. We are interested in the extent to which structural and contextual characteristics of the work unit influence staff members' attitudes and behavioral intentions. We particularly focus on the relationship between job satisfaction as measured at two levels (individual and group) on the individual staff member's intention to quit his or her job.

We define group job satisfaction as a collective feeling of satisfaction and well-being in the workplace that exists among organizational members (Baehr and Renck 1959; Evans 1992; George 1990; Guion 1958; Revans 1964; Williams and Lane 1975). We argue that job satisfaction as measured at the group level is an important contextual

element of the work unit and, as such, has real and measurable consequences for individual attitudes and behavior, independent of individual attitudes toward the job. Using multilevel modeling, this study tests two propositions. The first is that group job satisfaction at the unit level is negatively associated with individual group members' intentions to quit their jobs. The second is that group job satisfaction at the unit level moderates the relationship between individual job satisfaction and the intention to quit. This study contributes to the literature on job satisfaction by employing multilevel methods to test the direct and indirect effects of group-level phenomena on individual behavior. From a more applied perspective, this study identifies organizational features of work units that may be modified to improve retention of LTC staff.

Theory and Hypotheses

The relational perspective on attitude formation argues that "natural units of analysis for attitudes are not isolated individuals but social networks" (Erickson 1988). Attitudes are not formed simply as a direct response to individual predispositions or characteristics but through social processes that emerge under different structural conditions. We contend that the social context and social network in which individuals operate in organizations may explain the formation of group attitudes such as group job satisfaction and how such group attitudes affect individual attitudes and behavior.

Group job satisfaction may help shape individual workers' feelings about their workplace and their likelihood of remaining with their job. The affective tone of the group becomes the context in which individual behavioral intentions develop (Baron and Greenberg 1990; George and Brief 1992; Gunter and Furnham 1996; James and Jones 1974). We argue that the positive or negative tone of the primary work group, in addition to other work group and contextual characteristics, affects individual attitudes and behavioral intentions. An employee who operates in a work group characterized by a high positive-affective tone (high group job satisfaction) will be more likely to manifest attitudes that reflect a low disposition to exit and a high level of commitment to the organization (and vice versa). Importantly, such

effects will obtain independently of the job satisfaction level of individual group members. For example, even if an individual does not hold positive feelings about the job and workplace, his or her behavioral intentions are likely to be affected by positive group job satisfaction. Thus,

Main Effect of Group Job Satisfaction

Hypothesis 1: Holding constant individual job satisfaction, intention to quit will decrease as group job satisfaction increases.

Group job satisfaction may also affect the intention to quit indirectly by altering the strength of the relationship between individual job satisfaction and the intention to quit. Job satisfaction at the individual staff member level can be defined as the degree to which an individual holds a positive orientation toward his or her work and membership in the organization (Price 1977). Extensive research has demonstrated that highly satisfied workers are less likely than dissatisfied ones to leave or intend to leave the organization (Michaels and Spector 1982; Mobley 1977; Cotton and Tuttle 1986; Gordon 1991; Mobley, Horner, and Hollingsworth 1979; Porter and Steers 1973; Price 1977). Less attention, however, has been given to the role of organizational context in determining the relative strength of that relationship (George 1990; Litwin and Stringer 1968; Revans 1964; Schneider 1983a, 1983b). We argue that high group job satisfaction will act to reinforce or boost the effects of individual job satisfaction on the intention to quit. That is, individuals who manifest high levels of individual job satisfaction and who work in units with high group job satisfaction will be significantly less likely to intend to quit than individuals with high individual job satisfaction who work in units with low group job satisfaction. Workers with high levels of individual job satisfaction will share a common orientation toward the organization with other coworkers in high group job satisfaction units, and this will enhance their individual commitment to the organization, thereby lowering their intention to quit. Workers with high levels of individual job satisfaction who operate in low collective job satisfaction units, however, will lack such consonance with the group, and their positive feelings about the workplace will not be reinforced by their social network. These conflicting circumstances will have the effect of dampening the negative association between individual job satisfaction and

the intention to quit. Thus, the correspondence between individual job satisfaction and group job satisfaction will determine the degree to which an individual will feel a part of or excluded from the collective. We therefore predict the following:

Main Effect of Individual Job Satisfaction

Hypothesis 2a: Intention to quit will decrease as individual job satisfaction increases.

Moderating Effect of Group Job Satisfaction

Hypothesis 2b: As group job satisfaction increases, the negative relationship between individual job satisfaction and the intention to quit will be strengthened.

Individual and Contextual Effects

Although our primary focus is on the relationships among group job satisfaction, individual job satisfaction, and quitting intention, other individual and contextual factors may also explain these relationships. We treat a number of individual and contextual effects as controls in the analysis. Here, we provide a brief review of the literature regarding the expected effects of these variables.

INDIVIDUAL LEVEL

Three individual-level variables are posited to affect quitting intention among LTC treatment staff: occupation, gender, and tenure.

Occupation has shown significant associations with both individual job satisfaction and turnover (Shortell 1974; Parkes and Von Rabenau 1993; Church 1987). In a given setting, status and autonomy are often related to occupational category. For example, in the health care field, physicians generally have more autonomy and are assigned a higher professional status than nurses. It should not be surprising, then, that nurses tend to be the least satisfied occupational group among health care workers. Physicians and social workers tend to be more satisfied than nurses in a variety of areas, particularly in terms of professional relationships (Department of Veterans Affairs 1994). Within the nursing profession, registered nurses are affected by different factors than licensed practical nurses (LPNs) and nursing assistants (NAs) in terms

of job satisfaction and turnover (Alexander et al. 1998). Ancillary personnel such as occupational and recreational therapists are most often exposed to different work structures affecting their satisfaction levels and decisions to leave. Studies investigating job satisfaction and quitting intention should consider including a variety of occupational categories since members of different occupational groups engage in distinctly different types of work and serve different roles.

Across most work settings, previous research has demonstrated that females tend to be more satisfied with their jobs than males (Coward et al. 1995). However, the literature has shown mixed results regarding gender effects on individual job satisfaction and turnover. Other studies have indicated that turnover rates tend to be higher among women (Cotton and Tuttle 1986). These contradictory results may be explained by the different contexts in which work is performed. The particular context in which males and females work determines the degree of demands placed on them. For example, women who work in health care settings are often exposed to more job stress than men, resulting in higher levels of burnout and turnover among women in these types of settings (Chiviboga and Bailey 1986; Robinson et al. 1991). Being female has a positive association with both job satisfaction and turnover. Therefore, gender is an important control variable to include in any examination of the effect of job satisfaction on quitting intention to avoid the potential suppressor effect of gender on the relationship between satisfaction and quitting intention.

Previous research has demonstrated a significant relationship between tenure and both job satisfaction and turnover. In general, workers with longer tenure were more likely to be satisfied with their jobs and less likely to quit than workers with shorter tenure (Benedict, Glasser, and Lee 1989). However, other research has revealed that tenure may reflect susceptibility to burnout or simply readiness to retire, two correlates of quitting (Locke 1976; Maslach and Florian 1988).

GROUP LEVEL

Three additional contextual variables measured at the group level are included in this analysis: unit size, workload, and level of client functioning. Recent studies have demonstrated that organizational and job factors affect staff turnover in long-term care facilities

(Banaszak-Holl and Hines 1996). For example, one study found that the supportive environment of coworkers and supervisors was more important in explaining institutional loyalty than individual job satisfaction (Grau et al. 1991). Other studies have found that greater group cohesion and positive interpersonal work environments lead to positive feelings about work, less conflict, and greater job satisfaction (Lucas, Atwood, and Hagaman 1993; Revicki and May 1989). Thus, the affective context of the group can be as important in explaining individual job attitudes and behavior as more traditional structural features of the work unit (e.g., size).

However, these traditional structural features are also important to examine because they represent salient contextual elements that may affect the level of job satisfaction and quitting intention of the individual worker. High group job satisfaction may vary with unit size because cohesion becomes more difficult and fragmentation more common in large groups (Rump 1979). Workload of the unit may increase worker burden, resulting in increased intention to quit and turnover (Friesen and Sarros 1989; Pines and Maslach 1978; Chappell and Novak 1992). Finally, prior research demonstrates that as the level of client functioning decreases, work often becomes more physically and mentally demanding, resulting in increased turnover among staff members (Finch and Krantz 1991; Jones, Roth, and Jones 1995).

Methods

SAMPLE AND DATA

The sample for the study consists of 1,670 mental health treatment personnel working in 29 Veterans Affairs (VA) hospitals that provide long-term care exclusively to the mentally ill. These staff represent direct care providers assigned to a sample of 108 units or programs within these 29 hospitals. To be considered for possible inclusion in the sample, 50% of a unit/program's patients must have met the following two criteria: (1) diagnosis of a psychotic disorder and (2) cumulative length of stay in all VA medical centers of at least 150 days in the past year or five or more admissions to any VA medical center in

the past year. In addition, units or programs had to have a staff of at least three patient care providers. All outpatient programs meeting these criteria were included in the sample ($n = 50$) along with two randomly selected inpatient units from each of the 29 hospitals ($n = 58$).

Data were obtained from two sources. The primary source was a self-administered survey distributed to all direct patient care providers in the sample units/programs in the fall of 1992. The survey assessed provider demographics and a broad range of attitudes regarding job satisfaction, patient expectations, professional relations, and team functioning. The procedures used to conduct the study were as follows. To develop the sampling frame, site coordinators at each facility provided us with a list of all clinical staff assigned to the sample units. We deleted from those lists any individuals who worked the night shift or who were not deemed to be direct patient care providers (e.g., clerical or housekeeping personnel). This reduced the number of potential respondents from 2,400 to 1,801.

Questionnaires, along with a videotape explaining the nature and purpose of the survey procedures employed to protect respondent confidentiality and descriptions of the questionnaire itself, were mailed to the site coordinator. Site coordinators set up group meetings with staff in the selected units during normal working hours, showed the video at the meeting, and distributed the questionnaires. Staff returned the questionnaires to the coordinators in sealed envelopes that had a control number on the front but no name identification. Staff had the option of returning the survey blank or marking it "refused" if they did not wish to complete it. Individuals who initially refused to complete the questionnaires were sent letters by research staff that asked them to reconsider their decision. Site coordinators were not used to convert nonrespondents in this study. To ensure confidentiality, once a staff member received the follow-up request to complete the questionnaire, the site coordinator never knew whether a potential respondent completed the questionnaire, and all subsequent contacts with nonrespondents were initiated by project staff. This process resulted in the return of 1,746 (97%) questionnaires, of which 1,670 (93%) were sufficiently complete for analysis. It is important to note that this extraordinarily high response rate enables us to develop valid measures of group job satisfaction for the sample units/programs because such measures depend on having data on all (or nearly all) group members.

A second, shorter survey was used to collect data on other unit-level characteristics. This survey was sent to unit or program directors of all 108 sample units. The survey provided data on the average functional ability of patients on the unit, unit workload, and unit size. We achieved complete data (100%) on this survey by designing a short survey (one page) with aggressive over-the-phone follow-up.

MEASURES

The means, standard deviations, and Pearson correlation matrices for all study measures are displayed in Table 1.

Dependent Variable

INDIVIDUAL LEVEL: INTENTION TO QUIT

Intention to quit is measured as the mean of three items pertaining to an individual staff member's intention to quit his or her job. The items include (1) I frequently think of quitting this job, (2) I will probably look for a new job in the next year, and (3) There is a good chance that I will leave this job in the next year or so. Responses are based on a 7-point scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Scales for all items in this composite measure were reversed so that 7 indicates high intention to quit. Factor analysis was used to confirm the convergent and discriminant validity of the three measures. The principal-components method with varimax rotation was employed. A minimum factor loading of $\geq .60$ was employed as the fit criterion for inclusion of an item in the factor. The Cronbach's alpha for this measure is .83.

Independent Variables

UNIT-LEVEL EXPLANATORY VARIABLES

Group job satisfaction. Group job satisfaction is a structural property of the unit that is distinct from the aggregate properties of its

TABLE 1
Descriptive Statistics and Pearson Correlation Matrices of Variables Used in Analyses

	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
Individual-level variables (<i>n</i> = 1,670)												
1. Quitting intention	3.05	1.58	—									
2. Job satisfaction	4.73	1.51	-.64*	—								
3. Physician	0.05	0.22	-.02	.06*	—							
4. Psychologist	0.02	0.15	.03	-.01	-.04	—						
5. Social worker	0.11	0.32	-.08*	.08*	-.08*	-.06*	—					
6. Nurse/nurse practitioners ^a	0.27	0.44	.03	-.07*	-.14*	-.09*	-.21*	—				
7. Licensed practical nurses/nursing assistants	0.40	0.49	.03	-.05*	-.19*	-.13*	-.29*	-.49*	—			
8. Other occupation ^b	0.15	0.36	.00	.05*	-.10*	-.07*	-.15*	-.25*	-.34*	—		
9. Male ^c	0.39	0.49	.04	.01	.20*	.14*	.13*	-.29*	-.01	.08*	—	
10. Professional tenure ^d	15.86	10.02	-.07*	.01	.21*	-.05*	.07*	.14*	-.14*	-.15*	.06*	—
Unit-level variables (<i>n</i> = 108)												
1. Client functioning	38.24	13.28	—									
2. Workload	0.05	0.95	.05	—								
3. Unit size	15.46	10.29	-.28*	.25*	—							
4. Group job satisfaction	11.23	6.92	-.22*	.17*	.96*	—						

a. Registered nurses and nurse practitioners are the referent occupational category in the analysis.

b. Other occupations include the following ancillary staff: occupational, recreational, and physical therapists; clinical pharmacist; dietitian; chaplain; physician assistant; psych tech; social work tech; occupational therapist tech; recreational therapist tech; other tech; and other.

c. Eighty-three missing values (4.9% of sample).

d. Sixty-eight missing values (4.1% of sample).

**p* ≤ .05.

members. As such, an appropriate measure should assess the degree of satisfaction in the collective, not simply the aggregate level of satisfaction among unit members. This study employs a proportional measure to reflect group job satisfaction on a unit. A proportional measure captures the "number and strength of mutual positive attitudes among the members of a group" (Lott 1961).

Rather than using either a mean-based measure or a homogeneity measure, this study will employ a proportional measure to reflect group job satisfaction on a given unit. A proportional measure is distinctly different from a mean-based measure. As Pfeffer (1983) has noted, average or mean values are only one way of characterizing structural or demographic properties of a group and probably not the most useful way, particularly in the analysis of turnover. A mean-based measure, such as the mean level of satisfaction on a hospital unit, simply captures the aggregate level of satisfaction on a given unit without describing anything about the dispersion of satisfaction levels among unit members. A proportional measure of attitude captures the degree to which members of a group feel similarly about some aspect of job satisfaction. Suppose there were two units: one on which all individual staff members were satisfied at an average level and another unit in which half of the staff members were dissatisfied while the other half were satisfied. A mean-based measure could yield the same value for these two units with distinctly different structures. A proportional measure would indicate that all members felt the same way on the one unit while only some staff members were satisfied on the other unit. Group job satisfaction is not simply the aggregation of each individual staff member's level of job satisfaction. Group job satisfaction is a structural property of the unit. As such, an appropriate measure should capture the degree or strength of satisfaction in the collective, not simply the aggregate level of satisfaction. A proportional measure captures an aspect of structure that a mean-based measure cannot.

Specifically, we based our group job satisfaction measure on the count of unit members at or above the average satisfaction level for the sample ($x = 4.73$).¹ Each individual who meets or exceeds this satisfaction threshold contributes equally to the group job satisfaction measure. When unit size is incorporated in the model, the group job satisfaction measure represents the proportion of satisfied unit members. As the

proportion of satisfied individuals on a given unit increases, the group job satisfaction for that unit is higher.

UNIT-LEVEL CONTROL VARIABLES

Workload. Workload is a standardized measure of either the cumulative average daily census (cumulative ADC) over one week (for inpatient units) or the average number of visits during a week (for outpatient units).² Z scores were created separately for inpatient and outpatient units because the measurement units are dissimilar. Data were collected in reference to a single week in April 1994.

The workload measure for inpatient units was the following:

$$\frac{X_1 \text{ cumulative ADC for a particular unit} - \bar{X}}{SD \text{ cumulative ADC across all units}}$$

The workload measure for outpatient units was the following:

$$\frac{X_2 \text{ average number of visits for a particular unit} - \bar{X}}{SD \text{ average number of visits across all units}}$$

Patient functioning. The patient functioning measure is based on the average psychosocial functioning of patients on a given unit. Unit heads were asked to provide the percentage of patients on their unit who fell into each score range of the Global Assessment of Functioning (GAF) Scale.³ The patient functioning measure represents a weighted mean of the proportion of patients on each unit falling in each GAF score range. The higher the value on this measure, the higher the average level of functioning of patients on the unit.

Unit size. Unit size is measured as the number of patient care staff assigned to a treatment unit.

INDIVIDUAL-LEVEL EXPLANATORY VARIABLES

Individual job satisfaction. Individual job satisfaction is measured as the mean of four items related to an individual staff member's general satisfaction with his or her job. The specific response items include the following: (1) All in all, I am satisfied with my job; (2) If I

had to decide all over again, I would still take this job; (3) My job meets the expectations I had when I took it; and (4) I would recommend my job to a friend. Responses are based on a 7-point scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Scales for all items in this composite measure were reversed so that 7 indicates high satisfaction. Factor analysis was used to confirm the convergent and discriminant validity of the four measures. The principal-components method with varimax rotation was employed. A minimum factor loading of $\geq .60$ was employed as the fit criterion for inclusion of an item in the factor. The Cronbach's alpha for this measure is .89.

INDIVIDUAL-LEVEL CONTROL VARIABLES

Occupation. Occupational membership was measured as a series of dichotomous variables representing the following categories: physician, psychologist, social worker, registered nurse (RN) and nurse practitioner (NP), LPN and NA, and other occupation.⁴ RNs and NPs represent the referent occupational category in the multivariate model.

Gender. Gender was coded 1 for males and 0 for females.

Professional tenure. Professional tenure was measured as the number of years a staff member had been a member of his or her current profession/occupation. Responses produced a continuous variable ranging from 0 to 58 years.

ANALYSIS STRATEGY

According to our theoretical model, attributes at both the unit level and individual unit member level are expected to explain variance in quitting intention. These attributes are structured hierarchically, with individual members nested within units. Contextual elements of a given unit are expected to affect staff members of the same unit similarly. Therefore, this study requires a multilevel analysis because it aims to model individual-level intention to quit with predictor variables at two different levels: individual staff member and organizational unit. To reflect accurately the nested structure of the data in determining regression coefficients, we employ hierarchical linear modeling (HLM) as the multilevel analytical technique for this

analysis (Bryk, Raudenbush, and Congdon 1994). HLM adjusts for the nested data structure by appropriately separating out within-unit variance from between-unit variance (Bryk and Raudenbush 1992).

GENERAL MEASUREMENT MODEL

In a multilevel analysis, variance in the dependent variable is decomposed into within- and between-group components. Two equations result—a within-unit model in which i = individual and j = group,

$$Y_{ij} = \beta_{0j} + r_{ij},$$

and a between-unit model,

$$\beta_{0j} = \gamma_{00} + u_{0j}.$$

Suppose Y_{ij} is the response, intention to quit, for individual i in group j . The within-unit model indicates that unit member values on intention to quit vary around the unit mean, β_{0j} . The level 1 random effect, r_{ij} , is normally distributed with homogeneous variance across units, that is, $r_{ij} \sim N(0, \sigma^2)$. The between-unit model indicates that unit means on intention to quit vary around the grand mean, γ_{00} . The level 2 random effect, u_{0j} , is normally distributed with homogeneous variance across units, that is, $u_{0j} \sim N(0, \tau_{00})$.⁵

ANALYTIC MODEL

The above models are then extended to incorporate individual- and unit-level predictor variables as follows:

Level 1 model

$$\begin{aligned} \text{Intention to quit, } Y_{ij} = & \beta_{0j} + \beta_{1j}(\text{individual job satisfaction})_{ij} \quad (1) \\ & + \beta_{2j}(\text{physician})_{ij} + \beta_{3j}(\text{psychologist})_{ij} + \beta_{4j}(\text{social worker})_{ij} + \beta_{5j}(\text{LPN/NA})_{ij} \\ & + \beta_{6j}(\text{other occupation})_{ij} + \beta_{7j}(\text{male})_{ij} + \beta_{8j}(\text{professional tenure})_{ij} + r_{ij}. \end{aligned}$$

Equation (1) illustrates that individual job satisfaction, occupational membership, gender, and professional tenure are expected to

explain a portion of the variance in an individual staff member's intention to quit within a unit.

Level 2 model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{patient functioning})_j + \gamma_{02}(\text{workload})_j + \gamma_{03}(\text{unit size})_j + \gamma_{04}(\text{group job satisfaction})_j + u_{0j}. \quad (2a)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{patient functioning})_j + \gamma_{12}(\text{workload})_j + \gamma_{13}(\text{unit size})_j + \gamma_{14}(\text{group job satisfaction})_j + u_{1j}. \quad (2b)$$

$$\beta_{2j} = \gamma_{20} \cdots \beta_{8j} = \gamma_{80}. \quad (2c)$$

Equations (2a) and (2b) represent identical models in terms of the group-level predictors expressed. However, each equation models distinctly different outcomes. Equation (2a) reflects the hypothesized model to explain the variance in the intercept value (β_0) produced in the level 1 model. Equation (2b) reflects the hypothesized model to explain the variance in the slope value (β_1) produced in the level 1 model. In other words, the variance in the relationship between individual job satisfaction and quitting intention (the β_1 slope) across units will be explained by patient functioning, workload, size, and group job satisfaction on a unit. Finally, equation (2c) indicates that the relationships between the remaining individual-level variables (occupational, gender, professional tenure) in the model and the dependent variable are not expected to vary significantly across units. Therefore, the slope, or β value, represents the average slope across units.

The above equations illustrate that the intercept (β_0 ; average intention to quit on a unit) and the individual job satisfaction slope (β_1 ; average relationship between job satisfaction and intention to quit on a unit) are modeled as outcomes in the second-level model. In HLM, modeling a slope is similar to testing an interaction term in ordinary least squares (OLS) regression analysis. Here, we are interested in the interaction between unit-level variables (particularly group job satisfaction) and individual job satisfaction on the dependent variable, quitting intention.

Results

INTRACLASS CORRELATION

The first step in multilevel modeling is to estimate the intraclass correlation (ICC) in the dependent variable of interest across groups. Here, our dependent variable is quitting intention, labeled QI. As with the general multilevel equation referenced earlier, the ICC relies on two equations that partition the overall variance in QI into its within- and between-unit components (Bryk and Raudenbush 1992) as follows:

$$\begin{aligned} \text{QI } (Y_{ij}) = & \text{mean QI on a unit } (\beta_{0j}) & (3a) \\ & + \text{random effect for individual } i \text{ in unit } j (r_{ij}). \end{aligned}$$

$$\begin{aligned} \text{Mean QI on a unit } (\beta_{0j}) = & \text{mean QI across units } (\gamma_{00}) & (3b) \\ & + \text{random effect for unit } j (u_{0j}). \end{aligned}$$

Combining the two equations above yields

$$Y_{ij} = \gamma_{00} + u_{0j} + r_{0j}, \text{ where } \text{Var}(Y_{ij}) = \text{Var}(u_{0j} + r_{ij}) = \tau_{00} + \sigma^2. \quad (3c)$$

The ICC (ρ) is the proportion of variance in the dependent variable that resides at the unit level and is computed from the variance components cited in equation (3c) as follows:

$$\rho = \tau_{00} / (\tau_{00} + \sigma^2). \quad (3d)$$

The ICC varies from 0 to 1. The closer the ICC is to 1, the greater the amount of between-group variation or within-group correlation in the dependent variable. A significant difference between groups supports using a multilevel model that includes group-level predictor variables. For this analysis, the ICC indicated that 5% of the variance in the intention to quit is between units. This represents a significant amount of variance in the dependent variable between hospital units ($\chi^2 = 191.06$, $df = 107$, $p < .001$). Based on these results, it is reasonable to continue building a multilevel model to explain between-unit variation in quitting intention.

After determining the ICC, the next step in multilevel modeling is to examine a first-level model, without group-level predictor variables. A first-level model incorporates predictor variables at the first level of analysis (the individual staff member). The results of the first-level model are used to determine whether the relationship between individual-level variables and quitting intention vary by unit. If the parameters do vary significantly by unit, the corresponding parameter variance can be modeled using unit-level predictors. Results of the first-level model indicated that the parameter variance of most individual-level predictor variables (occupation, gender, tenure) should be set to zero when constructing the final model. In other words, these variables will be included in the final model but not modeled as outcomes because the relationship between them and the dependent variable did not vary significantly among units; the parameter variance was not significantly different than zero.⁶ By contrast, the individual job satisfaction slope, or the relationship between individual job satisfaction and intention to quit, did vary significantly among units ($\chi^2 = 150.11$, $df = 107$, $p = .004$). Therefore, the intercept (intention to quit) and the individual job satisfaction slope are included as outcomes in the final multilevel model because each parameter displays a significant amount of variance across units.

FINAL MULTILEVEL MODEL

The final results displayed in Table 2 reflect the two components of the model tested: intercept variation (intention to quit) and slope variation (relationship between individual job satisfaction and intention to quit). The individual variables have been centered on their group means because we are interested in the distribution of means and slopes across units and the effect of group-level variables on quitting intention for a given group. The unit-level variables have not been centered and are left in their natural metric.

HYPOTHESIZED EFFECT: INTERCEPT COMPONENT

Results indicate strong support for hypothesis 1, which predicted that higher group job satisfaction lowers individual staff members' quitting intention. The effect of group job satisfaction is negative ($\gamma_{04} =$

TABLE 2
 Final Multilevel Model: The Effect of Group Job Satisfaction
 and Other Covariates on Intention to Quit

	<i>Effect</i>	SE
Intercept component of model		
Overall intercept		
Intention to quit	2.937***	.179
Unit-level variables		
Patient severity	-.003	.004
Workload	-.021	.050
Unit size	.088***	.014
Group job satisfaction	-.111***	.020
Individual-level variables		
Physician	.059	.158
Psychologist	.020	.218
Social worker	-.016	.134
Licensed practical nurses/nursing assistants	-.058	.081
Other occupation	-.031	.110
Male	.171*	.069
Professional tenure	-.010**	.003
Slope component of model		
Overall slope		
Individual job satisfaction	-.666***	.092
Unit-level variables		
Client functioning	.002	.002
Workload	-.054*	.026
Unit size	.017*	.007
Group job satisfaction	-.026**	.010

NOTE: Registered nurses and nurse practitioners are the referent occupational category in the analysis.

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

-.111) and significant at the $p \leq .001$ level. In other words, as the number of persons on a unit who are at or above average satisfaction increases, individual staff members' intent to quit diminishes. This effect obtains even when controlling for individual job satisfaction and other individual- and unit-level variables.

HYPOTHESIZED EFFECT: SLOPE COMPONENT

As predicted by hypothesis 2a, individual job satisfaction is a significant predictor of the intercept, intention to quit. As individual job

satisfaction increases, intent to quit decreases ($\gamma_{10} = -.666, p < .001$). Based on results of the first-level model incorporating only the individual-level variables, it was determined that the individual job satisfaction slope, or the relationship between individual job satisfaction and quitting intention, varied significantly between units. When modeling this relationship or slope, we are interested in which unit-level variables explain variation in the relationship between individual job satisfaction and intention to quit across units, as reflected in equation (2b).

As hypothesized (hypothesis 2b), group job satisfaction was a significant moderator of the relationship between individual job satisfaction and quitting intention. Figure 1 illustrates the effect of group job satisfaction on the relationship between individual job satisfaction and quitting intention. As group job satisfaction increases, the relationship between individual job satisfaction and quitting intention is strengthened ($\gamma_{14} = -.026, p < .01$). Higher group job satisfaction enhances the negative effect of individual job satisfaction on quitting intention. In other words, workers with high levels of individual job satisfaction on high group job satisfaction units will be even less likely to intend to quit their job than individuals with high levels of individual job satisfaction on low collective job satisfaction units. Conversely, lower group job satisfaction units dampen the negative effect of individual job satisfaction on quitting intention. On low group job satisfaction units, individuals with high levels of individual job satisfaction will be less likely to express intentions to remain in the unit. These results provide support for the hypothesis that group job satisfaction strengthens the relationship between individual job satisfaction and quitting intention.

CONTROL EFFECTS: INTERCEPT COMPONENT

Our results indicate that both individual- and group-level variables exhibit significant effects on intention to quit. Compared to women, men were more likely to intend to quit their job ($\beta_{7j} = .171, p < .05$). As professional tenure increases, staff members' quitting intention decreases ($\beta_{8j} = -.010, p < .01$). None of the occupational variables included in the model exhibited significant effects on quitting intention.

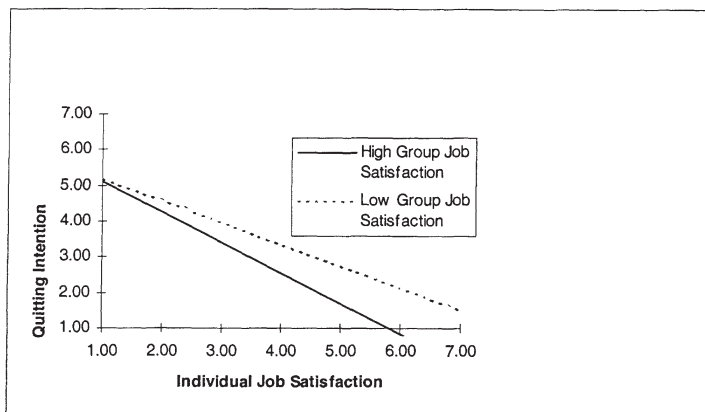


Figure 1: Effect of Individual Job Satisfaction on Quitting Intention Under Conditions of Low and High Group Job Satisfaction

NOTE: For graphical display purposes, *high group job satisfaction* is defined as a unit in which 90% of the unit members reported individual job satisfaction at or above the average level of 4.73. *Low group job satisfaction* is defined as a unit in which 27% of the unit members reported individual job satisfaction at or above the average level of 4.73.

Among the unit-level variables, only unit size exhibited a significant effect on quitting intention. The larger the size of a unit, the greater staff members' intention to quit ($\gamma_{03} = .088, p < .001$). Patient functioning and workload did not show significant associations with quitting intention.

CONTROL EFFECTS: SLOPE COMPONENT

As with group job satisfaction, unit size moderates the relationship between individual job satisfaction and quitting intention ($\gamma_{13} = .017, p < .05$). The relationship (or slope) between individual job satisfaction and quitting intention is negative, indicating that as unit size increases, the relationship between individual job satisfaction and quitting intention becomes weaker. Increasing unit size lessens the impact of individual job satisfaction on quitting intention.

Although not a significant predictor of the intercept component of the final model, workload was a significant predictor of the slope variance between units ($\gamma_{12} = -.054, p < .05$). This indicates that there is an interaction between workload and individual job satisfaction on intention to quit. As workload increases on units (controlling for unit size), individual job satisfaction has an even stronger negative effect on quitting intention. Patient functioning did not show a significant association with the relationship between job satisfaction and quitting intention.

Explanatory Power of the Multilevel Model

HLM partitions the variance into individual-level (within-unit) and unit-level (between-unit) components. The proportion of variance explained by the final model can be computed by subtracting the remaining total variance in the dependent variable from the initial total variance in the dependent variable and dividing this difference by the total initial variance in the dependent variable. In the same manner, the proportion of variance explained can be separated into its between and within components. Refer to Table 3 for a summary of the explained variance in the final model. The individual-level predictors in the final model explain approximately 39% of the individual-level variance. The unit-level predictors explain approximately 25% of the unit-level variance, controlling for individual effects. However, it must be noted that most of the variance in the dependent variable resides at the individual level of analysis (95%). The final model with both levels of predictor variables explains approximately 38% of the total variance in quitting intention, leaving 62% of the initial variance to be explained.

Summary and Discussion

In this study, we tested the effects of two types of organizational features on job satisfaction and quitting intention: (1) the affective context of the group (group job satisfaction) and (2) structural features of the work unit (unit size, workload, and level of client functioning on the unit). Study findings support our premise that group job

TABLE 3
 Summary of Variance in Quitting Intention
 Explained by the Final Multilevel Model

	<i>% Proportion of Variance Explained by Final Model</i>
Individual-level predictors on individual-level variance	38.45
Unit-level predictors on unit-level variance	24.53
Both levels of predictors on total variance	37.80

NOTE: The fully unconditional model without predictor variables (intraclass correlation) indicated that approximately 5% of the variance in quitting intention was attributable to differences between hospital units, while the remaining 95% of the variance was attributable to differences within hospital units.

satisfaction exercises effects on intention to quit independent of individuals' dispositions toward their jobs. These effects are both direct and interactive. In the first case, as group job satisfaction increases, individual intention to quit decreases, regardless of an individual's own level of job satisfaction. In the second case, as group job satisfaction increases, the negative relationship between individual job satisfaction and intention to quit becomes stronger. These findings underscore the importance of affective context in shaping individual attitudes and behavioral intentions. Our results also help sharpen the conceptual distinction between individual job satisfaction and group job satisfaction. Group job satisfaction is not simply the average level of worker satisfaction. When measured and assessed as a collective property of a group, group job satisfaction operates in a manner that is distinct from either individual job satisfaction or the aggregate properties of individual organizational members.

In addition to the affective context of the group, other organizational features of a more traditional nature were found to influence individual job attitudes and behavioral intentions. As expected, as unit size increased, so did staff members' intent to quit. Unit size affects quitting intention both directly and as a moderator of the relationship between job satisfaction and quitting intention. As the size of a unit increases, the effect of job satisfaction on quitting intention is weakened. Other issues related to increasing complexity by virtue of an increase in unit size may become more important than individual job satisfaction in determining quitting intention.

A particularly interesting contextual finding was the effect of high workload units on the relationship between individual job satisfaction and quitting intention. Under intense unit workload conditions, a given worker's own individual level of job satisfaction becomes more salient in predicting quitting intention. It may be that on high workload units, individuals are more heavily involved and are given more responsibilities than individuals on low workload units. Other studies have suggested that the intensity of work demands may be unrelated to turnover among long-term care staff (Banaszak-Holl and Hines 1996). Indeed, increasing levels of responsibility may actually influence greater commitment to the organization and less quitting intention (Institute of Medicine 1986).

As prior research suggests, the affective context of the group (e.g., group-level job satisfaction) may influence quitting intention to a greater degree than more structural elements of the unit (e.g., unit size, unit workload). Prior research has demonstrated that individuals' negative feelings about work tend to arise from interpersonal problems with coworkers and supervisors and positive feelings from challenging job tasks (Guppy and Gutteridge 1991; Cohen-Mansfield 1989; Zautra, Eblen, and Reynolds 1986). In other words, challenging work may actually produce more satisfied workers, while poor interpersonal relations produce less satisfied workers. Perhaps stressors related to the affective interpersonal context of the work unit may have the greater effect on job satisfaction, quitting intention, and eventual turnover than workload issues or task demands. Indeed, Schaefer and Moos (1996) found that relationship stressors had a greater effect on job satisfaction and intent to stay than task stressors. Further evidence supporting the importance of interpersonal context is found in another study that determined that work relationships and the social characteristics of the work environment were among the most powerful predictors of burnout among nurses working in hospitals and nursing homes (Hare, Pratt, and Andrews 1988). Furthermore, Melchior et al. (1997) found that the mean work experience of nursing staff was more important than the individual work experience of the nurse in determining burnout.

It is worth noting that none of the occupational variables was significant in the full multilevel model. This may suggest that once job satisfaction is determined, occupation has no further effect on quitting

intention. However, this hypothesis should be further studied in light of past research highlighting occupational effects on job satisfaction and quitting intention.

The results of our study, coupled with past research, suggest that the affective context of the group may be more important in terms of staff retention than the organization of tasks at the individual staff member level. Future research, however, must consider whether such distinctions hold when other outcomes are examined. Likely candidates for study include actual quitting behavior and productivity (group and individual). In addition, future research should target the unique experience of nurses compared to other health care professionals and paraprofessionals working in the same contextual environment. It must also be acknowledged that the population studied here—specialized mental health treatment staff in a government-run health care system—may limit the generalizability of the findings. Replication in other types of organizations is clearly warranted.

In an era when demands on LTC organizations and treatment staff are likely to further intensify, managers cannot afford to ignore the role of group job satisfaction in favor of retention strategies that focus only on the individual worker. Indeed, our results may suggest that improving the affective context of the group, rather than individual job satisfaction alone, should constitute the primary basis for fostering employee retention. Such a top-down approach assumes that developing social networks and processes in LTC settings, not changing individual attitudes, are the building blocks for strengthening commitment to the organization.

Finally, assessment of the effects of organizational context on individual attitudes in this study was directly enhanced by multilevel modeling. The nested structure of these data requires an analytic technique that separately estimates group-level effects, individual-level effects, and the potential interactions between levels. Conventional techniques, such as assigning the same group value to all members of a group or aggregating individual values to the group level, are inappropriate. In the first case, assigning the same group value to all members of a group results in a violation of the independence of observations assumption underlying traditional regression approaches. Individuals in the same group are exposed to common stimuli, and this common effect needs to be taken into account by using an appropriate

multilevel method. In the second case, aggregating individual outcomes to the group level ignores potentially meaningful individual-level variance in the outcome measure. The influence of organizational context on individual attitudes and behavior has and will continue to be a central concern of much organizational analysis. The appropriate use of techniques such as HLM and other multilevel models holds great potential for examining such relationships in an analytically rigorous manner.

NOTES

1. A fuller description of the items included in the job satisfaction measure on which the group job satisfaction measure is based is included in the discussion of the individual job satisfaction measure. Alternative formulations of the group job satisfaction measure were considered. Four different nonlinear forms of the variable group job satisfaction were tested to investigate the possibility of a nonlinear effect of group job satisfaction on quitting intention (intercept) and the relationship (slope) between job satisfaction and quitting intention. The following four forms were tested: quadratic, log, inverse, and square root. While the log and square root functions both produced significant effects on the intercept and slope, a comparison of the explanation provided by all four alternative forms of the variable group job satisfaction revealed that the simple linear term represents the best model. Furthermore, a consensus-based measure was tested instead of the proportional group job satisfaction measure. The consensus-based measure dichotomized individuals into either those that were at or above the average job satisfaction level or below this level. The proportional measure explained 18% more of the unit-level variance than the consensus-based measure.

2. A short survey was administered to unit coordinators to obtain average daily census figures (for inpatient units) and visit codes (for outpatient units) from Veterans Affairs (VA) reporting sources. The number of outpatient visits was abstracted from the VA outpatient information system based on the visit codes reported in the survey. These measures were verified with unit coordinators.

3. The Global Assessment of Functioning (GAF) Scale is an instrument developed by the American Psychiatric Association (1987) to measure the functional status of persons with serious mental illness. The highest GAF score range (81-90) indicates "absent or minimal symptoms, good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, not more than everyday problems or concerns"; the lowest range (1-10) indicates "persistent danger of severely hurting self or others or persistent inability to maintain minimal personal hygiene or serious suicidal act with clear expectation of death."

4. Other occupations include the following ancillary staff: occupational, recreational, and physical therapists; clinical pharmacist; dietitian; chaplain; physician assistant; psych tech; social work tech; occupational therapist tech; recreational therapist tech; other tech; and other.

5. At level 2, the consequences of inappropriately assuming homogeneity of the variance in the random effect would project some loss of efficiency but result in unbiased level 2 coefficient estimates (Bryk and Raudenbush 1992:218). At level 1, we can test the assumption of the homogeneity of variance in the random effect using a chi-square test available in the hierarchical linear

modeling (HLM) software. The chi-square test reveals that heterogeneity of the level 1 variance does not exist among the 108 units ($\chi^2 = 111.51$, $df = 107$, $p = .363$).

6. Chi-square tests of slope variance revealed that all of the individual effects, with the exception of job satisfaction, had nonsignificant parameter variance across units.

	c^2	df	p-Value
Physician	46.24	62	> .500
Psychologist	27.07	33	> .500
Social worker	85.01	84	.449
Licensed practical nurses/nursing assistants	59.12	67	> .500
Other occupation	69.75	76	> .500
Professional tenure	105.04	107	> .500
Male	99.82	100	> .500

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