Impact of relational coordination on job satisfaction and quality outcomes: a study of nursing homes

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This article develops a relational perspective on the coordination of work. Existing theory suggests that relational forms of coordination should improve performance in settings that are highly interdependent, uncertain and time-constrained. Going beyond previous work, we argue that relational coordination should also improve job satisfaction by helping employees to accomplish their work more effectively and by serving as a source of positive connection at work. Using a cross-sectional sample of nursing aides and residents in 15 nursing homes, we investigate the impact of relational coordination on quality outcomes and job satisfaction.
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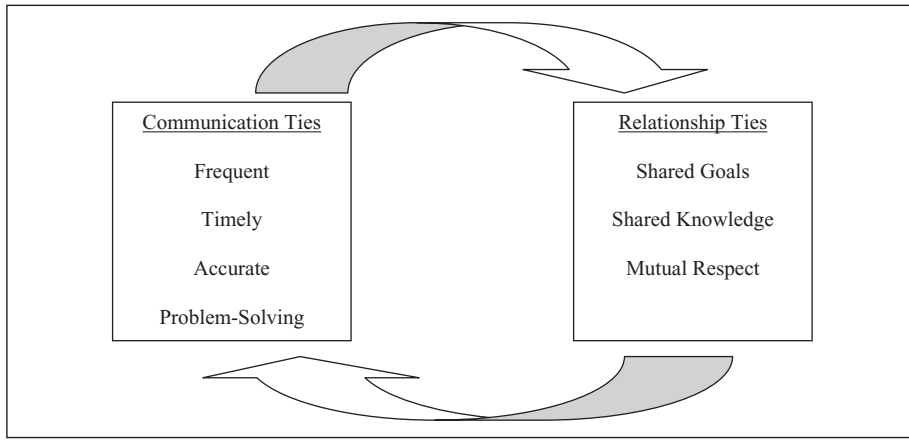
In recent years, advocates for the elderly have called for a renewed focus on quality of life in addition to clinical outcomes, asking nursing homes to deliver care that is more holistic and resident centred (Bowers *et al.*, 2001; Stone *et al.*, 2002) and to become regenerative communities that nurture the capabilities of residents rather than simply attend to their physical decline (Eaton, 2000). The concept of resident-centred care is based on the notion that all activities and information respond to resident needs in a coordinated way, organised around horizontal, cross-cutting work processes rather than around the functions in which employees work. Coordination is therefore potentially of great importance for achieving this vision of eldercare.

But what is meant by coordination? Coordination has traditionally been viewed as an information-processing problem by organisation design and contingency theorists (*e.g.* Lawrence and Lorsch, 1967; Galbraith, 1977; Tushman and Nadler, 1978). Over time, however, coordination has come to be understood to be a relational process as well, involving shared understandings of the work and the context in which it is carried out (*e.g.* Weick and Roberts, 1993; Crowston and Kammerer, 1998; Faraj and Xiao, 2006). The theory of relational coordination argues specifically that

FIGURE 1 *Dimensions of relational coordination*



the effectiveness of coordination is determined by the quality of communication among participants in a work process (for example its frequency, timeliness, accuracy and focus on problem solving rather than on blaming), which depends on the quality of their underlying relationships, particularly the extent to which they have shared goals, shared knowledge and mutual respect (Gittell, 2006). The quality of their relationships, in turn, reinforces the quality of their communication. See Figure 1 for a depiction of this dynamic process. Whereas coordination has been defined as the management of interdependencies between tasks (Malone and Crowston, 1994), relational coordination can be defined as the management of the interdependencies between the people who carry out those tasks (Gittell, 2006).

Impact of relational coordination on performance outcomes

Relational coordination is expected to improve performance in potentially significant ways. Frequent and timely communication can generate rapid responses to new information as it emerges, resulting in minimising delays and maximising responsiveness to customer needs. Accurate communication reduces the potential for errors, and problem-solving communication avoids the negative cycle of blaming and information hiding, keeping the focus instead on continuous improvement and learning. High-quality relationships reinforce high-quality communication, encouraging participants to listen to each other and to take account of the impact of their own actions or inactions on those who are engaged in a different part of the process, therefore helping them to react to new information in a coordinated way, further contributing to performance of the work process.

But when does relational coordination matter? Relational coordination is expected to be particularly important for achieving desired outcomes in settings that are characterised by high levels of task interdependence (Thompson, 1967), uncertainty (Argote, 1982) and time constraints (Adler, 1995). When *task interdependence* is low, participants can carry out their work in a relatively autonomous way with little regard for other participants in the work process, whereas when task interdependence is high, participants must be aware of and responsive to the actions

that are taken by other participants. *Uncertainty* further intensifies the need for relational coordination. When uncertainty is low, responses and handoffs can be pre-planned, requiring little need for coordinated responses to changing conditions. When uncertainty is high, however, participants must be sensitive not only to changes that affect their own tasks but also to changes that affect the tasks of others with whom they are interdependent. *Time constraints* exacerbate the effects of both interdependence and uncertainty, leaving little slack in the system and placing a premium on responsiveness.

Others have argued that these conditions for relational forms of coordination are met in flight departures (Gittell, 2001), acute care (Young *et al.*, 1998; Gittell, 2002), emergency care (Argote, 1982) and on trauma units (Faraj and Xiao, 2006). But are they met in nursing homes? Although nursing aides deliver much of the direct care in nursing homes in one-on-one relationships with residents, they do not deliver all of the care. *Task interdependence* exists between them and other members of the staff who work with the residents, including other nursing aides, nurses, housekeeping staff, dietary staff, activities staff, social workers, physical therapists, and occupational and speech therapists. As in other service settings, these interdependencies are not the simple sequential handoffs found on production lines, but rather are iterative, requiring feedback among staff as new information emerges regarding a given resident. *Uncertainty* exists with regard to the physical and mental conditions of elderly residents, which can vary from day to day in unpredictable ways, therefore requiring staff members to be highly attentive to the resident and to each other in order to respond appropriately and collectively. Finally, *time constraints* exist because of residents' need for assistance to eat, to use the bathroom, to get dressed, to perform basic daily functions, to cope with the emotional distress associated with aging and loss, and, ideally, to experience growth through the final phase of human development. Failure to respond to resident needs in a timely way can be expected to lead to negative clinical outcomes such as urinary tract infections, pressure sores, dehydration, depression, as well as reduced quality of life.

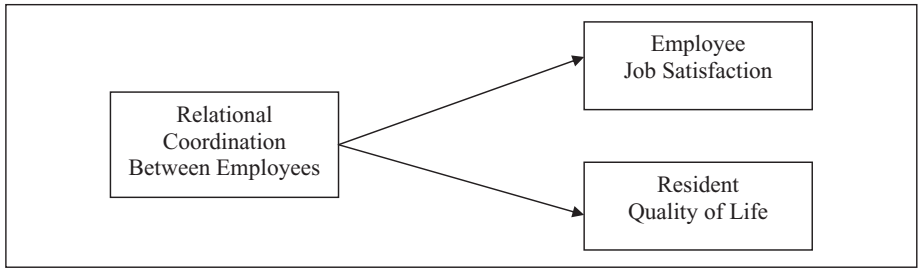
Relational coordination among nursing home staff is therefore expected to improve resident quality outcomes by improving the exchange of information relevant to the care of a given resident under conditions of interdependence, uncertainty and time constraints.

Hypothesis 1: Relational coordination among nursing home employees is positively associated with resident quality outcomes.

Impact of relational coordination on job satisfaction

In addition to improving performance outcomes, relational coordination may also improve job satisfaction for staff, although this proposition has not been previously explored. We know that having the necessary resources to accomplish one's work is an important source of job satisfaction (*e.g.* Hallowell *et al.*, 1996). Relational coordination is a form of organisational social capital, an asset that makes it easier to access resources needed to accomplish one's work (*e.g.* Nahapiet and Ghoshal, 1998; Baker, 2000; Adler and Kwon, 2002). Because of this instrumental benefit of relational coordination, we expect that relational coordination will be positively associated with job satisfaction.

FIGURE 2 *Relational coordintation, job satisfaction and quality of life*



There is a second way in which relational coordination can be expected to increase job satisfaction. We know from organisational psychology that high-quality relationships are a source of well-being for people at work (Kahn, 1998; Williams and Dutton, 1999; Lewin and Regine, 2000; Dutton, 2003; Dutton and Heaphy, 2003; Dutton and Ragins, 2007). Dutton and Heaphy (2003) define a high-quality connection as one that is life giving and a low-quality connection as one that is life depleting. High-quality connections take many forms, but they have in common a keen awareness of and attunement to the needs of the other, and thus are energising to the individuals involved in them. The energising nature of high-quality connections comes from the recognition and validation of one's self by others. These high-quality connections tend to create a positive cycle that is generative of other high-quality connections, just as low-quality connections tend to create a negative cycle that is generative of other low-quality connections. We expect that the positive relationships that underpin relational coordination (shared goals, shared knowledge, mutual respect) will therefore lead to higher levels of job satisfaction. Because of both instrumental and intrinsic benefits of connecting with others, we expect that relational coordination will be positively associated with job satisfaction.

Hypothesis 2: Relational coordination among nursing home employees is positively associated with their job satisfaction.

In sum, relational coordination has been shown to affect performance in airlines (Gittell, 2001, 2003) and in healthcare settings (Gittell *et al.*, 2000, 2007b) but not in nursing homes, and its effects on job satisfaction have not been previously explored in any setting, to our knowledge. Using a cross-sectional sample of nursing aides and residents in 15 nursing homes, we investigate the impact of relational coordination on quality outcomes and on job satisfaction. See Figure 2 for the model to be tested.

METHODS

Participants and data collection procedures

Fifteen facilities, already participating in a larger study of nursing home practices, were invited to participate based on their reputations for being good places to live and good places to work. All agreed to participate. Participating facilities included 5 for-profit and 10 non-profit facilities. Data from each facility included a resident

questionnaire, a nursing aide questionnaire, and publicly available facility-level archival data from the Center for Medicare and Medicaid Services' Nursing Home Compare web site.

The resident questionnaire (38 items) asked primarily about resident quality of life (30 items). We approached five residents from each of two target units in the 15 participating facilities to complete the survey. Based on a brief cognitive screen, we excluded residents unable to give informed consent. Resident surveys were conducted through interviews with a research assistant experienced in issues of dementia and cognitive impairment. Resident interviews were conducted in a space of the resident's choice to allow for maximum privacy and comfort. Residents were offered a non-monetary incentive at the completion of the survey. We received responses from 105 out of 123 eligible residents approached, for a response rate of 85 per cent, with a range of 48–100 per cent in each facility.

The nursing aide questionnaire (82 items) contained questions about relational coordination, job satisfaction and working conditions. We attempted to survey all nursing aides working on the same two target units in each of our 15 facilities on the day the survey was administered. The survey was translated into Spanish and Haitian Creole because of the prevalence of these languages among the nursing home aides in participating facilities and was administered in paper and pencil form, with an optional accompanying audio tape of the survey in each of the three languages. Nursing aides were asked to comment on their satisfaction with their jobs and their relationships with supervisors, and on the day-to-day coordination occurring in their facilities. Aides were given a small monetary incentive for their participation. We received responses from 252 out of 255 nursing aides we attempted to survey, for a response rate of 99 per cent.

Measures

Relational coordination Relational coordination encompasses four communication dimensions: frequent, timely, accurate and problem-solving communication, as well as three relationship dimensions: shared goals, shared knowledge and mutual respect. The relational coordination instrument was originally developed in the airline setting (Gittell, 2001) and applied in the hospital setting (Gittell *et al.*, 2000, 2007b). Based on previous studies, relational coordination was expected to have index reliability scores between 0.80 and 0.90.

We adapted this previously validated instrument to the nursing home setting by changing it in three ways to address the challenges of surveying this population. First, because of the time constraints we negotiated with nursing home administrators for surveying nursing aides, we reduced the number of relational coordination dimensions from seven to five, dropping two of the original communication dimensions – timely and accurate communication. We believed that by keeping two of the four communication dimensions and by keeping all of the relationship dimensions, we would capture much of the theoretical meaning of the relational coordination construct, although ideally all seven dimensions would be included in future studies. Additionally, the questions themselves were simplified to accord with the low educational levels of most respondents in our sample relative to the respondents for whom the instrument was originally defined while retaining the meaning of the original questions to the extent possible. Finally, the items were

TABLE 1 *Relational coordination index*

Gittell RC dimensions	Nursing aide survey items	Factor 1 loadings
Frequent communication	How often do you talk with . . . ?	0.5719
Problem-solving communication	When there are problems, do they try to solve the problem?	0.6859
Shared goals	Do they have the same goals as you do for taking care of the resident?	0.7671
Shared knowledge	Do they know very much about the work you do?	0.8353
Mutual respect	Do they respect the work you do?	0.8070
Eigenvalue		2.73
Cronbach's alpha		0.86

scored on a four-point rather than a five-point scale, again for the purposes of simplification given the low educational levels of our respondents.

Following procedures used in other studies of relational coordination (*e.g.* Gittell *et al.*, 2000), we created a composite index of the nursing aide's relational coordination with each of the other job functions studied (nurses, housekeepers and dietary staff). Factor analysis using the principal factors method in STATA-9 showed that all five items loaded onto a single factor with an eigenvalue of 2.73 and factor loadings between 0.5719 and 0.8353. This simplified relational coordination index that we tailored to the nursing home setting achieved a Cronbach's alpha of 0.86. All of these indicators were consistent with the previous studies that used the original validated instrument (Table 1).

Job satisfaction We used a one-item measure of job satisfaction from the nursing aide questionnaire, asking "Overall, how satisfied are you with your job?" which was scored on a five-point scale from 'very satisfied' to 'very dissatisfied'. In a review of job satisfaction measures, Scarpello and Campbell (1983) concluded that this single item provided the best global rating of job satisfaction. Although there has been a trend towards the use of multi-item scales, a recent study of the efficacy of single-item measures of job satisfaction shows a strong correlation between single-item measures of overall job satisfaction and scales measuring overall job satisfaction (Wanous *et al.*, 1997). Based on our theoretical argument, we expected that relational coordination was likely to affect job satisfaction in a very broad sense, making the measure of overall job satisfaction the most appropriate one for this analysis.

Resident quality of life We used the Kane *et al.* (2002) 14-item measure of resident quality of life based on 14 questions from across 7 domains that were identified theoretically – Privacy, Spiritual Well-Being, Meaningful Activity, Food Enjoyment, Relationships, Individuality and Global Quality of Life – published in Degenholtz *et al.* (2006), and a shorter version of the scale published in Kane *et al.* (2004). We adapted the survey by offering two response categories ('mostly yes' or 'mostly no')

TABLE 2 *Resident quality of life index*

Domains	Resident survey items	Factor loadings
Privacy	Can you make a private phone call?	0.4704
	When you have a visitor, can you find a place to visit in private?	0.3294
Spiritual well-being	Do you participate in religious activities here?	0.6052
	Do the religious activities here have a personal meaning for you?	0.4445
Meaningful activity	Do you enjoy the organised activities here?	0.2887
Food enjoyment	Do you like the food here?	0.6361
	Do you enjoy mealtimes here?	0.7599
Relationships	In the last month, have people who worked here stopped just to have a friendly conversation?	0.6374
	Do you consider any staff members to be your friend?	0.4700
Individuality	Taking all staff together . . . does the staff know about your interests and what you like?	0.4442
	Are the people here interested in your experiences and the things you have done in your life?	0.3000
Global quality of life	Despite your health conditions, do you give help to others, such as other residents or your family?	0.4423
	Do you feel confident you can get help when you need it?	0.2961
Eigenvalue		3.16
Cronbach's alpha		0.69

Note: Fourteen-item quality of life index from Kane *et al.* (2002), with one item dropped because of weak factor loading.

based on testing which suggested greater ease of response by elderly residents. Factor analysis using the principal factors method in STATA-9 showed that 13 of the 14 items loaded onto one factor with an eigenvalue of 3.16 and factor loadings between 0.2887 and 0.7559. We dropped one item – "do you feel your possessions are safe in this nursing home?" – because of a factor loading of less than 0.20. From the remaining 13 items we created a single index called 'resident quality of life' with a Cronbach's alpha of 0.69 (Table 2).

Control variables Control variables for resident quality of life models included resident age, length of stay and gender. Resident age was expected to potentially influence a resident's satisfaction with his or her care, given that some studies have found that older respondents give more favourable satisfaction ratings. Length of stay was also expected to positively influence a resident's satisfaction with his or her care, given that the initial period of adaptation to nursing home life is often the most difficult. Gender was expected to potentially influence a resident's satisfaction with his or her care, given that the majority of nursing home residents are female. All

were determined from the resident questionnaire. In addition to these resident characteristics, we included the percentage of nursing aides on the resident's unit who spoke English as a first language, given that residents may have a preference for nursing aides with English as a first language. We also included two facility-level variables: facility size (number of beds) and ownership status (for profit versus non-profit), both taken from the Centers for Medicare and Medicaid Services Nursing Home Compare web site. Larger facilities are expected to have more resources but also to be more impersonal, so the impact of facility size on resident quality of life could be positive or negative. Non-profits are expected to have fewer resources but to be more focused on the mission of delivering high-quality care as opposed to earning profits, so the impact of ownership status on resident quality of life could be positive or negative.

Control variables for nursing aide job satisfaction models included: nursing aide age, tenure, language, gender and education. We expected age and tenure to be negatively associated with job satisfaction because of the limited growth potential in many nursing aide jobs. Female nursing aides were expected to be more satisfied, given that this occupation is highly dominated by women and given anecdotal evidence that female residents sometimes prefer to be attended by female nursing aides. English as a first language could be either positively or negatively associated with job satisfaction: native English-speaking nursing aides might exhibit higher satisfaction because of better treatment by management, but non-native English-speaking nursing aides might exhibit higher satisfaction because of having fewer alternative job choices. Finally, nursing aides with more than a high school education were expected to be less satisfied, given that the nursing aide job design typically does not make use of higher-level education. All variables were determined from the nursing aide questionnaire. We also included facility size and ownership status, as described earlier, expecting for similar reasons that their effects on nursing aide job satisfaction could be either positive or negative (see Table 3).

Analytical procedure

All models were estimated using random effects linear regression using the STATA-9 xtreg command to account for the multi-level (resident/facility or nursing aide/facility) structure of the data, with facility as the random effect. Random effects models, also known as mixed, hierarchical linear, or multi-level models, are an extension of fixed effects models (Bryk and Raudenbush, 1992). Like other multi-level models, random effects enable us to determine the percentage of variation explained by our models at multiple levels, both within and between facilities. Random effects models also allow us to adjust *p*-values for the fact that our observations are nested within facilities. All variables were entered simultaneously.

The impact of relational coordination on resident quality of life was assessed using random effects linear regression, with the quality of life index as the dependent variable ($n = 93$ residents for whom quality of life and covariates were available) and facility ($n = 15$) as the random effect. We included resident characteristics (age, length of stay and gender) and facility characteristics (facility size and ownership status) as covariates for the reasons given earlier. We present standardised regression coefficients and *p*-values.

TABLE 3 *Descriptive data*

	Obs	Mean	Standard deviation	Min	Max	Difference between sites (*p*-value)
Resident quality of life	105	1.73	0.20	1.25	2.00	0.0046
Resident age (years)	105	82.92	11.56	28	104	0.3260
Resident length of stay (months)	95	26.62	32.19	0	204	0.1145
Resident gender (1 = female)	102	0.80	0.40	0	1	0.1422
Relational coordination	253	1.99	0.57	0.40	3.00	0.0490
Nursing aide job satisfaction	236	4.03	0.98	1	5	0.3848
Nursing aide age (years)	255	39.02	10.53	24	65	0.0000
Nursing aide tenure (months)	253	61.77	69.03	0	360	0.0004
Nursing aide gender (1 = female)	253	0.87	0.34	0	1	0.0569
Nursing aide language (1 = English as first language)	253	0.51	0.50	0	1	0.0000
Nursing aide education (1 = more than high school)	255	0.38	0.49	0	1	0.0255
Facility size (beds)	15	139.87	38.70	92	224	NA
Facility ownership (1 = non-profit)	15	0.67	0.49	0	1	NA

The impact of relational coordination on nursing aide job satisfaction was assessed using random effects linear regression, with job satisfaction as the dependent variable ($n = 231$ nursing aides for whom job satisfaction and covariates were available) and facility ($n = 15$) as the random effect. Again, relational coordination is a facility-aggregate score calculated from individual index scores ($n = 15$). We included nursing aide characteristics (age, tenure, gender, language and education) and facility characteristics (facility size and ownership status) as covariates for the reasons given earlier. We present standardised regression coefficients and *p*-values.

FINDINGS

Descriptive findings

Table 3 shows all variables to be used in our models. The mean overall age of residents was 83, the mean length of stay was 27 months and 80 per cent were female. The mean overall age of nursing aides was 39, the mean tenure was 61 months, 87 per cent were female, 38 per cent had more than a high school education and 51 per cent reported English as their first language. Table 3 also shows descriptive data for facility size and ownership status. The average number of beds in our facilities was 140 and 67 per cent were non-profit. Given that the average facility size in Massachusetts is 110 and that 29 per cent are non-profit, the facilities in our sample are somewhat larger and far more likely to be non-profit relative to the statewide average.

TABLE 4 *Relational coordination and resident quality of life*

	Resident quality of life
Relational coordination	0.37*
	(0.008)
Resident age	–0.13
	(0.198)
Resident length of stay	0.16
	(0.112)
Resident gender (female = 1)	0.19
	(0.052)
Nursing aide first language (English = 1)	0.23
	(0.177)
Facility size	0.12
	(0.461)
Facility ownership	0.21
	(0.256)
Constant	0.01
	(0.970)
R^2 within	0.16
R^2 between	0.24
R^2 overall	0.16

Note: All models are random effects regressions with resident as the unit of analysis ($N = 93$) and nursing home facility as the random effect ($N = 15$). All coefficients are standardised with a mean of 0 and a standard deviation of 1.
*$p < 0.01$ (two-tailed).

The final column of Table 3 reports the significance of between-site variation for each of our measures, which was computed using one-way analysis of variance in STATA-9. One of our important measures does not vary significantly by site – job satisfaction. We address this issue further in the discussion.

Impact of relational coordination on resident quality of life

Table 4 shows models of resident quality of life. Relational coordination was significantly associated with resident quality of life ($r = 0.37$, $p = 0.008$). The model accounts for 16 per cent of within-facility variation and 24 per cent of between-facility variation in resident quality of life. Resident gender was marginally associated with resident quality of life, in the expected direction ($r = 0.19$, $p = 0.052$). Other covariates were not significant. These findings support Hypothesis 1 regarding the impact of relational coordination among employees on quality outcomes.

Impact of relational coordination on job satisfaction

Table 5 shows relational coordination as a predictor of nursing aide job satisfaction. Relational coordination was significantly associated with nursing aide job

TABLE 5 *Relational coordination and nursing aide job satisfaction*

	Nursing aide job satisfaction
Relational coordination	0.30*
	(0.000)
Nursing aide age	0.04
	(0.533)
Nursing aide tenure	–0.04
	(0.617)
Nursing aide gender	–0.01
	(0.836)
Nursing aide language	–0.07
	(0.273)
Nursing aide education	–0.12
	(0.066)
Facility size	–0.00
	(0.947)
Facility ownership	–0.02
	(0.835)
Constant	0.00
	(0.750)
R^2 within	0.10
R^2 between	0.31
R^2 overall	0.12

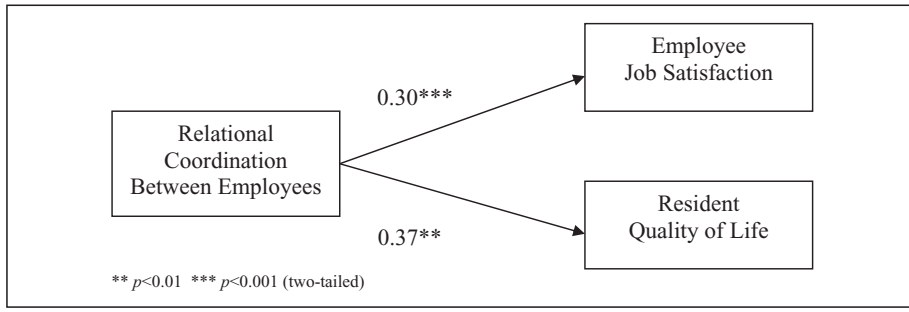
Note: All models are random effects regressions with nursing aide as the unit of analysis ($N = 231$) and nursing home facility as the random effect ($N = 15$). All coefficients are standardised with a mean of 0 and a standard deviation of 1.
*$p < 0.001$ (two-tailed).

satisfaction ($r = 0.30$, $p < 0.001$). The model accounts for 10 per cent of within-facility variation and 31 per cent of between-facility variation in nursing aide job satisfaction. Nursing aide education was marginally associated with job satisfaction in the expected direction ($r = –0.12$, $p = 0.066$). Other covariates were not significant. These findings support Hypothesis 2 regarding the impact of relational coordination among employees on employee job satisfaction. For a summary of findings, see Figure 3.

DISCUSSION

We started by introducing the concept of relational coordination and by arguing that it is most relevant for achieving desired outcomes in work settings characterised by high levels of task interdependence, uncertainty and time constraints. Because these

FIGURE 3 *Relational coordination, job satisfaction and quality of life*



conditions are present in nursing homes, we argued that relational coordination should be expected to influence nursing home outcomes. In a departure from previous theory, we argued that relational coordination should also influence employee job satisfaction because of its instrumental benefits for getting work done and because of its intrinsic benefits for fostering positive connections with others. In a cross-sectional multi-level study of 15 Massachusetts nursing homes, we found support for both of these propositions. Our models account for 24 per cent of the between-site variation in resident satisfaction and 31 per cent of the between-site variation in employee job satisfaction, with relational coordination as the only significant predictor. Our models account for less of the within-site variation however (16 and 10 per cent, respectively), consistent with the theory that relational coordination is an organisation-level phenomenon.

This study makes several contributions to our understanding of relational coordination. Although previous studies have shown the benefits of relational forms of coordination for airline passengers (Gittell, 2001) and for hospital patients (Argote, 1982; Young *et al.*, 1998; Baggs *et al.*, 1999; Gittell *et al.*, 2000; Gittell, 2002), this is the first study to present evidence suggesting the impact of relational coordination on nursing home residents. In addition, this is the first study to present evidence suggestive of the impact of relational coordination on job satisfaction. Studies in other industry settings have established the importance of relational coordination for quality and efficiency outcomes of numerous kinds but have not examined the benefits for workers themselves. Given the central role that front-line workers play in carrying out relational forms of coordination, their reactions to relational coordination are of importance.

The study has several limitations. First, our study is cross-sectional in design and therefore shows associations rather than causality. Second, we examine the impact of relational coordination on resident quality of life, a major focus of resident-centred care efforts, but it would have been desirable to include clinical outcomes as well. Efforts to improve outcome measurement in nursing homes are ongoing (Bowers *et al.*, 2001), and future research may be able to assess the impact of relational coordination on clinical outcomes. Third, the relational coordination instrument had been validated previously in airline and hospital settings (Gittell *et al.*, 2000; Gittell, 2001), but was substantially altered for this study to meet the challenges of surveying nursing aides. Even though numerous functions are engaged in direct care of

residents, we only surveyed one functional group, nursing aides; however, this group is widely believed to have the most direct impact on resident quality of life. Fourth, we used incentives for both nursing aides and residents to encourage their participation in our study, which likely increased participation but which may have also influenced our results in other ways. Finally, one of our variables – job satisfaction – did not vary significantly across sites in this study. This precluded us from testing the extent to which job satisfaction might mediate the relationship between relational coordination and resident quality of life. We anticipate that relational coordination may affect quality outcomes in part through its effect on employee job satisfaction, given that job satisfaction is expected to foster higher levels of client satisfaction because of the mirroring process that occurs during service delivery (Schneider and Bowen, 1985; Hallowell *et al.*, 1996).

Despite these limitations, our study results have important implications for theory and practice. For practitioners, our findings suggest that front-line workers can be partners for achieving desired outcomes. Our findings therefore provide support for efforts to improve the training, pay and status of nursing aides so as to more fully engage them in achieving desired resident outcomes (*e.g.* Eaton *et al.*, 2001). These findings are also consistent with the client-centred approach, which aims to bring together multiple members of the formal care provider team as well as family members and others with significant relationships to the client. In such an approach, the client not only has strong one-on-one connections with each person involved in the delivery of care, but providers themselves are connected in a web of supportive relationships so that the client does not fall through the gaps created by conflict, misunderstanding or fragmented efforts. In previous interventions, some nursing homes have attempted to create holistic care through 'a phased and deliberate effort by the nursing home's leadership to rethink how care is provided and how staff relate to each other' (Stone *et al.*, 2002). To give care in a holistic way that encompasses physical, psychosocial and spiritual dimensions of care (Eaton, 2000; Bowers *et al.*, 2001) arguably requires that coordination among providers be carried out through relationships of shared goals, shared knowledge and mutual respect. These findings thus provide support for models of resident-centred care and suggest that relational coordination may be a component of their effectiveness.

Our study also has important theoretical implications. HR theories have often argued that employees are important for achieving high performance either through their commitment and motivation or through the knowledge and skills that they bring to the job. We suggest an alternative, potentially complementary argument, that employees are important for achieving high performance because of the relationships that exists among them and because of the potential for using those relationships to more effectively coordinate their work with each other. The broader theoretical contribution of this research is therefore to contribute to an emerging relational perspective on high-performance work systems (Leana and Van Buren, 1999; Gant *et al.*, 2002; Collins and Clark, 2003; Lopez *et al.*, 2005; Vogus, 2006), in contrast to a focus on individual human capital (*e.g.* Snell and Dean, 1992) or on motivation and commitment (*e.g.* Tomer, 2001). This emerging perspective focuses on connections between workers, on the design of HR practices to bolster these connections and on the impact these connections have on organisational outcomes of interest. The current study builds on this emerging perspective by demonstrating

that relational forms of coordination contribute to important outcomes for workers themselves as well as for customers.

Our findings suggest the need for further research into HR practices that encourage the development of relational forms of coordination. Given that multiple functions are typically involved in work processes, coordination between those functions is often critical in order to avoid errors, delays and the fragmentation of service delivery. But because of the influence of bureaucratic organisational structures (Heckscher, 1994), distinct occupational communities (Van Maanen and Barley, 1984) and distinct thought worlds (Dougherty, 1992), relational coordination tends to be particularly weak across functional boundaries. Bureaucratic work practices often create divisions between employees whose relationships are critically important for the effective coordination of work (*e.g.* Heckscher, 1994; Piore, 1992). Organisational practices that became widespread through the rise of Taylorism 'have pushed us to restrict communication among the people responsible for the way in which the different parts are performed' (Piore, 1992: 20). Heckscher (1994) envisioned a post-bureaucratic, interactive organisational form in which 'everyone takes responsibility for the success of the whole' and in which 'workers need to understand the key objectives in depth in order to coordinate their actions intelligently "on the fly" ' (pp. 24–25). Gittell *et al.* (2007a) have laid out a particular type of high-performance work system – a relational work system – composed of work practices that are redesigned explicitly to foster the relationships of shared goals, shared knowledge and mutual respect through which work can be effectively coordinated 'on the fly'.

The implications for managers are clear: to foster relational coordination, employees should be selected and trained for relational competence as well as functional competence. Relational competence is not just 'being nice' – it is the ability to see the larger process and to see how each individual's work connects to that of each other individual, in this case around the needs of the residents. It is the ability to see the perspective of others, to empathise with their situation and to respect the work they do even if it requires different skills or is of a lower status than one's own. In addition to selection and training, employee performance should be measured and rewarded with a view towards broader process outcomes like resident well-being, not just the outcomes of their own individual jobs, to keep everyone focused on the larger process and on how their own work connects to that process. Finally, work-related conflicts should be sought out proactively for resolution rather than being allowed to fester, and used as opportunities to build broader understandings of how different pieces of the process connect. We know that front-line supervisors play a critical role in many of these relational work practices, but in many industries, including long-term care, that front-line leadership role is sorely neglected. Future research is needed to refine our understanding of the HR practices that support relational coordination and to better identify and overcome the obstacles to their implementation.

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