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Collaborative capacity and patient-centered care in the Veterans' Health Administration Community Living Centers

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Abstract

Introduction: Previous research in acute care settings has shown that collaborative capacity, defined as the way providers collaborate as equal team members, can be improved by the ways in which an organization supports its staff and teams. This observational cross-sectional study examines the association between collaborative capacity and supportive organizational context, supervisory support, and person-centered care in nursing homes to determine if similar relationships exist.

Methods: We adapted the Care Coordination Survey for nursing homes and administered it to clinical staff in 20 VA Community Living Centers. We used random effects models to examine the associations between supportive organizational context, supervisory support, and person-centered care with collaborative capacity outcomes including quality of staff interactions, task independence, and collaborative influence.

Results: A total of 723 Community Living Center clinical staff participated in the Care Coordination Survey resulting in a response rate of 29%. We found that teamwork and collaboration—measured as task interdependence, quality of interactions and collaborative influence—did not differ significantly between Community Living Centers but did differ significantly across occupational groups. Moreover, staff members' experiences of teamwork and collaboration were positively associated with supportive organizational context and person-centered care.

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Discussion: Our findings suggest that elements of organizational context are important to facilitating collaborative capacity. Additionally, investing in staffing, rewards, and person-centered care may improve teamwork.

Keywords

Health services; long-term care; health care teams; collaboration

Introduction

Within health care settings across the developed world, teamwork has been associated with improved job performance and satisfaction, quality of care, and patient safety.^{1–5} Effective teamwork requires a clear direction or mandate, a supportive organizational context that provides rewards, information and resources that teams need to accomplish tasks, and leadership that supports and promotes teamwork.^{6–8}

Previous research in acute care settings has shown that collaborative capacity—defined as the likelihood that providers, no matter how short their interaction, will collaborate as if members of a team of equals, even in the absence of formal teams—can be improved by a supportive organizational context and an emphasis on person-centered care (PCC).⁹ Weinberg et al.⁹ found that providers at the top of the hierarchy tend to experience more interdependence and collaboration in their work, but that a within workgroup emphasis on PCC and on supportive organizational context (in terms of staffing, communication, and human resources processes aimed at retention and rewards) is associated with greater collaborative capacity for the entire unit. Thus, understanding ways to increase collaborative capacity is an important step to improving teamwork.

Less is known about the dynamics of teamwork in nursing homes, or residential care homes,¹⁰ which can provide a range of care from technically sophisticated post-acute rehabilitation to long-term care for chronically ill custodial residents.¹¹ This broad range of care types within the same facility is in fact part of what makes care in this setting so challenging. While nursing home care differs notably from acute care in multiple ways in the US, the work nonetheless entails a high level of task interdependence, uncertainty, and time constraints that could make teamwork extremely important to job satisfaction and performance.^{10,12–14} Care provision in nursing homes is often more physically labor-intensive than in the acute care sector; staff handle some acute care needs, but also assist with overcoming deficiencies in activities of daily living such as eating or toileting.

This type of work requires a different staffing mix from that in the acute care sector, with the use of more para-professional staff, necessitating additional training and supervision to provide high-quality care. Care provision in nursing homes often occurs within an interdisciplinary team^{12,15} including a combination of medical, social, residential, and allied health professionals. The heavy reliance on staffing and teamwork in nursing homes can result in challenges with staffing including burnout and turnover, which can all in turn threaten team cohesiveness and coordination.¹⁶

The Veterans Health Administration (VA) provides a unique opportunity to explore the issues of teamwork, collaborative capacity, and PCC. Unlike most health care in the US, but similar to health care settings in other countries, the VA is an integrated delivery system that provides primary, acute, and specialty care to military veterans. Long-term and post-acute care are provided in units called Community Living Centers (CLCs). These are sometimes separate units within the larger hospital building but are often separate buildings located on the same campus as the hospital. As such, residents have access to doctors and therapists from the larger hospital in addition to CLC located staff, such as nurses and nursing assistants. This means that the teams of staff working in the CLCs are more fluid and less defined. In addition, CLCs work within a number of national mandates to provide care that is both person-centered and addresses a range of needs, including short-term rehabilitation, respite, long-term care, and hospice care; yet are also driven by local policies, which can lead to variation in the ways care is provided and thus in collaborative capacity.

Given the lack of research on teamwork and collaboration in the nursing home setting, the goal of our paper is to assess the relationships between collaborative capacity and organizational context, utilizing a previously developed methodology from the hospital sector. We ascertain if the same contextual factors are at work in both the acute care and nursing home settings and answer the following research questions:

1. What is the relationship between a supportive organizational context (i.e. staffing, communication and rewards) in the CLC and our measures of teamwork and collaboration: task interdependence, quality of interactions and collaborative influence?

H1: A better supportive organizational context will be related to higher scores for teamwork and collaboration.

2. What is the relationship between PCC in the CLC and our measures of teamwork and collaboration?

H2: Greater person-centered care will be related to higher scores for teamwork and collaboration.

3. What is the relationship between supervisory support in the CLC and our measures of teamwork and collaboration?

H3: Better supervisory support will be related to higher scores for teamwork and collaboration.

Results of this work will suggest ways that nursing home organizational context—can be improved to support better teamwork among staff in nursing homes. This, in turn, would be expected to improve both staff and patient outcomes.

Methods

This is an observational cross-sectional study in which we adapted the Care Coordination Survey previously used in the hospital setting.⁹ We modified the instrument for nursing home settings by updating demographic questions and revising the staff listed for the

relational coordination questions. We then validated the revised wording and indices in a pilot project before data collection began for the study described in this paper.

Theoretical framework.

This research utilizes Hackman's⁸ model of team effectiveness, which posits that there are five conditions that can improve team effectiveness including having a (1) real team, (2) compelling direction, (3) an enabling structure, (4) supportive organizational context, and (5) access to expert coaching. In this study, we focus on the first four conditions. The first component, having a real team, encompasses having a clear understanding of team membership. Team membership is stable and team members depend on each other for mutual support. We assessed the quality of team member interactions (i.e. shared goals, shared knowledge, and mutual respect) in this component.

The second condition, compelling direction, refers to setting goals to motivate the team to work together. In our study, the compelling direction is the extent to which staff felt there was a person-centered philosophy of care. The VA has been undergoing a cultural transformation from a medical model of care to one where patient preferences and values are equally as important.¹⁷

The third condition, enabling structure, refers to the ways tasks are organized. In this study, we assess this condition by including task interdependence (i.e. frequency of interactions relative to the need for information) and collaborative influence (i.e. one's influence over other care providers' decisions).

Finally, the fourth condition we assessed as part of this study is supportive context which surrounds the other three conditions and refers to working effectively by having access to necessary resources, rewards, necessary information, and support from leaders. In this study, we measured organizational structure and context in two ways: (1) supervisory support (i.e. feedback and responsiveness to employee needs) and (2) supportive organizational context (i.e. staffing resources, IT, control over work, and rewards for performance).

Study setting.

As described above, this study occurred in the VA, which is the largest integrated health care system in the US. In 2013, the VA provided nursing home care at 133 CLCs throughout the country.¹⁸ The CLCs vary in size and treatment specialty (e.g. long stay patients with stays longer than 90 days, short stay patients with stays less than 90 days, patients receiving rehabilitation, and hospice).¹⁹ Twenty CLCs were recruited to participate in this study.

Study population.

For this study, we surveyed staff employed at the 20 participating CLCs. Staff included physicians and nurse practitioners, registered nurses (RNs), licensed practical nurses (LPNs), nursing assistants (NAs), social workers, and other staff (e.g. administration, recreation, and education staff).

Data collection.

Survey administration followed a standard protocol involving an initial mailing to the CLC unit. We mailed paper surveys to 2449 staff from the twenty CLCs. The survey was anonymous, mailed directly to CLC staff, and follow-up reminders were sent to everyone regardless of response to date. The project manager on the research team was in contact with CLC staff three times on a bi-weekly basis over the six-week administration period following the initial invitation from the CLC director. VA policy prohibits more than three contacts with staff and also does not allow incentive payments for participation.

Data analysis.

We had three dependent variables measuring collaborative capacity, which aligned with Hackman's model related to having a real team and enabling structures. Thus, our dependent variables were: task interdependence (i.e. frequency of interactions relative to the need for information), quality of interactions (i.e. shared goals, shared knowledge and mutual respect).and collaborative influence (i.e. one's influence over other care providers' decisions).

In addition, the independent variables in this analysis fell within the Hackman's model related to compelling direction (PCC) and supportive organizational context, including supervisory support. All questions from the scales used a five-point Likert response scale with answer categories of "never," (0), "rarely" (1), "some of the time" (2), "most of the time" (3), and "all of the time" (4). The scales were created at the facility level. Given that the survey was adapted for the nursing home setting, we assessed reliability of the revised scale using Cronbach's alpha statistics using a threshold of 0.70.^{20,21}

To compare differences in our outcomes across role and site, we utilized generalized linear models controlling for facility and staff role for each outcome. We then conducted post hoc analysis to identify where differences occurred for variables statistically significant at the $p < 0.05$ level. We applied the Bonferroni correction to avoid inflating the chance of committing a type I error since multiple comparisons were made.

We then looked at Spearman correlations to assess association between each scale. Finally, we utilized hierarchical linear models²² with random effects for CLCs to examine the association of collaborative influence, task interdependence, and interaction quality with an emphasis on PCC, a supportive organization context, and supervisory support. We included staff demographic characteristics in the models as well. Thus, our hierarchical models were two-level random effects models with employees nested within our 20 nursing facilities. Our threshold for indicating statistical significance was $p < 0.05$.²³ Cases with missing values were omitted from the analysis.

Ethics.

The VA Central Institutional Review Board granted approval to conduct this study.

Results

Study population.

A total of 723 staff participated out of 2449 employees, representing an overall response rate of 29.5%. For the analysis, a total of 602 respondents are included in the regressions, as respondents needed to have answered at least half of the questions to be included in the analysis.

Table 1 shows descriptive information regarding our sample.

The clinical staff responding to our survey tended to be female (85%) and white (77%). About 25% were foreign born. Forty-three percent of respondents were direct care workers (e.g. LPNs and NAs) and 25.5% were RNs. When asked which providers they worked with, almost all staff indicated they had contact with RNs (95.6%). Approximately three quarters of staff reported working with direct care workers (77.4%), physicians (75.5%), and nutritional services (72.5%). Other staff were mentioned less often, yet were worked with more than half of the time, including nurse practitioners and supervisors (69.1%), rehabilitation therapists (64.7%) and case managers/social workers (66.8%).

Psychometric properties.

Table 2 displays our measures and indices and includes Chronbach's alpha coefficients. Chronbach's alphas for all scales, except for one, exceed the minimum threshold of 0.70.²⁴ Person-centered care approached the threshold with an alpha of 0.67.

Main results.

Table 3 presents means by occupational groups. Physicians and Nurse Practitioners/Nurse Managers reported the highest scores across all three measures of collaborative capacity. We observed that direct care workers reported the lowest means on task interdependence, quality of interactions, and collaborative influence.

Table 4 presents Spearman correlations for our measures. All measures were statistically significant at the $p < 0.0001$ level. As expected, the correlations between our three measures of collaborative capacity were highly correlated ranging between 0.49 and 0.65.

As shown in Table 5, our random effects models found that a supportive organizational context was positively associated with task interdependence (coefficient = 0.30, $p = <0.0001$), quality of interactions (coefficient = 0.54, $p = <0.0001$), and collaborative influence (coefficient = 0.57, $p = <0.0001$). These results are consistent our hypothesis 1.

Person-centered care was also positively associated with task interdependence (coefficient = 0.24, $p = <0.0001$), quality of interactions (coefficient = 0.18, $p = <0.0001$), and collaborative influence (coefficient = 0.18, $p = 0.000$). These findings support hypothesis 2.

Supervisory support was not found to be significantly associated with any of our measures of teamwork and collaboration. Thus, H3 was not supported.

Discussion

Similar to acute settings, we found that in nursing homes supportive organizational contexts and settings with a focus on PCC are associated with greater collaborative capacity; and physicians perceive greater task interdependence and collaboration as hypothesized. However, supervisory support was not found to be related to collaborative capacity, which given the high turnover of supervisory staff in nursing homes,^{25,26} is neither surprising nor problematic. The alignment between contexts including PCC and our measures of collaborative capacity is an encouraging finding for those desiring to increase both PCC and teamwork in the nursing home setting.

Our study findings are consistent with other studies in acute care settings.^{9,27–32} Less research has been done targeting these concepts in nursing homes. Work has shown that team effectiveness and relational coordination are influential on patient outcomes and staff satisfaction.^{3–5,33} It is particularly encouraging that PCC and teamwork are related as nursing homes, including those in the VA, have aimed to address both simultaneously.

This study is not without limitations. First, only VA nursing homes were included in the study sample. It is possible that collaborative capacity may be experienced differently for VA paraprofessionals, who are more likely to have been born in the US, and non-VA paraprofessionals, who are more likely to have been born outside the US. Another potential difference between VA and non-VA is that VA physicians tend to be more engaged in care in the nursing home setting due to their status as VA employees, potentially explaining the high percentage of respondents who reported working with them. While these potential differences may limit generalizability it is important to note that the VA is a large, integrated health care system, and therefore lessons may be more generalizable for similar settings, especially in parts of the developed world where this type of health care system is more common. A second limitation is that we only tested the internal consistency of our survey. Although the results were similar to the survey when administered in the acute care setting, further work validating the survey instrument is needed. A third limitation is that the response rate was low at 29.5%, but this level response rate has been found for other studies of VA CLC staff.³⁴

Implications for healthcare, policy, or practice.

As nursing homes become more clinically complex (i.e. admitting more short-stay patients with acute rehabilitation needs),¹⁹ teamwork and collaboration may be becoming as important as they are in the acute care setting to achieving high quality care. Our findings suggest that, much like in the acute care setting,⁹ elements of organizational structure and context are important to the presence of collaborative capacity. As people living in nursing homes continue to have more acute and medically complex needs, staff will require additional training to provide more medicalized care. In addition, staff and leaders may need to balance the often competing priorities^{35–39} of providing PCC and high-quality clinical care. Therefore, the importance of collaborative capacity becomes even more important when caring for more medically complex patients.

While the lack of association with supervisory support in this setting was somewhat unexpected, it likely reflects the high turnover rates of nurse managers and other managers in the nursing home setting.^{25,26} Indeed, the persistent challenge of turnover underscores how important other organizational structure and context factors, such as staffing resources, control over work, and rewards for performance, may be in generating an organizational context that supports collaborative capacity.^{40–42}

Our findings also highlight relevant patient perspectives as residents in nursing homes regularly interact with staff and teams. Higher team effectiveness via improved collaborative capacity as well as a focus on integrating a patient's preferences into treatment plans, can improve patient satisfaction and engagement in their care. In addition, having patients engage with a collaborative team assists all team members in truly understanding patients' needs and preferences. For residents in nursing homes, effective teamwork is critical for their continued health, maintaining functioning, and quality of life. More research is needed to understand how collaborative capacity is directly related to team effectiveness and if it has an effect on patient level outcomes.

Our overall conclusion from this research is that nursing homes may increase collaborative capacity by investing in staffing resources and rewards. Teamwork may also improve by shifting to more person-centered models of care, which we found were also associated with collaborative capacity. This research confirms that nursing homes may increase collaborative capacity by investing in staffing resources and rewards. Additionally, teamwork in nursing homes, which was also associated with collaborative capacity, may improve by shifting to more person-centered models of care.

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Table 1.

Descriptive statistics.

Variable	Mean	SD	Minimum	Maximum
Task interdependence	3.59	0.79	1.00	5.00
Quality of interactions	3.85	0.65	1.28	5.00
Collaborative influence	3.30	0.86	1.00	5.00
Patient-centered care	4.38	0.69	1.00	5.00
Supportive organizational context	3.50	0.62	1.64	5.00
Supervisory Support	3.42	0.73	1.36	4.82
Years in Role	9.80	9.23	0.00	46.00
Demographic	Percent			
White	77			
Born in US	75			
Female	85			
Black or African American	23			
Hispanic	5			
Occupational group	Percent			
Physician	2.94			
Nurse practitioner / Nurse supervisor	8.16			
Rehabilitation therapy	2.81			
Case manager/Social worker	3.07			
Nurse	25.53			
Direct care worker	43.32			
Nutritional services	0.80			
Pharmacist	0.27			
Clinical psychologist	0.94			
Other ^a	10.90			
Works with occupational groups	Percent			
Nurse	95.60			
Direct care worker	77.40			
Physician	75.50			

Variable	Mean	SD	Minimum	Maximum
Nutritional services	72.46			
Nurse practitioner / Nurse supervisor	69.12			
Rehabilitation therapy	64.71			
Case manager/Social worker	66.84			
Pharmacist	59.36			
Clinical psychologists	55.08			
Other ^a	21.56			

^aStaff in the other category include administration, education, and recreation.

Table 2.

Measures and indices.

Variables	Items	Cronbach's alpha
Task interdependence	Do you need information from (staff type) to do your job?	0.90
Quality of interactions	How often (by type of worker ^a): do you need information from them to do your job? do they give you information when you need it? can you trust the information they give you? When there is a problem, do they work with you to solve the problem do they know very much about the work you do? do they respect the work you do? do they have the same goals as you do for taking care of residents? do you agree with how they care for residents? When you have important information to share, do they listen? Do you have a say in what [staff] do with residents?	0.98
Collaborative influence	<i>Contains all sub-scales listed below</i>	0.91
Supportive organizational context	<i>Staffing and resources</i> I work with staff who know what they are doing There is enough staff to get the work done Someone with experience is available to help me when I have questions Adequate Support services give me the time I need to do my job There is enough time with residents to meet their needs <i>Pace</i> ^b I can pace my work and do not have to rush <i>Communication and technology</i> I have the time and opportunity to discuss resident care decisions with other staff Information technology makes it easy for me to get information about residents Information technology makes it easy to share information about residents I have enough time to communicate with other staff about resident care I have enough time to learn what I need to know about residents <i>HR management / Job rewards</i> Active staff development, continuing education programs or training opportunities The chance to gain new skills and knowledge Decent Benefits Decent pay Control over my schedule Opportunity to get a better job in this CLC or in the VA system Good Job security Rewards, like bonus pay or gifts for a job well done Appreciation for a job well	0.93 0.83 — 0.86 0.85

Variables	Items	Cronbach's alpha
	<i>Control over work</i>	0.81
	CLC leaders seem to know what my typical day is like	
	CLC leaders respond to staff concerns	
	I have opportunity to serve on CLC committees	
	CLC leaders take my ideas seriously	
	I take part in making decisions that affect my work	
	<i>Freedom^b</i>	—
	I have the freedom to decide how to do my job	
Supervisory support	Respects my ability to do my job	0.86
	Ignores my input ^c	
	Trusts me to do my job well	
	Talks down to me ^c	
	Shows me recognition when I do good work	
	Questions everything that I do ^c	
	Supports progress in my career such as further training disciplines staff who do not do their job well is good about following up and resolving problems uses mistakes as learning opportunities, not criticism	
	Supports my decisions about how to do my work	
Patient-centered care	I make decisions based on residents' or their families' needs	0.67
	I am encouraged to talk to residents and families about their fears and concerns	
	I have the opportunity to relate to residents as people, not as bodies or diseases	

^aWorker indicates staff role in the facility (e.g. Nurse, Physician, Case Manager/Social Worker).

^bSingle item therefore Cronbach alpha is not applicable.

^cItem reverse coded.

Table 3.

Task interdependence, quality of interactions, and collaborative influence by occupational group.

Occupational group	Task interdependence	Quality of interactions	Collaborative influence
Case manager/Social worker			
Mean	3.78	4.06	3.20
SD	0.66	0.58	0.71
Direct care worker			
Mean	3.34	3.58	2.98
SD	0.87	0.74	0.90
Physician			
Mean	4.31	4.42	4.11
SD	0.54	0.51	0.87
Nurse practitioner/Nurse supervisor			
Mean	3.79	4.08	3.77
SD	0.61	0.49	0.67
Nutritional services			
Mean	3.39	4.02	3.15
SD	0.73	0.52	0.86
Pharmacy			
Mean	3.19	3.94	3.16
SD	0.27	0.39	1.01
Clinical psychology			
Mean	3.64	4.04	3.10
SD	0.50	0.62	0.84
Rehabilitation therapy			
Mean	3.68	4.14	3.51
SD	0.56	0.29	0.57
Nurse			
Mean	3.83	3.96	3.52
SD	0.66	0.51	0.70
Other			
Mean	3.39	4.02	3.15
SD	0.73	0.52	0.86
Total			
Mean	3.59	3.85	3.30
SD	0.79	0.65	0.86

Table 4.

Spearman correlations for study measures (n=602).

	PCC	Supportive organizational support	Supervisory support	Task interdependence	Quality of interactions	Collaborative influence
PCC	1.00	0.42	0.34**	0.32**	0.43**	0.35**
Supportive organizational context		1.00	0.69**	0.30**	0.65**	0.49**
Supervisory Support			1.00	0.17**	0.47**	0.33**
Task Inter-dependence				1.00	0.49**	0.52**
Quality of Interactions					1.00	0.65**
Collaborative Influence						1.00

**
 $p < 0.0001$.

Table 5.

Random effects regression models (type III SS) (n=602).

Variables	Task interdependence			Quality of interactions			Collaborative influence		
	Coefficient	Standard Error	Pr > t	Coefficient	Standard Error	Pr > t	Coefficient	Standard error	Pr > t
Patient-centered care	0.24	0.05	<0.0001**	0.18	0.03	<0.0001**	0.18	0.05	0.000†
Supportive organizational context	0.30	0.07	<0.0001**	0.54	0.05	<0.0001**	0.57	0.07	<0.0001†
Supervisory support	-0.09	0.06	0.107	0.01	0.04	0.817	-0.01	0.06	0.851
Years in role	-0.01	0.00	0.041*	0.00	0.00	0.730	0.00	0.00	0.980
Born in US	0.05	0.07	0.527	0.02	0.05	0.658	0.26	-0.07	0.001**
Female	-0.05	0.08	0.559	0.03	0.05	0.525	0.04	0.08	0.595
Black or African American	-0.09	0.08	0.215	-0.04	0.05	0.472	0.00	0.08	0.984
Hispanic	-0.01	0.14	0.951	0.01	0.09	0.957	-0.09	0.14	0.523
Direct care worker	-0.33	0.07	<0.0001**	-0.21	0.05	<0.0001**	-0.32	0.07	<0.0001**
Physician	0.35	0.16	0.031*	0.18	0.11	0.108	0.35	0.16	0.035*
Nutrition	0.26	0.28	0.355	0.18	0.20	0.371	0.27	0.29	0.357
Nurse practitioner / Nurse supervisor	-0.15	0.11	0.154	-0.04	0.07	0.609	0.11	0.11	0.331
Rehabilitation	-0.32	0.18	0.080	0.07	0.13	0.592	-0.09	0.19	0.639
Case manager/Social worker	-0.03	0.16	0.841	0.06	0.11	0.593	-0.25	0.16	0.119
Pharmacy	-0.60	0.49	0.216	0.05	0.34	0.885	-0.21	0.50	0.678
Clinical psychology	-0.22	0.29	0.444	-0.04	0.20	0.833	-0.51	0.29	0.081
Other	-0.43	0.10	<0.0001**	0.00	0.07	0.983	-0.37	0.11	0.001**
Intercept	2.10	0.24	<0.0001**	1.19	0.17	<0.0001**	0.61	0.25	0.025*

*
p<0.05.**
p<0.001.

CLC facility random effects were not statistically significant.

Nurse is reference category for the staff role variable.