CONSEQUENCES OF EMPOWERED CNA TEAMS IN NURSING HOME SETTINGS: A LONGITUDINAL ASSESSMENT

Running Head: Empowered CAN Teams in Nursing Homes

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Abstract:

Purpose of the study: Recent studies have concluded that there is a lack of "patient-centered" care in nursing homes (NHs) and subsequently a need for NH culture change. As a result, there has been the introduction of a variety of new, promising initiatives with most of these incorporating the use of "empowered" employees. The purpose of this study was to evaluate the effects of empowered work teams (EWTs)—a work design specifically established to empower certified nurse aides (CNAs) within the long-term care setting. **Design and Methods:** A multi-method, pre-post design was used to examine the effects of these teams. The qualitative analysis included observations of over 270 team meetings. The quantitative analyses included five pairs of NHs, with five implementing EWTs and five acting as comparisons. **Results:** The quantitative as well as qualitative analyses indicate that the EWTs had a variety of modest, positive effects: increased CNA empowerment; better CNA performance; improved resident care and choices; improved procedures, coordination, and cooperation between CNAs and nurses; and possibly reduced turnover. There appeared to be mixed effects on work attitudes. **Implications:** As new initiatives strive to move away from the medical model and toward a person-centered model, the data suggest that empowered CNA work teams can help.

Key Words: long-term care, resident care, nursing home administration, turnover, absenteeism

CONSEQUENCES OF EMPOWERED CNA TEAMS IN NURSING

HOME SETTINGS: A LONGITUDINAL ASSESSMENT

The care of residents in nursing homes (NHs) has been an intense, continual concern that stems from investigative reports that have uncovered evidence of inadequate care (Coburn, Fralich, McGuire & Fortinsky, 1996) as well as from the general public that has come to view life in a NH as extremely undesirable. Such concern has triggered numerous government regulations that seem to have enhanced the negative view of NHs by encouraging a gradual move toward a "medical model" for providing resident care. Using such a model has resulted in a focus on providing medical services with much less concern with a resident's quality of life or life satisfaction.

The reaction among practitioners and gerontologists alike has been the development of new models for NH care that address these concerns (Kane, 2001; Kane, et al., 1997; Kovach & Krejci, 1998). For example, the Pioneer Network was organized in the 1990's with the purpose of identifying "deep systematic change" that will allow for a "person-centered" focus of care (Fagan, 2003, p. 125). Members of this network include practitioners, researchers, educators and other professionals who seek to find alternatives to the strictly medical model. In 1992 the Eden Alternative was developed by Thomas and Thomas (Thomas, 1994) to encourage a more home like environment in the NH and to allow direct care workers to be more involved in decision-making. A decade later Thomas and his colleague introduced the promising concept of "Green Houses" that provide a structural alternative in the form of specially designed houses for elderly residents as well as the empowerment of direct care workers (Keane, 2004; Green House Project, 2006). In 1994, another approach, the Wellspring Model, was established to encourage NHs to work together to teach line staff best clinical practices and to move away from the typical NH

culture of control (Kehoe & Heesch, 2003; Reinhard & Stone, 2001). In 2001, the LEAP

initiative was underway to alter how the NH workforce was viewed and treated by NH

management (Hollinger-Smith, 2003; Hollinger-Smith, Ortigara & Lindeman, 2001). In a fairly

recent development, Grant and Norton (2003) identified various stages that NHs are expected to

go through in the process of culture change. Additional recent initiatives include those by Gilster

and colleagues (Gilster, Accorinti & Dalessandro, 2005), Pillemer and colleagues (Pillemer, et

al., 2003) Rosen and colleagues (2005) and Shields (2004).

One characteristic typically found as a component of these and other person-centered

initiatives has been the "empowering" of direct-care NH staff (also referred to as front-line staff).

It is reasoned that certified nurse aides (CNAs) have the most knowledge about NH residents—

they know better than any other employees the likes and dislikes of residents, including what

they want when they wake up in the morning (e.g., a glass of water or the newspaper), how they

would like their hair combed, and what they want to wear when they go to bed at night.

Consequently, the CNAs are in the best position to make decisions that are directly related to

day-to-day resident care (Beck, Ortigara, Mercer & Shue, 1999).

In the workplace as a whole, the empowerment of workers has occurred primarily

through the use of empowered work teams (EWTs). These were first implemented on a large

scale within the manufacturing sector in the 1980's and 1990's. EWTs typically consist of a

group of front-line employees who hold a similar job title and do similar work. The teams are

unique in that the team members do more than simply perform their technical or service

responsibilities while being supervised. In an EWT, the team members take on some supervisory

responsibilities and make recommendations regarding others. Evaluation studies of EWTs in

manufacturing settings have found that EWTs result in improved performance, higher job

satisfaction, and reduced turnover (Lawler, 1986; Pasmore, Francis, Haldeman & Shani, 1982; Wellins, Byham & Dixon, 1994; Yeatts & Hyten, 1998). Further, studies have shown that the decisions made by EWTs are at times more innovative and creative than those made by management since the team members are more familiar with the whole work process (Hitchcock & Willard, 1995).   However, these studies also typically report that the success of an EWT is highly linked to the success in its implementation. Where teams were poorly implemented, performance sometimes dropped and turnover increased (Lawler, 1986; Yeatts & Hyten, 1998).

The purpose of the research reported here was to examine the effects of EWTs within the NH industry. It was expected that the empowerment of CNAs through EWTs would result in improved performance, job attitudes, and turnover. While most recent NH initiatives encourage the empowerment of CNAs, this has been a secondary focus for them with little direction regarding how to empower CNAs and no evaluations of its effects.

Review of the Literature

EWTs are teams whose members typically hold similar job titles, do similar work, and are empowered to make decisions about some aspects of their work and recommendations about others. EWTs are different from interdisciplinary teams where members have varying job levels (e.g., nurse, social worker, nurse aide) with those at the lower levels providing input but making few if any decisions (Wellins, Byham & Wilson, 1991; Yeatts & Hyten, 1998). EWTs are sometimes referred to as self-directed work teams, self-managed work teams, or autonomous work groups. The specific designation has sometimes mirrored the level of empowerment, with those in self-managed teams having more decision-making authority than those in self-directed teams. However, no clear distinctions have been established in the literature.

Attempts to explain the effects of employee empowerment and of EWTs have been presented at both the individual and group levels. At the individual level, there are two theoretical traditions, "participative management" and "employee involvement." Theories of "participative management" focus on the sharing of decision-making between employees and managers and how such sharing enhances organizational performance and employee satisfaction (e.g., Cotton, Vollrath, Groggatt, Lengnick-Hall & Jennings, 1988; Locke & Schweiger, 1979; Miller & Monge, 1986; Spreitzer, Kizilos & Nason, 1997; Wagner, 1994). Theories of "employee involvement" emphasize pushing power down to non-management employees in the form of information, rewards, and training with the same effects of high employee performance and satisfaction (Lawler, 1986). From these perspectives, Kirkman and Rosen (1999), Thomas and Velthouse (1990), and others have expanded the concept of employee empowerment to include more than simply the experience of autonomy in decision-making. They explain that to be empowered also means that the employee perceives her work to have important impacts, to be meaningful, and that she is highly competent to do the work (Bandura, 1997; Ford & Fottler, 1995; Spreitzer, 1995; Spreitzer, et al. 1997). It is a combination of these factors that instills a feeling of empowerment in the worker.

At the group level, the theoretical basis for the use of EWTs also stems from several different schools of thought. The "human relations" school argues that group participation in decision-making allows employees to satisfy higher order needs such as self-actualization and respect that, in turn, leads to higher job satisfaction and reduced turnover (Cummings, 1978; Hackman & Oldham, 1980; Lawler, 1986). The "cognitive" school suggests that group participation in decision-making enhances the flow and use of important information (Kren, 1992; Pasmore & Purser, 1993). And, the "contingency" model argues that no single theoretical

explanation for the effectiveness of EWTs holds across all groups and situations. Instead, the EWT will affect performance and satisfaction differently for different people and different situations (Galbraith, 1973; Vroom & Yetton, 1973).

Research on empowerment and performance in manufacturing and some service industries has occurred primarily through the study of EWTs. This research has, for the most part, supported these theoretical perspectives. In particular, studies have found that the use of EWTs have resulted in higher performance and reduced turnover (Bowers, Faan & Jacobson, 2003; Eaton, 2001; Mobley, Griffeth, Hand & Meglino, 1979; Spector, 1986). Further, associated with EWTs have been higher levels of cooperation and coordination among the workers as well as more feedback and support from management (Belasco & Stayer, 1994; Black & Gregersen, 1997; Bowen & Lawler, 1992; Saxon, 2000).

Research on empowerment and employee attitudes has found that working in an EWT is associated with higher job satisfaction (Friedman, Daub, Cresci & Keyser, 1999; Spector, 1997; Spreitzer, et al., 1997; Teresi, Holmes, Benenson, Monaco, Barrett & Koren, 1993; Thomas & Tymon, 1994). The general consensus is that employees who feel empowered like their job more, although some research suggests that such positive effects depend on the personal characteristics of the workers themselves (Yeatts & Hyten, 1998). And, EWTs have also been found to positively affect employee commitment (Manz & Sims, 1987; Somers, 1995; Wellins, et al., 1991). In this case, those working in EWTs have been found to identify more with the work organization and its goals. Similarly, it is reasonable to expect that an employee's self-esteem is positively affected by employee empowerment (Rosenberg, Schooler & Schoenback, 1989).

In summary, EWTs provide a setting for a variety of effects including (1) increased empowerment of the team members, (2) improved performance, (3) better employee attitudes, and (4) reduced absenteeism and turnover. The large majority of this research has focused on the manufacturing industry. Much less has focused on the service industry and little was found that focused on the long-term care industry (Yeatts & Seward, 2000). To fill this research and knowledge gap, the following propositions were tested.

Proposition 1:   EWTs in NHs positively affect feelings of empowerment, including autonomy, impact, meaningfulness, and competence among the team members.

Proposition 2:   EWTs in NHs positively affect the performance of the team members.

Proposition 3:   EWTs in NHs have a positive effect on job attitudes, including higher levels of job satisfaction, commitment, and self-esteem and lower burnout.

Proposition 4:   EWTs in NHs reduce absenteeism and turnover among the team members.

Methods

A multi-method, pre-post design was used to examine the effects of CNA empowered teams on CNA performance and attitude outcomes. Both quantitative and qualitative approaches were used. The quantitative approach used a nonequivalent control, pre-post design (Campbell & Stanley, 1966). EWTs were established in five NHs and the CNAs in these NHs were treated as the experimental group. In general, the activities of the CNA EWTs included involvement in nurse management decisions related to CNA work, reviewing resident health conditions and subsequently making recommendations (e.g., resident would benefit from pureed food),

addressing issues provided to them by the nurse management, and dealing with any other issue of CNA concern. Five comparable (matching) NHs were selected and their CNAs treated as controls.

The five NHs selected as the experimental group were chosen from 18 volunteer NHs located in the north Texas region. The criteria used to select the five experimental NHs included the willingness of the nurse management and NH administrator to implement EWTs and the stability of the NH management in terms of job tenure. Additional selection criteria were based on a desire to obtain variation in NH characteristics with regard to size, location (rural versus urban), and ownership (profit versus non-profit). Once the five experimental NHs were selected, an attempt was made to identify comparison NHs of the same size, location, and ownership and then these were invited to participate in the study.

A nonequivalent control group design is a quasi-experimental design—that is, the participants in the experimental and control groups are not randomly placed in the two groups. Instead, the participants are already in the experimental and control groups. An effort was made to select a comparison NH that was as similar as possible to the matching experimental NH. To check for similarity, baseline surveys of CNAs, nurses, and the residents' family members or significant others were conducted at each of the experimental and comparison NHs. An in-person survey of residents was also undertaken but the number of residents who were able and willing to be interviewed at both the pre and post time periods was too small for meaningful quantitative analyses. Contributing to the small number was one experimental NH that housed only residents with Alzheimers Disease and its comparison NH that housed a substantial number of such residents. None of these residents could be interviewed.

A comparison of demographic characteristics of the CNAs, nurses, and family members at baseline for the treatment and comparison groups shows that there were only a few differences (Table 1). The experimental group had a slightly lower percentage of female CNAs (83% versus 92% respectively). The nurses from the experimental NHs tended to have worked at the NH longer (72 versus 43 months) and were more likely to be non-Hispanic white (79% versus 59% respectively). When considering the family members or significant others surveyed (henceforth referred to as family members), those from the experimental NHs were slightly more likely to be reporting on a female resident than the family members from the comparison NHs (85% versus 78% respectively).

TABLE 1 ABOUT HERE

Implementation and Description of EWTs

The EWTs consisted of only CNAs and were implemented in one experimental NH at a time, immediately following their NH's baseline survey. The EWTs were implemented in the first experimental NH in 2002 and in the fifth experimental NH in 2004. Teams were typically organized by shift and by service area (e.g., halls or wings of the NH). In total, 21 EWTs were established in the five experimental NHs. The first NH had roughly 60 residents and three EWTs, the second 80 residents and five EWTs, the third 100 residents and four EWTs, the fourth 200 residents and seven EWTs, and the fifth 50 residents and two EWTs.

The procedures that were used to implement the CAN EWTs were pre-tested at an earlier date in a NH not included in the current study. These procedures have been described in detail elsewhere (Yeatts, Cready, Ray, DeWitt, & Queen, 2004). In short, implementation included first orienting and training CNAs, nurses, and nurse management. Once familiar with their respective roles and the expected activities of the EWTs, nurse management began making efforts to

involve the EWTs in management decisions related to CNA work. For example, the EWT might

be asked to provide revised work procedures for distributing breakfast trays so that residents

would get hotter meals than the current procedures allowed, or the EWT might be asked to revise

procedures for answering call lights so that less time elapsed before a CNA responded to a call-

light.

At the same time, CNAs began holding weekly 30 minute meetings (initially with the

assistance of the PI or Co-PI as team facilitator) and short stand-up meetings during the week as

needed. The weekly 30 minute meetings followed a set agenda that included not only addressing

issues provided by nurse management but also included other areas of focus such as a review of

resident health conditions, review of new residents and their specific needs, and any issues of

concern to the CNAs. Weekly written summaries (i.e., minutes) of each team meeting were

provided by the team to nurse management and any CNA recommendations or suggestions

regarding their work or regarding the residents were typically provided in these weekly

summaries. The nurse management reviewed the team summaries and provided weekly written

feedback to each EWT. Feedback typically included responses to any CNA questions or

concerns.

If nurse management was responding to an EWT proposed change to the work process

(e.g., the process for handing out meal trays), nurse management typically responded in one of

several ways. In some cases, the proposed EWT change was approved as submitted and the EWT

was asked to begin using the revised procedure. In other cases, the nurse management sent the

EWT proposed change back to the team, pointed out some shortcomings of the proposed

procedure, and asked the team to re-submit their proposed change with this new information in

mind. Once management and the EWT came to an agreement on what would work, the proposed change was implemented.

Short stand-up meetings were used by the EWT to address more immediate concerns handed to them by nurse management. For example, nurse management might call the CNAs together and ask them to determine the best way for the EWT to get all the residents to a planned activity given that one of their team members was unexpectedly absent. The nurse manager would then leave and the CNAs would discuss the alternatives, make a decision, and implement it.

While five pairs of NHs were initially selected for the study, one pair had to be dropped. In this pair, EWTs were initially implemented within the experimental NH successfully. However, about six months after team implementation, the Assistant NH Administrator chose to assume the role of EWT facilitator. Subsequently, the recommendations made by the team were not only provided to nurse management but were immediately acted on by the Assistant Administrator. As a result, the nurse management perceived this as usurping their authority or, in other words, the CNAs were "going around" the nurse management and taking their concerns and suggestions directly to the NH administration. This empowered the CNA teams greatly until the NH administrator left the NH for another position and the Assistant NH Administrator did likewise about six weeks later. The nurse management then chose to discontinue the EWTs and the new NH administrator, being unfamiliar with the EWTs, followed the recommendations of the nurse management in discontinuing the teams.

In addition, EWTs were initially started among night-shift CNAs but, after experiencing some problems most were eventually discontinued. The primary problems encountered were the small numbers of CNAs who worked the night shift and the irregular staffing of these CNAs. In

most of the experimental NHs, there were three or fewer night-shift CNAs working in a service area (e.g. one floor of the NH). Further, of these CNAs only a few were permanent night shift staff—the others worked primarily on the day or evening shifts and occasionally worked on the night shift.

Data Collection

The timing for the collection of the post data varied somewhat from NH to NH depending on the schedules and availability of the NH staffs to participate in the follow-up surveys. On average, there was a 16 month period between time 1 and time 2 for the experimental NHs and a 17 month period for the comparison NHs. Previous research has shown that the effects of interventions, such as EWTs, can look promising in the short term of six to twelve months (the "honeymoon" effect) with the effects becoming less pronounced over time (Lawler, 1986; Lawler & Mohrman, 1987). Therefore, the 16-17 month followup was selected in part to avoid making such premature conclusions.

The baseline and post data collection included self-administered questionnaires for the CNAs and nurses and a mail survey of the residents' family members. In most cases, the self-administered questionnaires were distributed by the research team at an all-staff meeting of CNAs and nurses. Each questionnaire was given a unique number and placed within an envelope addressed to a specific CNA or nurse who was subsequently handed the envelope by the researcher. This resulted in each CNA having a unique questionnaire number. Once completed, the questionnaires were immediately collected by the research staff. Thus, the CNA or nurse could fill out the questionnaire without her name on it. Simultaneously, the researchers had a unique number for each CNA and nurse that was given to them again at the follow-up survey so that their responses from the second survey could be matched and compared to the

first. CNAs and nurses who were not in attendance were later approached by a member of the research team and invited to participate. In a few cases, the NH management preferred that the questionnaires not be distributed at all-staff meetings. In these cases, the researchers approached the CNAs and nurses at their work locations during their work hours and invited them to participate. Not using the all-staff meeting to collect the data did not appear to affect the quality of the data collected or the response rates. For the survey of family members, the NH management typically provided the researchers with a mailing list that consisted of one family member (or significant other) for each NH resident. These persons were mailed a questionnaire with an addressed, stamped envelope that was mailed back to the researchers.

The pre-test response rates for CNAs at the experimental and comparison NHs were 84% and 92% respectively, while the response rates of nurses were 84% and 80% respectively and the pre-test mail response rates for family members were 69% and 52% respectively. Response rates from the post surveys were similar though generally slightly lower.

Questionnaire Items, Concepts, and Indices

The survey instruments for the CNAs and nurses asked them to respond to a series of statements by using a five point Likert-type scale ranging from 1 for "strongly disagree" to 5 for "strongly agree." Many of the statements were drawn from a number of existing instruments that measure employee empowerment and the other work-related concepts. These instruments included those developed by Cook and colleagues (Cook, Hepworth, Wall & Warr, 1979), Hackman and Oldham (1980), Maslach and colleagues (Maslach, Jackson & Leiter, 1996), McGee & Ford (1987), Quinn & Staines (1979), Spreitzer (1995), and Yeatts & Hyten (1998). Where necessary, statements were modified to reflect the uniqueness of the NH environment. For example, the word "recipients" was replaced by the word "residents" in burnout statements

such as "I feel I treat some residents as impersonal objects" (Maslach, Jackson & Leiter, 1996). Where statements could not be found in previous studies, statements were developed and pre-tested at a NH not included in the study.

The family questionnaire used a five point Likert-type scale ranging from 1 for "yes, always" to 5 for "no, never." These scores were reversed to maintain consistency across the tables; that is, the larger the number (5) the more positive the response ("yes, always"). In constructing the family questionnaire, several questions were taken from a 17-item satisfaction scale presented by Kruzich and colleagues (Kruzich, Clinton & Kelber, 1992). Additional questions came from a NH satisfaction survey instrument developed jointly by Scripps Gerontology Center and the Margaret Blenkner Research Center (Straker, 2001) and from an instrument presented by Uman (Cohen-Mansfield, Ejaz & Werner, 2000). Still other questions were drawn from instruments developed by Bliesmer and Earle (1993), Davis and colleagues (Davis, Sebastian & Tschetter, 1997) and Kleinsorge and Koenig (1991).

The questionnaire items were typically used to create indices to represent various concepts. The majority of indices consisted of three or more items. For example, the indexed variable for CNAs' perceptions of "global empowerment" consisted of 19 statements, including those items measuring its dimensions of autonomy (e.g., "The nurse aides decide the procedures for getting residents to the dining room"), competence (e.g., "When a new resident is admitted, I am given all the information I need about the new resident"), and impact/meaningfulness (e.g., "The management staff listens to the suggestions of CNAs"). On the other hand, the indexed variable for "general job satisfaction" consisted of only three statements (e.g., "Generally speaking, I am very satisfied with my work"). Further, two of the concepts from the CNA and nurse questionnaires, CNA self-reported absenteeism and CNA satisfaction with scheduling,

were measured by only a single statement. Four concepts from the family questionnaire also relied on a single item: spends time on needs, checks on comfort, satisfaction with the care provided, and satisfaction with staff friendliness.

The specific items included in an index were determined after examining factor analyses and Cronbach's alpha based on standardized items. Standardized alphas were calculated twice for each concept—once at time 1 (pretest) and again for time 2 (post). They ranged in size from a low of .50 (autonomy at time 1) to a high of .90 (nurse perception of CNA empowerment, time 1, and nurse perception of time available for paperwork, time 1). The majority of CNA indices ranged in their standardized alphas from .60 to .85. All the nurse indices ranged between .71 and .90 and the majority of family indices ranged in their standardized alphas from .70 to .85.

To calculate each index, the items for a specific concept were added together and then the resulting sum was divided by the number of items added together. This calculation allowed the index score to remain in the original range of the individual items.

Concepts that were measured from CNA questionnaire statements included: global empowerment and its dimensions of autonomy, impact/meaningfulness, and competence, rating of CNA performance, self-esteem, burnout, job satisfaction, satisfaction with scheduling, commitment, intent to quit, and absenteeism. Originally, the questionnaire was designed to measure impact and meaningfulness as two separate concepts. However, a factor analysis and standardized alphas showed that the statements used to measure these concepts actually measured a single concept. Therefore, a single index was created and is referred to as impact/meaningfulness. CNA turnover was measured by determining the percentage of CNAs working at time 1 who were still working at the same NH at time 2. A separate calculation was made for the experimental NHs and for the comparison NHs.

Concepts that were measured from nurse questionnaire statements included: global CNA empowerment, CNA procedures, CNA coordination, CNA cooperation with nurses, and nurse time to complete paperwork. Concepts concerning the direct care to residents that were measured from family member questionnaire items included: spends time on resident needs, checks on resident comfort, responds to resident complaints, and listens/talks/cares for resident. Other concepts from the family questionnaire included: satisfaction with care provided, satisfaction with staff friendliness, residents have choice of bedtime, residents have choice of meal time, and residents have choice of shower time.

Qualitative Approach

The qualitative approach consisted of (1) observations of over 270 CNA team meetings, (2) examination of weekly team-meeting summaries provided by the CNA EWTs to nurse management, and (3) examination of written weekly responses and requests from nurse management to the EWTs. For each EWT, the first eight to 12 weekly meetings were observed by the PI or Co-PI who also served as the facilitators of the first two to four weekly meetings. It was determined that the 30 minute team meetings provided the most fruitful information about the team's effects since the CNAs had a block of time available to them to make decisions that affected their work processes and performance, to express their attitudes about their work, and to discuss turnover and absenteeism issues. The times of the weekly meetings were typically established by the teams themselves and were usually scheduled either during the slowest part of the team's shift or during the shift change so that CNAs from the next shift could join them. Additional meetings were randomly observed roughly once every three months for the following 12 months. In most cases, immediately following an observation the observer jotted down a summary of what occurred at the meeting. The notes were organized chronologically.

Additionally, copies of the weekly summaries submitted to nurse management by the EWTs were provided to the researchers for the first 12 weeks that the team met and then irregularly after that (roughly once every three months for nine additional months). Further, copies of nurse management's written weekly responses to the EWTs each week along with any other information they wanted to share with the team were also provided to the researchers for the first 12 weeks and then roughly every three months after that for nine additional months.

Data Analyses

To test the propositions, both the qualitative and quantitative data were analyzed. A review of the qualitative data (observations, EWT weekly summaries, and nurse management weekly written responses) was conducted separately for each proposition. During each review, the data were examined for trends that refuted as well as supported the proposition. The qualitative findings are presented for each proposition.

For the quantitative analysis, only those responses from CNAs, nurses, and family members, who participated in both the pre and post surveys were included. It was reasoned that changes in the responses of these CNAs, nurses, and family members, if any, would most accurately reflect any effects of the EWTs.

Several reliability checks of the quantitative data were performed. For three pairs of statements included in the questionnaire for CNAs, each statement in a pair was either identical or the statements were the same except that one was worded in the opposite direction (positive statement versus negative statement). If the respondent was not consistent in her responses on at least two of the three pairs of questions, her responses were examined for possible coding errors or excessive influence on overall scores. Subsequently, no such respondents were found. In addition, for the multivariate analyses, Mahalanobis distance scores were used to uncover any

respondents who were outliers on the variables used. Here again, no respondent was identified as needing to be removed from further analysis.

To examine change between times 1 and 2, t-tests were used for the experimental group and for the comparison group. To compare the amount of change in the experimental group to the amount of change in the comparison group, t-tests were again used by first creating a new variable that reflects the difference between times 1 and 2 for each respondent and then regressing this difference on a dummy variable coded 1 if she was in the experimental group and 0 if she was in the comparison group. The p-value associated with the dummy variable coefficient estimate allowed us to determine whether the average change (or difference) across time was significantly different between the experimental and comparison groups. Further, because CNAs, nurses, and family members were clustered within NH, p-values used were based on standard errors adjusted for this clustering (see StataCorp, 2003, p.328). Additionally, because the large number of t-tests increases the chance of committing a Type 1 error (rejecting the null hypothesis of no difference when it is in fact true), multivariate analysis of variance (MANOVA) was performed. In performing the MANOVAs, all assumptions were met and appropriate diagnostics were conducted.

Findings

Proposition 1 proposes that EWTs in NHs positively affect feelings of empowerment, including autonomy, impact, meaningfulness, and competence among the team members. Both the qualitative and quantitative data support this proposition. Observations of EWT meetings and of CNAs at their work revealed that: (1) the autonomy of the CNAs within the EWTs increased somewhat because nurse management consulted with the EWTs, sometimes allowed them to make decisions about their work, and allowed them to work on their own; (2) the CNAs

became more competent in performing their work as the team meetings allowed them to learn

more about their work responsibilities and the preferences and health conditions of residents; and

(3) the CNAs were able to experience the impact of their improved competence as they used

their new knowledge to assist residents. It was less clear from a review of the

qualitative/observation data whether the EWTs affected the CNA meaningfulness of the work.

Generally, it appeared that the CNAs already held this view, and, so, the EWTs had little effect.

While observation notes clearly show that the CNAs' empowerment was increased, the

amount of increase is less clear. Observations revealed that CNAs were at times given

opportunities to make decisions but these were not routine. This appeared to be due to: (1) a

perception by management that some decisions needed to be made quickly and so there was no

time to consult with the EWTs; (2) nurse management would sometimes simply forget to include

the EWTs in decision-making; and (3) empowering workers is a different way of thinking that

requires time and effort and so it was almost always easier for nurse management to make

decisions without consulting with the CNA teams.

Examination of the CNA pre (time 1) and post (time 2) questionnaire data confirms that

there was an increase in empowerment, although the increase was modest (Table 2). The CNAs

in the experimental NHs reported higher levels of global empowerment, autonomy,

impact/meaningfulness, and competence at time 2 than time 1 while the CNAs in the comparison

group showed no significant change between time periods. In addition, the differences over time

on these measures between the experimental and comparison groups were for the most part

significant (Table 2, last column).

TABLE 2 ABOUT HERE

An explanation for the lack of larger effects on the experimental group may be the higher empowerment expectations of this group at time 2 than time 1. At time 1 they perceived themselves neutral to slightly empowered (3.2 on a 5-point scale). At time 2 the CNAs had more knowledge about empowerment and had higher expectations regarding CNA empowerment. Consequently, at time 2 they still reported themselves as being only slightly more empowered (3.4) even though the qualitative/observation data showed that their level of autonomy, competence, and impact had clearly increased.

Another means of examining this proposition, while avoiding any contamination issues caused by CNA awareness of empowerment at time 2, is an examination of the nurses' perceptions (Table 2, bottom panel). Consistent with Proposition 1, these findings suggest that the EWTs positively affected CNA empowerment. The nurses in the experimental group perceived more CNA empowerment at time 2 than time 1 while the nurses in the comparison group did not perceive any change. Further, when comparing the difference over time between the experimental and comparison groups, a significant effect is again found (Table 2, last column).

Proposition 2 proposes that EWTs positively affect performance. This proposition is also supported by both the qualitative and quantitative data. The qualitative/observation data indicate that the EWTs assisted the CNAs in becoming more aware of resident health conditions. This reduced the possibility that a resident health problem would go unattended for an extended period of time and increased the possibility that proper health care would be provided. For example, in one team meeting one of the CNAs informed the others that "Ms. Smith" preferred to be taken to the toilet rather than using a bed pan. The response from another CNA was that Ms. Smith had recently had a hip replacement and should not be gotten out of bed. This

important bit of information may have saved Ms. Smith a serious re-injury of her hip since all the CNAs quickly agreed that Ms. Smith should not be gotten out of bed in the future until the nurses and doctor found the hip to be in a condition to do so.

Second, the EWTs provided CNAs with information regarding the special care needs, uniqueness, and preferences of residents. For example, a CNA might report in a team meeting that a particular resident prefers using a particular bathroom. Or, in another case a CNA reported having difficulty turning "Mr. Jones" in bed without him becoming combative. Another CNA, responded by explaining that Mr. Jones is willing to be turned as long as he is slid up against the wall prior to being turned.

Third, team meetings provided an opportunity for CNAs to have frank discussions regarding any questionable behaviors of other CNAs. Such discussions provided the opportunity to clarify one's actions. Clarification often resulted in reduced frustration and animosity among CNAs and an increased willingness to cooperate and coordinate the care provided to residents. In some cases, poor performing CNAs were confronted by the EWT and provided instruction by the team on how to improve their performance. This instruction was also found to be valuable for new CNAs. When a CNA was repeatedly performing at a low level, it would sometimes be brought up in a team meeting. Team members would describe why the performance was poor and clarify what should be done to improve the performance. This sometimes resulted in the poor performer learning from the team and subsequently improving. In extreme cases, if the poor performer was unreceptive to constructive criticism, the EWT contributed to the CNA being fired by reporting the poor performance to nurse management on multiple occasions.

Fourth, new CNA work procedures appeared to be carried out more willingly by CNAs and to remain a part of their work routine longer when the CNAs participated in creating the new

procedures. For example, in one NH there were three pairs of CNAs serving three halls. One of the pairs of CNAs was taking longer to get the work done so nurse management suggested that the CNAs from the other two halls take turns assisting those on the third hall. The CNAs were unhappy with this solution because they believed that the slower pair of CNAs was simply not putting in enough effort. After some discussion with the CNAs, the Director of Nursing (DON) allowed the CNAs to implement their own solution which was for the pairs of CNAs to take turns working on the third hall. The result of this solution was that the CNAs came to realize that the third hall was indeed more difficult to serve. Consequently, they no longer resented having to "help out" the CNAs on this third hall.

The qualitative/observation data also provided evidence that the EWTs may have simultaneously had some negative effects on resident care. This was caused by pulling CNAs away from providing direct resident care for 30 minutes while they attended a weekly EWT meeting. In all experimental NHs, the CNAs had difficulty finding time for their team meetings. The job of a CNA is a difficult one where the CNA does not have time to do all that needs to be done and consequently must choose which tasks will get done and which will not. The team meetings reduced the time available to provide resident care by at least 30 minutes each week.

In addition, the positive effects of the EWTs on performance appeared to be experienced in a repeating cycle from high effect on performance to less effect and back again. When the EWT had an issue to address that was perceived to be important to the NH or to the CNAs themselves there was a high level of energy and enthusiasm applied to the issue. When there were no "burning" issues of interest or DON-requested problems to be solved during the EWT meetings, the CNAs showed less enthusiasm and subsequently it appeared that less was accomplished.

The quantitative/survey data also supports the performance proposition. For example, when experimental group CNAs were queried about the EWTs in the post questionnaire, the majority of them agreed or strongly agreed that the EWTs allow them to learn from each other (58%) and learn what the residents like and dislike (59%) with 22% and 20% disagreeing or strongly disagreeing respectively (Table 3). Similarly, the majority of nurses reported that the EWTs provide new ideas that are helpful (57%) and create helpful ways of doing their work (59%) with 11% and 9% disagreeing or strongly disagreeing respectively. Sixty percent (60%) of the CNAs disagreed with the statement "We should stop using teams," and only 15% agreed or strongly agreed. Similarly, 63% of the nurses responded negatively to the suggestion of stopping teams with 11% responding positively. Neutral responses to these statements included new CNAs and nurses who were not yet familiar with the effects or lack of effects of the EWTs.

TABLE 3 ABOUT HERE

An examination of the pre (time 1) and post (time 2) data from nurse questionnaires shows similar findings while the CNA data provide less support (Table 4, first two panels). Although CNAs in the experimental NHs reported significantly higher performance at time 2 than time 1, the increase was slight (3.6 versus 3.7) and not significantly different from the trend of no change reported by CNAs in the comparison NHs (Table 4, first panel, last column). On the other hand, the significant improvements found over time on CNA performance measures among the nurses in the experimental NHs were both considerably larger and, on the whole, significantly different from the lack of improvement on these measures reported by nurses in the comparison NHs (Table 4, second panel, last column). The nurses from the experimental NHs rated the CNA "procedures used to do the work" at a higher level at time 2 than time 1 (3.8 versus 4.1) while the comparison group of nurses showed no difference. Similar results were

observed for nurse ratings of CNA "coordination." A MANOVA (not shown) that included all

of the nurse variables confirmed these findings; specifically, the treatment group effect was

significant (p = .035), suggesting, again, that the EWTs improved nurses' perceptions of CNA

performance. Why the nurses perceived higher performance at time 2 and the CNAs did not is

difficult to determine. Perhaps the CNAs did not perceive a change in performance because of

an inability to "see the forest because of the trees." That is, it may have been difficult for the

CNAs to recognize the higher performance because of their daily involvement in the teams.

<p align="center">TABLE 4 ABOUT HERE</p>

It is interesting to note that the teams appeared to have positive effects on nurse

performance. The nurses from the experimental NHs reported more time to complete their

paperwork at time 2 than time 1 (2.4 versus 2.9), a trend that was marginally different (p = .068)

from the no change between time periods reported by the comparison nurses.

Family member pre- and post-questionnaire responses indicated that some measures of

CNA performance were affected by the EWTs while others were not. Three of four measures of

direct care were found to be slightly higher at time 2 than time 1 for the experimental group

while no differences were found for the comparison group (Table 4, third panel). The three

measures that improved included: "spends time on resident needs" (4.2 versus 4.4); "checks on

resident comfort" (4.2 versus 4.4); and "staff listens, talks, and cares" (4.4 versus 4.5). However,

when comparing the difference across time on these measures between the experimental and

comparison groups, the only significant difference was for "staff listens, talks, and cares" (Table

4, third panel, last column). Further, the treatment group effect in a MANOVA (not shown),

including all four direct care variables, was not significant. Moreover, an examination of two

additional performance measures, "satisfaction with care" and "satisfaction with staff

friendliness," showed no differences between the experimental and comparison groups (Table 4, fourth panel).

Family members were also asked if residents were given an opportunity to make choices regarding the services provided (Table 4, fifth panel). Family members from the experimental NHs reported a significantly higher level of choice at time 2 than time 1 regarding "when to eat" (2.5 versus 2.8) and "when to shower" (2.6 versus 2.9). Family members from the comparison NHs reported lower levels of choice at time 2 than time 1 on these and the "when to sleep" variable. The trend of more choice in the experimental group was significantly different from the trend of less choice in the comparison group (Table 4, fifth panel, last column). The result of a MANOVA that included the three choice variables confirms the findings ($p = .005$). It is reasonable to suspect that the increased choices available to residents in the experimental NHs were the result of the CNAs having better knowledge of the residents' preferences as noted from the qualitative/observation data.

Proposition 3 proposes that EWTs have a positive effect on job attitudes, including job satisfaction, commitment, and self-esteem. It is partially supported by qualitative data and unsupported by the quantitative data. In support of the proposition were observation data that showed that CNAs were able to distribute the work so that CNAs were more likely to do the kinds of tasks they most preferred and serve the particular residents they most enjoyed. For example, if one CNA preferred answering call lights (lights that residents turn on when they have a need) and another preferred assisting residents with eating, the CNAs were sometimes able to distribute their work so that each was doing what she preferred most. Similarly, CNAs were sometimes able to distribute the specific residents according to who preferred serving whom or to share equally in serving a resident whom no one wanted to serve.

On the other hand, observations of EWT meetings suggested that the EWTs also have the potential to foster some negative attitudes. Some CNAs complained that the 30-minute weekly meetings kept them from completing their work on time. In other cases, where team meetings were held before or after a CNA's shift, some CNAs complained that they could not get to work early for the meetings or stay late for the meetings due to other obligations such as taking a spouse to work or picking up children from school. And, still other CNAs sometimes complained when one or more team members would disrupt the team meetings by repeatedly bringing up an issue that had already been discussed or bringing up a personal problem that had already been addressed. Finally, CNAs generally became dissatisfied in those cases when a DON forgot/neglected to read and respond to the CNAs weekly team notes.

Similarly, in general, the quantitative/survey data did not support the proposition that EWTs have a positive effect on job attitudes. The CNAs in the experimental NHs as well as the comparison NHs reported the same levels of general job satisfaction, burnout, and self-esteem at time 1 and time 2 (Table 4, sixth panel). In one exception the experimental group reported higher satisfaction with scheduling at time 2 than time 1 while no difference was found among the comparison CNAs. It is reasonable to suspect that this was the result of the EWTs' ability to influence scheduling decisions. In another exception, the comparison group reported lower commitment between time 1 and time 2 while the experimental group showed no change. However, neither the results of t-tests comparing differences over time between the experimental and the comparison groups (Table 4, sixth panel, last column), nor the results of a MANOVA including all the job attitude variables (not shown) were statistically significant.

Proposition 4 proposes that EWTs reduce absenteeism and turnover. The proposition is partially supported. The qualitative/observation data showed that, during team meetings, CNAs

sometimes discussed the problems that CNA absenteeism causes. This appeared to help those CNAs who were routinely absent to better understand the effects their absences were having on the other CNAs and appeared to result in them making more of an effort to be at work. In some cases, CNAs would report to the team that they were going to be absent and then another CNA would subsequently try to help them avoid the absence. For example, in one case a CNA reported that she would be absent the next day because her babysitter was not going to be available. A second CNA noted that her babysitter would not mind having additional children, and that the CNA could leave her kids with this babysitter. This subsequently resulted in the CNA avoiding being absent.

When considering turnover, the observation data again suggest some positive effects of the EWTs. On several occasions during EWT meetings, a CNA would comment that she would prefer to stay at the NH because the EWTs seemed to be helping and other NHs in the local area lacked such teams.

The observation data also uncovered some negative effects on turnover. In those cases where a CNA was absent routinely, the CNA sometimes spoke of the need to quit due to her inability to avoid absences and of its subsequent negative effects on the other CNAs. In other cases, the EWT made an effort to have a CNA fired. This was found to occur when the CNA was clearly not getting the work done and it was having negative effects on resident care (e.g., when a CNA routinely allowed residents to sit in soiled, wet clothing for long periods of time rather than changing the clothing promptly).

When examining the quantitative/survey data, no differences were found in self-reported absenteeism between time 1 and time 2 for those in the experimental NHs (Table 4, bottom panel). Interestingly, self-reported absenteeism had a statistically significant increase in the

comparison group (1.3 vs 1.6). However, while this increase among CNAs in the comparison NHs may seem to suggest that EWTs may help prevent absenteeism, it was not large enough to be significantly different from the stable trend observed over time for the experimental group (Table 4, bottom panel, last column).

On the other hand, CNAs in experimental NHs were significantly less likely to quit or be terminated (Table 4, bottom panel, last column). Only thirty-seven percent of the CNAs, who were working in the experimental NHs at time 1, were not working in these same NHs at time 2. In contrast, at the comparison NHs, 51 percent were no longer working at the same NHs. However, this difference must be viewed cautiously since the average length of time between time 1 and time 2 was a month longer for the comparison NHs and consequently there was an additional month for CNAs to quit. Further, while the experimental NHs had a lower turnover rate, the data available do not allow us to determine whether there was a drop in turnover with the implementation of EWTs since there is a lack of employment data prior to the study's beginning.

Discussion

There is an urgent need to improve the care provided to NH residents. This is particularly the case when one is concerned for the residents' quality of life and life satisfaction as well as health. Currently there are a variety of initiatives underway with the goal of addressing these issues. Many of these initiatives propose empowering the direct care workers, the CNAs, with the belief that this change from a hierarchical to an empowering management approach will enhance resident care. This study tests whether empowered work teams (EWTs) increase the empowerment of the CNAs and improve performance and job attitudes as they have in manufacturing settings. The implementation of the CNA EWTs began with a pilot project in a

single NH with the subsequent establishment of 21 EWTs in five NHs in the north central Texas region. The process of implementing the EWTs was a learning experience with the EWTs in the fifth experimental NH being implemented more quickly and easily than those in the first. Hence, the study's results are reflective of both the EWTs and the authors' improving EWT implementation skills. The authors also discovered that size of the NH has a significant impact on the ease of implementation. A large NH of 200 residents can have 12 or more EWTs—more than a single DON can monitor, requiring significant involvement of multiple team facilitators as the teams are getting underway and many more nurse managers to work with and respond to the teams.

The generalizability of the study's findings is also impacted by two other substantive limitations. First, since the study is based on a quasi-experimental design conducted in a single region of the United States, its findings may not apply to all NHs. Participating NHs volunteered to join the study and therefore may be somewhat different from the typical NH. CNAs, nurses, and family members were not randomly assigned to one NH or another, allowing for the possibility of differences between the groups beyond those already identified (Table 1). And, since the NHs are all located in North Texas, findings may be influenced to some extent by the uniqueness of the location itself. Second, the analytical approach results in the exclusion of missing data—only those who were present at both times 1 and 2 were included in the analyses. Unfortunately, the authors were unable to survey those CNAs, nurses, and family members who were missing at Time 2 to obtain their attitudes. It is possible that the EWTs had a different effect on those who left the NH prior to the second survey. Further, it is reasonable to expect that there were baseline differences between those who chose to leave the NHs before time 2 and those who stayed. The authors are currently undertaking a thorough analysis of these data in

hopes of shedding light on the factors that contributed to CNA and nurse turnover, and the results of these analyses will be reported in a separate publication.

Given these limitations, the qualitative/observation data suggest, in general, that the EWTs had positive effects on CNA empowerment and performance, possibly positive effects on absenteeism and turnover, and mixed effects on job attitudes. CNAs were more empowered after working in EWTs because they were given new decision-making responsibilities, grew in competence at decision-making, and experienced more positive impacts from their efforts. However, it was also observed that while nurse management did involve the EWTs in decision-making, this involvement could have been more routine.

The EWTs had positive impacts on CNA performance by allowing the CNAs to become more aware of resident health conditions, by providing them with more information on the special care needs of residents, by giving them the opportunity to question the poor performance of negligent team members, by giving them the time needed to clear up misinformation and communication, and because the team members were more willing to carry out decisions that they participated in making. On the other hand, the observation data also suggest some negative effects of the teams on performance, related to the time spent in the meetings which pulled CNAs away from their direct care duties. Moreover, the data also suggest that if nurse management had been more consistent in their weekly communications and feedback to the teams, the positive effects that the EWTs had on CNA performance would likely have been larger.

It appears that team meetings may have contributed to reduced absenteeism and turnover. In some cases team members were able to help another avoid an absence, once her circumstances had been brought up during team meeting discussions. And, from some team members, who

particularly liked the EWTs, there were comments that the EWTs were an important feature of the NH not offered by other facilities.

Mixed results were found from the qualitative/observation data with regard to work attitudes. In some cases, positive effects were apparent where CNAs were given more opportunity to control who did what during the day and who served which residents. This allowed CNAs to do the kinds of CNA work they most preferred. However, on the negative side, CNAs sometimes expressed frustration at having to "hurry up" their direct care duties in order to attend the team meetings. And, when meetings were scheduled before or after the CNAs' shifts, some CNAs experienced tension because of other, typically family, responsibilities that they had outside of work that conflicted with the meeting times.

When examining the quantitative/survey data, the findings also show statistically significant positive effects of the EWTs on CAN empowerment and performance, although the substantive effects are small. No effects were found on job attitudes or self-reported absenteeism. In addition, while the quantitative/survey data showed no effect of the EWTs on CNAs' "intent to quit," there is some evidence that turnover itself may have been reduced.

Implications

It is important to note that these results are preliminary and subject to cross-validation. Further, there is still a need to examine resident perceptions which we were unable to do. In light of this, the qualitative and quantitative data suggest that EWTs can have positive effects on CNA empowerment and performance. This suggests that those NH managers looking to improve resident care should consider implementing EWTs as a means of accomplishing this. When considering job attitudes, the quantitative data showed no effects from the EWTs, while the qualitative data suggest that EWTs may have positive effects when a variety of

organizational and management conditions are met. For example, the EWTs did not have

positive effects when the scheduling of team meetings was at an undesirable time for the CNAs,

or when CNAs were pulled away from providing direct care of their residents to attend a EWT

meeting without having someone to cover for them. Similarly, if nurse management did not

provide routine procedures for involving the CNAs in decision-making or, if nurse management

did not respond routinely to the notes taken at EWT meetings, then the CNAs displayed less

satisfaction with the EWTs. Thus, this suggests that those NH managers seeking to improve the

job attitudes of their CNAs should not turn to EWTs for this unless they are willing to implement

the appropriate organizational and management conditions along with the EWTs themselves.

When considering absenteeism and turnover, the qualitative and quantitative data are not

complete enough to make sound recommendations. Some of the data suggest turnover may be

reduced by the use of EWTs but these data are not complete.

For those NH administrators and nurse managers who want to implement EWTs, the first

step should be reading about the uses of and strategies for implementing them. In this regard, the

authors are preparing a "why and how to" book which shares the many lessons learned in the

process of implementing EWTs and includes orientation materials for NH administrators, nurse

management, CNAs, and team facilitators (Yeatts, Cready, and Noelker, 2007). The next step

should include the observation of existing EWTs and/or discussions with those nurse managers

who have experience working with EWTs. In this regard, success will depend greatly on nurse

managers' understanding of what is involved and what they will be responsible for doing and

likewise their desire to create and support EWTs. A subsequent step is the orientation of all NH

administrative and nursing staff, including the CNAs and team facilitators, to the purposes and

advantages of EWTs. Further, it is important that the CNAs be given the opportunity to learn

how to work together in a team meeting, to sometimes make mistakes, and to routinely

contribute to the management decisions made about their work.

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