Published in final edited form as:

J Appl Gerontol. 2018 April ; 37(4): 419–434. doi:10.1177/0733464816665204.

Staff Empowerment Practices and CNA Retention: Findings From a Nationally Representative Nursing Home Culture Change Survey

Clara Berridge¹, Denise A. Tyler², and Susan C. Miller²

¹University of Washington, Seattle, WA, USA

²Brown University, Providence, RI, USA

Abstract

This article examines whether staff empowerment practices common to nursing home culture change are associated with certified nursing assistant (CNA) retention. Data from 2,034 nursing home administrators from a 2009/2010 national nursing home survey and ordered logistic regression were used. After adjustment for covariates, a greater staff empowerment practice score was positively associated with greater retention. Compared with the low empowerment category, nursing homes with scores in the medium category had a 44% greater likelihood of having higher CNA retention (odds ratio [OR] = 1.44; 95% confidence interval [CI] = [1.15, 1.81], $p = .001$) and those with high empowerment scores had a 64% greater likelihood of having higher CNA retention (OR = 1.64; 95% CI = [1.34, 2.00], $p < .001$). Greater opportunities for CNA empowerment are associated with longer CNA retention. This research suggests that staffing empowerment practices on the whole are worthwhile from the CNA staffing stability perspective.

Keywords

staff empowerment; nursing assistant; staff stability; culture change

Introduction

The long-standing interest in retention and turnover among certified nursing assistants (CNAs) in long-term care stems from projections for a dramatic increase in demand for workers (Institute of Medicine [IOM], 2008) and the widely held belief that staff stability has positive impacts on quality of care in nursing homes (Bowers & Nolet, 2011; Castle & Engberg, 2005). High turnover among CNAs has been linked to quality of care and resident behavior deficiencies, as well as poor end-of-life quality indicators (Castle & Anderson, 2011; Lerner, Johantgen, Trinkoff, Storr, & Han, 2014; Tilden, Thompson, Gajewski, Buescher, & Bott, 2013). Explanations for a positive relationship between staff stability and

Reprints and permissions: sagepub.com/journalsPermissions.nav

Corresponding Author: Clara Berridge, School of Social Work, University of Washington, 4101 15th Ave NE, Seattle, WA 98105, USA. clarawb@uw.edu.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

quality center on the idea that staff will perform better when they are familiar with the needs of residents and when they have established relationships with both residents and colleagues (Bowers & Nolet, 2011; Donoghue, 2010; Flesner, 2009).

Staff stability is commonly measured as turnover, but can be measured in two ways. Turnover is the percentage of staff who quit within a specific time frame (typically 1 year), whereas retention is the percentage who remain employed for that time (Donoghue, 2010). Study estimates of annual CNA turnover rates range widely (Castle, 2006). Castle and Engberg (2005) found an annual turnover rate of 85.8% based on 354 facilities in four states, whereas Donoghue (2010) found an annualized estimate from the National Nursing Home Survey of 74.5%. According to the American Health Care Association (AHCA; 2012) *2012 Quality Report*, the 2010 turnover rate among CNAs in skilled nursing facilities was 42.6%. Regarding CNA retention, Donoghue estimated an annual national rate of 62.5%.

Empowerment-focused staffing practices have been proposed as a way to enhance CNA job satisfaction and stability. A limited number of studies have linked a variety of empowerment approaches to job satisfaction, intent to stay, and lower turnover. Practices commonly associated with staff empowerment encompass provision of greater development opportunities and the development of more supportive organizational cultures. Examples include the offering of training and education opportunities (Howe, 2008; Leon, Marainen, & Marcotte, 2001; Noel, Pearce, & Metcalf, 2000) and the implementation of practices reflecting the valuing of staff (Probst, Baek, & Laditka, 2010) and their involvement in care planning (Banaszak-Holl & Hines, 1996) and in managerial and day-to-day decision making (Hamann, 2014; Upenieks, 2003). In survey research with 3,039 direct care workers in nursing homes and other settings, Brannon, Barry, Kemper, Schreiner, and Vasey (2007) found that intent to leave was positively related to perceived lack of opportunity for advancement. Banaszak-Holl & Hines (1996) learned that facilities involving nursing assistants in resident care planning experience lower turnover rates. Research based on a nationally representative sample of nursing homes and 2,897 CNAs revealed a positive association between job satisfaction and organizational climate, supervisor behavior, having sufficient time for tasks, being valued, and hourly earnings (Probst et al., 2010). A mixed methods study found that the empowered work teams approach in which CNAs have decision-making authority about their work had modest, positive effects on CNA empowerment, performance, satisfaction, resident care and choices, and improved procedures, coordination, and cooperation with other staff. The quantitative data also revealed a lower likelihood that CNAs exposed to the empowered work teams would quit or be fired (Yeatts & Cready, 2007).

In practice, the culture change movement is leading the staff empowerment charge. Culture change is an expansive movement focused on improving quality of life and care for nursing home residents (Zimmerman, Shier, & Saliba, 2014). Staff empowerment is among its guiding principles of resident direction, homelike atmosphere, close relationships, collaborative decision making, and quality improvement processes (Koren, 2010). At a 2006 meeting convened by the Agency for Healthcare Research and Quality, stakeholders outlined the principle of staff empowerment as follows: "Work should be organized to support and empower all staff to respond to residents' needs and desires. For example, team-work would

be encouraged, and additional staff training provided to enhance efficiency and effectiveness” (Koren, 2010, p. 313). Doty, Koren, and Sturla (2008) found that nursing homes that identify as culture change adopters were more likely to cross-train staff (53%), provide leadership training opportunities (14%), engage nursing assistants in decisions about social events (51%), and involve them in decision making about staff assignment to residents (33%). By contrast, for example, only 23% of traditional nursing homes include nursing assistants in social event planning and 13% involve them in staff assignment decisions. The problem of stressful work environments and dissatisfaction among staff has been a motivating component of the culture change movement (Banaszak-Holl, Castle, Lin, & Spreitzer, 2013; Yeatts & Cready, 2007), yet culture change initiatives targeting staff empowerment range widely and may be implemented with great variability (Bowers, Roberts, Nolet, Ryther, & THRIVE Research Collaborative, 2016; Doty et al., 2008).

Culture change-identified nursing homes appear to be translating the principle of staff empowerment into practice, though without a prescriptive model. There are few published evaluations of practices to promote staff empowerment (Bowers & Nolet, 2011) that could help move us closer to a universally adopted meaning of empowerment within the culture change movement. Findings from the THRIVE (*The Research Initiative Valuing Eldercare*) Research Collaborative indicate that when empowerment is interpreted as “being a part of and accountable to a care team,” it facilitated communication about residents’ conditions, collaborative decision making, and early intervention (Bowers et al., 2016, p. 393). Their comparison of turnover rates between Green House nursing homes¹ and general nursing homes revealed a lower average turnover in the Green House nursing homes (47.4% vs. 60.5%) over a 3-year period that was not statistically significant (Brown et al., 2016). Research that directly examines the relationships between empowerment practices and staff stability is needed.

The relationship between culture change and CNA satisfaction and stability is not uncomplicated. Although having more staff with long institutional memory and established relationships may benefit resident care, the adage “change is hard” also appears to be true in the case of adapting to new culture change initiatives where staff may be attached to a different, familiar model (Tyler, Lepore, Shield, Looze, & Miller, 2013). One of the biggest challenges of culture change implementation is achieving buy-in from staff (Tyler et al., 2013). Nursing assistant buy-in and involvement contributes to successful adoption of culture change and requires strong communication and training (King, O’Brien, Edelman, & Fazio, 2011; Rosemond, Hanson, Ennett, Schenck, & Weiner, 2012; Tyler et al., 2013). This leads us to ask how culture change might serve CNAs. Specifically, do culture change strategies focused on empowering CNAs actually affect retention? We focus our analysis on retention because researchers have paid more attention to turnover, despite the possibility that increasing staff retention may be a more attainable goal for nursing home management (Donoghue, 2010). It is important to know whether implementation of culture change strategies is meaningful and whether they contribute to CNA stability, or whether they are

¹The Green House model includes small homes for six to 10 residents. The homes are to look like regular homes and have distinct organizational structure and staffing patterns. The Green House model falls under the larger umbrella of culture change.

counterproductive given the possibility of resistance to change. Thus, this study examines the relationship between staffing empowerment practices and CNA retention.

Method

This research is a part of a larger study on culture change implementation in which nursing home administrators (NHAs) and directors of nursing at the same nursing homes were surveyed by phone, mail, and online at 4,149 U.S. nursing homes (Miller et al., 2013). In the larger culture change study, three culture change domains were examined: physical environment, staff empowerment practices, and resident choice and decision making (Miller, Lepore, Lima, Shield, & Tyler, 2014). The culture change survey questions for directors of nursing focused primarily on resident choice and decision making. The questions of interest for this analysis—retention and those of the staff empowerment practices domain—were asked in the NHA survey, so only the NHA surveys are included for this analysis. The rate of survey completion for NHAs where contact was made was 62.6% (2,215). Methods for achieving this response rate are discussed elsewhere (Clark, Roman, Rogers, Tyler, & Mor, 2014). For this analysis, nursing homes that had both a completed NHA survey and a response to the CNA retention question were included ($N = 2,106$). Seventy-two observations (3.42%) had nonimputed missing values for model covariates and were removed (66 [3.1%] had imputed values). Thus, the N for analysis was 2,034. Nonresponse bias was tested, and none was detected (Clark et al., 2014). Survey weights were used in analyses to adjust for nonresponse in a stratified sample design (19 stratum of state size, owner type, bed size, % non-White)(Clark et al., 2014).

Variables of Interest

The staff empowerment practices score consisted of seven items with a total possible score of 21. These items are listed in Table 1. Response options to each of the seven questions were *never*, *sometimes*, *often*, and *always*. When one ($n = 57$) or two ($n = 9$) of these seven items were missing for a single nursing home, we imputed the values based on the model responses for the other items. For final analysis, the total scores were divided into quartiles for ease of interpretation. Because the third and fourth score quartiles were not statistically significantly different, these quartiles were combined for a total of three categories for study. Items for the staff empowerment practices domain were derived from previously developed surveys that have been shown to be reliable and valid at the item or domain levels (Bott et al., 2009; Doty et al., 2008; Mueller, 2007). Additional cognitive-based interviews were conducted by the study team to further test these questions (Tyler et al., 2011). Fuller details about the selection of the items for measurement of the staff empowerment practices domain are provided elsewhere (Miller et al., 2013).

Outcome Variable

The outcome variable of interest is retention of CNAs. Prior to survey implementation, cognitive-based interviews revealed that reliable and valid continuous data on retention and turnover could not be obtained (Tyler et al., 2011). For this reason, categorical responses were used. These categorical responses were also based on the findings from our cognitive-based testing. During cognitive-based testing, NHAs were asked to provide information

about staff retention and turnover, and we developed these categorical responses based on the responses of 50 NHAs: “About what percent of the NURSING ASSISTANTS who were employed at your nursing home TODAY has worked at the nursing home for AT LEAST 12 MONTHS?: 0% to 50%; 51% to 75%; 76% to 90%; 91% to 100%.”

Covariates

Factors that have been shown in the previous literature to be associated with retention or turnover were included in the regression model. Variables derived from the Area Resource File, Online Survey Certification and Reporting (OSCAR), and Minimum Data Set (MDS) were merged with the nursing home survey. Previous work on retention and turnover of CNAs indicates that important covariates are for-profit status, chain status, small facility size, large facility size, occupancy rate, location of facility in a metropolitan county, percent of residents with Medicaid, number of NHAs the nursing home has had in the past year, unemployment, registered nurse (RN) hours per day per resident, licensed practical nurse (LPN) hours per day per resident, CNA hours per day per resident, county nursing home beds, and county home health agencies (Banaszak-Holl & Hines, 1996; Castle & Engberg, 2005; Donoghue & Castle, 2007; Kash, Castle, Naufal, & Hawes, 2006; Kostiwa & Meeks, 2009; Probst et al., 2010; Wiener, Squillance, Anderson, & Khatutsky, 2009). Measures of staffing hours per resident per day were calculated from nursing home staffing data from OSCAR, described elsewhere (Tyler et al., 2013). A table of the categories and data sources of each covariate is provided in the appendix.

Analysis

Ordered logistic regression models were used to evaluate the associations between the staff empowerment practice score quartiles and CNA retention (Long & Freese, 2006; UCLA: Statistical Consulting Group, n.d.). An insignificant Brant test and an insignificant approximate likelihood-ratio test of proportionality of odds provided evidence that this analytic choice was appropriate (i.e., the proportional lines assumptions were not violated; UCLA: Statistical Consulting Group, n.d.). Analyses were conducted using Stata13. The survey used a stratified sampling design, and weights were accounted for using the Stata svy command.

The sum of the staffing empowerment questions ranged from two to 21. The mean staffing empowerment score was 10.47 with a standard error of 0.08 and Cronbach's alpha of .62. NHAs most frequently reported that staff always or often works together to cover shifts (83.5%) and that CNAs know when a resident's care plan has changed (83.1%). Nursing homes were least likely to report that CNAs always or often choose which residents they care for (10.8%), are cross-trained (28.2%), or receive bonuses, raises, or other rewards for extra training or education (28.5%). In addition to the composite empowerment practice score, we examined the association of each of the seven individual staff empowerment questions on retention.

Staff empowerment score quartiles were compared by profit, chain, and the size of facility, and no statistically significant differences were found. Also, a subanalysis was conducted on a restricted sample (i.e., those nursing homes that also had a director of nursing survey

respondent; $N = 1,470$) to confirm that including the presence of a CNA union would not significantly modify the staffing empowerment–retention association.

Results

Table 1 shows the responses of those nursing homes that had a survey completed by an NHA.

Using multivariate ordered logistic regression, a higher staff empowerment score was associated with higher CNA retention. There was a 44% greater likelihood of having higher retention (i.e., at any category of retention, one higher) if a nursing home had a staff empowerment practice score in the second versus the first quartile, and a 64% greater likelihood if a facility had a score in the third or fourth quartile compared with the first (adjusted odds ratio [AOR] = 1.44, 95% confidence interval [CI] = [1.15, 1.81] and AOR = 1.64, 95% CI = [1.34, 2.00], respectively). For example, a nursing home with a staff empowerment practice score in the second (medium) quartile is 44% more likely than a facility with an empowerment score in the first (low) quartile to have one level greater reported CNA retention at any level; that is, to report CNA retention in the fourth versus third (91%–100% vs. 75%–90%), third versus second (76%–90% vs. 51%–75%), and second versus first (51%–75% vs. 0%–50%) categories. Facilities with a high staff empowerment practice score are even more likely (64%) to have greater retention by one category than those with a low empowerment practice score. We assessed the potential for interactions between profit status, chain, facility size, and unionized CNAs, and none were identified. No significant change was detected when we used the restricted sample to learn whether CNA union modified the association between staff empowerment practices and retention.

As expected based on previous research, many covariates were associated with greater CNA retention. Specifically, being a nonprofit nursing home and having higher nursing home occupancy, lower administrator turnover, and higher registered nurse and CNA hours per day per resident were associated with greater CNA retention (see Table 2). For instance, nursing homes reporting that they had only one NHA in the past year (no turnover in NHA) were 77% more likely than facilities that had three or more NHAs in the past year to have one category higher reported CNA retention, all other things being equal. Nursing homes with two NHAs in the past year were 41% more likely to have higher CNA retention than those with three or more NHAs. At the county level, a higher unemployment rate was associated with greater retention. This is consistent with previous research and may be an effect of limited alternative employment options in a locality (Banaszak-Holl & Hines, 1996).

In subanalyses, we examined the association of the seven individual staff empowerment questions on retention. There was a positive effect observed for each item, with each higher staff empowerment score quartile consistently associated with higher retention.

Discussion

This nationally representative study explored the relationship between a multifactor approach to empowering CNAs and staff stability measured as CNA retention. These empowerment practices are common to many culture change initiatives and thus inform how

these culture change strategies may be associated with CNA retention. This is a valuable area of inquiry in light of previous findings of staff resistance to culture change initiatives that raise the possibility that aspects of culture change could be counterproductive to retention efforts. From this analysis, we find that opportunities for CNA empowerment are positively associated with CNA retention. This is a cross-sectional study, and cause and effect cannot be attributed, but findings support the possibility that culture change initiatives incorporating staff empowerment practices contribute meaningfully to CNA stability.

This research indicates that staffing empowerment strategies on the whole are worthwhile from the CNA staffing stability perspective. Our composite empowerment variable included working together to cover shifts, being cross-trained and involved in planning social events, taking part in quality improvement teams, knowing when a resident's care plan has changed, choosing which residents they care for, and being rewarded for extra training or education. The value of these staffing practices in relation to retention speaks to the importance of opportunities for CNA involvement, inclusion, being wrapped in, informed, and at the table as part of a team. This positive relationship with retention is consistent with the literature on the relationship between being valued and job satisfaction (Probst et al., 2010), as well as with the benefits of aligning schedules and encouraging teamwork and CNA input (Bowers et al., 2016).

In light of these findings, it is notable that only two of the practices than comprise our composite empowerment score were either "always" or "often" implemented by most nursing homes. Administrators overwhelmingly reported that CNAs are aware of when a resident's care plan has changed and work together to cover each other's shifts when someone cannot come in to work, but less than half involved staff in planning social events (42.9%) or engaged CNAs in quality improvement teams (46.8%). Given the growing literature that supports the value of empowerment as being a part of a team (e.g., THRIVE), nursing homes that are not involving CNAs in these activities might consider doing so.

The least commonly reported staffing empowerment approaches are staff cross-training, allowing CNAs to choose who they care for, and providing rewards to CNAs who receive extra training or education. Cross-training is a strategy used to enable staff to be responsive to the needs of residents by assuming a range of duties. It is intended to allow more workers to be available to meet immediate needs, breaking down hierarchical barriers in the process. This change may be among the most difficult because it runs counter to a traditional hierarchical model of work assignment (Doty et al., 2008). This underscores the need for a closer look at what changes in staff relationships and responsibilities these practices require and the training across staffing levels that may be needed to put them in place and maintain them (Zimmerman et al., 2016). Going forward, it will be equally important to examine the effects of nurse supervisory style on team membership and involvement of CNAs on communication and safe and appropriate decision making (Bowers & Nolet, 2014).

Furthermore, with a fairly established literature about the value of giving bonuses and raises to reward extra training or education (Brannon, Barry, Kemper, Schreiner, & Vasey, 2007; Konrad & Morgan, 2004; Morgan & Konrad, 2008; Noel, Pearce, & Metcalf, 2000; Washko et al., 2007), it is surprising that less than one third of the nursing homes have implemented

a rewards system. The results of this analysis suggest that there is plenty of room for these approaches to be applied to efforts to stabilize staffing. Future research might also examine the adoption of less common (Doty et al., 2008) empowerment initiatives such as involving nursing assistants in staff selection or resource allocations.

Limitations

This was a cross-sectional survey, and changes over time and causal relationships cannot be assessed. It is possible that nursing homes with high empowerment practice scores had higher CNA retention prior to implementation of empowerment strategies. Longitudinal research is needed to disentangle this relationship. It is important to note that the empowerment domain is a better reflection of an index of practice than a unified underlying domain. Nursing homes implement these culture change practices variously and incrementally. As such, although our empowerment domain represents a core component of culture change and was supported by construct validity analyses, we should not necessarily expect item agreement (McDowell & Newell, 1996).

The rate of retention was reported by NHAs and is subject to social desirability bias. It is possible that a survey conducted with nursing assistants would have yielded different responses; however, we cognitively tested our survey items to minimize this issue. Finally, we were unable to examine wages and related extrinsic rewards in our models, though previous work has associated them with turnover (Konrad & Morgan, 2004; Morgan & Konrad, 2008; Washko et al., 2007). These variables may have moderated the association between our staffing empowerment score and retention, though we found no moderation using the proxy of CNA unionization in our subanalysis.

Conclusion

These findings that CNA empowerment practices common to nursing home culture change initiatives are positively associated with retention indicate that these practices may significantly enhance staff stability. This is important new knowledge about how culture change may be of benefit to nursing homes and resident care. We expect these findings to be useful to nursing homes seeking to achieve greater retention of these critical members of their staff. Also, we recommend longitudinal research to examine whether adoption of staffing empowerment practices does indeed result in longer CNA retention.

Acknowledgments

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This project was funded by a grant from The Retirement Research Foundation (2008-086) and from the Shaping Long Term Care in America Project funded by the National Institute on Aging (P01AG027296). The first author was funded through grant number T32HS000011 from the Agency for Healthcare Research and Quality. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.

References

- American Health Care Association. 2012 Quality report. 2012. Retrieved from http://www.ahcancal.org/quality_improvement/Documents/AHCA%20Quality%20Report%20FINAL.pdf
- Banaszak-Holl J, Castle NG, Lin M, Spreitzer G. An assessment of cultural values and resident-centered culture change in U.S. nursing facilities. *Health Care Management Review*. 2013; 38:295–305. DOI: 10.1097/HMR.0b013e3182678fb0 [PubMed: 22936002]
- Banaszak-Holl J, Hines MA. Factors associated with nursing home staff turnover. *The Gerontologist*. 1996; 36(4):512–517. [PubMed: 8771979]
- Bott, M., Dunton, N., Gajewski, B., Lee, R., Boyle, D., Bonnel, W., et al. Technical report to the Kansas Department on Aging. 2009. Culture change and Turnover in Kansas Nursing Homes.
- Bowers B, Nolet K. Empowering direct care workers: Lessons learned from THE GREEN HOUSE® Model. *Senior Housing & Care Journal*. 2011; 18:109–120.
- Bowers B, Nolet K. Developing the Green House nursing care team: Variations on development and implementation. *The Gerontologist*. 2014; 54(Suppl 1):S53–S64. DOI: 10.1093/geront/gnt109 [PubMed: 24443606]
- Bowers B, Roberts T, Nolet K, Ryther B. THRIVE Research Collaborative. Inside the Green House “black box”: Opportunities for high-quality clinical decision making. *Health Services Research*. 2016; 51(Suppl 1):378–397. DOI: 10.1111/1475-6773.12427 [PubMed: 26708135]
- Brannon D, Barry T, Kemper P, Schreiner A, Vasey J. Job perceptions and intent to leave among direct care workers: Evidence from the better jobs better care demonstrations. *The Gerontologist*. 2007; 47:820–829. DOI: 10.1093/geront/47.6.820 [PubMed: 18192635]
- Brown PB, Hudak SL, Cohen LW, Horn SD, Zimmerman S. THRIVE Research Collaborative. Workforce characteristics, perceptions, stress, and satisfaction among staff in Green House and other nursing homes. *Health Services Research*. 2016; 51(Suppl 1):418–432. DOI: 10.1111/1475-6773.12431 [PubMed: 26708511]
- Castle NG. Measuring staff turnover in nursing homes. *The Gerontologist*. 2006; 46:210–219. [PubMed: 16581885]
- Castle NG, Anderson RA. Caregiver staffing in nursing homes and their influence on quality of care: Using dynamic panel estimation methods. *Medical Care*. 2011; 49:545–552. [PubMed: 21577182]
- Castle NG, Engberg J. Staff turnover and quality of care in nursing homes. *Medical Care*. 2005; 43:616–626. [PubMed: 15908857]
- Clark MA, Roman A, Rogers ML, Tyler DA, Mor V. Surveying multiple health professional team members within institutional settings: An example from the nursing home industry. *Eval Health Prof*. 2014; 37:287–313. [PubMed: 24500999]
- Donoghue C. Nursing home staff turnover and retention: An analysis of national level data. *Journal of Applied Gerontology*. 2010; 29:89–106. DOI: 10.1177/0733464809334899
- Donoghue C, Castle N. Organizational and environmental effects on voluntary and involuntary turnover. *Health Care Management Review*. 2007; 32:360–369. [PubMed: 18075445]
- Doty, MM., Koren, MJ., Sturla, EL. Culture change in nursing homes: How far have we come? Findings from the Commonwealth Fund 2007 National Survey of Nursing Homes. Vol. 91. New York, NY: The Commonwealth Fund; 2008.
- Flesner MK. Person-centered care and organizational culture in long-term care. *Journal of Nursing Care Quality*. 2009; 24:273–276. [PubMed: 19755877]
- Hamann DJ. Does empowering resident families or nursing home employees in decision making improve service quality? *Journal of Applied Gerontology*. 2014; 33:603–623. [PubMed: 24652909]
- Howe L. Education and empowerment of the nursing assistant: Validating their important role in skin care and pressure ulcer prevention, and demonstrating productivity enhancement and cost savings. *Advances in Skin & Wound Care: The Journal for Prevention and Healing*. 2008; 21:275–281.
- Institute of Medicine. Retooling for an aging America: Building the health care workforce. Washington, DC: National Academies Press; 2008.

- Kash BA, Castle NG, Naufal GS, Hawes C. Effect of staff turnover on staffing: A closer look at registered nurses, licensed vocational nurses, and certified nursing assistants. *The Gerontologist*. 2006; 46:609–619. [PubMed: 17050752]
- King SP, O'Brien CJ, Edelman P, Fazio S. Evaluation of the person-centered care essentials program: Importance of trainers in achieving targeted outcomes. *Gerontology & Geriatrics Education*. 2011; 32:379–395. [PubMed: 22087783]
- Konrad, TR., Morgan, JC. Workforce improvement for nursing assistants: Supporting training, education, and payment for upgrading performance. Chapel: University of North Carolina Institute on Aging; 2004.
- Koren MJ. Person-centered care for nursing home residents: The culture-change movement. *Health Affairs (Millwood)*. 2010; 29:312–317.
- Kostiwa IM, Meeks S. The relation between psychological empowerment, service quality, and job satisfaction among certified nursing assistants. *Clinical Gerontologist*. 2009; 32:276–292. DOI: 10.1080/07317110902895309
- Leon, J., Marainen, J., Marcotte, J. Pennsylvania frontline workers in long-term care. Jenkintown, PA: Polisher Research Institute; 2001.
- Lerner NB, Johantgen M, Trinkoff AM, Storr CL, Han K. Are nursing home survey deficiencies higher in facilities with greater staff turnover? *Journal of the American Medical Directors Association*. 2014; 15:102–107. [PubMed: 24139163]
- Long, JS., Freese, J. Regression models for categorical and limited dependent variables using Stata. 2. College Station, TX: Stata Press; 2006.
- McDowell, I., Newell, C. Measuring health: A guide to rating scales and questionnaires. 2. New York, NY: Oxford University Press; 1996.
- Miller SC, Looze J, Shield RR, Clark MA, Lepore M, Tyler DA, ... Mor V. Culture change practices in U.S. nursing homes: Prevalence and variation by state Medicaid reimbursement policies. *The Gerontologist*. 2013; 54(3):434–45. DOI: 10.1093/geront/gnt020 [PubMed: 23514674]
- Miller SC, Lepore M, Lima JC, Shield RR, Tyler DA. Does the introduction of nursing home culture change practices improve quality? *Journal of the American Geriatrics Society*. 2014; 62(9):1675–82. DOI: 10.1111/jgs [PubMed: 25155915]
- Morgan JC, Konrad TR. A mixed-method evaluation of a workforce development intervention for nursing assistants in nursing homes: The case of WIN A STEP UP. *The Gerontologist*. 2008; 48(Suppl 1):71–79.
- Mueller C. Nursing leadership and nursing home culture change. *The Gerontologist*. 2007; 47(Special Issue II):755.
- Noel MA, Pearce GL, Metcalf R. Front line workers in long-term care: The effect of educational interventions and stabilization of staffing ratios on turnover and absenteeism. *Journal of the American Medical Directors Association*. 2000; 1:241–247. [PubMed: 12812607]
- Probst JC, Baek JD, Laditka SB. The relationship between work-place environment and job satisfaction among nursing assistants: Findings from a national survey. *Journal of the American Medical Directors Association*. 2010; 11:246–252. [PubMed: 20439043]
- Rosemond CA, Hanson LC, Ennett ST, Schenck AP, Weiner BJ. Implementing person-centered care in nursing homes. *Health Care Management Review*. 2012; 37:257–266. [PubMed: 22138738]
- Tilden VP, Thompson SA, Gajewski BJ, Buescher CM, Bott MJ. Sampling challenges in nursing home research. *Journal of the American Medical Directors Association*. 2013; 14:25–28. [PubMed: 23041332]
- Tyler DA, Shield RR, Rosenthal M, Miller S, Wetle T, Clark MA. How valid are the responses to nursing home survey questions? Some issues and concerns. *The Gerontologist*. 2011; 51(2):201–211. [PubMed: 21078827]
- Tyler DA, Feng Z, Leland NE, Gozalo PL, Intrator I, Mor V. Trends in postacute care and staffing in US nursing homes, 2001–2010. *Journal of the American Medical Directors Association*. 2013; 14:817–820. [PubMed: 23810390]
- Tyler DA, Lepore M, Shield RR, Looze J, Miller SC. Overcoming resistance to culture change: Nursing home administrators' use of education, training, and communication. *Journal of*

- Gerontology & Geriatrics Education. 2014; 35:321–336. DOI: 10.1080/02701960.2013.837049 [PubMed: 24266678]
- UCLA: Statistical Consulting Group. Stata data analysis examples: ordered logistic regression. n.d. Retrieved from <http://www.ats.ucla.edu/stat/stata/dae/ologit.htm>
- Upenieks V. What constitutes effective leadership? Perceptions of magnet and nonmagnet nurse leaders. *Journal of Nursing Administration*. 2003; 33:456–467. [PubMed: 14501562]
- Washko, M., Gottlieb, A., Wilson, K., Heineman, J., Stone, RI., Caro, F. Extended Care Career Ladder Initiative (ECCLI) qualitative evaluation project. Washington, DC: Institute for the Future of Aging Services, American Association of Homes and Services for the Aging and The Gerontology Institute, University of Massachusetts; 2007.
- Wiener, JM., Squillance, MR., Anderson, WL., Khatutsky, G. Why do they stay? Job tenure among certified nursing assistants in nursing homes. 2009. Retrieved from <http://aspe.hhs.gov/daltcp/reports/2009/whystay.pdf>
- Yeatts DE, Cready CM. Consequences of empowered CNA teams in nursing home settings: A longitudinal assessment. *The Gerontologist*. 2007; 47:323–339. [PubMed: 17565096]
- Zimmerman S, Bowers BJ, Cohen LW, Horn SD, Grabowski DC, Kemper P. THRIVE Research Collaborative. New evidence on the Green House model of nursing home care: Synthesis of findings and implications for policy, practice, and research. *Health Services Research*. 2016; 51(Suppl 1):475–496. DOI: 10.1111/1475-6773.12430 [PubMed: 26708381]
- Zimmerman S, Shier V, Saliba D. Transforming nursing home culture: Evidence for practice and policy. *The Gerontologist*. 2014; 54(Suppl 1):S1–S5. [PubMed: 24443601]

Biographies

Clara Berridge is an assistant professor at the University of Washington, School of Social Work. She recently completed a Postdoctoral Research Fellowship at the Brown University Center for Gerontology and Health Care Research.

Denise A. Tyler is an adjunct assistant professor of health services, policy and practice at the Brown University Center for Gerontology and Health Care Research. Her research focuses on long-term services and supports, especially ways to improve the quality of nursing home care.

Susan C. Miller is a professor of health services, practice, and policy (research) at the Center for Gerontology and Health Care Research, Brown University School of Public Health. She is trained in gerontology and epidemiology and focuses her research on nursing home end-of-life care and long-term care quality and utilization.

Appendix. Description of Covariates

Covariates	Variable coding	Data source
For-profit status	Yes/no	OSCAR closest to survey date
Chain status	Yes/no	OSCAR closest to survey date
Small facility size	Fewer than 80 beds (yes/no)	OSCAR closest to survey date
Large facility size	More than 120 beds (yes/no)	OSCAR closest to survey date
Occupancy rate	Number of residents / number of beds	OSCAR closest to survey date
Facility in metro county	Yes/no	Area Resource File
Residents with Medicaid	% of residents with Medicaid	Aggregated MDS 2009

Covariates	Variable coding	Data source
Number of administrators in past 12 months (measure of NHA turnover)	Number of administrators in past 12 months (1, 2, or 3+)	NH Administrator survey
Unemployment	Unemployment rate for county	Area Resource File
RN hours per day per resident	Total registered nurse hours per day per resident	Calculated from OSCAR
LPN hours per day per resident	Total licensed practical nurse hours per day per resident	Calculated from OSCAR
CNA hours per day per resident	Total CNA hours per day per resident	Calculated from OSCAR
County NH beds	Total number of nursing home beds per 1,000 population 65+ in county	Area Resource File
County home health agencies	Number of home health agencies per 1,000 population 65+ in county	Area Resource File

Note. OSCAR = Online Survey Certification and Reporting; MDS = minimum data set; NHA = nursing home administrator; CNA = certified nursing assistant.

Table 1

Staff Empowerment Domain Responses.

In your nursing home, how often ...	Never	Sometimes	Often	Always
1. Does staff work together to cover shifts when someone can't come to work?	0.7%	15.8%	45.7%	37.8%
2. Is staff cross-trained to perform tasks outside of their assigned job duties, such as housekeeping staff trained to provide feeding assistance or nursing assistants trained to provide activities?	24%	47.8%	20.8%	7.4%
3. Is staff, other than activity and management staff, involved in planning social events?	7.9%	49.3%	30%	12.8%
4. Do nursing assistants take part in quality improvement teams?	6.8%	46.4%	31.4%	15.4%
5. Do nursing assistants know when a resident's care plan has changed?	1.5%	15.4%	34.5%	48.6%
6. Does your nursing home give bonuses, raises, or other rewards to nursing assistants who receive extra training or education?	37.1%	34.4%	14.6%	13.9%
7. Does your nursing home permit nursing assistants to choose which residents they care for?	41.3%	47.9%	9.6%	1.2%

Table 2

Ordered Logistic Regression Results: CNA Retention.

	Odds ratio	95% CI
Staff Empowerment Quartile 2 (reference is Quartile 1)	1.44	[1.15, 1.80] *
Staff Empowerment Quartiles 3 and 4	1.64	[1.34, 2.00] *
<80 beds (reference is 80–120)	1.137667	[0.93, 1.39]
>120 beds	1.166295	[0.95, 1.43]
Chain	1.025854	[0.86, 1.22]
For-profit	0.7477272	[0.62, 0.90] *
One NHA in the last year (reference is three or more administrators)	1.768147	[1.33, 2.35] *
Two NHAs in the last year	1.410321	[1.03, 1.92] **
County unemployment rate	1.039485	[1.00, 1.08] **
Metropolitan county	1.10892	[0.92, 1.33]
Residents with Medicaid (per 1% increase)	1.003315	[0.99, 1.01]
Occupancy rate	1.250274	[1.14, 1.37] *
Registered nurse hours per day per resident	2.302827	[1.59, 3.34] *
Licensed practical nurse hours per day per resident	0.7659152	[0.57, 1.03] ***
CNA hours per day per resident	1.106825	[1.01, 1.22] **
County nursing home beds per 1,000 population 65+	0.9992616	[0.99, 1.00]
County home health agencies per 1,000 population 65+	0.8831055	[0.66, 1.18]

Note. A description of each covariate and data source is listed in the appendix. CNA = certified nursing assistant; CI = confidence interval; NHA = nursing home administrator.

* $p < .01$.

** $p < .05$.

*** $p < .10$.