

## Research Article

# Job Characteristics Associated With Intent to Quit Among Nursing Home Employees and Managers

Katherine A. Kennedy, PhD<sup>1,2,\*</sup> and David C. Mohr, PhD<sup>3,4</sup>

<sup>1</sup>Center for Innovation in Long-Term Services and Supports, Providence VA Medical Center, Providence, Rhode Island, USA. <sup>2</sup>Department of Health Services, Policy, and Practice, Brown University School of Public Health, Providence, Rhode Island, USA. <sup>3</sup>VA Center for Healthcare Organization and Implementation Research, VA Boston Healthcare System, Boston, Massachusetts, USA. <sup>4</sup>Department of Health Law, Policy and Management, Boston University School of Public Health, Boston, Massachusetts, USA.

\*Address correspondence to: Katherine A. Kennedy, PhD, Center for Innovation in Long-Term Services and Supports, Providence VA Medical Center, 830 Chalkstone Ave., Providence, RI 02908, USA. E-mail: [Katherine.kennedy@va.gov](mailto:Katherine.kennedy@va.gov)

Received: December 10, 2021; Editorial Decision Date: August 15, 2022

**Decision Editor:** Suzanne Meeks, PhD, FGSA

## Abstract

**Background and Objectives:** High turnover and recruitment challenges of nursing home employees and managers are an ongoing concern. This study's objective was to examine intent to quit among all staff and assess the roles of job characteristics and job satisfaction. Employees and managers within one nursing home chain working in direct patient care or nursing were compared.

**Research Design and Methods:** Data came from the Work, Family, Health Network 18-month follow-up survey in 2012 (total = 1,000, managers = 101, employees = 899). A cumulative logit model controlling for demographics was estimated for intent to quit. Herzberg's Two-Factor Theory of Work Motivation guided the study.

**Results:** Employees scored significantly lower on family-supportive supervisor behaviors (FSSBs), schedule control, and decision authority than managers. Employees and managers did not differ on job satisfaction, intent to quit, or job demands. Satisfied workers had an 83% decrease in the odds of reporting an intent to quit compared to workers who were neutral or disagreed (odds ratio [OR] = 0.17,  $p < .0001$ ). Decision authority (OR = 3.49) and schedule control (OR = 5.18) were independently related to greater odds of reporting an intent to quit. In contrast, FSSBs (OR = 0.69), safety compliance (OR = 0.71), and the combination of high decision authority with high schedule control (OR = 0.72) were related to lower odds of reporting an intent to quit.

**Discussion and Implications:** Among nursing home staff, lower intent to quit may be achieved through improving job satisfaction, the quality of supervision, safety culture, and job enrichment through more schedule control and decision-making power.

**Keywords:** Analysis—regression models, Caregiving—formal, Job satisfaction, Long-term care, Workforce issues

Certified nursing assistants (CNAs) who work in nursing homes (NHs) have been a focal point of research due to their low retention rates (national average of 53.2% in 2016) and the closeness of their relationships with older adults (Berridge et al., 2018, 2020; Castle, 2021; Castle et al., 2020; Kennedy et al., 2020, 2021, Virdo & Daly, 2019).

CNAs who work in NHs have high job demands, physically and emotionally, which is associated with turnover intent (Brannon et al., 2008). An analysis of 2017–2018 national payroll records showed high turnover among all direct care staff of 128% on average (94% median; Gandhi et al., 2021). Registered nurses (RNs) had the highest median

turnover (103%), followed by CNAs (99%) and licensed practical nurses (LPNs; 80%). The high turnover rates among direct care staff and supervisors demand a better understanding of the contributing factors so that practices can be changed, and interventions developed. Reducing the turnover of all NH workers is a national priority (National Academies of Sciences, Engineering, and Medicine, 2022).

NH workers are less likely to leave when organizations provide supportive leadership, motivated and helpful coworkers, frequent and transparent communication, career advancement, high wages and empowerment, adequate and ongoing training, and manageable workloads (Bishop et al., 2009; Kao et al., 2014; Kennedy et al., 2021; Lee et al., 2020; Virido & Daly, 2019; Zhang et al., 2014). These changes positively affect job satisfaction for employees and licensed nursing home administrators (LNHAs), which has been associated with lower intent to leave and turnover (Castle et al., 2007a, b; Myers et al., 2018; Nelson et al., 2020; Zhang et al., 2014). There has been less research about turnover intentions among employment managers like directors of nursing or LPN/RN unit or charge nurses who work directly with residents and their families. There is an urgent need to improve the field's understanding of the factors associated with managerial turnover intentions because of their potentially additional implications.

Stabilizing the employment of NH staff with supervisory duties is important for three reasons. First, RNs are difficult to recruit and retain (Devi et al., 2021). Reasons for difficulty recruiting and retaining RNs in NHs are that pay and benefits are higher in hospital settings and in Veterans Affairs NHs (Dr. Ciaran Phibbs, personal communication, May 2022), and hospital RNs are less burned out and dissatisfied than those working in NHs (McHugh et al., 2011). A recent study in New York and Illinois showed that 30% of NH RNs planned to leave before the pandemic, which significantly differed from 21% of hospital RNs (French et al., 2022). Additionally, NH RNs reported significantly higher burnout (44%), job dissatisfaction (28%), not enough staff to get the job done (66.5%), worse ratings of organizational quality (18% rated quality as excellent), and nurse work environment (12.6% rated as excellent). These differences encourage NH nurse leaders to consider leaving their current jobs for better remuneration and work environments. Second, LNHA turnover is associated with poor quality of care, specifically the adverse outcomes of pain, pressure ulcers, and restraint use because regulatory and management duties may be prioritized among new administrators (Castle & Lin, 2010). Third, reducing turnover and increasing the tenure of directors of nursing and LNHA stabilizes the frontline workforce by reducing the turnover of CNAs and licensed nurses (Donoghue, 2010; Kennedy et al., 2020, 2021).

This study's objective was to assess how job characteristics and job satisfaction were associated with intent to quit and to compare differences in ratings on these factors between employees and managers. Whereas prior work has

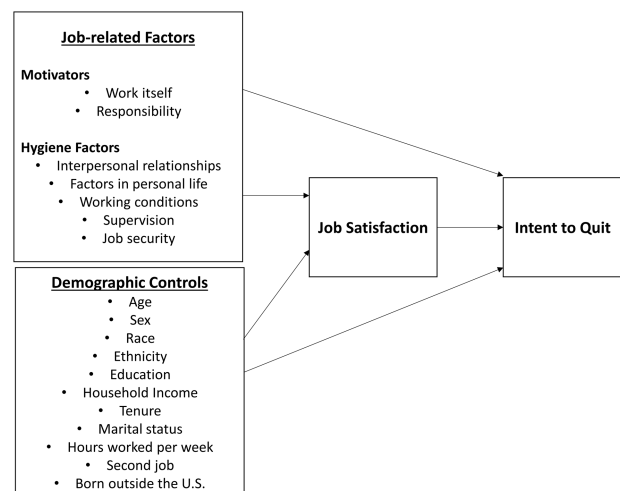
compared perceptions of workplace safety culture and how work is organized (Zhang et al., 2011), to the best of our knowledge, this study is the first to compare employees to managers on these factors.

## Theory and Conceptual Model

Herzberg's (1959, 1968/1987) Two-Factor Theory of Work Motivation conceptualized motivating factors that improve job satisfaction (e.g., recognition, work itself, advancement, and responsibility) and hygiene or environmental factors necessary to prevent job dissatisfaction (e.g., working conditions, salary, policies, interpersonal relationships, and supervision). Herzberg's theory separated predisposing factors between those related to job satisfaction and those related to dissatisfaction, with minimal overlap. However, application of the theory to various settings has shown that some hygiene factors can be characterized as chiefly motivating job satisfaction (e.g., relationships with peers and leaders) and that some motivators were dissatisfying (e.g., lack of recognition and too heavy of workload; Alrawahi et al., 2020; Thant and Chang, 2021). Figure 1 illustrates the conceptual model for this study drawing upon Herzberg's conceptualization of hygiene and motivating factors. The model shows that job and demographic factors affect job satisfaction and intent to quit.

### Research on hygiene factors

Hygiene factors are the minimum requirements expected in a job, like helpful coworkers, adequate resources, and a responsive, caring supervisor. When absent, these factors motivate higher intent to quit. Additionally, low interrole helping and low family-supportive supervision (e.g., balancing work with family life) are hygiene factors that—if improved—can reduce intent to quit and heighten job



**Figure 1.** Conceptual model. *Notes:* Figure 1 illustrates the conceptual model for this study drawing upon Herzberg's conceptualization of hygiene and motivating factors. The model shows that job and demographic factors affect job satisfaction and intent to quit.

performance (Kossek et al., 2014). Research indicates that lower intent to quit is associated with “caring climates” that reduce stressors from supervisors and that empower workers, making them more satisfied in their jobs (Castle et al., 2007a, b; Kao et al., 2014; Zhang et al., 2014). A culture of support, care and safety, open communication, a living wage and benefits, and support for navigating conflicts between work and family are important job features that are expected. Herzberg would say these elements would ensure no dissatisfaction.

High-quality supervision that is family-supportive is essential to retaining NH employees, and the preferred style is one that incorporates appreciation, constructive feedback, and cultivates positive relationships (Head et al., 2013). Recent literature has documented that family-supportive supervisor behaviors are associated with improved work (i.e., organizational citizenship behaviors and safety compliance) and non-work outcomes (i.e., sleep quality) among staff working in U.S. NHs (DePasquale, 2020). Research has also shown the positive effects of supportive supervision on reducing intent to quit among CNAs (Virido & Daly, 2019), with job satisfaction as a partial mediator (Bethell et al., 2018).

### Research on motivators

Motivating aspects of a job are those that keep workers engaged because they tap into people’s need for psychological growth (Herzberg, 1968/1987). Herzberg defines motivation as “a function of growth from getting intrinsic rewards out of interesting and challenging work” (p. 14). The psychological literature shows that worker motivation and retention improve when workers have high job demands and make decisions about their work because people dislike being bored and micromanaged (Lee, 2015). According to Herzberg’s theory (1968/1987), people are motivated when their jobs are enriched through “vertical loading,” some examples of which are “granting additional authority to employees in their activity” and “introducing new and more difficult tasks” (p. 10). In early experiments by Herzberg in the financial industry, the use of these types of strategies to increase responsibility, growth, recognition, and achievement was associated with more positive job attitudes, greater job satisfaction, and better performance. Thus, workers with more say in their jobs (e.g., decision authority), more schedule control, and who engage in complex work (e.g., job demands) will be less inclined to quit (Berridge et al., 2018; Lee et al., 2020). The combination of high control in a job with high demands and high decision authority should encourage workers to stay.

*H1:* We hypothesize that (a) Higher job satisfaction will be related to lower intent to quit controlling for other factors. (b) Hygiene factors (conveying positive job characteristics) will be associated with a lower intent to quit, including family-supportive supervisor behaviors and occupational citizenship behaviors. (c) Job demands

and decision authority alone will be associated with a higher intent to quit because they reflect job strain.

### Research comparing employees and managers

Frontline employees in NHs have very difficult jobs that are high in their demands as the level of staff is not often matched with resident acuity (Schnelle et al., 2016). In addition, they are paid low wages, have low educational attainment, commonly experience disrespect from management, and have been disregarded historically from the interdisciplinary team (Brannon et al., 2008; Lee et al., 2020; Zhang et al., 2011). Moreover, job quality has not really improved despite the high demand for these roles, in part, due to inadequate training, compensation, and supervision (PHI, 2021). In contrast, managers have a greater set of resources, including higher levels of education, wages, and years of experience that would allow them to persist in their roles despite various challenges (Myers et al., 2018).

*H2:* We hypothesize that employees will report significantly lower job satisfaction and more intent to quit compared to managers.

*H3:* We hypothesize that being an employee will exacerbate the effects of high job demands on intent to quit compared to managers.

In the absence of a sample who have left their jobs, relying on intent to quit contributes to gaps in knowledge by identifying those who are “seriously considering quitting for another employer” (Work Family Health Study, 2016, p. 370). While actual turnover (leaving a job) and intent to quit are not equivalent (Cohen et al., 2016), they are conceptually similar. Examining intent to quit will provide useful information on how to improve jobs in this industry. In analyzing intent to quit, we consider relevant external factors, such as children in the home, household income, quality of supervision, and interpersonal relationships that are commonly associated with leaving a job.

## Design and Methods

### Data Source and Sample

The Work Family Health Network (WFHN) Study evaluated an intervention in 30 NHs across six states (that were part of one for-profit NH chain) involving day or evening shift employees in the nursing department as well as managers (Kossek et al., 2014). WFHN is a partnership between the National Institute of Health and the Centers for Disease Control (Work Family & Health Study [WFHS], 2015). WFHN implemented the intervention at randomly assigned worksites and compared results to worksites with usual care. The core functions of the intervention were to train supervisors how to be family-supportive and provide employees with more control in their jobs through participatory sessions. Data come from the WFHN 18-month follow-up which occurred between March

2011 and December 2012 (total observations = 1,144, managers = 137, employees = 1,007; Berkman, 2016a, b).

The research team and NH leadership met to discuss study goals and recruitment, including creation of “the roster of employees and managers to interview” (WFHN, 2015, p. 26). The research team held “Meet & Greet” sessions for three days to recruit all eligible direct care staff within a NH. Apart from these, study posters were displayed, and brochures were included with paychecks. All study participants worked 22.5 or more hours per week during the day or evening shift. Trained interviewers facilitated the Computer Assisted Personal Interviews with employees and managers at their worksites. Participants were given \$20 for the interview. The data sets that were analyzed in this study include the employee workplace survey data and the manager interview data.

Most of the employee sample is comprised of CNAs (>65%) with the representation of other frontline nursing staff (i.e., LPN, RN, certified medication assistants, program directors, schedulers, unit clerks, floor techs/housekeepers, and resident service coordinators; Supplementary Table 1). Participants in the manager data set have supervisory duties. They include RN unit managers (19%), RN directors of nursing (18%), administrators (17%), LPN unit managers (12%), and schedulers (12%). Among all staff, the response rate for the analysis sample was 87% (1,000/1,144).

The individual-level restricted-use data were provided from WFHN/Harvard University after IRB approval was obtained from the Providence VA Healthcare System.

## Study Variables

All measures along with definitions and items are described in Table 1 and were derived from the employee and manager measures books (WFHS, 2016; Work, Family & Health Network, 2014). Intent to quit, job satisfaction, the decision authority subscale, the job demands subscale, safety compliance, and family-supportive supervisor behaviors measure use the same five-point Likert scale (i.e., 1 = strongly disagree, 2 = disagree, 3 = neither, 4 = agree, and 5 = strongly agree). Higher scores on intent to quit reflect agreement towards seriously considering quitting. Job satisfaction was recoded as 4 and 5 values (satisfied) compared to 1–3 values (neither and disagree with satisfied).

## Hygiene factors

Occupational citizenship behaviors are a measure of interpersonal relationships that reflects a hygiene factor. The occupational citizenship behaviors scale is an average of four items, with higher scores signifying greater willingness to help coworkers. Similarly, the number of children living at home for 4 or more days of the week was included as a hygiene factor in the domain of personal life that affects decisions to remain employed. Working conditions as a category are important. One measure specific to NHs is safety compliance or level of adherence to safety protocols.

Family-supportive supervisor behaviors are a hygiene factor describing the quality of supervision. Measures for safety compliance and family-supportive supervisor behaviors are four-item averages indicating greater adherence to safety protocols and support for work-family integration. Job security is considered a hygiene factor operationalized as the ease of finding another job (yes vs no).

## Motivating factors

Motivating factors included aspects of the work itself and the amount of responsibility. Schedule control is an attribute of how the work is done, that is, the freedom to take time off or decide their schedule. The schedule control scale is an average of eight items where higher scores reflect more control. Job demands convey the level of challenge work entails, while decision authority represents the amount of power staff have in accomplishing their daily work. The decision authority and job demands scales represent the average of their three items. Higher decision authority means more decision-making power in a job, whereas higher job demands means that work is challenging.

## Demographic factors

These included the following: age (years), sex, education, race, ethnicity, nativity, household income, marital status, hours worked per week, working a second job, and company tenure (years).

## Analysis Plan

The data were cleaned to recode appropriate values to missing values (WFHN, 2015). The means and frequencies on the outcome variable, key factors, and controls were examined. Bivariate tests (e.g., Chi-square tests and ANOVAs) were conducted to examine relationships between each variable and intent to quit among the total sample, then stratified by employees versus managers. Tukey’s honest significant difference was used to control the Type 1 error rate for all post-hoc comparisons. Independent-samples t-tests and Chi-square tests were conducted to assess group differences (Hypothesis 2).

To assess the relationships between job factors and intent to quit, a cumulative logit model was selected due to the ordered categories of the outcome variable (Hypotheses 1 and 3; Allison, 2012b). Analyses used the unique identification code that was given to a NH to cluster individuals within 30 NHs using PROC SURVEYLOGISTIC. The model building process began by assessing the direct effects of the job characteristics and demographic controls. Next, interaction terms were added. The proportional odds table was examined, and as the assumption was violated ( $p < .0001$ ), a partial proportional odds cumulative logit was run for comparison (Kelly, n.d.). Those results were similar. Given the large sample size and for ease of interpretation, the cumulative logit model is presented.

**Table 1.** Study Measures and Definitions

Measure	Definition	Items
Intent to quit	Seriously considering quitting for another employer	You are seriously considering quitting for another employer.
Job satisfaction	The level of global satisfaction a person has in their job	In general, you are satisfied with your job.
<b>Motivating Factors</b>		
Perceived control over work schedule	The degree to which employees control the arrangement of hours that they work	<ol style="list-style-type: none"> <li>1. How much choice do you have over when you take vacations or days off?</li> <li>2. How much choice do you have over when you can take off a few hours?</li> <li>3. How much choice do you have over when you begin and end each workday?</li> <li>4. How much choice do you have over the total number of hours you work each week?</li> <li>5. How much choice do you have over doing some of your work at home or at another location, instead of (insert company name/location)?</li> <li>6. How much choice do you have over the number of personal phone calls you make or receive while at work?</li> <li>7. How much choice do you have over the amount of times you take work home with you?</li> <li>8. How much choice do you have over shifting to a part-time schedule (or full-time if currently part-time) while remaining in your current position if you wanted to do so?</li> </ol>
Decision authority	The amount of power individuals have in accomplishing their day-to-day work	<ol style="list-style-type: none"> <li>1. You have a lot of say in what happens on your job.</li> <li>2. Your job allows you to make a lot of decisions on your own.</li> <li>3. On your job, you have very little freedom to decide how you do your work. (this item is scored where 1 = strongly agree, 5 = strongly disagree).</li> </ol>
Psychological job demands	The level of challenge work entails	<ol style="list-style-type: none"> <li>1. Your job requires very fastwork.</li> <li>2. Your job requires very hardwork.</li> <li>3. You do not have enough time to get your job done.</li> </ol>
<b>Hygiene factors</b>		
Organizational citizenship behaviors: Interrole helping	The degree to which employees report willingness to help out coworkers	<ol style="list-style-type: none"> <li>1. To what extent do you help other employees with their work when they have been absent?</li> <li>2. To what extent do you help your coworkers when they have too much to do?</li> <li>3. To what extent do you help coworkers with questions they have about their work?</li> <li>4. Are you willing to work harder in order to help your employer succeed?</li> </ol>
Children at home		How many children live in your home for 4 or more days a week?
Safety compliance	The degree that employees report following safety protocols	<ol style="list-style-type: none"> <li>1. You carry out your work in a safe manner.</li> <li>2. You use all the necessary safety equipment to do your job.</li> <li>3. You use the correct safety procedures for carrying out your job.</li> <li>4. You ensure the highest levels of safety when you carry out your job.</li> </ol>
Family-supportive supervisor behaviors	The extent that a supervisor supports, models, and resolves integrating work and family	<ol style="list-style-type: none"> <li>1. Your supervisor makes you feel comfortable talking to him/her about my conflicts between work and nonwork.</li> <li>2. Your supervisor works effectively with employees to creatively solve conflicts between work and nonwork.</li> <li>3. Your supervisor demonstrates effective behaviors in how to juggle work and nonwork issues.</li> <li>4. Your supervisor organizes the work in your department or unit to jointly benefit employees and the company.</li> </ol>
Job security	The ease of finding another job	How easy would it be for you to find a job with another employer with approximately the same income and fringe benefits as you have now? Would you say very easy, somewhat easy, or not easy at all?
<b>Demographic Factors</b>		
Age (years)		How old are you?
Sex		What is your gender?
Education		What is the highest grade of school you completed?
Race (first-selected)		How would you describe your race? Please select all that apply.

**Table 1.** Continued

Measure	Definition	Items
Ethnicity		Are you Hispanic or Latino?
U.S. native		Were you born in the United States?
Household income		Now please tell me, what is your total household gross income for the past 12 months, that is, income earned before taxes, social security, and so on, but not including benefits.
Marital status		Are you currently married, or do you have a permanent romantic partner that lives with you?
Hours worked per week		About how many hours do you work in a typical week in this job?
Second job		Do you have a second job outside this company?
Company tenure (years)		How long have you worked for this company?

Notes: This information came from the WFHN Employee Workplace Measures Book and Manager Interview Measures Book. WFHN = Work Family Health Network.

**Table 2.** Descriptive Statistics of the Analytic Sample of Employee and Manager Characteristics (Wave 4, 2011–2012)

Variable	Total (N = 1,000)		Employees (n = 899)		Managers (n = 101)	
	N or mean (SD)	%	N or mean (SD)	%	N or mean (SD)	%
Employee	899	89.90	899	100	0	0
Manager	101	10.10	0	0	101	100
Age, in years	41.75 (12.06)		41.09 (12.14)		47.62 (9.52)	
Female	925	92.50	834	92.77	91	90.10
Postsecondary education	654	65.40	558	62.07	96	95.05
White	729	72.90	636	70.75	93	92.08
Hispanic	127	12.70	125	13.90	2	1.98
U.S. born	740	74	648	72.08	92	91.09
Annual household income (range: 1–13)	10.18 (3.13)		9.87 (3.15)		12.87 (0.56)	
Company tenure, in years	8.86 (7.18)		8.65 (7.12)		10.72 (7.50)	
Partnered/married	665	66.50	566	62.96	99	98.02
Hours worked per week	38.24 (7.07)		37.43 (6.59)		45.51 (7.06)	
Works a second job	163	16.30	148	16.46	15	14.85
Decision authority	3.57 (0.73)		3.52 (0.72)		4.05 (0.71)	
Psychological job demands	3.73 (0.73)		3.74 (0.74)		3.73 (0.69)	
Schedule control	2.75 (0.79)		2.68 (0.76)		3.39 (0.75)	
Occupational citizenship behaviors interrole helping	3.97 (0.57)		3.97 (0.57)		3.97 (0.56)	
Number of children in home for four or more days/week	1.13 (1.18)		1.16 (1.19)		0.82 (0.99)	
Safety compliance	4.41 (0.49)		4.41 (0.49)		4.37 (0.48)	
Family-supportive supervisor behaviors	3.67 (0.86)		3.64 (0.86)		3.92 (0.79)	
Easy to find another job (ref = not easy at all)	701	70.10	623	69.30	78	77.23
Job satisfaction (ref = neutral or disagree)	837	83.70	747	83.09	90	89.11
Intent to quit						
Strongly disagree	374	37.40	322	35.82	52	51.49
Disagree	382	38.20	355	39.49	27	26.73
Neutral	164	16.40	148	16.46	16	15.84
Agree	52	5.20	47	5.27	5	4.95
Strongly agree	28	2.80	27	3.00	1	0.99

Notes: Household income (in U.S. dollars) was scored on the following scale: 1 = less than 4,999; 2 = 5,000–9,999; 3 = 10,000–14,999; 4 = 15,000–19,999; 5 = 20,000–24,999; 6 = 25,000–29,999; 7 = 30,000–34,999; 8 = 35,000–39,999; 9 = 40,000–44,999; 10 = 45,000–49,999; 11 = 50,000–54,999; 12 = 55,000–59,999; 13 = more than 60,000. SD = standard deviation.

Finally, an assessment of the regression diagnostics was performed showing no issues with multicollinearity among variables (Allison, 2012a), Cook's distance was assessed, and three observations were removed. All analyses were performed using SAS Version 9.4 (SAS Institute Inc., 2012).

## Results

### Analytic Sample Characteristics

Table 2 provides the means and frequencies on the analytic sample of 1,000 participants, which included 101 managers and 899 employees. See Supplementary Table 2 for descriptive characteristics on the entire Wave 4 sample of 1,144 participants.

Most (84%) liked their jobs and did not intend to quit (76%). Employees' job satisfaction was not significantly different compared to managers ( $X^2 [1] = 2.41, p = .12$ ). Eighty-three percent of employees and 89% of managers reported being satisfied with their job. Overall, 8% agreed with intent to quit, and 16% were neutral. Yet there was significant variation in intent to quit between employees and managers ( $X^2 [4] = 11.18, p = .02$ ). Managers (51%) were more likely to strongly disagree with intent to quit than employees (36%). However, employees were more likely to disagree with intent to quit (39%) than managers (27%).

Workers with higher job satisfaction were significantly less likely to report intent to quit ( $X^2 [4] = 206.98, p < .0001$ ). Controlling for other factors, higher job satisfaction was associated with higher scores on family-supportive supervisor behaviors (odds ratio [OR] = 1.71,  $p < .0001$ ) and safety compliance (OR = 2.27,  $p < .0001$ ; regression not shown).

The relationship between each hygiene and motivating factor and intent to quit was assessed using one-way ANOVAs.

### Hygiene factors

A one-way ANOVA revealed a significant difference between family-supportive supervisor behaviors and intent to quit ( $F[4, 995] = 26.34, p < .0001$ ). Those with the lowest intent to quit scored significantly higher on family-supportive supervisor behaviors ( $M = 3.93$ , standard deviation [ $SD$ ] = 0.78) than all other groups ( $p < .05$ ). The relation between safety compliance and intent to quit was significant ( $F[4, 995] = 9.15, p < .0001$ ). Those who strongly disagreed with intent to quit reported higher safety scores. The relation between occupational citizenship behaviors and intent to quit was not statistically significant ( $F[4, 995] = 1.33, p = .26$ ). Job security was associated with intent to quit ( $F[4, 995] = 3.29, p < .05$ ). Those that were neutral on intent to quit were more likely to report it would be easy to find a new job.

### Motivating factors

Decision authority was also significantly related to intent to quit ( $F[4, 995] = 17.36, p < .0001$ ). The group with

the lowest intent to quit reported significantly higher decision authority scores. Similarly, job demands and intent to quit were associated ( $F[4, 995] = 5.68, p = .0002$ ). Those with the lowest intent to quit had significantly lower job demands. Schedule control and intent to quit were found to be significantly associated ( $F[4, 995] = 17.82, p < .0001$ ). Those with the lowest intentions to quit had significantly higher schedule control compared to every other category ( $p < .05$ ).

### Bivariate comparisons between employees and managers

Employees reported significantly lower decision authority (3.52 vs 4.05,  $t = -7.15, p < .0001$ ), lower family-supportive supervisor behaviors (3.66 vs 3.92,  $t = -3.08, p < .01$ ), and lower schedule control (2.68 vs 3.39,  $t = -8.96, p < .0001$ ) than managers. Employees had a significantly greater number of children than managers (1.16 vs 0.82,  $t = 3.22, p < .01$ ) and significantly lower household income (9.87 vs 12.87,  $t = -25.21, p < .0001$ ). Managers were more likely to be White (92% vs 71%,  $t = -6.89, p < .0001$ ), significantly older (48 vs 41,  $t = -6.34, p < .0001$ ), had longer tenures (11 vs 9 years,  $t = -2.76, p < .01$ ), and had greater postsecondary education (95% vs 62%,  $t = -12.18, p < .0001$ ). Managers worked more weekly hours (46 vs 37,  $t = -11.61, p < .0001$ ). Managers were less likely to be Hispanic (2% vs 14%,  $t = 6.59, p < .0001$ ), less likely to be born outside the United States (9% vs 28%,  $t = 5.91, p < .0001$ ), and less likely to be single (2% vs 37%,  $t = 16.46, p < .0001$ ). No significant differences were found between employees and managers on job demands, occupational citizenship behaviors, safety compliance, job security, having a second job, or gender.

### Cumulative Logistic Regression Results

Table 3 shows the results from the cumulative logit that predicts the odds of reporting an intent to quit (i.e., agreement). Satisfied workers had much lower odds of reporting an intent to quit, specifically an 83% decrease in the odds, than workers who were neutral or disagreed after controlling for other covariates (OR = 0.17, 95% confidence interval [CI] = [0.125, 0.231],  $p < .0001$ ). The c-statistic was 0.748 evidencing a fair/acceptable predictive power of this model. Employees were not statistically different from managers on intent to quit ( $p = .87$ ), controlling for the other covariates. Employees did not differ on job satisfaction compared to managers (regression not shown).

### Regression results for hygiene factors

A one-unit increase in the family-supportive supervisor behavior scale was associated with a 31% decrease in the odds of reporting an intent to quit controlling for other factors (OR = 0.69,  $p < .001$ ). Similarly, a one-unit increase in safety compliance was related with a 29% decrease in the odds of reporting an intent to quit controlling for other factors (OR = 0.71,  $p < .05$ ).

### Regression results for motivating factors

Each one-unit increase in decision authority was related to a 249% increase in the odds of reporting an intent to quit controlling for other factors (OR = 3.49,  $p < .05$ ). Similarly, each one-unit increase in schedule control was related to a 418% increase in the odds of reporting an intent to quit (OR = 5.18,  $p < .01$ ). However, the combination of high decision authority and high levels of schedule control *lowers the odds* of reporting intent to quit (OR = 0.72,  $p < .01$ ). Those with high decision authority and schedule control reported the lowest intent to quit among all groups (Supplementary Figure 1 in Online Supplementary Material). When schedule control is high (e.g., at quartile 3 and above, value of 3.25), each additional unit increase in decision authority decreases the odds of intent to quit by a factor of 0.73 (95% CI = 0.58–0.93). As the level of schedule control increases, its moderating effects increase, such that there is a stronger (0.41 factor) decrease in the odds of reporting intent to quit among those with the highest level of schedule control (value of 5). When schedule control is at the lowest levels (i.e., 1), each additional unit increase in decision authority increases the odds of reporting intent to quit by a factor of 1.55 (95% CI = 1.02–2.36).

### Regression results for demographic factors

The odds of reporting an intent to quit for those with postsecondary education were 37% *higher* compared to those with high school diplomas or less (OR = 1.37,  $p < .05$ ). Each year of company tenure was associated with a 3% *decrease in the odds of reporting an intent to quit* (OR = 0.97,  $p < .01$ ). Each additional hour worked per week was associated with a 2% *decrease in the odds of reporting an intent to quit* (OR = 0.98,  $p < .05$ ).

## Discussion and Implications

Hypothesis 1 was largely supported by the cumulative logit model. Job satisfaction as well as the hygiene factors of family-supportive supervisor behaviors and safety compliance were significantly related with lower intent to quit. However, occupational citizenship, children at home, and job security were not significant. In terms of motivating factors, decision authority was related to greater intent to quit as expected, but job demands were not. Surprisingly, schedule control was significant but related with *higher intent to quit*. Yet, as expected, lower odds of reporting intent to quit were associated with having high decision authority and high schedule control. In other words, multiple motivating aspects are essential to reducing intent to quit. Hypotheses 2 and 3 were not supported because employees and managers were not different in job satisfaction or job demands. However, employees did report higher intent to quit as expected.

### Practice Implications

These results suggest some important areas for practice and future research in the coronavirus disease 2019 (COVID-19)

**Table 3.** Cumulative Logit Model Predicting the Odds of Reporting an Intent to Quit

Variable	All staff (N = 1,000)	
	Coeff (SE)	OR
Job satisfaction (ref = neutral or disagree)	-1.77 (0.15)***	0.17
Motivating factors		
Decision authority (DA)	1.25 (0.59)*	3.49
Psychological job demands (JD)	1.17 (0.61)	3.21
Schedule control (SC)	1.64 (0.63)*	5.18
Interaction of DA and JD	-0.13 (0.13)	0.88
Interaction of DA and SC	-0.33 (0.12)**	0.72
Interaction of JD and SC	-0.17 (0.10)	0.84
Interaction of employee and JD	-0.02 (0.29)	0.98
Hygiene factors		
Occupational citizenship behaviors	-0.13 (0.12)	0.88
Safety compliance	-0.34 (0.16)*	0.71
Family-supportive supervisor behaviors	-0.37 (0.09)***	0.69
Easy to find another job (ref = not at all easy)	0.20 (0.16)	1.22
Number of children at home	0.06 (0.05)	1.06
Demographic factors		
Employee (ref = manager)	-0.17 (1.02)	0.85
Age, in years	-0.01 (0.01)	0.99
Female	-0.06 (0.24)	0.94
Hispanic	-0.06 (0.22)	0.94
White	-0.10 (0.25)	0.90
Born outside the United States	0.28 (0.26)	1.32
Postsecondary education	0.32 (0.14)*	1.37
Household income	-0.02 (0.02)	0.98
Company tenure, in years	-0.03 (0.01)**	0.97
Single	-0.09 (0.20)	0.92
Hours worked per week	-0.02 (0.01)*	0.98
Works a second job	-0.01 (0.19)	0.99

Notes: The table reports the coefficient estimates (Coeff), standard errors (SEs), and odds ratios (ORs) among all staff ( $n = 1,000$ ) for a cumulative logistic regression that predicts the odds of reporting (agreement with) intent to quit. The model accounts for the clustering of individuals within their nursing home.

\*\*\* $p < .001$ ;

\*\* $p < .01$ ;

\* $p < .05$ .

era. Employees need targeted support in juggling work and family as evidenced by lower scores than managers on multiple scales, more children, and lower household income. Family-supportive supervisor behaviors are certainly meaningful as shown in this study. Another is the empowerment of frontline staff to exert more control over their work day and their schedule (Berridge et al., 2018, 2020). The scheduling practices of NHs are usually 8 or 12-hr shifts with trading working weekends. Greater flexibility of shifts (e.g., shorter shift option) and self-scheduling would be helpful going forward. A mobile application labor marketplace called KARE is providing this shift flexibility for

workers who are not employed by NHs. As KARE markets themselves to licensed workers with the perks of ultimate schedule control and great decision-making power, NHs may be able to reduce intent to quit by providing greater control in how work is accomplished and scheduled in ways that are understanding and empathetic to workers' personal lives and goals.

To reduce intent to quit, it is vital to improve job satisfaction, safety culture, family-supportive supervisor behaviors, and control in multiple domains. Out of all of these, job satisfaction's largest effect warrants some discussion. Lee et al.'s (2020) systematic review revealed that supportive leadership is the primary facilitator of job satisfaction in NHs. This underscores the importance of leadership and the quality of supervision, both hygiene factors in Herzberg's framework. Coworkers, positive organizational values, and social support mechanisms also have a role in the promotion of job satisfaction (Lee et al., 2020). Part of job satisfaction is being surrounded by capable and motivated employees, so operators must assess applicants for fit with the organization and with skilled nursing. Career development and initial/ongoing training are also key to job satisfaction. These attributes differentiate providers substantially.

### Strengths

This study had numerous strengths. First, the study provided descriptive information about the NH workforce and was able to stratify the analysis by employees and managers. To the best of our knowledge, comparisons like this have been rare. Zhang et al.'s nationally representative (2011) study used data from 2007 to 2008. Furthermore, the composition of our sample is similar to that of the current workforce because it included the most common occupations of CNAs, LPNs, and RNs (DATA USA, n.d.). Study participants were mostly CNAs, and nationally, CNAs comprise the majority of total NH workers before and after the pandemic (NAHCA, 2021). While in 2019, it is reported that CNAs comprised 31% of NH workers (526,418 of 1.72 million in 2019; DATA USA: Nursing Care Facilities, n.d.), May 2021 data from the U.S. Bureau of Labor Statistics (BLS; 2022) reveals CNAs comprise 33.48% of industry employment. BLS data indicate LPNs and RNs comprise 12.64% and 9.33% of NH workers, respectively. In our sample, CNAs comprised 60.7%, LPNs comprised 19.8%, and RNs comprised 10.9%. Therefore, our study sample is represented by more CNAs and nurses than the current workforce population. Our sample was comparable in age (42 years) to the national average of 43 among all NH workers, and in terms of gender being overwhelmingly female (93% to 83.2%). Second, because of the study design, new findings were uncovered. The analysis showed that job satisfaction among NH employees and managers was significantly associated with lower intent to quit, and it had the largest

effect. This is a unique contribution because the 2012 data included managers involved in direct patient care and the nursing department while most literature has focused only on administrators and CNAs. The study also found schedule control, decision authority, family-supportive supervisor behaviors, and safety compliance are important factors related to turnover intent.

### Limitations to the Present Study

The data used in this study is not nationally representative because it was derived from one NH chain located in Northeastern states. Experiences found within this one chain may be unique compared to other settings, for example, the average company tenure was nearly 9 years which is high compared to VA Community Living Centers where average tenure was between 4 and 5 years (Uchida-Nakakoji et al., 2015). Because this study was cross-sectional, the conclusions pertain to associations between variables. Because this study only used individual-level data, it may suffer from omitted variable bias at the facility-level or county-level. We examined an intent to quit measure but did not have actual turnover behaviors of respondents. Because intent to quit is only the perception not the action of leaving, results need to be interpreted within that context.

### Conclusions and Future Directions

Future work can investigate factors related to turnover among managers and employees who left their jobs in the postpandemic period. This study was unable to use measures for some motivators such as achievement, recognition, advancement or growth, as well as the hygiene factors of salary, company policy and administration, and status. Applying Herzberg's full theoretical framework to understanding job satisfaction and turnover in NHs would inform practitioners and policymakers about where to make investments. Herzberg's theory suggests there can be sustainable, positive outcomes if workers' jobs are centered around their clients and workers self-schedule, receive direct feedback, and have control over resources. It will be important to test whether Herzberg's theory holds among NH workers, namely whether motivators (i.e., desire for personal growth) drive job satisfaction and hygiene factors (i.e., desire to avoid pain and earn an income) drive dissatisfaction, or if the realities of improving worker outcomes are more complex and require an accounting of investments in both types of factors. Herzberg's theory can serve as a framework for understanding how to prevent turnover and how to increase retention through analysis of the relative contributions of hygiene and motivating factors. Additionally, it would be useful for designing better scheduling practices to understand how NH staff view schedule control and understand their suggestions for being more flexible and family-oriented while at the same time operating 24 hr a day.

More educated staff had greater odds of reporting an intent to quit mirroring Nelson et al. (2020) study of LNHA where job skills and intent to quit were positively associated. Most CNAs have a high school education or less (PHI, 2021), whereas licensed nurses and supervisors are likely to have some college education. Thus, it is imperative to develop practical strategies to retain staff with more education. The more educated are likely in leadership roles which have cascading negative effects when they have high turnover. Career ladders are not widely used or well developed in NHs, but these could have large effects on recruiting and retaining staff, both employees and managers. Upskilling and providing training of interest/choice to staff may help to keep engagement high.

This study set out to discover which individual factors were associated with intent to quit among NH staff, finding that motivating, hygiene, and demographic factors were significant variables. Intent to quit was low when workers had higher ratings of job satisfaction, family-supportive supervisors, safety compliance, and both high decision authority and schedule control. These factors should be invested in by operators to retain staff.

## Supplementary Material

Supplementary data are available at *The Gerontologist* online.

## Funding

This work was supported by the United States (U.S.) Department of Veterans Affairs including the Office of Academic Affiliations Advanced Fellowship in Health Services Research and Development (3K112021B), and Office of Research and Development, Health Services Research and Development (IIR 17-046; I01HX002431-01A2).

The work is supported by the grants associated with the Work, Family and Health Network.

## Conflict of Interest

None declared.

## Disclaimer

The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.

## Acknowledgments

This research was conducted as part of the Work, Family & Health Network ([www.WorkFamilyHealthNetwork.org](http://www.WorkFamilyHealthNetwork.org)), which is funded by a cooperative agreement through the National Institutes of Health and the Centers for Disease Control and Prevention: Eunice Kennedy Shriver National Institute of Child Health and Human Development (Grant # U01HD051217, U01HD051218, U01HD051256, U01HD051276), National Institute on Aging (Grant # U01AG027669), Office of Behavioral and Science Sciences

Research, and National Institute for Occupational Safety and Health (Grant # U01OH008788, U01HD059773). Grants from the William T. Grant Foundation, Alfred P Sloan Foundation, and the Administration for Children and Families have provided additional funding. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of these institutes and offices. Special acknowledgement goes to Extramural Staff Science Collaborator, Rosalind Berkowitz King, PhD and Lynne Casper, PhD for design of the original Workplace, Family, Health and Well-Being Network Initiative. The data used in this research are available by request to the Work Family Health Network. Thank you to Dr. John Bowblis for providing advice on how to work with multiple data sets. And thank you to Dr. Cassandra Hua for pointing to the value of analyzing data from the Work Family Health Study.

## Ethics Approval

This study was approved by the Providence VA Healthcare System Research and Development Committee and received IRB approval as research not involving human subjects (#1676174-1).

## References

- Allison, P. D. (2012a, September 10). *When can you safely ignore multicollinearity? Statistical horizons*. <https://statisticalhorizons.com/multicollinearity>
- Allison, P. D. (2012b). *Logistic regression using SAS®: Theory and application* (2nd ed.). Cary, NC: SAS Institute Inc.
- Alrawahi, S., Sellgren, S. F., Altouby, S., Alwahaibi, N., & Brommels, M. (2020). The application of Herzberg's two-factor theory of motivation to job satisfaction in clinical laboratories in Omani hospitals. *Heliyon*, 6(9), e04829. doi:10.1016/j.heliyon.2020.e04829
- Berridge, C., Lima, J., Schwartz, M., Bishop, C., & Miller, S. C. (2020). Leadership, staff empowerment, and the retention of nursing assistants: Findings from a survey of U.S. nursing homes. *JAMDA*, 21(9), 1254–1259.E2. doi:10.1016/j.jamda.2020.01.109
- Berridge, C., Tyler, D. A., & Miller, S. C. (2018). Staff empowerment practices and CNA retention: Findings from a nationally representative nursing home culture change survey. *Journal of Applied Gerontology*, 37(4), 419–434. doi:10.1177/0733464816665204
- Berkman, L. (2016a). *Restricted Access WFHS Leaf 18-month Employee Workplace CAPI Survey Data* (Version V1) [data set]. Harvard Dataverse. doi:10.7910/DVN/1NGVTB
- Berkman, L. (2016b). *Restricted Access WFHS Leaf 18-month Manager Interview Data* (Version V1) [data set]. Harvard Dataverse. doi:10.7910/DVN/585ZU1
- Bethell, J., Chu, C. H., Wodchis, W. P., Walker, K., Stewart, S. C., & McGilton, K. S. (2018). Supportive supervision and staff intent to turn over in long-term care homes. *Gerontologist*, 58(5), 953–959. doi:10.1093/geront/gnx008
- Bishop, C. E., Squillace, M. R., Meagher, J., Anderson, W. L., & Wiener, J. M. (2009). Nursing home work practices and nursing assistants' job satisfaction. *Gerontologist*, 49(5), 611–622. doi:10.1093/geront/gnp040
- Brannon, D., Barry, T., Kemper, P., Schreiner, A., & Vasey, J. (2008). Job perceptions and intent to leave among direct care workers:

- Evidence from the better jobs better care demonstrations. *The Gerontologist*, 47(6), 820–829. doi:10.1093/geront/47.6.820
- Castle, N. (2021). Measuring caregiver retention in nursing homes. *Gerontologist*, 61(4), e118–e128. doi:10.1093/geront/gnab012
- Castle, N. G., Engberg, J., & Anderson, R. A. (2007a). Job satisfaction of nursing home administrators and turnover. *Medical Care Research and Review*, 64(2), 191–211. doi:10.1177/1077558706298291
- Castle, N. G., Engberg, J., Anderson, R., & Men, A. (2007b). Job satisfaction of nurse aides in nursing homes: Intent to leave and turnover. *Gerontologist*, 47(2), 193–204. doi:10.1093/geront/47.2.193
- Castle, N. G., Hyer, K., Harris, J. A., & Engberg, J. (2020). Nurse aide retention in nursing homes. *Gerontologist*, 60(5), 885–895. doi:10.1093/geront/gnz168
- Castle, N. G., & Lin, M. (2010). Top management turnover and quality in nursing homes. *Health Care Management Review*, 35(2), 161–174. doi:10.1097/HMR.0b013e3181c22bcb
- Cohen, G., Blake, R. S., & Goodman, D. (2016). Does turnover intention matter? Evaluating the usefulness of turnover intention rate as a predictor of actual turnover rate. *Review of Public Personnel Administration*, 36(3), 240–263. doi:10.1177/0734371X15581850
- DATA USA: Nursing Care Facilities. (n.d.). *Occupations*. [https://datausa.io/profile/naics/nursing-care-facilities#category\\_occupations](https://datausa.io/profile/naics/nursing-care-facilities#category_occupations)
- DePasquale, N. (2020). Family-supportive supervisor behaviour positively affects work behaviour and nonwork well-being among men in long-term. *Journal of Nursing Management*, 28, 1504–1514. doi:10.1111/jonm.13091
- Devi, R., Goodman, C., Dalkin, S., Bate, A., Wright, J., Jones, L., & Spilbury, K. (2021). Attracting, recruiting and retaining nurses and care workers working in care homes: The need for a nuanced understanding informed by evidence and theory. *Age and Ageing*, 50(1), 65–67. doi:10.1093/ageing/afaa109
- Donoghue, C. (2010). Nursing home staff turnover and retention: An analysis of national level data. *Journal of Applied Gerontology*, 29, 89–106. doi:10.1177/0733464809334899
- French, R., Aiken, L. H., Rosenbaum, K. E. F., & Lasater, K. B. (2022). Conditions of nursing practice in hospitals and nursing homes before COVID-19: Implications for policy action. *Journal of Nursing Regulation*, 13(1), 45–53. doi:10.1016/s2155-8256(22)00033-3
- Gandhi, A., Yu, H., & Grabowski, D. (2021). High nursing staff turnover in nursing homes offers important quality information. *Health Affairs*, 40(3), 384–391. doi:10.1377/hlthaff.2020.00957
- Head, B. A., Washington, K. T., & Myers, J. (2013). Job satisfaction, intent to stay, and recommended job improvements: The palliative nursing assistant speaks. *Journal of Palliative Medicine*, 16(11), 1356–1361. doi:10.1089/jpm.2013.0160
- Herzberg, F. (1959). *The motivation to work* (2nd ed.). Wiley.
- Herzberg, F. (1987). One more time: How do you motivate employees. In *Harvard Business Review* (pp. 5–16). (Reprinted from *Harvard Business Review*, 1968). Harvard Business School Publishing Corporation. Permissions Editor.
- Kao, F., Cheng, B., Kuo, C., & Huang, M. (2014). Stressors, withdrawal, and sabotage in frontline employees: The moderating effects of caring and service climates. *Journal of Occupational and Organizational Psychology*, 87(4), 755–780. doi:10.1111/joop.12073
- Kelly, S. (n.d.). *Fitting a cumulative logistic regression model*. <https://support.sas.com/resources/papers/proceedings17/1108-2017.pdf>
- Kennedy, K. A., Abbott, K. M., & Bowblis, J. R. (2021). The one-two punch of high wages and empowerment on CNA retention. *Journal of Applied Gerontology*. Advance online publication. doi:10.1177/07334648211035659
- Kennedy, K. A., Applebaum, R., & Bowblis, J. R. (2020). Facility-level factors associated with CNA turnover and retention: Lessons for the long-term services industry. *Gerontologist*, 60(8), 1436–1444. doi:10.1093/geront/gnaa098
- Kossek, E. E., Hammer, L. B., Kelly, E. L., & Moen, P. (2014). Designing work, family & health organizational change initiatives. *Organizational Dynamics*, 43(1), 53–63. doi:10.1016/j.orgdyn.2013.10.007
- Lee, R. T. (2015). Wellbeing and burnout in the workplace, psychology of. In J. D. Wright (Ed.), *International encyclopedia of the social and behavioral sciences* (2nd ed., pp. 534–536). Elsevier. doi:10.1016/B978-0-08-097086-8.25041-1
- Lee, K., Mileski, M., Fohn, J., Frye, L., & Brooks, L. (2020). Facilitators and barriers surrounding the role of administration in employee job satisfaction in long-term care facilities: A systematic review. *Healthcare*, 8, 360. doi:10.3390/healthcare8040360
- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs*, 30(2), 202–210. doi:10.1377/hlthaff.2010.0100
- Myers, D. R., Rogers, R., LeCrone, H. H., Kelley, K., & Scott, J. H. (2018). Work life stress and career resilience of licensed nursing facility administrators. *Journal of Applied Gerontology*, 37(4), 435–463. doi:10.1177/0733464816665207
- NAHCA. (2021). *News*. <https://www.nahcacna.org/media/news/>
- National Academies of Sciences, Engineering, and Medicine. (2022). *The national imperative to improve nursing home quality: Honoring our commitment to residents, families, and staff*. Washington, DC: The National Academies Press. doi:10.17226/26526
- Nelson, H. W., Yang, B. K., Carter, M. W., Monahan, E., & Engineer, C. (2020). Nursing home administrator's job satisfaction, work stressors, and intent to leave. *Journal of Applied Gerontology*, 40(1), 67–76. doi:10.1177/0733464819896572
- PHI. (2021). *Caring for the future: The power and potential of America's direct care workforce*. <http://phinational.org/resource/caring-for-the-future-the-power-and-potential-of-americas-direct-care-workforce/>
- SAS Institute Inc. (2012). *SAS® Proprietary Software 9.4*. Cary, NC, USA: SAS Institute Inc.
- Schnelle, J. F., Schroyer, L. D., Saraf, A. A., & Simmons, S. F. (2016). Determining nurse aide staffing requirements to provide care based on resident workload: A discrete event simulation model. *JAMDA*, 17(11), 970–977. doi:10.1016/j.jamda.2016.08.006
- Thant, Z. M., & Chang, Y. (2021). Determinants of public employee job satisfaction in Myanmar: Focus on Herzberg's two factor theory. *Public Organization Review*, 21, 157–175. doi:10.1007/s11115-020-00481-6
- Uchida-Nakakoji, M., Stone, P. W., Schmitt, S. K., & Pibbs, C. S. (2015). Nurse workforce characteristics and infection risk in VA

- Community Living Centers: A longitudinal analysis. *Medical Care*, 53(3), 261–267. doi:10.1097/MLR.0000000000000316
- U.S. Bureau of Labor Statistics (BLS). (2022, March 31). *Occupational employment and wages, May 2021: 31–1131 nursing assistants*. <https://www.bls.gov/oes/current/oes311131.htm#:~:text=31%2D1131%20Nursing%20Assistants,a%20health%20or%20nursing%20facility>
- Virido, G., & Daly, T. (2019). How do supervisor support and social care matter in long-term care? Correlates of turnover contemplation among long-term care facility workers. *International Journal of Care and Caring*, 3(3), 413–424. 10.1332/239788218x15411705353061
- Work, Family & Health Study. (2015). *Documentation of the work, family, & health network (WFHN) field operations*. [https://projects.iq.harvard.edu/files/wfhn/files/2016\\_01\\_14\\_mop\\_with\\_updated\\_logo.pdf?m=1452890215](https://projects.iq.harvard.edu/files/wfhn/files/2016_01_14_mop_with_updated_logo.pdf?m=1452890215)
- Work, Family & Health Study. (2016). *Employee workplace measures book. Version 8.3*. [https://projects.iq.harvard.edu/files/wfhn/files/20160126\\_em\\_measures\\_book.pdf](https://projects.iq.harvard.edu/files/wfhn/files/20160126_em_measures_book.pdf)
- Work, Family & Health Network. (2014). *Manager Interview Measures Book. Version 8.2*. [https://projects.iq.harvard.edu/files/wfhn/files/mn\\_measures\\_book\\_v8.2\\_10\\_14\\_2014\\_updated\\_10\\_19\\_16.pdf](https://projects.iq.harvard.edu/files/wfhn/files/mn_measures_book_v8.2_10_14_2014_updated_10_19_16.pdf)
- Zhang, Y., Flum, M., Nobrega, S., Blais, L., Qamili, S., & Punnett, L. (2011). Work organization and health issues in long-term care centers: Comparison of perceptions between caregivers and management. *Journal of Gerontological Nursing*, 37(5), 32–40. 10.3928/00989134-20110106-01
- Zhang, Y., Punnett, L., & Gore, R. (2014). Relationships among employees' working conditions, mental health, and intention to leave in nursing homes. *Journal of Applied Gerontology*, 33(1), 6–23. doi:10.1177/0733464812443085