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Abstract

Employee turnover is a large and expensive problem in the long-term care environment. Stated intention to leave is a reliable indicator of likely turnover, but actual predictors, especially for nursing assistants, have been incompletely investigated. This quantitative study identifies the relationships among employees' working conditions, mental health, and intention to leave. Self-administered questionnaires were collected with 1,589 employees in 18 for-profit nursing homes. A working condition index for the number of beneficial job features was constructed. Poisson regression modeling found that employees who reported four positive features were 77% less likely to state strong intention to leave ($PR = 0.23, p < .001$). The strength of relationship between working conditions and intention to leave was slightly mediated by employee mental health. Effective workplace intervention programs must address work organization features to reduce employee intention to leave. Healthy workplaces should build better interpersonal relationships, show respect for employee work, and involve employees in decision-making processes.

Keywords

intention to leave, mental health, nursing homes, working conditions

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Introduction

The nursing home sector is reported to be the second most hazardous in the United States in terms of recognized work-related injuries and illnesses (Bureau of Labor Statistics, U.S. Department of Labor, 2002). There are numerous exposures in the work environment that threaten employees' health and safety, including infectious disease exposures, needle sticks, chemicals, violence, heavy lifting and moving, and other stressors such as emotional labor, shift work, and short staffing (Zhang et al., 2011). A probably related phenomenon is that the turnover rate is extremely high among nursing home employees. One study reported the average 1-year turnover rate to be 85.8% for certified nursing assistants (CNAs) and licensed practical nurses (LPNs) as well as 55.4% for registered nurses (RNs) in 354 U.S. nursing homes (Castle & Engberg, 2005). Donoghue (2009) found that the annualized turnover rate is highest among CNAs at 74.5%, followed by RNs at 56.1%, and LPNs at 51.0% from 2004 National Nursing Home Survey.

Turnover is expensive for employers and disruptive for residents, with increased costs of hiring and personnel training (Jones, 2008) and decreased quality of resident care (Castle & Engberg, 2005). Mukamel, Spector, Wang, Feng, and Mor (2009) estimated the marginal costs associated with a 10% increase in turnover of direct care staff for an average facility was US\$167,063 or 2.9% of annual total costs, from a study with 902 nursing homes in California.

Nursing home ownership style (profit vs. nonprofit; Banazak-Holl & Hines, 1996; Castle & Engberg, 2006), facility quality (Castle & Engberg, 2006), bed size (Castle & Engberg, 2006), leadership style (consensus managers vs. shareholder managers; Donoghue & Castle, 2009), top management turnover (Castle, 2008), staffing levels (Castle, 2008; Castle & Engberg, 2006), and aides' involvement in interdisciplinary care plan meetings (Banazak-Holl & Hines, 1996) have all been related to employee turnover rates in nursing homes. Banazak-Holl and Hines reported that turnover rates were 1.7 times higher in for-profit nursing homes than in nonprofit nursing homes. The higher turnover in for-profit nursing homes were continuously reported in the following studies (Castle & Engberg, 2006; Donoghue & Castle, 2006; Harrington & Swan, 2003; Kash, Castle, Naufal, & Hawes, 2006). However, most of these studies focused on center or management factors; few studies have considered work environmental predictors of turnover among nursing homes employees.

In a statewide survey of 550 nursing assistants in nursing homes, 30% reported that they planned to quit their job (Parsons, Simmons, Penn, & Furlough, 2003). Intention to leave is a strong direct predictor of actual turnover (Alexander, Lichtenstein, Oh, & Ullman, 1998), and stated intention to leave has been

associated with job satisfaction among CNAs in nursing homes (Castle, Engberg, Anderson, & Men, 2007; Decker, Harris-Kojetin, & Bercovitz, 2009) as well as hospital nurses (Ito, Eisen, Sederer, Yamada, & Tachimori, 2001; Larrabee et al., 2003). Intention to leave has been better studied in the latter group, suggesting some hypotheses about predictors for nursing home employees: low supervisor support (Ito et al., 2001), lack of respect from other professionals (Kankaanranta & Rissanen, 2008), low psychological empowerment (Larrabee et al., 2003), perceived risk of assault (Ito et al., 2001), and few possibilities for development (Flinkman, Laine, Leino-Kilpi, Hasselhorn, & Salantera, 2008).

Nursing assistants in nursing homes suffer from poor mental health such as depression (Geiger-brown, Muntaner, Lipscomb, & Trinkoff, 2004; Muntaner et al., 2004, 2006), possibly associated with various physical and psychological stressors, including heavy workload and short staffing (Lapane & Hughes, 2007), caring for demented and cognitively impaired residents (Brodsky, Draper, & Low, 2003; Morgan, Semchuk, Stewart, & D'Arcy, 2002), demanding work schedules (Geiger-brown et al., 2004), low latitude in decision making (Kowalski et al., 2010), feeling undervalued by management, and lack of essential resources (Dunn, Rout, Carson, & Ritter, 1994). A recent meta-analysis reported a positive relationship between mental health and job satisfaction (Faragher, Cass, & Cooper, 2005). Therefore, mental health may play a role in the association between working conditions and employee intention to leave.

The objectives of this study are (a) to identify the association between working conditions and intention to leave among employees in nursing homes, and (b) to explore the role of mental health in the association between working conditions and employee intention to leave. We analyzed a cross-sectional data set available as part of a larger cohort study of employees in for-profit U.S. nursing homes, known as "Pro-Care" (*Promoting Physical and Mental Health of Caregivers through Transdisciplinary Intervention*; <http://www.uml.edu/centers/cph-new/Projects.html>).

Method

Sample

All nursing homes participating in this study are for-profit facilities owned or managed by a single company that operates 217 long-term care facilities in 12 states in the Eastern United States. Each facility has about 100 to 150 employees, of whom 50 to 80 are clinical staff members.

The larger "Pro-Care" cohort study collected questionnaire surveys among permanent full- and part-time employees in 18 nonunionized nursing homes located in Maryland and New England (Maine, Massachusetts, and Rhode Island). This

study used the cross-sectional data collected between January, 2007, and November, 2008. RNs, LPNs, CNAs, and other clinical staff members, such as physical and occupational therapists, participated in the survey in all 18 centers; office, housekeeping, laundry, dietary, and other staff were also recruited in four of the New England centers.

Data Collection

Questionnaires were distributed and collected at the nursing homes by the research team over a 2- to 4-day period, to accommodate employees from different shifts and units. Employees were reassured that the employer would not receive any identified information obtained, and they were given the option to take home to complete questionnaires in private. Most employees completed questionnaires during break times and returned them in person. For others, such as third-shift and weekend employees, a prestamped and addressed-return envelope was provided. Compensation of US\$20 was offered in exchange for each completed questionnaire returned with a consent form. The study was approved by University of Massachusetts Lowell Institutional Review Board (No. 06-1403). In accordance with IRB requirements, participation was informed and voluntary, and every possible effort was made to protect data confidentiality.

Measurement of Variables

Demographics. The questionnaire collected detailed information on employees' demographic characteristics, including age, gender, race and ethnicity, marital status, and responsibility for children and other dependents. Children responsibility was measured with one single item, "How much responsibility do you personally have for any children under 18 in your household?" Four answer categories were used to assess this item: "There are no children under 18 at home"; "I have primary responsibility"; "I share responsibility with another adult"; and "Another adult has primary responsibility."

Working conditions. Aspects of working conditions included items on four psychosocial characteristics of the work environment: coworker support, supervisor support, receiving respect at work, and decision authority. Coworker support and supervisor support were each assessed by two items from the social support scale in Job Content Questionnaire (JCQ; Karasek et al., 1998). The two items for coworker support are, "The people I work with take a personal interest in me," and "The people I work with can be relied on when I need help." Supervisor support includes two items: "My supervisor is helpful in getting the job done," and "My supervisor pays attention to what I am saying." Receiving respect at work was

measured with one single item: "Considering all my efforts and achievements, I receive the respect that I deserve at work." Decision authority included three items from the decision latitude scale in JCQ (Karasek et al., 1998). Participants were asked, "My job allows me to make a lot of decisions on my own"; "I have a lot of say about what happens on my job"; and "On my job, I have very little freedom to decide how I do my work." All items for coworker support, supervisor support, receiving respect, and decision authority were assessed with a 4-point Likert-type scale from *strongly disagree* to *strongly agree*. Two scales had acceptable reliability for the study participants, with Cronbach's alpha coefficients of .75 (coworker support) and .85 (supervisor support), while a lower reliability was reported for decision authority (Cronbach's alpha = .44; Nunnally & Bernstein, 1994). The questionnaire also collected information about participants' job title, work shift arrangement (day, evening, night, or rotating shift), shift length (<8 hr, 8 hr or >8 hr), and working second job (yes or no).

Mental health. The Short Form-12 Health Survey (SF-12) was included in the questionnaire. The Mental Component Summary (MCS) was used to measure mental health of participants, with a higher MCS score indicating better mental functioning. The SF-12 has demonstrated high reliability and validity in different populations (Ware, Kosinski, & Keller, 1996).

Intention to leave. An employee's intention to leave was measured with one single item: "I am likely to leave this job in the next two years." This item was assessed with a 4-point Likert-type scale from *strongly disagree* to *strongly agree*. Intention to leave within the next 2 years was believed to reflect the actual willingness to leave (Kash, Naufal, Dagher, & Johnson, 2010).

Data Analysis

All analyses were conducted using SPSS software version 17.0. Intention to leave was examined by job title, shift work patterns and length, working second jobs, and demographic factors to identify possible confounders. Associations between working conditions, mental health, and intention to leave were assessed by Spearman correlation coefficient (Rho).

The four working condition variables were moderately to strongly correlated with each other. Therefore, each one was dichotomized as "low" (0) or "high" (1) using median value as a cutoff point and added to give an index ranging from 0 to 4, which rated the number of beneficial job features. The working condition index was used for subsequent modeling.

The association between working condition index and intention to leave was first assessed by cross-tabulation analysis with the chi-squared test. Then Poisson log regression modeling was used to calculate prevalence ratio among groups and

to investigate potential confounding and effect modification (Burros & Hirkata, 2003). Multivariate modeling to identify factors associated with employee intention to leave also investigated the demographic variables (age, race and ethnicity, and marital status), job titles, and shift work patterns. The associations between mental health and working condition index and intention to leave were first assessed using ANOVA (analysis of variance). Mental health was then introduced into the Poisson log regression model to test its potential mediating effect on the association between working conditions and intention to leave. Two-tailed significance level was reported at $p < .05$.

Results

Descriptive Statistics

A total of 1,589 nursing home employees completed questionnaires between January, 2007, and November, 2008, primarily middle-aged women (Table 1). About one half were white, married, and having children responsibility at home. Nearly one fifth reported working second jobs, and having responsibility for older adult, disabled, or other dependents at home. About half of the participants were CNAs/GNAs and reported working day shift and working 8-hr shift. A total of 598 participants (38%) reported any intention to leave in the next 2 years and among whom 194 participants (12%) reported a “strong” intention to leave. The average mental health score was 48.9, which is similar to the average value of 50 in the general population (Ware et al., 1996). More CNAs/GNAs were younger than 40 years of age; female; minority; single; having primary responsibility for children; doing evening, night, or rotating shifts; and reporting an intention to leave the job in the next 2 years than other employees (Table 1).

The descriptive analysis for coworker support, supervisor support, receiving respect, and decision authority was listed in Table 2. The working condition index was built with five levels (0-4), with a higher score representing better working conditions. About of 35.7% participants rated “4” on the index; 5.4% of the participants rated “0” on the index, showing that they experienced low coworker support, low supervisor support, low respect receiving, and low decision authority.

Bivariate Statistics

On average, intention to leave was lower among employees between the age group of 40 and 60 years (8.6%) than those older (16.5%) or younger (14.9%) (chi-square = 34.14, $p < .001$); lower among white (10.9%) than among Black

Table 1. Demographics, Intention to Leave, and Mental Health of Nursing Home Employees ($N = 1,589$).

Demographics	Mean \pm SD or percentage		
	Total ($N = 1,589$)	CNAs/GNAs ($n = 897$)	Others ($n = 692$)
Age**	41.5 \pm 12.8	39.5 \pm 13.1	44.0 \pm 12.0
<40	47.4%	54.4%	38.4%
40-60	44.2%	38.4%	51.8%
>60	8.4%	7.2%	9.9%
Gender**			
Female	89.1%	91.7%	85.8%
Male	10.9%	8.3%	14.2%
Race**			
White	48.6%	37.6%	63.0%
Black	36.9%	47.5%	23.1%
Others	14.5%	14.9%	13.9%
Marital status**			
Married	51.0%	42.6%	61.8%
Divorced/widowed	21.5%	21.8%	21.8%
Single	26.8%	35.6%	16.4%
Child responsibility**			
No	45.0%	42.3%	48.5%
Primary	29.2%	35.2%	21.5%
Share	22.5%	19.3%	27.7%
Secondary	2.8%	3.2%	2.2%
Responsibility for other dependents	18.7%	19.2%	18.1%
Shift work**			
Day shift	53.0%	45.1%	63.3%
Evening shift	19.6%	22.4%	16.0%
Night shift	13.1%	15.0%	10.7%
Rotating shift	14.2%	17.5%	10.0%
Shift length**			
<8 hr	25.8%	14.0%	41.0%
8 hr	53.7%	64.0%	44.0%
>8 hr	18.2%	22.0%	15.0%
Working second jobs	20.6%	21.0%	21.0%
Intention to leave**			
Strongly disagree	22.2%	21.4%	24.2%
Disagree	38.1%	36.4%	42.2%
Agree	25.4%	28.8%	22.4%
Strongly agree	12.2%	13.4%	11.3%
Mental health	48.9 \pm 10.0	49.1 \pm 10.0	48.7 \pm 9.9

* $p < .05$. ** $p < .01$.

Table 2. Descriptives of Working Conditions Among Nursing Home Employees (*N* = 1,589).

Working condition variables	Range (minimum-maximum)	Mean ± SD	Median
Coworker support	2.0-8.0	5.8 ± 1.2	6
Supervisor support	2.0-8.0	5.6 ± 1.5	6
Respect received at work	1.0-4.0	2.8 ± 0.8	3
Decision authority	3.0-12.0	8.1 ± 1.7	8

Table 3. Estimated Spearman Correlations (Rho) Between Mental Health, Intention to Leave, and Working Conditions (*N* = 1,589).

Working condition variables	Mental health		Intention to leave	
	CNAs/GNAs	Others	CNAs/GNAs	Others
Coworker support	0.15**	0.11**	-0.07*	-0.23**
Supervisor support	0.16**	0.12**	-0.22**	-0.20**
Respect received at work	0.17**	0.20**	-0.18**	-0.23**
Decision authority	0.10**	0.11**	-0.13**	-0.27**

p* < .05. *p* < .01.

(14.0%) and other racial groups (14.1%; chi-square = 22.55, *p* < .01); lower among employees who married (12.1%), divorced, or widowed (11.1%) than among single (14.4%; chi-square = 18.83, *p* < .01); lower among other job groups (11.3%) than among CNAs/GNAs (14.3%; chi-square = 11.99, *p* < .01); and was lower among those working on day shift (10.2%) and rotating shifts (10.7%) than among those working on evening shift (14.4%) and night shift (17.3%; chi-square = 20.26, *p* < .05). Employee intention to leave was not associated with gender, shift length, working second jobs, and responsibility for children and other dependents. Among CNAs/GNAs, same associations were found but less stable and powerful.

Coworker support, supervisor support, receiving respect, and decision authority were negatively correlated with intention to leave while positively correlated with mental health in both CNAs/GNAs and other employees (Table 3).

A strong intention to leave the job in the next 2 years was reduced with an increase in the number of beneficial job features in both CNAs/GNAs and other employees (*p* < .001, trend *p* < .05; Figure 1). There was no significant difference

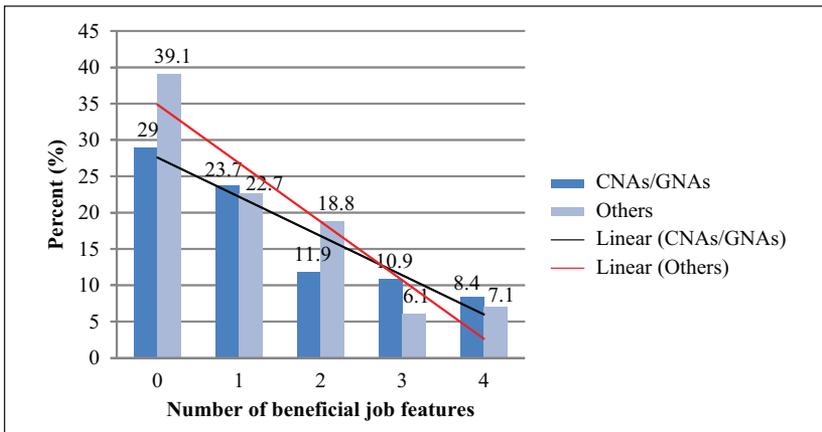


Figure 1. Association between strong intention to leave the job and working condition index.

between the slope of the two lines ($p > .05$), which indicated no significant difference of association between strong intention to leave and working condition index in both groups. Employee mental health increased with the number of beneficial job features in both CNAs/GNAs and other employees ($p < .001$, trend $p < .01$; Figure 2). CNAs/GNAs had slightly better mental health than other employees, but the association of working conditions with employee mental health in both groups were similar ($p > .05$). Meanwhile, employee mental health was lower among employees with stronger intention to leave the job ($p < .001$, trend $p = .05$).

Multivariate Statistics

Since the associations among strong intention to leave, mental health and working condition index in CNAs/GNAs and other employees were not significantly different, we combined the two groups for the following analysis. In Poisson log regression modeling of the prevalence of employee strong intention to leave, the number of beneficial job features continued to show a protective effect (Table 4). When adding age, race and ethnicity, marital status, job title, and shift work patterns into the model, only age and shift work showed a significant association with strong intention to leave ($p < .05$). Older employees and those working night shift had higher strong intention to leave controlling for working condition factors. Nursing home was introduced into the model as a fixed effect but did not

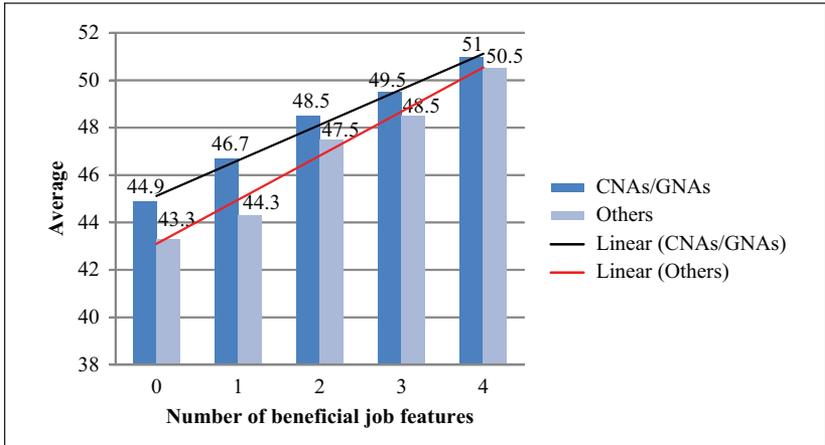


Figure 2. Association between employee mental health and working condition index.

Table 4. Poisson Log Regression Results Predicting Strong Intention to Leave in 1,589 Nursing Home Employees.

Predictor/Variable	N	Model 1		Model 2 ^a		Model 3 ^b	
		PR	95% CI	PR	95% CI	PR	95% CI
WCI							
0 (ref.)	86	1.00		1.00		1.00	
1	200	0.74	0.46-1.18	0.71	0.43-1.16	0.70	0.42-1.17
2	275	0.47**	0.29-0.76	0.48**	0.29-0.80	0.47**	0.28-0.80
3	371	0.28**	0.17-0.46	0.27**	0.16-0.46	0.28**	0.16-0.48
4	567	0.24**	0.15-0.39	0.23**	0.14-0.38	0.23**	0.14-0.39
Age							
40-60 (ref.)	665			1.00		1.00	
<40	713			1.52*	1.10-2.11	1.56**	1.11-2.19
>60	126			2.09**	1.25-3.48	2.04**	1.20-3.46
Shift work							
Day shift (ref.)	823					1.00	
Evening shift	305					1.21	0.82-1.80
Night shift	204					1.57*	1.03-2.38
Rotating shift	221					0.95	0.58-1.54

Note: WCI = working condition index; PR = prevalence ratio; N = number of employees.

^aModel 2 adjusted for age

^bModel 3 adjusted for age, race, marital status, job title, and shift work patterns. Race, marital status, and job title were not statistically significant.

* $p < .05$. ** $p < .01$.

show any significant influence on employee intention to leave. Even in the multivariate-adjusted model, the prevalence of employee strong intention to leave was reduced significantly when the number of beneficial job features was two or more. For employees who reported four beneficial job features, strong intention to leave was reduced by 77% (PR = 0.23, $p < .001$).

The effect modification of age on the association between working condition index and intention to leave was examined with stratification on age < 40 years (47.4%) and 40 to 60 years (44.2%). The results showed that the interaction between age and working condition index was not statistically significant ($\beta = -.01$, $p > .05$), suggesting that age was not an effect modifier of this association.

The multivariate regression evaluation for the mediating effect of mental health on the association between employee strong intention to leave and working condition index was summarized in Table 5. The mental health score was associated with employee strong intention to leave (PR = 0.98, $p = .05$). The strength of relationship between working conditions and intention to leave was slightly reduced, whereas the strength of relationship between age, shift work, and intention to leave was slightly increased when adding mental health into the model. The model suggested that mental health slightly mediated the association between working conditions and employee intention to leave. The prevalence of strong intention to leave reduced by 2% ($\beta = -.02$) with per-unit mental health score. The effect of Δ interquartile range (41.97-57.06) of mental health on the prevalence of employee strong intention to leave was 30%.

Discussion

In this study, more than one third of all nursing home employees surveyed (37.6%) reported an intention to leave their jobs in the next 2 years. This figure is similar to results of previous studies of nursing home CNAs (Decker et al., 2009; Parsons et al., 2003; Sloane, Williams, & Zimmerman, 2010). The results are of concern because high employee turnover could lead to increased economic costs and decreased quality of resident care. The number reported might not be generalizable to the national level because for-profit nursing homes have higher turnover rate than nonprofit nursing homes (Donoghue & Castle, 2006; Harrington & Swan, 2003; Kash et al., 2006). This might be due to differences in the organizational environment and resultant staff benefits and resident care, or for-profit nursing homes tend to maintain lower nursing staff levels, whereas lower staffing levels could be associated with higher turnover (Castle, 2008; Castle & Engberg, 2006).

We examined four specific beneficial job features (employee getting along with supervisors and coworkers, feeling respect at work, and making decisions on their job) by questionnaire survey. Employee who reported all four positive

Table 5. Poisson Log Regression Results for Mediating Effect of Mental Health on Associations Between Working Conditions and Strong Intention to Leave in 1,589 Nursing Home Employees.

Predictor Variable	N	Model 3 ^a		Model 4 ^b	
		PR	95%CI	PR	95% CI
WCI					
0 (ref.)	86	1.00		1.00	
1	200	0.70	0.42-1.17	0.80	0.46-1.39
2	275	0.47**	0.28-0.80	0.52*	0.29-0.92
3	371	0.28**	0.16-0.48	0.32**	0.17-0.58
4	567	0.23**	0.14-0.39	0.27**	0.15-0.47
Age					
40-60 (ref.)	665	1.00		1.00	
<40	713	1.56**	1.11-2.19	1.65**	1.14-2.40
>60	126	2.04**	1.20-3.46	2.62**	1.51-4.56
Shift work					
Day shift (ref)	823	1.00		1.00	
Evening shift	305	1.21	0.82-1.80	1.23	0.81-1.87
Night shift	204	1.57*	1.03-2.38	1.69*	1.09-2.62
Rotating shift	221	0.95	0.58-1.54	0.90	0.53-1.52
Mental health	1,589	—	—	0.98*	0.97-1.00

Note:WCI = working condition index; PR = prevalence ratio; N = Number of employees.

^aModel 3 adjusted for age, race, marital status, job title, and shift work patterns.

^bModel 4 adjusted for age, race, marital status, job title, and shift work patterns. Race, marital status, and job title were not statistically significant.

p*<.05. *p*<.01.

features had 77% lower prevalence of strong intention to leave the job, a larger effect than we would have expected. These results are consistent with prior reports that nurses’ intention to leave is negatively associated with positive support from coworkers and supervisors (Ito et al., 2001; van der Heijden et al., 2010), receiving respect at workplace (Kankaanranta & Rissanen, 2008), and recognition for their work and participation in care decisions (Banazak-Holl & Hines, 1996; Parsons et al., 2003). All of these factors are amenable to change in the work environment. The results suggest that effective labor–management interaction might reduce employee intention to leave and thus reduce the turnover rate in the long-term care sector.

In this study, employee mental health was positively associated with beneficial working conditions and negatively associated with intention to leave. Previous studies with nursing assistants in nursing homes did not find a significant association between mental health and work organization characteristics like labor-management relationships (Muntaner et al., 2006). However, our study results were consistent with previous findings from other health care professionals. Positive supervisor support and coworker support have been associated with higher levels of job satisfaction, health and well-beings in nurses (Budge, Carryer, & Wood, 2003; Fletcher, 2001; Garrett & McDaniel, 2001; Shader, Broome, Broome, West, & Nash, 2001). Tommasen, Lavanchy, Connelly, Berkowitz, and Grzybowski (2001) reported a strong association between poor mental health and intention to move among family physicians practicing in rural communities. In this study, mental health slightly reduced the strength of the relationship between working conditions and intention to leave. Employees might choose to leave the job instead of burning themselves out when stressed by the poor work environment, which suggests turnover as a protective coping strategy taken by employees.

We found differences in intention to leave among employees of different age, race and ethnicity, marital status, job titles, and shift work patterns. However, when these factors were introduced into the regression model, only age and shift work still showed a significant association with intention to leave. As expected, more employees older than 60 years reported a strong intention to leave, presumably because they are nearing the age of retirement. More employees younger than 40 years reported a strong intention to leave, possibly because younger employees on average may have higher expectations for the work or have less tolerance of the stressful work environment. Younger nurses may have lower job satisfaction and commitment than older nurses (McNeese-Smith, 2000; McNeese-Smith & van Servellen, 2000). However, age did not modify the effect of the working conditions in the present study population.

We also found that more night shift employees reported a strong intention to leave, which has not been reported before among nursing home employees but is consistent with previous evidence on hospital nurses (Ma, Lee, Yang, & Chang, 2009).

The strengths of this study include the large number of participants from 18 nursing homes and the consideration of potential confounders, effect-modifiers, and mediators in data analyses. However, the generalizability of the results may be limited because these 18 nursing homes were all for-profit facilities and owned or operated by a single corporation and none were unionized. A follow-up study using a more nationally representative sample would improve the generalizability of the findings. Future analyses of longitudinal data will be needed to verify the study findings. In addition, the reliability of decision authority scale was low for the study participants, which needs further assessment or refinement of the scale.

Practice Implications

This quantitative cross-sectional study found that employee intention to leave was negatively associated with the number of beneficial job features. With the demand for employees in long-term care continuing to increase, more effort is needed to increase the supply. The study will serve as evidence for employers and top management to improve employee working conditions in the long-term care environment. Effective health promotion programs at workplace are important to stabilize the long-term care workforce. As Punnett et al. (2009) suggested, in addition to address individual behaviors, effective workplace intervention programs must address “work organization features such as task design, incentive pay, and decision latitude, quality of supervision, work scheduling, understaffing, and division of labor” (p. 17). Healthy workplaces should build better interpersonal relationships, show respect for employee work, and involve employees in decision making about work processes. Possible strategies for improving working conditions in the long-term care environment include establishing an employee recognition program, recognizing birthdays and personal accomplishments, writing thank-you notes or giving small prizes for working extra time and working on holidays, giving more opportunities for frontline care employees to get involved in making decisions about resident care and center changes, and genuinely listening to the experiences and opinions of employees when difficulties arise with residents.

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References

- Alexander, J. A., Lichtenstein, R., Oh, H. J., & Ullman, E. (1998). A causal model of voluntary turnover among nursing personnel in long-term psychiatric settings. *Research in Nursing & Health, 21*, 415-427. doi:10.1002/(SICI)1098-240X(199810)21:5 < 415::AID-NUR5>3.0.CO;2-Q
- Banazak-Holl, J., & Hines, M. A. (1996). Factors associated with nursing home staff turnover. *The Gerontologist, 36*, 512-517. doi:10.1093/geront/36.4.512

- Brodaty, H., Draper, B., & Low, L. F. (2003). Nursing home staff attitudes towards residents with dementia: Strain and satisfaction with work. *Issues and Innovations in Nursing Practice, 44*, 583-590. doi:10.1046/j.0309-2402.2003.02848.x
- Budge, C., Carryer, J., & Wood, S. (2003). Health correlates of autonomy, control and professional relationships in the nursing work environment. *Journal of Advanced Nursing, 42*, 260-268. doi:10.1046/j.1365-2648.2003.02615.x
- Bureau of Labor Statistics, U.S. Department of Labor. (2002). *Lost-worktime injuries and illnesses: Characteristics and resulting time away from work, 2002*. Retrieved from http://www.bls.gov/news.release/archives/osh2_03252004.pdf
- Burros, A. J. D., & Hirakata, V. N. (2003). Alternatives for logistic regression in cross-sectional studies: An empirical comparison of models that directly estimate the prevalence ratio. *BMC Medical Research Methodology, 3*, 21. doi:10.1186/1471-2288-3-21
- Castle, N. G. (2008). State differences and facility differences in nursing home staff turnover. *Journal of Applied Gerontology, 27*, 609-630. doi:10.1177/0733464808319711
- Castle, N. G., & Engberg, J. (2005). Staff turnover and quality of care in nursing homes. *Medical Care, 43*(6), 616-626.
- Castle, N. G., & Engberg, J. (2006). Organizational characteristics associated with staff turnover in nursing homes. *The Gerontologist, 46*(1), 62-73. Retrieved from <http://gerontologist.oxfordjournals.org/content/46/1/62.full.pdf+html>
- Castle, N. G., Engberg, J., Anderson, R., & Men, A. (2007). Job satisfaction of nursing aides in nursing homes: Intention to leave and turnover. *The Gerontologist, 47*, 193-204. doi:10.1093/geront/47.2.193
- Decker, F. H., Harris-Kojetin, L. D., & Bercovitz, A. B. (2009). Intrinsic job satisfaction, overall satisfaction, and intention to leave the job among nursing assistants in nursing homes. *The Gerontologist, 49*, 596-610. doi:10.1093/geront/gnp051
- Donoghue, C. (2009). Nursing home turnover and retention: An analysis of national level data. *Journal of Applied Gerontology, 29*, 89-106. doi:10.1177/0733464809334899
- Donoghue, C., & Castle, N. G. (2006). Voluntary and involuntary nursing home staff turnover. *Research on Aging, 28*, 454-472. doi:10.1177/0164027505284164
- Donoghue, C., & Castle, N. G. (2009). Leadership styles of nursing home administrators and their association with staff turnover. *The Gerontologist, 49*, 166-174. doi:10.1093/geront/gnp021
- Dunn, L., Rout, U., Carson, J., & Ritter, S. (1994). Occupational stress among care staff working in nursing homes: An empirical investigation. *Journal of Clinical Nursing, 3*, 177-183. doi:10.1111/j.1365-2702.1994.tb00383.x
- Faragher, E. B., Cass, M., & Cooper, C. L. (2005). The relationship between job satisfaction and health: A meta-analysis. *Occupational and Environmental Medicine, 62*, 105-112. doi:10.1136/oem.2002.006734
- Fletcher, C. (2001). Hospital RNs' job satisfactions and dissatisfactions. *Journal of Nursing Administration, 31*(6), 324-331.
- Flinkman, M., Laine, M., Leino-Kilpi, H., Hasselhorn, H.-M., & Salanterä, S. (2008). Explaining young registered Finnish nurses' intention to leave the profession:

- A questionnaire survey. *International Journal of Nursing Studies*, 45, 727–739. doi:10.1016/j.ijnurstu.2006.12.006
- Garrett, D., & McDaniel, A. (2001). New look at nurses' burnout: The effects of environmental uncertainty and social climate. *Journal of Nursing Administration*, 31(2), 91-96.
- Geiger-brown, J., Muntaner, C., Lipscomb, J., & Trinkoff, A. (2004). Demanding work schedules and mental health in nursing assistants working in nursing homes. *Work & Stress*, 18(4), 292-304.
- Harrington, C., & Swan, J. H. (2003). Nursing home staffing, turnover, and case mix. *Medical Care Research and Review*, 60, 366-392. doi:10.1177/1077558703254692
- Ito, H., Eisen, S. V., Sederer, L. I., Yamada, O., & Tachimori, H. (2001). Factors affecting psychiatric nurses' intention to leave their current job. *Psychiatric Services*, 52, 232-234. doi:10.1176/appi.ps.52.2.232
- Jones, C. B. (2008). Revisiting nurse turnover costs: Adjusting for inflation. *Journal of Nursing Administration*, 38, 11-18. doi:10.1097/01.NNA.0000295636.03216.6f
- Kankaanranta, T., & Rissanen, P. (2008). Nurses' intentions to leave nursing in Finland. *The European Journal of Health Economics*, 9, 333-342. doi:10.1007/s10198-007-0080-3
- Karasek, R. A., Brisson, C., Kawakami, N., Houtman, I. L. D., Bongers, P. M., & Amick, B. C. (1998). The Job Content Questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology*, 3, 322-355. doi:10.1037/1076-8998.3.4.322
- Kash, B. A., Castle, N. G., Naufal, G. S., & Hawes, C. (2006). Effect of staff turnover on staffing: A closer look at registered nurses, licensed vocational nurses and certified nursing assistants. *The Gerontologist*, 46, 609-619. doi:10.1093/geront/46.5.609
- Kash, B. A., Naufal, G. S., Dagher, R. K., & Johnson, C. E. (2010). Individual factors associated with intentions to leave among directors of nursing in nursing homes. *Health Care Management Review*, 35, 246-255. doi:10.1097/HMR.0b013e3181dc826d
- Kowalski, C., Driller, E., Ernstmann, N., Alich, S., Karbach, U., Ommen, O., . . . Pfaff, H. (2010). Associations between emotional exhaustion, social capital, workload, and latitude in decision-making among professionals working with people with disabilities. *Research in Developmental Disabilities*, 31, 470-479. doi:10.1016/j.ridd.2009.10.021
- Lapane, K. L., & Hughes, C. M. (2007). Considering the employee point of view: Perceptions of job satisfaction and stress among nursing staff in nursing homes. *Journal of the American Medical Directors Association*, 8, 8-13. doi:10.1016/j.jamda.2006.05.010
- Larrabee, J. H., Janney, M. A., Ostrow, C. L., Withrow, M. L., Hobbs, G. R., & Burant, C. (2003). Predicting registered nurse job satisfaction and intent to leave. *Journal of Nursing Administration*, 33(5), 271-283.

- Ma, J. C., Lee, P. H., Yang, Y. C., & Chang, W. Y. (2009). Predicting factors related to nurses' intention to leave, job satisfaction, and perception of quality of care in acute care hospitals. *Nursing Economic\$, 27*(3), 178-184.
- McNeese-Smith, D. K. (2000). Job stages of entry, mastery, and disengagement among nurses. *Journal of Nursing Administration, 30*(3), 140-147.
- McNeese-Smith, D. K., & van Servellen, G. (2000). Age, developmental, and job stage influences on nurse outcomes. *Outcomes Management for Nursing Practice, 4*(2), 97-104.
- Morgan, D. G., Semchuk, K. M., Stewart, N. J., & D'Arcy, C. (2002). Job strain among staff of rural nursing homes. *Journal of Nursing Administration, 32*(3), 152-161.
- Mukamel, D. B., Spector, W. D., Wang, Y., Feng, Z., & Mor, V. (2009). The costs of turnover in nursing homes. *Medical Care, 47*, 1039-1045. doi:10.1097/MLR.0b013e3181a3cc62
- Muntaner, C., Li, Y., Xue, X., O'Campo, P., Chung, H. J., & Eaton, W. W. (2004). Work organization, area labor-market characteristics, and depression among U.S. nursing home workers: A cross-classified multilevel analysis. *International Journal of Occupational and Environmental Health, 10*(4), 392-400.
- Muntaner, C., Li, Y., Xue, X., Thompson, T., Chung, H., & O'Campo, P. (2006). County and organizational predictors of depression symptoms among low-income nursing assistants in the USA. *Social Science & Medicine, 63*, 1454-1465. doi:10.1016/j.healthplace.2005.09.004
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.
- Parsons, S. K., Simmons, W. P., Penn, K., & Furlough, M. (2003). Determinants of satisfaction and turnover among nursing assistants. The results of a statewide survey. *Journal of Gerontological Nursing, 29*(3), 51-58.
- Punnett, L., Cherniack, M., Henning, R., Morse, T., Faghri, P., & The CPH-NEW Research Team. (2009). A conceptual framework for integrating workplace health promotion and occupational ergonomics programs. *Public Health Reports, 124*(Suppl. 1), 16-25. Retrieved from <http://publichealthreports.org/archives/issueopen.cfm?articleID=2241>
- Shader, K., Broome, M., Broome, C., West, M. E., & Nash, M. (2001). Factors influencing satisfaction and anticipated turnover for nurses in an academic medical center. *Journal of Nursing Administration, 31*(4), 210-216.
- Sloane, P. D., Williams, C. S., & Zimmerman, S. (2010). Immigrant status and intention to leave of nursing assistants in U.S. nursing homes. *Journal of the American Geriatric Society, 58*, 731-7. doi:10.1111/j.1532-5415.2010.02781.x
- Tommasen, H. V., Lavanchy, M., Connelly, I., Berkowitz, J., & Grzybowski, S. (2001). Mental health, job satisfaction, and intention to relocate. Opinions of physicians

- in rural British Columbia. *Canadian Family Physician*, 47(4), 737-744. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2018427/pdf/11340754.pdf>
- van der Heijden, B. I. J. M., Kümmerling, A., van Dam, K., van der Schoot, E., Estryon-Béhar, M., & Hasselhorn, H. M. (2010). The impact of social support upon intention to leave among female nurses in Europe: Secondary analysis of data from the NEXT survey. *International Journal of Nursing Studies*, 47, 434-45. doi:10.1016/j.ijnurstu.2009.10.004
- Ware, J. E., Kosinski, M., & Keller, S. D. (1996). A 12-Item Short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care*, 34(3), 220-233.
- 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. doi:10.3928/00989134-20110106-01

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