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Working Conditions and Mental Health of Nursing Staff in Nursing Homes

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Abstract

Nursing staff in nursing homes suffer from poor mental health, probably associated with stressful working conditions. Working conditions may distribute differently among nursing assistants, licensed practical nurses, and registered nurses due to their different levels in the organizational hierarchy. The objectives of this study were to evaluate the association between working conditions and mental health among different nursing groups, and examine the potential moderating effect of job group on this association. Self-administered questionnaires were collected with 1,129 nursing staff in 15 for-profit non-unionized nursing homes. Working conditions included both physical and psychosocial domains. Multivariate linear regression modeling found that mental health was associated with different working conditions in different nursing groups: physical safety ($\beta = 2.37, p < 0.05$) and work-family conflict ($\beta = -2.44, p < 0.01$) in NAs; work-family conflict ($\beta = -4.17, p < 0.01$) in LPNs; and physical demands ($\beta = 10.54, p < 0.05$) in RNs. Job group did not moderate the association between working conditions and mental health. Future workplace interventions to improve mental health should reach to nursing staff at different levels and consider tailored working condition interventions in different nursing groups.

INTRODUCTION

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, 2004). Nursing staff working in this sector includes nursing assistants

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(NAs), licensed practical nurses (LPNs), and registered nurses (RNs). They engage in work that is physically and psychologically demanding, and juggle multiple work and family responsibilities. Nursing staff turnover in nursing homes has been consistently high, with NAs reporting the highest turnover rate (Castle & Engberg, 2005). Donoghue (2010) found that the annualized turnover rate is highest among NAs at 74.5%, followed by RNs at 56.1%, and LPNs at 51.0% from the 2004 National Nursing Home Survey. In addition, nursing staff in nursing homes often experience physical ailments such as musculoskeletal disorders (Miranda, Punnett, Gore, & Boyer, 2011) and mental health problems such as depression (Eriksen, Tambs, & Knardahl, 2006; Muntaner et al., 2006). Mental health of nursing staff in nursing homes merits close attention from employers and researchers because it may influence resident safety and the quality of care provided to residents.

The impact of work stress on health outcomes has been studied since the development of Karasek's demand-control-support model (Karasek & Theorell, 1990). The model emphasized that employees who experience high job demands, low job control, and low social support are considered to be in a high-strain job, which is associated with an increased risk of physical and mental illnesses (Bonde, 2008; Stansfeld & Candy, 2006). Since then, considerable attention has been paid not only to the physical hazards of work, but also to the psychosocial characteristics of the work environment (Stansfeld & Candy, 2006). Way and MacNeil (2006) reported that demands, control, and support accounted for 20–40% of the variation in employees' job satisfaction, health, and well-being. Nursing home environment is full of numerous challenges that may contribute to health outcomes of nursing staff, for example: intense workload and understaffing (Lapane & Hughes, 2007); caring for cognitively impaired residents (Morgan, Stewart, D'Arcy, Forbes, & Lawson, 2005); workplace assaults and violence (Miranda et al., 2011); and irregular work schedules (Geiger-Brown, Muntaner, Lipscomb, & Trinkoff, 2004). Some evidence suggests that unfavorable working conditions, such as low control and support (Liang, Hsieh, Lin, & Chen, 2014), and demanding work schedules (Geiger-Brown et al., 2004), have an essential negative effect on NAs' mental health. However, limited evidence in the literature examined the association between working conditions and mental health among different nursing groups.

Working conditions in nursing homes may distribute diversely among nursing staff at different levels in the organizational hierarchy. NAs, LPNs, and RNs perform different tasks and take different professional roles and responsibilities in the process of resident care. For example, NAs provide direct and basic care to residents and assist them in daily activities. LPNs work with RNs to assess residents, coordinate, and implement nursing care. RNs develop resident care plans, implement treatments, perform assessments and evaluations, and oversee tasks of LPNs and NAs. Two previous studies reported lower control in NAs than RNs, but controversial findings on the difference of psychological demands in NAs and RNs (Morgan, Semchuk, Stewart, & D'Arcy, 2002; Seago & Faucett, 1997). Mental health problems, such as depression and psychiatric distress, have been reported in NAs and linked to work organization features, such as for-profit ownership, managerial pressure, and lack of pay increases (Muntaner et al., 2004; Muntaner et al., 2006). However, rare attention has been paid to whether job group affects the association between working conditions and mental health among nursing staff.

Therefore, the objectives of this study were to (a) evaluate the association between working conditions and mental health among NAs, LPNs, and RNs; and (b) examine the potential moderating effect of job group on the association between working conditions and mental health of nursing staff. As part of a larger research effort, known as “Pro-Care” (<http://www.uml.edu/centers/cph-new/Projects.html>), the researchers collected information on full and part-time nursing staff’s work and health in a large chain of nursing homes. Nurse practitioners were not included; therefore, no data were available for this group of employees.

METHODS

Setting and Subjects

All nursing homes participating in this study were for-profit facilities managed by a single company with over 200 centers in 12 states in the eastern United States. This study used cross-sectional data collected from nursing staff in 15 non-unionized facilities located in Maryland and the New England area over a 21 month period. A non-probability convenience sampling method was used to recruit eligible participants, who were over 18 years old and directly hired by the company.

Data Collection

The research team distributed and collected questionnaires at the nursing homes over a two to four day period to accommodate employees from different shifts and units. The researchers reassured the study participants that the employer would not receive any identifying information. They were given the option to take home the questionnaires to complete them in private. Most employees completed questionnaires during break times and returned them in person. The researchers provided the night shift and weekend employees a pre-stamped and addressed-return envelope. There were no serious risks associated with participation. Participants received \$20 compensation in exchange for each completed questionnaire returned with a consent form. The University of Massachusetts Lowell Institutional Review Board reviewed and approved this study (No. 06-1403).

Measurement of Variables

Dependent Variable

Mental Health: The Short Form-12 Health Survey (SF-12) was included in the survey to measure general health status from each participant’s point of view, including eight concepts: physical functioning, role functioning physical, bodily pain, general health, vitality, social functioning, role functioning emotional, and mental health. The Mental Component Summary (MCS) is computed using all 12 questions based on the scoring algorithms from QualityMetric Health Outcomes Scoring Software. The MCS ranges from 0 to 100, where a zero score indicates the lowest level of mental health and 100 indicates the highest level of mental health. It uses norm-based scoring, with a mean of 50 and a standard deviation of 10 in the U.S. general population (Ware, Kosinski, & Keller, 1996). The SF-12 has demonstrated high reliability and validity in different populations (Ware et al., 1996).

Independent Variables

Working Conditions: Working conditions consisted of three physical domains (physical demands, physical safety, and violence at work) and four psychosocial domains (psychological demands, decision latitude, social support, and work-family conflict). Researchers used the Job Content Questionnaire (JCQ) (Karasek et al., 1998) to measure physical demands (5 items), psychological demands (4 items), decision latitude (7 items), and social support (4 items). The JCQ subscales have demonstrated good validity and acceptable internal consistency in large study populations from six countries (Karasek et al., 1998). Two items from Griffin and Neal (2000), along with two items developed by the researchers provided a measure of physical safety. The Kopelman, Greenhaus, and Connolly (1983) Work Interference with Family Scale provided three items to measure work-family conflict. A 4-point Likert scale (strongly disagree; disagree; agree; and strongly agree) assessed these items. One item measured violence at work: “In the past 3 months, have you been hit, kicked, grabbed, shoved, pushed or scratched by a patient, patient’s visitor or family member while you were at work?” The questionnaire also collected information about participants’ job group (NA, LPN, or RN), work shift arrangements (day, evening, night, or rotating shifts), shift length, work hours/two weeks, and working other paid jobs (yes or no).

Covariates

Socio-Demographics: Participants’ socio-demographics included age, gender, race, education, marital status, and responsibility for children and other dependents.

Data Analysis

All analyses were conducted using SPSS software 22.0 release on a Windows 7 operating system. Cross-tabulation and ANOVA were utilized to compare the differences of socio-demographics, working conditions, and mental health in NAs, LPNs, and RNs. The Chi-square statistic was employed to test the cross-tabulation results. Tukey test was used in conjunction with ANOVA to find mean differences between groups (Field, 2009).

The Spearman correlation coefficient (Rho) (Field, 2009) examined correlations between working conditions and mental health in NAs, LPNs, and RNs. Multivariate linear regression modeling was used to calculate correlation coefficients, investigate potential confounding, and test the potential moderating effect of the job group. Decisions about retention of covariates in the multivariate models were based on the change-in-estimate criterion (Greenland, 1989), defined as keeping the variable in the final model, if adding it into the model could change the effect estimates of the working conditions by 10% or more. Multicollinearity assumptions were checked and handled in the multivariate linear regression models (Field, 2009). Two-tail significance level was reported at $p < 0.05$.

RESULTS

Descriptive Analyses

Questionnaires were completed by 1,129 nursing staff (NAs, LPNs, and RNs), primarily middle-aged women (Table 1). The average response rate of the 15 centers was 73%.

Bivariate Analyses

Working conditions differed notably among the three job groups (Table 1). Tukey test suggested that RNs and LPNs reported working longer hours per two weeks than did NAs. LPNs reported longer work shifts than did NAs (Table 1). RNs worked more day shifts and fewer rotating shifts than NAs and LPNs. NAs had been assaulted more in the past three months, and reported higher physical demands, lower decision latitude, and lower social support than LPNs and RNs (Table 1). NAs also reported lower physical safety and lower psychological demands than RNs, but not LPNs (Table 1).

There was no statistically significant difference in mental health scores across the three groups. Compared to LPNs and RNs, NAs were younger and more likely to be single, Black, and receiving a lower level of education (Table 1). Evening shift staff reported less psychological demands ($F = 6.52, p < 0.01$) and less work-family conflict ($F = 2.85, p < 0.05$) than day shift staff.

Physical safety, violence at work, psychological demands, and work-family conflict were correlated with mental health in all three groups (Table 2). Physical demands were associated with mental health in NAs and LPNs; social support was associated with mental health in NAs and RNs; decision latitude was associated with mental health in RNs (Table 2).

Multivariate Analyses

Three multivariate linear regression models were built separately for the three groups (Table 3). After adjustment for covariates, physical safety ($\beta = 2.37, p < 0.05$) and work-family conflict ($\beta = -2.44, p < 0.01$) were associated with mental health of NAs (Model NAs, $R^2 = 10.2\%, p < 0.001$); work-family conflict ($\beta = -4.17, p < 0.01$) was associated with mental health of LPNs (Model LPNs, $R^2 = 36.2\%, p < 0.001$); physical demands ($\beta = 0.54, p < 0.05$) were associated with mental health of RNs (Model RNs, $R^2 = 19.2\%, p < 0.01$). Tests to see if the data met the assumption of collinearity indicated non-multicollinearity in the three models (VIF range 1–2.2).

Then the three groups were combined for one multivariate analysis, and the potential effect modification of job group on the association between working conditions and mental health was tested (Table 4). In the multivariate linear regression modeling with all nursing staff, physical safety ($\beta = 1.83, p < 0.05$), and work-family conflict ($\beta = -2.83, p < 0.01$) were associated with mental health (Model 1, $R^2 = 12.2\%, p < 0.001$). Multicollinearity was not a concern (VIF range 1–1.6). The interaction of job group with physical safety and work-family conflict were not significantly associated with mental health, suggesting job group was not moderating these associations (Table 4). Evening shift work, older age, and black and other racial groups showed a protective effect on mental health (Table 4).

DISCUSSION

This study from 15 for-profit non-unionized nursing homes showed that nursing staff mental health was associated with some features of the working conditions. The study sample included more black and obese women than the U.S. female adult workforce (Luckhaupt,

Tak, & Calvert, 2010). The self-reported mental health score of the study participants was lower than the average value of 50 in the general population (Ware et al., 1996). No significant differences of mental health scores were reported among NAs, LPNs, and RNs. Nursing staff provides most of the resident care services in nursing homes; therefore, their mental health is essential to ensure resident safety and the quality of care.

In this study, work-family conflict was consistently associated with mental health of NAs, LPNs, and RNs (borderline). Work-family conflict is a type of interrole conflict which occurs when the demands and responsibilities of work and family interfere (Byron, 2005). It is a significant source of strain for employees and greatly affects work, family, health, and behaviors. Previous research has examined the relationship between work-family conflict and negative health outcomes (Hämmig & Bauer, 2009; Leineweber, Baltzer, Magnusson Hanson, & Westerlund, 2013; Nylén, Melin, & Laflamme, 2007), including mental disorders (Frone, 2000; Wang, Afifi, Cox, & Sareen, 2007). Heavy workload (Yildirim & Aycan, 2008) and irregular work schedules (Camerino et al., 2010; Fujimoto, Kotani, & Suzuki, 2008; Yildirim & Aycan, 2008) have been reported as significant predictors of work-family conflict, which was associated with lower job and life satisfaction among nurses (Yildirim & Aycan, 2008). It was recommended that increasing employee control over work assignments (e.g., increased schedule control) and supportive behaviors from supervisors may buffer the negative impact of work-family conflict on employees' health and well-being (Kelly, Moen, & Tranby, 2011; Kossek, Pichler, Bodner, & Hammer, 2011).

Even though we did not find the moderating effect of the job group in the association between working conditions and mental health, as expected, we found that mental health was associated with different working conditions in the three groups. For example, physical safety was associated with mental health of NAs. Since NAs provide most of the direct care to residents, they are more prone to unsafe care environments such as slips and falls, infectious diseases, chemicals, violence, and assaults. As a key indicator of an organization's environment, physical safety was usually associated with self-reported injuries in the workplaces (Huang, Ho, Smith, & Chen, 2006; Smith et al., 2010). The effect of physical safety on mental health may be explained by NAs' feeling threatened when perceiving a lack of control over safety (Huang et al., 2006). This is consistent with our findings that NAs in this study perceived lower physical safety than RNs. Interestingly, physical demands was not associated with mental health of RNs at the bivariate analysis; however, after adjusting for covariates and other working conditions, physical demands were significant associates of mental health in RNs. This association became significant especially with adjustment of shift work and gender, suggesting that shift work and gender may confound this association in RNs. Some working conditions are amenable to change in nursing home environment. This study provided evidence that nursing home employers and top management should consider tailored interventions to different nursing groups, for example, increasing physical safety of NAs, because mental health was attributable to different working conditions in different groups.

This study reported more assaults, higher physical demands, lower physical safety, lower decision latitude, and lower social support in NAs, while higher psychological demands in RNs. The disparity of working conditions among job groups should also raise the attention

of nursing home employers and top management. Future workplace interventions to improve nursing home environment should reach to nursing staff at different levels, with special considerations for the low-wage workers. Possible strategies to improve nursing staff working conditions may include: establish programs to reduce workplace assaults and ensure front-line staff's safety; give more opportunities for front-line staff to get involved in decision making about resident care (e.g., actively involve front-line staff in developing resident care plan); acknowledge front-line staff's important role in the care delivery process; genuinely listen to the experiences and opinions of nursing staff when difficulties arise from their work or family life, and to a considerable extent, provide more staffing to reduce physical workload of front-line staff, and establish programs for stress management of nursing staff.

Previous studies have demonstrated the negative effect of night or rotating shifts on health (Arimura, Imai, Okawa, Fujimura, & Yamada, 2010; Lin et al., 2012), which was consistent with our findings in LPNs. However, the study finding of evening shift work as a protective factor for mental health of NAs was unexpected. Better mental health among evening shift workers has never been documented, if it is true, it might be explained by the lower psychological demands and lower work-family conflict reported by evening shift NAs in this study, or the potential longer sleep duration among evening shift workers compared to day shift workers (Pilcher, Lambert, & Huffcutt, 2000). Future exploration of the association between evening shift work and mental health is needed.

The present findings that older, black, or other racial group reported better mental health were consistent with previous studies (Franco et al., 2012; Williams & Earl, 2007). Mental health does not deteriorate with increasing age, possibly due to better coping abilities among older people, especially for those securely attached to social relations (Gillath, Johnson, Selcuk, & Teel, 2011). A lowering of expectations among older people could also contribute to this finding. The better mental health among blacks or other racial groups could be explained by their resilience in the face of greater social inequality and exposure to discrimination, which are risk factors for mental distress in the general population (Keyes, 2009).

The strengths of this study include the large number of nursing staff from 15 nursing homes, the good response rate (73%, due to facility support and incentive), the comprehensive assessment of working conditions, and the consideration of potential confounders and moderating effects. This study avoids some possible confounders in the organizational level because these 15 facilities were all managed by a single corporation and none were unionized, although the generalizability of the results may be limited as a result. Another limitation of this study is that definitive conclusions about causal relationships cannot be drawn with a cross-sectional design. Future analyses of longitudinal data from a more nationally representative sample would be desirable to verify the study findings.

CONCLUSIONS

This cross-sectional study found significant association between mental health and some features of the nursing home environments. Even though job group did not modify the

association between working conditions and mental health, the study found that mental health was associated with different working conditions among NAs, LPNs, and RNs. In addition, this study reported a disparity of working conditions in different nursing groups. The study results merit close attention by both employers and top management in nursing homes. In order to examine the best practices to improve working conditions of this population of employees at risk, future research should focus on the development of interventions to provide evidence for the best practices to improve work and mental health of nursing staff. Evidence has suggested that effective workplace intervention programs should not only address individual behavior changes, but also address work features that affect health behaviors and outcomes (Ball, Timperio, & Crawford, 2006; Duncan, Spence, & Mummery, 2005). This study provides evidence that future workplace interventions to improve mental health should reach to nursing staff at different levels and consider tailored working condition interventions in different nursing groups. Healthier workplaces should address the disparity of working conditions and promote overall employee health and well-being.

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TABLE 1

Socio-Demographics, Working Conditions, and Mental Health of 1,129 Nursing Staff

	Mean \pm SD or Percentage			
	Total (N = 1,129)	NAs (N = 744)	LPNs (N = 186)	RNs (N = 199)
Age **	41.8 \pm 13.2	40.3 \pm 13.5	43.9 \pm 11.8	45.5 \pm 12.3
Gender (female)	92.2%	92.8%	88.6%	93.6%
Race **				
White	44.8%	39.1%	47.3%	63.8%
Black	43.3%	49.7%	41.4%	21.1%
Others	11.9%	11.2%	11.3%	15.1%
Marital status **				
Single	27.7%	31.4%	19.8%	21.4%
Married	50.2%	47.8%	60.4%	49.5%
Widowed or divorced	22.1%	20.8%	19.8%	29.2%
Education (years) **	13.3 \pm 1.7	12.6 \pm 1.4	14.1 \pm 1.4	15.2 \pm 1.2
Children responsibility (yes) **	57.3%	59.5%	59.1%	47.4%
Other dependent responsibility (yes)	17.8%	17.4%	16.9%	20.3%
Shift work **				
Day	45.0%	41.8%	41.8%	59.8%
Evening	21.4%	21.9%	23.7%	17.5%
Night	15.3%	15.5%	16.4%	13.9%
Rotating	18.2%	20.8%	18.1%	8.8%
Shift length (hours) **	8.2 \pm 1.7	8.1 \pm 1.9	8.5 \pm 1.5	8.4 \pm 1.1
Work hours/two weeks **	69.6 \pm 23.5	67.5 \pm 23.5	74.5 \pm 21.3	72.2 \pm 24.7
Other paid jobs (yes)	19.8%	18.4%	24.5%	20.8%
Violence at work **	2.0 \pm 1.4	2.2 \pm 1.5	1.8 \pm 1.2	1.5 \pm 1.0
Physical demands **	12.0 \pm 3.5	12.7 \pm 3.4	10.6 \pm 3.1	10.7 \pm 3.3
Physical safety **	2.8 \pm 0.5	2.7 \pm 0.5	2.8 \pm 0.5	2.9 \pm 0.5
Psychological demands **	11.0 \pm 1.9	10.9 \pm 1.9	11.1 \pm 1.9	11.4 \pm 2.0
Decision latitude **	68.5 \pm 10.4	66.4 \pm 10.0	71.6 \pm 9.5	73.6 \pm 10.0
Social support **	11.2 \pm 2.2	11.1 \pm 2.3	11.6 \pm 1.9	11.5 \pm 2.0
Work-family conflict	2.4 \pm 0.7	2.4 \pm 0.7	2.4 \pm 0.7	2.4 \pm 0.6
Mental health	48.2 \pm 10.0	48.1 \pm 10.0	49.1 \pm 10.0	47.9 \pm 9.9

* $p < 0.05$.** $p < 0.01$.

TABLE 2

Estimated Spearman Correlations (Rho) Between Working Conditions and Mental Health Among Different Nursing Groups

Work characteristics	Mental health			
	Total	NAs	LPNs	RNs
Physical demands	-0.18 **	-0.15 **	-0.31 **	-0.12
Physical safety	0.23 **	0.24 **	0.17 **	0.23 **
Violence at work	-0.14 **	-0.11 **	-0.28 **	-0.17 *
Psychological demands	-0.15 **	-0.10 *	-0.27 **	-0.23 **
Decision latitude	0.09 **	0.05	0.06	0.23 **
Social support	0.12 **	0.11 **	0.05	0.22 **
Work-family conflict	-0.22 **	-0.18 **	-0.33 **	-0.27 **

* $p < 0.05$.

** $p < 0.01$.

TABLE 3

Multivariate Linear Regression Modeling for the Association Between Working Conditions and Mental Health in Three Groups

Independent variables	Model NAs		Model LPNs		Model RNs	
	β	95%CI	β	95%CI	β	95%CI
Physical demands	0.04	-0.25-0.34	-0.33	-0.83-0.17	0.54*	0.05-1.03
Physical safety	2.37*	0.33-4.40	-2.01	-5.35-1.32	2.47	-1.56-6.50
Work-family conflict	-2.44**	-3.75-(-1.14)	-4.17**	-6.65-(-1.69)	-2.47	-5.09-0.16
Shift work						
Day (ref)	0		0		0	
Evening	3.80**	1.60-5.99	2.57	-1.14-6.27	-2.95	-7.08-1.18
Night	1.69	-0.72-4.11	-4.25*	-8.20-(-0.30)	2.23	-1.87-6.33
Rotating	0.14	-2.08-2.37	-5.11**	-8.93-(-1.28)	-0.33	-5.43-4.77
Age	0.11**	0.05-0.17	0.20**	0.08-0.32	0.12*	0.01-0.24
Race						
White (ref)	0		0		0	
Black	3.98**	2.17-5.80	6.88**	3.63-10.12	2.19	-1.40-5.78
Others	3.56*	0.61-6.52	-1.20	-6.67-4.28	1.54	-3.07-6.16

Note. All three models were adjusted for violence, psychological demands, decision latitude, social support, and gender, which were not associated with mental health.

* $p < 0.05$.

** $p < 0.01$.

TABLE 4

Multivariate Linear Regression Modeling Testing Moderating Effect of Job Group in the Association Between Working Conditions and Mental Health in Nursing Staff

Independent variables	Model 1		Model 2	
	β	95%CI	β	95%CI
Physical demands	0.00	-0.22-0.22	0.01	-0.22-0.24
Physical safety	1.83*	0.21-3.46	1.45	-0.24-3.14
Work-family conflict	-2.83***	-3.90-(-1.77)	-2.55**	-3.71-(-1.40)
Shift work				
Day (ref)	0		0	
Evening	2.77**	1.04-4.50	2.80**	1.06-4.53
Night	0.94	-0.97-2.85	1.00	-0.91-2.91
Rotating	-0.62	-2.46-1.21	-0.63	-2.46-1.21
Age	0.11**	0.06-0.16	0.11**	0.06-0.16
Race				
White (ref)	0		0	
Black	4.22**	2.78-5.66	4.17**	2.70-5.65
Others	2.66*	0.33-4.99	2.61*	0.28-4.95
Physical safety*Job group	-			
Physical safety*NA (ref)			0	
Physical safety*LPN			1.13	-0.60-2.85
Physical safety*RN			1.05	-0.58-2.69
Work-family conflict*Job group	-			
Work-family conflict *NA (ref)			0	
Work-family conflict *LPN			-1.12	-3.09-0.86
Work-family conflict *RN			-1.16	-3.07-0.76

Note. WFC = work-family conflict. Model 1 & 2 were adjusted for violence, psychological demands, decision latitude, social support, and gender, which were not associated with mental health.

* $p < 0.05$.

** $p < 0.01$.