Social Class and Mental Health: Testing Exploitation as a Relational Determinant of Depression

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Abstract

This study tests whether social class exploitation operates as a relational mechanism that generates mental health inequalities in the nursing home industry. We ask, does social class exploitation (i.e., the acquisition of economic benefits from the labor of those who are dominated) have a systematic and predictable impact on depression among nursing assistants? Using cross-sectional data from 868 nursing assistants employed in 50 nursing homes in three U.S. states, we measure social class exploitation as "ownership type" (private for-profit, private not-for-profit, and public) and "managerial domination" (labor relations violations, perceptions of labor-management conflict). Depression is assessed using the original and revised versions of the Center for Epidemiologic Studies Depression Scale (CES-D and CESD-R). Using two-level logistic regressions, we find that private for-profit ownership and higher managerial domination are predictive of depression among nursing assistants even after adjustment for potential confounders and mediators. Our findings confirm the theoretical and empirical value of applying a social class approach to understanding how mental health inequalities are generated through exploitative mechanisms. Ownership type and managerial domination appear to affect depression through social relations that generate mental health inequalities through the process of acquiring profits, controlling production, supervising and monitoring labor, and enforcing disciplinary sanctions.

Keywords

Nursing assistant; exploitation; mental health; depression; work organization

In the social class literature, the concept of exploitation generally refers to the process of production, appropriation, and distribution of surplus labor (1–3). The conceptualization of exploitation as a relational mechanism that generates class inequalities in mental health, however, remains all but nonexistent in the public health literature. Its nonexistence remains despite the fact that health-relevant definitions and implications of social class (e.g., understood as employment relations versus ranked social position) remain contested (4). Yet, exploitation adds an explanatory social mechanism to social class that augments our current understanding of employment relations (e.g., employer, worker), whereby the

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welfare of employers is contingent on the material and relative deprivation of workers. The term exploitation itself has a negative connotation (i.e., taking advantage of someone else's labor) (3), that consequently extends to any economy based on the private ownership of capital and exchange of commodities in a market (5).

An important contribution of contemporary social class literature has been the incorporation of power into the definition of exploitation (6–8). Wright (9) defines social class exploitation as a situation that satisfies three criteria:

1. *The inverse interdependent welfare principle:* the material welfare of exploiters causally depends upon the material deprivations of the exploited.

2. *The exclusion principle:* the causal relation that generates principle (1) involves the asymmetrical exclusion of the exploited from access to and control over certain important productive resources. Typically this exclusion is backed by force in the form of property rights, but in special cases it may not be.

3. *The appropriation principle:* the causal mechanism which translates (2) exclusion into (1) differential welfare involves the appropriation of the fruits of labor of the exploited by those who control the relevant productive resources. This appropriation is also often referred to as the appropriation of the "surplus product" (p. 10).

According to Wright, exploitation operates as a social mechanism that explains how economic inequalities (e.g., incomes) are generated by inequalities in rights and power over productive resources (9). Thus, income inequalities are created when exploiters, who have an exclusive power over productive resources, can appropriate the surplus labor generated by the effort of the exploited (9).

From such "Neo-Marxian" perspectives, nursing assistants (NAs) occupy a working-class position given their lack of ownership and control over physical, financial, and organizational resources of production (9). Consequently, NAs are compelled to sell their labor power to nursing home owners, who occupy a business-class location, in an asymmetrical economic relation, where the material welfare of the business class (nursing home owners) causally depends on the deprivation of the working class (NAs). NAs are hired to perform the most challenging and demanding duties in nursing homes, under the domination of managers and owners, because NAs possess no control over the means of production (i.e., NAs possess no ownership stake in nursing homes). Managers and owners use their authority to extract labor effort from NAs within dominative working and employment conditions (9, 10). Nursing home owners thus exploit and appropriate the fruits of NAs' labor in the form of profits (9). Lacking professional autonomy within the nursing home industry means that NAs have limited means within their disposal to reduce the extent to which they are dominated and exploited. Taken together, these circumstances may lead one to ask: "Is a Neo-Marxian social class perspective on mental health that focuses on exploitation as an explanatory mechanism even necessary?"

The supporting rationale to investigate the mental health effects of exploitation among NAs is that the Neo-Marxian perspective allows us to account not only for the characteristics and

outcomes of the labor process (e.g., low income, occupational hazards, and poor mental health) but also potential mechanisms that generate these inequalities in the first place (2). We contend that the inequalities connected to exploitation create new research opportunities to test whether the mental health of NAs is affected by the extraction of labor effort by nursing home owners and managers. Conceptualizing exploitation as a relational determinant of mental health enables us to better understand how and why NAs remain powerless in the nursing home industry, are paid low wages, have few benefits, and are consistently exposed to more hazardous working conditions. Despite these potential advantages, most studies of mental health inequalities have overlooked the effects of social class exploitation.

Conceptualizing Nursing Home Ownership Type as Social Class Exploitation

Social class exploitation can be conceptualized and measured at the organizational level (1, 11) using, for example, nursing home ownership type (e.g., nursing homes can be owned and operated as for-profit, as not-for-profit, or by the public). In 2010, the distribution of certified nursing facilities by ownership type in the United States reveals that more than two-thirds of all nursing homes are for-profit (68%), 26 percent are not-for-profit, and 6 percent are government-owned (12). The mix of for-profit, nonprofit, and government facilities allows researchers to assess how ownership type affects costs, quality, access to care, and the mental health outcomes of NAs. Since for-profit institutions are privately owned, they exist and operate for the financial benefit of their owners and shareholders. For-profit managers are required to maximize the extraction of labor effort from their workers (13–16). In contrast, nonprofit nursing homes are guided, in principle, by a mission that benefits the "public good" of the community or society. If nonprofit organizations produce surplus revenues, these funds are used to advance the mission for which they were formed (e.g., meeting nursing staff shortages, improving nursing home facilities). Existing studies show that compared to nonprofit health care organizations, for-profit organizations are characterized by lower staffing, speed-ups, and cost-saving measures that compromise quality of care (15–18) and contribute to health care workers' musculoskeletal disorders (19).

Recent research confirms the differences between for-profit and nonprofit nursing home facilities. Harrington (12) compared the quality of care in the 10 largest for-profit nursing home chains with five other nursing home ownership groups. Findings reveal that for-profit nursing homes tend to deliver significantly lower quality of care because they hire fewer nursing personnel compared to nonprofit and government-owned facilities. Given that NAs are employed in various nursing home ownership types, this facilitates the study of social class exploitation at the organizational level using for-profit ownership as an indicator. In addition to presenting an opportunity to test the hypothesis that social class exploitation affects mental health, our focus on the nursing home industry is germane to current attention on population aging, which fuels the growth of this health care industry.

Nursing homes and residential care facilities are the second largest health care providers in the United States, ranking second only to hospitals (20). According to 2010 national figures,

there are approximately 1.3 million nursing home residents in 15,622 facilities (12). The number of Americans needing long-term nursing care is projected to increase two-fold between 2000 and 2050 (21). As such, the demand for NAs to meet the long-term needs of nursing home residents has also significantly increased. Since NAs are paid low wages, work long hours, and carry out as much as 80 to 90 percent of direct care services, the mental health of NAs is emerging as an important area of research among social and occupational epidemiologists (22–24). For several reasons, this increased focus is warranted. First, the working conditions of NAs are physically and emotionally demanding and can have important effects on mental health. Second, the work organization of nursing homes shapes and influences working conditions, and it is likely that organizational characteristics also affect the mental health of NAs by determining professional autonomy and emotional demands. Third, NAs occupy a dominated working-class position within the labor process. Taken together, this allows us to empirically investigate the effects of social class exploitation on mental health among NAs while taking into account the impact of work organization. Before doing so, we first review key literature on the associations between working conditions, work organization, and mental health.

Working Conditions as a Social Determinant of Health

The working conditions of NAs are salient determinants of physical and psychological well-being. NAs perform the most demanding duties in nursing homes in their role as primary caregivers to elderly and disabled residents. These activities include taking care of residents' personal hygiene, toileting residents, emptying catheter bags, turning bedridden residents to prevent bedsores, and assisting with mobility. As a result, NAs report some of the highest rates of nonfatal and overextension injuries compared to all other occupations (25) and, in particular, high rates of back injuries due to lifting and transferring patients (26). Nursing home duties rank among the most hazardous industries in the United States (22, 27, 28); the injuries experienced by NAs often lead to other serious problems such as sick leaves, persistent health problems, and job changes.

NAs are also accountable for meeting the emotional needs of residents and their families, including, for example, caring for restless or uncooperative residents, forming close and long-term attachments to ailing clients, and providing continuous social support (29). In doing so, emotional attachments are often formed, which create and contribute to stressful work environments that have significant implications for the mental health of NAs (30). These working conditions not only affect the physical and mental health of NAs but also lead to declines in the quality of care provided and in the health status of nursing home residents (31).

Impact of Work Organization on the Working Conditions of Nursing Assistants

The working conditions of NAs reflect different systems of work organization implemented by nursing home facilities. Work organization refers to the work process (i.e., the way in which the work of NAs is designed and performed) and to the organizational practices (e.g., management and production methods and accompanying human resource policies) that

influence the job design of NAs (32). Recent trends in work organization include restructuring (e.g., downsizing), flexible and quality management initiatives (e.g., total quality management, lean production), and use of temporary and contract labor. The purported goals of these practices are to improve the productivity, product quality, and profitability of nursing homes; however, these organizational changes have outpaced our understanding of how they affect the physical and mental health of NAs.

The restructuring trend of the "operations improvement" is a prime example. Such restructuring seeks rapid cost savings by reducing the number of registered nurses and replacing them with NAs (33), which in turn exposes NAs to more stressful and hazardous risk factors. For example, cost-containment efforts in nursing homes have caused NAs to work longer hours and more overtime, some unpaid, compared to other nursing home staff to deal with demanding schedules and excessive workloads (24, 28). This increases the occupational stress among NAs and contributes to current shortages of NAs. Another notable trend involves the shift toward for-profit care, which is associated with increased workloads among NAs (34). Producing evidence on the effects of work organization on the mental health of NAs has the potential to influence workplace health and safety standards (e.g., adequate workloads), increase inspections, and lead to other work organization changes to ensure the well-being of both NAs and nursing home residents.

Previous research has also explored the health impact of job characteristics among NAs, particularly the differential effects of job control-demand, decision latitude, job strain (i.e., combination of high job demand and low job control), work intensity, and autonomy. To date, the occupational "stress" that NAs experience has been empirically linked to features of work organization (22–24, 35). Other work has found that interpersonal stressors, high workload, and lack of autonomy in long-term care facilities are related to general levels of mental health, alcohol use, and smoking (36–38). Recent research confirms these associations, finding that unfavorable work organization in nursing homes exerts a negative effect on NAs' depression (22, 39). Thus, according to our definition of exploitation above, work organization is a potential mediator of the relation between exploitation and mental health.

Mental Health as an Outcome of Social Class Exploitation and Work Organization

Mental health outcomes are particularly responsive to work organization. Given the strong and consistent associations between mental health and social class indicators (40, 41), associations should also exist between mental health and social class mechanisms such as exploitation (42). The association between work organization and depression has been found using cross-sectional designs (41, 43–45) and confirmed using longitudinal designs that link job demands and lack of autonomy and control at work to mood disorders (46–48).

Depressive symptoms, in particular, are often associated with work organization exposures (40, 41, 43, 44). There is evidence from longitudinal studies linking job demands, lack of autonomy, and monotony at work to depression (44, 47, 48). Emotional demands are key to health services occupations (49, 50). Class exploitation and hazardous work organization

tend to occur in the same organizations, which follows from our above theoretical framework in which work organization is a mediator on the pathway between exploitation and depression. Thus, adjustment for work organization is necessary to test for the presence of a direct effect between exploitation and depression.

The current study contributes to the existing literature by testing the hypothesis that social class exploitation, measured using organizational-level indicators (type of ownership, managerial style), is associated with depression among NAs working in nursing homes, net of work organization exposures such as emotional demands and low job control (emotional strain). NAs are an optimal occupation to examine the effects of exploitation on depression given their unambiguous working-class location within the nursing home industry (i.e., they are nonsupervisory employees with low credentials). In addition, NAs warrant greater attention since their mental health has an effect on our fast-aging populations.

Methods

Design and Setting

This study uses a cross-sectional design of NAs employed in nursing homes in three U.S. states. Our sampling frame includes 50 nursing homes represented by the same labor union organization in the tri-state region area of Kentucky, Ohio, and West Virginia. Data collection took place from winter 1999 to spring 2001.

Data Collection and Sample Size

Several strategies were used to recruit NAs as study participants. First, our research team sought and obtained the endorsement of labor union representatives. We attended bimonthly and quarterly union meetings at each nursing home site, where we presented our study's objectives and protocol and explained our research efforts as a labor-management initiative. Second, labor representatives from each nursing home site informed NAs about the forthcoming study. NAs also received a newsletter announcement about our survey approximately two weeks prior to study commencement.

Primary data collection involved two methods: mail surveys and computer-assisted telephone interviews. These two methods provided comparable data and had no significant effect on observed findings. Using an employee roster provided by our partnered labor organization, we invited a total of 1,391 eligible study participants, recruited 868 NAs, and obtained an acceptable response rate of 62.4 percent.

Pilot-Testing Surveys

In order to ensure that our study obtained informative and useful data, we pilot-tested our survey instruments with NAs and organizational personnel. First, we administered the survey among internal nursing staff to ensure that instructions and questions were clear; the average completion time was between 30 and 40 minutes and smooth transitions existed between survey sections. All survey items and questions were initially drafted at the reading level of 10th grade or lower. Second, we pilot-tested our survey among a random sample of 38 NAs. Survey items and questions with low variability were revised or eliminated from

data collection, and further efforts were made to lower and shorten the survey's reading level and length. Third, we also pilot-tested our organizational questionnaire with a group of union staff and nursing home experts to ensure that contextual aspects of nursing homes were accurately captured.

Individual-Level Variables

Dependent variables: Depression. Depressive symptoms and depressive disorder are tested as dependent variables using the original and revised versions of the Center for Epidemiologic Studies Depression Scale (CES-D and CESD-R, respectively) (51). For both versions, a cut-off score equal to or higher than 16 was used to diagnose major depressive disorder (MDD). Previous studies on work organization and depression relied on the CES-D scale; however, this version does not reflect current diagnostic thinking about MDD. The revised version, CESD-R, has improved the overall content validity of the CES-D by using the Diagnostic Statistical Manual-III-R criteria for MDD (52). The 20 item in the CESD-R were administered with a four-point Likert scale to mimic the original CES-D. Analyses confirmed the reliability of the 20 items in the CESD-R (alpha coefficient1/40.93). The proportion of respondents with depression scores equal to or higher than 16 was slightly lower using the CESD-R (54.2%) than using the original CES-D (56.8%).

Independent measures: Emotional strain. This variable is derived from two separate questions about emotional demands and decision authority (49, 52). Emotional demands are measured by asking NAs about emotional exertions at work using six items and a response scale ranged from 1 (not particularly) to 5 (very much). Emotionally demanding experiences include, for example, "not having enough time to support clients" or "handling troublesome clients." Decision authority measures control over the work process using three items from the Job Content Questionnaire (53). This variable captures professional autonomy, supervisory responsibilities and policymaking activities. Emotional strain is coded as a categorical variable: 1 for "yes" (high tertile for emotional demand and low tertile for decision authority) and 0 for "no" (all other derivations).

Control Variables

We also control for several variables to see if mental health differences can be accounted for by sociodemographic, psychosocial, behavioral, health, and labor market factors. In regression models, we adjust for age (measured as a continuous variable and collapsed into "45 and over" and "less than age 45"), gender (female, male), and marital status (married, nonmarried), and race/ethnicity (non-white, white).

Organizational-Level Variables

Two sources of organizational-level data were merged with the individual records of NAs using nursing home as the linkage variable. First, we collected type of ownership (for-profit, not-for-profit) from the Nursing Home Compare Database on the Center for Medicare and Medicaid Services (CMMS) On-Line Survey Certification of Automated Records and Minimum Data Set (54). Second, we administered a modified questionnaire (49) to key informants at each nursing home to collect organizational data on managerial domination and seniority-based wage increases. The former indicator is derived by combining

subquestions about bureaucratic management style (i.e. "by the book"), labor relations violations, and perceptions of labor management conflict. All organizational-level variables were transformed into categorical variables (yes, no).

Data Analysis

Statistical analysis consists of two steps. First, we conduct exploratory and descriptive analyses of baseline data using univariate and multivariate tests to examine the descriptive statistics and to explore preliminary associations between NAs, depression, work organization, and organizational attributes. Second, we used multilevel models to test our hypotheses. The measurement of depression among NAs in nursing homes has a hierarchical structure. Multilevel models take into account this natural clustering and allow for the simultaneous estimation of individual and organizational-level effects. Two-level logistic regressions were performed using MlwiN (55), and iterative generalized least squares (IGLS) was used to find maximum likelihood estimates of the parameters. Regression models were built in stages, starting with a simple variance components model and successively adding fixed and random effects.

Results

Table 1 presents descriptive statistics for our study sample. NAs were mostly women (98%) and white non-Hispanic (85.9%). Half of all NAs were married. Most experienced low emotional strain (75.7%), worked in for-profit nursing homes (74.9%), do not have seniority wage increases (67.2%), and faced managerial domination (81%). More than half of NAs met the criteria for MDD based on the CES-D (56.8%) and CESD-R (54.2%).

Table 2 lists the regression estimates on depressive disorder for three nested two-level models. First, the variance components model was examined with random intercepts only. Second, fixed and random effects for the variables of interest are successively added to reduce level 2 random variance and to improve model fit. Model 1 shows that level 2 random variation is statistically significant; the estimated coefficient for $\sigma_{u_0}^2$ is 0.269 with a standard error 0.114. Model 2 adds individual variables to adjust for age group, marital status, racial group, and emotional strain and shows that there is no random effect of emotional strain between nursing homes; however, the fixed effect of emotional strain is highly significant 0.833 (0.198). Comparing the $\sigma_{u_0}^2$ between models 1 and 2 shows no significant reduction of level 2 random effect variance (0.269 vs. 0.225) when adding individual-level variables. Model 3 adds ownership type, seniority wage increase, and managerial domination as level 2 variables. Three results warrant closer attention. First, the fixed effect of emotional strain is independently significant after adjustment by level 2 variables. Second, all three level 2 variables are predictive of depressive disorder, independent of individual-level variables. Third, variance at level 2 was reduced from 0.225 to 0. This means that level 2 variables explain random effect variation at level 2. Comparing the quasi-likelihood scores between Models 1, 2, and 3 shows that model fit improved significantly as revealed by chi-square tests.

Table 3 presents odds ratios (OR) with 95 percent confidence intervals (CI) for depressive disorder (Model 1) and depressive symptoms (Model 2) with individual- and organizational-level variables. Results support our hypotheses on the links between emotional strain, organizational-level characteristics, and depressive disorder and symptoms. The odds of depressive disorder are more than twice as likely among NAs with high emotional strain (OR: 2.23, 95% CI: 1.37–3.63) compared to NAs with low emotional strain after adjustment for age, race, marital status, and nursing home characteristics. In terms of organizational-level variables, NAs that work in for-profit nursing homes, nursing homes that did not provide seniority-based increases, and nursing homes with high levels of managerial domination are 3.08 (95% CI: 1.73–5.47), 1.63 (95% CI: 1.01–2.61), and 1.78 (95% CI: 1.06–2.99) times more likely to suffer from depressive disorder than NAs who work in not-for-profit nursing homes, nursing homes that offered wage increases based on seniority, and work environments with low levels of managerial domination (i.e., non-bureaucratic styles of management).

Model 2 results in Table 3 are mostly consistent with Model 1 findings. The adjusted odds of depressive symptoms among NAs with high emotional strain are 1.70 (95% CI: 1.06–2.72) times higher than NAs with low emotional strain. We find that organizational-level characteristics are also predictive of depression based on symptoms. Compared to NAs employed in not-for profit nursing homes and eligible for seniority-based wage increases, NAs working in for-profit homes and not eligible for wage increases based on seniority are 2.45 (95% CI: 1.20–5.02) and 1.79 (95% CI: 1.01–3.19) times more likely to be depressed based on symptom counts. In contrast to Model 1 findings, the odds ratio for NAs who experience high levels of managerial domination is 1.36 (95% CI: 0.73–2.56), suggesting that the odds of depressive symptoms is not statistically different for NAs exposed to high levels of managerial domination compared to NAs exposed to lower levels.

Discussion

Despite the potential benefits of conceptualizing social class exploitation as an explanatory mechanism of mental health inequalities, most studies tend to ignore exploitative relations in favor of social stratification approaches (e.g., social gradients of mental health). Our multilevel study addressed this limitation by testing the mental health consequences of social class exploitation among a sample of NAs. We find evidence that further supports a class exploitation approach to understanding how social class inequalities are structured in the first place, and how mental health inequalities are subsequently generated.

First, we provide evidence that for-profit nursing homes are associated with higher rates of depression among NAs. This finding validates Wright's principles of exclusion and appropriation. The poor mental health of NAs reflects their exclusion from ownership in nursing homes and the appropriation of their labor effort for the material advantage of owners. By exclusion, our argument is that the private property rights of productive resources generate mental health inequalities by determining access to the social class positions of employer (e.g., nursing home owners hire NAs) and employee (e.g., NAs sell their labor to nursing home owners). By appropriation, the key idea is that for-profit nursing homes exacerbate mental health inequalities among NAs through the pursuit of profit.

Consequently, owners are incentivized to engage in practices such as charging more for services than it costs to deliver them, and reducing the ratio of employee compensation to output. Keeping such "unit labor costs" low entails that owners exercise greater exploitation and appropriation over the labor efforts of NAs (e.g., demanding longer work hours or understaffing without commensurate remuneration) (56). The capacity of owners to acquire profits generates material advantages for owners but mental health disadvantages for NAs (9). Our study replicates the established connection between ownership type and patient outcomes in nursing homes and extends this finding to NAs (12, 17).

Second, our study provides evidence suggesting that managerial domination has negative effects on depression. Managerial domination refers to the ability of executives, managers, and superiors to firmly control the activities of NAs. In the for-profit nursing home industry, coercive styles of management are commonly used to extract as much surplus labor from NAs as possible (9). The effect of managerial domination on depression can be spelled out in terms of how management controls, monitors, and disciplines the labor efforts of NAs. In practice, this means that the labor efforts of NAs are subject to tight managerial control, close monitoring with frequent check-ins and reports, a focus on negative evaluation (e.g., on what NAs are doing wrong and what must be corrected), and disciplinary sanctions (e.g., NAs are suspended without pay). Consistent with our Neo-Marxian approach, our study provides support for the idea that managerial domination operates through exploitative relations to impact depression. In order to maximize the economic returns of for-profit nursing homes (i.e., to increase the exploitation and appropriation of NA labor efforts), managers must dominate NAs. This generates intended profits on one hand, but mental health consequences for workers on the other. Prior studies have established the link between managerial domination and mental health using employee self-reports (57, 60). Our study contributes to the existing literature by using managerial self-reports.

Our study also finds that non-seniority-based wage systems and high emotional strain are both predictive of depression. Non-seniority-based wage systems consider first the performance of NAs to determine wage increases and second the employment tenure of NAs. The observed association between performance-based wage systems and depression might be explained by several harmful mental health mechanisms. For example, performance-based wage systems might increase depression by encouraging more competition (e.g., NAs compete with each other in pursuit of wage gains), contributing to hostile behaviors (e.g., NAs engaging in more emotionally charged and antagonistic actions), compelling more risk taking (e.g., NAs taking more hazardous risks, leading to more back and needlestick injuries), increasing workload issues (e.g., NAs subjected to more time pressures and longer work hours), and generating job insecurity (e.g., NAs fear losing their jobs based on subjective performance reviews). Regarding emotional strain and depression, this association confirms previous theoretical amendments on the demand/control model in human service occupations (49, 58, 59). Emotional strain appears to play a critical role in the onset of depression among NAs (60). The straightforward idea is that depression results from the excessive demands and continuous stress associated with the job requirements of NAs. It follows that poor mental health is a predictable consequence of NAs being emotionally overextend, physically exhausted, and psychologically drained. Future

work should incorporate emotional demands into the assessment of job strain, especially when human services are the occupation of interest (49).

Last, our study corroborates previous research that supports the conclusion that work organization is predictive of individual mental health outcomes in health care workplaces (61). We found that social class exploitation, measured using two organizational-level indicators, was associated with depression among NAs, even after individual-level variables were accounted for. Existing studies have established the connections among social class relations, exploitation, and mental health using individual-level data. Our work contributes to this research by finding that social class relations and exploitation can be conceptualized at an organizational level to explain the mental health of individual NAs (49, 62, 63). In terms of methods, our strategy to measure objective conditions (e.g., type of nursing home ownership) as well as subjective perceptions (e.g., perceptions of labor management conflict) in the same study provides an important counterpoint to the idea that the effects of work organization can be accounted by "sole source" bias (64).

Strengths and Weaknesses

Our study builds upon a few methodological innovations (a new measure for the screening of depression, the application of a statistical model for the study of work organization, the assessment of work organization at the organizational level, and the creation of organizational-level work organization indicators) in work organization research that could inform future work organization and occupational mental health studies. We used the revised CES-D scale to assess major depressive disorder (52). This assessment was based on the DSM-III-R and provided a screening tool for depression with high content validity. This assessment tool has more specificity than previous versions and helps separate "traits" from clinical states in workplace mental health assessment.

Thus, an added benefit of the measure is that by making the depression risk more similar to the clinical diagnosis, it avoids workplace assessments where normal behavior and pathology are blurred. Few past studies of work organization and health in nursing homes have simultaneously examined two levels of data (65) and none, to our knowledge, have used appropriate statistics for their analysis. We also used appropriate statistical methods for the assessment of organizational effects that address the clustering of individuals within organizations (49).

One limitation of our study is its cross-sectional design. Nevertheless, reverse causation explanations are unlikely to hold (e.g., that less depressed NAs would know about, have the possibility to choose, and actively seek less organizationally hazardous nursing homes). There is also the possibility of self-report bias in the assessment of job strain. However, previous research has shown high correlations between self-report and independent ratings of job demands and control (66). In addition, self-reports are necessary for assessing emotional labor (60). The possible bias introduced by studying unionized nursing homes could have produced a less healthy sample, as unionization seems to occur more easily in hazardous workplaces (67). More objective indicators of job stress such as hours worked and type of schedule could have yielded interactions with organizational indicators, although

previous analyses did not show such a pattern (22). Finally, the response rate was not ideal; however, unless the relationship between ownership type and depression was reversed in non-respondents (i.e., depressed, non-responding NAs all worked at nonprofit and public nursing homes), our study likely underestimates the relationship between ownership type and depression.

Conclusion

Organizational indicators of class exploitation (for-profit ownership, managerial domination) among NAs working in nursing homes were associated with symptoms of depression. It is clear that the high depression scores presented by NAs in our study require intervention and prevention. While risk factors for such high depression include the nature of the job (caring for sick, frail, and elderly clients), work organization, and class exploitation, our focus on relational class mechanisms has implications for the level at which prevention efforts should be targeted. Our findings suggest that prevention of depression among NAs in nursing homes should include not only individual interventions (e.g., reducing emotional job demands, increasing worker control over schedules, reducing workload) and organizational interventions (e.g., flattening the organization, introducing participatory management), but also structural interventions. Initiatives on the prevention of mental disorders have already emphasized the importance of addressing work organization (51, 68, 69), but research indicates that attempts to reduce work stress by focusing only at the organizational level are generally ineffective (70). This is because meaningfully changing worker autonomy requires fundamental changes to the very structure of work and its remuneration (71). Structural interventions include policies to prioritize cooperative, not-for-profit, and publicly owned nursing homes, together with stricter regulation of the for-profit nursing home industry to reduce the exploitation to which these workers are exposed. An integrated approach to prevention that simultaneously addresses working conditions and the relational class mechanisms that generate them is more likely to be successful than an approach that operates at only one of these levels.

Acknowledgments

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Table 1

Descriptive Statistics for Nursing Assistants Employed in Nursing Homes in Kentucky, Ohio, and West Virginia

Variable	N	%
Individual-level		
Gender (n = 868)		
Female	851	98.0
Male	17	2.0
Marital status (n = 858)		
Married	429	50.0
Non-married	429	50.0
Race (n = 841)		
Non-white	119	14.1
White	722	85.9
Emotional strain (n = 794)		
Low emotional strain	601	75.7
High emotional strain	193	24.3
Organizational-level		
Ownership type (n = 836)		
For-profit	626	74.9
Non-profit	210	25.1
Seniority-based wage increase (n = 595)		
Yes	195	32.8
No	400	67.2
Managerial domination (n = 495)		
Yes	401	81.0
No	94	19.0
Mental health		
Depressive symptoms (CES-D scale) (n = 844)		
Depressed	479	56.8
Not depressed	365	43.2
Depressive disorder (CESD-R) (n = 839)		
Depressed	455	54.2
Not depressed	384	45.8

Table 2

Multi-level Regression Coefficients of the Logistic Effects of Individual and Organizational Factors on Depressive Disorder (CESD-R) (N 1/4 740). Model 1

Variable	Model 1 (null model)	Model 2	Model 3 (full model)
Fixed effect			
Intercept	0.168 (0.11)	0.291 (0.157)	−1.138 (0.398)
Age group		−0.359 (0.215)	−0.373 (0.218)
Marital status		−0.010 (0.207)	−0.014 (0.212)
Racial group		−0.411 (0.316)	−0.315 (0.312)
Emotional strain		0.833 (0.198)	0.802 (0.248)
Nursing home			
Ownership type			1.125 (0.293)
Seniority-based wage increase			0.487 (0.241)
Managerial domination			0.579 (0.264)
Random effect variances			
Level 2 Intercept variance	0.269 (0.114)	0.225 (0.112)	0.000 (0.000)
Level 2 Emotional strain variance		0.000 (0.000)	0.000 (0.000)
Model fit			
Quasi-likelihood deviance	1015.62	891.95	569.85
D		123.67	322.1
df		4	3
Prob. Chi Square		0.0000	0.0000

Note. Numbers in parentheses are standard errors.

Table 3

Multi-level Regression Models of the Logistic Effects of Individual and Organizational Factors on Depressive Disorder (Model 1) and Depressive Symptoms (Model 2) (N = 740).

Variable	Model 1[1] Depressive disorder (CESD-R) OR (95% CI)	Model 2[1] Depressive symptoms (CES-D) OR (95% CI)
Individual-level		
Emotional strain	2.23 (1.37–3.63)	1.70 (1.06–2.72)
Organizational-level		
For-profit status	3.08 (1.73–5.47)	2.45 (1.20–5.02)
No seniority-based wage increases	1.63 (1.01–2.61)	1.79 (1.01–3.19)
Managerial domination	1.78 (1.06–2.99)	1.36 (0.73–2.56)

Abbreviations: CI, confidence interval; OR, odds ration.

[1]Model adjusts for age, race, and marital status.