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ORIGINAL ARTICLE

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Burnout among direct-care workers in nursing homes: Influences of organisational, workplace, interpersonal and personal characteristics

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Aims and objectives: The many negative effects of burnout have prompted researchers to better understand the factors contributing to it. The purpose of this paper is to add to this body of knowledge through the study of burnout among direct-care workers in nursing homes.

Background: Perhaps the factor most often associated with employee burnout is the level of staffing—insufficient staffing results in work overload and eventually employee burnout. A closer look at research findings suggests that there are many other factors also contributing to burnout. These range from those at the organisational level, such as availability of training and resources to individual characteristics such as self-esteem and length of employment.

Methods: A self-administered survey instrument was completed by 410 direct-care workers working within 11 nursing homes in the north Texas region. Regression analyses were performed, adjusting for clustering by nursing home. Beta coefficients and structure coefficients are reported. Burnout was measured through three dimensions: emotional exhaustion, depersonalisation and personal accomplishment.

Results: Organisational, work design, interpersonal and individual characteristics were found to be associated with one or more dimensions of burnout.

Conclusions: The analyses largely support previous research. Organisational variables of significance included the availability of resources to do the work, available training and fair pay. Work design variables of significance included adequate staffing. The individual characteristic, self-esteem, appeared to have the strongest impact on burnout. Commitment to the organisation also had a large impact.

Relevance to clinical practice: While the data do not allow for the testing of causal relationships, the data do suggest that providing adequate staffing, perceived fair pay, sufficient work resources (e.g., towels, gowns), management support and adequate training may result in less direct-care worker burnout on the job.

KEYWORDS
burnout, decision-making, gerontology, long-term care facility, nurse aide, nursing education, nursing workforce, training, workforce issues

1 | INTRODUCTION

The characteristics of residents living in American nursing homes (NHs) have changed considerably overtime as a result of changes to Medicare and Medicaid coverage. Today, NH residents are sicker and in more need of help with activities of daily living (e.g., help with eating, bathing, toileting). These changes have increased the responsibilities of the direct-care workers (DCWs) who serve them and, in turn, have increased the possibilities of DCW burnout (Knopp-Sihota, Niehaus, Squires, Norton, & Estabrooks, 2015). Burnout has been described as a psychological condition that involves a prolonged response to chronic stressors on the job (Maslach & Leiter, 2008). It is typically viewed as having three dimensions. The "emotional exhaustion" dimension is most often associated with burnout and exists when the employee feels emotionally drained and lacks the emotional energy necessary to provide the services required (Epp, 2012). "Depersonalisation" is a second dimension and exists when the DCW develops an insensitivity and lack of compassion towards NH residents (Khamisa, Peltzer, & Oldenburg, 2013). Finally, a "lack of accomplishment" is a third dimension of burnout existing when the DCW develops feelings of incompetence and lack of achievement and productivity (Maslach & Leiter, 2008).

Burnout has been shown to have a variety of negative effects on DCWs and the persons they serve. Reported effects range from depression and alcohol use to medical errors, suboptimal care and high turnover (Ahola & Hakanen, 2007; Bria, Baaban, & Dumitrascu, 2012; Leiter & Maslach, 2009; Moustou, Montgomery, Panagopoulou, & Benos, 2010; Shanafelt, Bradley, Wipf, & Black, 2002). The many negative effects of burnout have prompted researchers to better understand the factors contributing to it. Studies have examined a variety of professions and identified variables at one or more levels of analysis, including the organisational, workplace, interpersonal and individual levels. The purpose of this paper is to add to this body of knowledge by: (i) focusing on DCWs in American nursing homes and (ii) examining the relative effects of variables at all four levels of study. Three hundred and twelve (312) DCWs were surveyed in eleven NHs, in part, to measure their level of burnout and to confirm or refute previous research findings. Provided below is first an overview of the theoretical framework used followed by a review of existing literature on burnout, a description of the methods used, the results found, and relevance for clinical practice.

2 | THEORETICAL FRAMEWORK: AN ECOLOGICAL APPROACH

Theories developed to explain employee burnout have focused on various levels of analysis, including the individual level, interpersonal–social level, the work design and policies implemented at the organisational level. For example, Kubicek, Korunka, and Ulferts's (2012) study of burnout is concerned primarily with the effects of the organisational level factor: new technical equipment. They discuss how the implementation of these new technologies can

What does this paper contribute to the wider global clinical community?

- Burnout may be reduced by providing sufficient work resources to direct-care workers (DCWs) (e.g., towels gowns), making training accessible, and offering fair pay.
- Providing adequate staffing and management support of DCWs may reduce burnout.
- Individual-level factors associated with burnout included self-esteem, commitment to the organisation, length of employment and age.

overwhelm healthcare professionals resulting in burnout. Knopp-Sihota et al. (2015) have focused their research on the work design factor, work overload, by examining how an insufficient number of DCWs results in rushed and missed resident care and subsequently burnout. Other examples of theoretical approaches focused at one level of analysis include the effort–reward imbalance model (Siegrist, 1996), the conservation of resources theory and the demand-control model (Karasek, 1979). Bria et al. (2012) conducted a review of the literature and showed that all four levels have been studied with researchers offering theoretical perspectives based on their particular level of focus. The value of the ecological framework is that it integrates multiple levels and theories into a single model. It proposes that a full explanation for a particular behaviour requires a combination of all levels of influence. This approach is similar to that of Leiter and Harvie's (1996), who refer to it as an "integrative" approach for understanding employee burnout. The ecological model does not displace theories of employee burnout but, instead, places them in a broader context that recognises the value of each to provide a more comprehensive understanding of the factors of importance. The current study draws from theories found at all four levels (Figure 1). The literature review provides a discussion of various factors at each level that have been proposed to affect employee burnout. The data
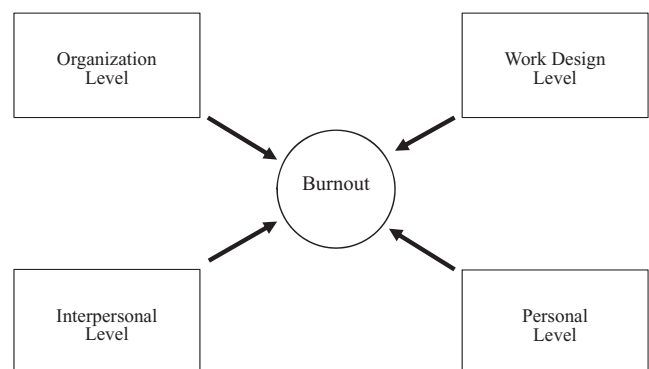
FIGURE 1 The ecological framework: influences of organizational, work design, interpersonal, and personal characteristics on employee burnout

analysis includes all four levels within the same analysis to allow for an examination of relative effects.

3 | LITERATURE ADDRESSING THE EFFECTS OF ORGANISATIONAL, WORKPLACE, INTERPERSONAL AND PERSONAL VARIABLES

The study of burnout in the workplace began in the mid-1970s and 1980s (Maslach & Jackson, 1981). Studies have taken place in a variety of countries, focused on a variety of professions, and have included variables ranging from organisational characteristics (e.g., reward and training systems) to personal (e.g., length of employment, self-esteem, personality). Provided below is a review of factors at each of the levels found to be associated with burnout.

3.1 | Organisational characteristics

Organisational characteristics that have been associated with burnout include the organisation's reward system, training effectiveness and resources readily available to the employee. The effort–reward imbalance model proposes that burnout is the consequence of the *disproportion between sustained effort and the rewards received* (Bria et al., 2012; Siegrist, 1996). A study of German healthcare workers by Bakker, Demerouti, and Schaufeli (2002) found that this imbalance was predictive of emotional exhaustion and depersonalisation but not personal accomplishment. On the other hand, Skirrow and Hatton (2007) did find personal accomplishment to be related to feelings of being adequately rewarded. And, more generally, Maslach and Leiter (2008, p.500) have reported: "The results of various studies have shown that insufficient reward (whether financial, institutional, or social) increases people's vulnerability to burnout" (see also Leiter, Gascon, & Martinez-Jarreta, 2010).

Training effectiveness, in the form of *appropriate skills and knowledge* among employees, is a second organisational factor studied in relation to burnout. Leiter and Harvie (1996), in their review of the literature examining mental health workers, found support for the effects of an employee's skills and knowledge on burnout, particularly through its ability to increase feelings of personal accomplishment and reduce feelings of depersonalisation. Studies of DCWs in NHs have found similar relationships. These studies have reported that, as NH residents' chronic conditions and illnesses have increased with changes to Medicare and Medicaid, there has been an accompanying increase in the skills and knowledge needed to serve them. DCWs, who have not gained the additional skills and knowledge needed, have experienced greater burnout including emotional exhaustion, depersonalisation and a lack of personal accomplishment (Kubicek et al., 2012; Obschonka, Silbereisen, & Wasilewski, 2012). Skirrow and Hatton (2007) came to similar conclusions when examining hospital-based workers. However, when they narrowed their analysis to community-based workers, they found no relationships.

A third organisational factor that may affect burnout is the *availability of resources* to do the work. When needed resources are not readily available, such as towels and adult diapers in the case of NH work, the DCWs are likely to feel increased stress and subsequently emotional exhaustion as attempts are made to serve residents without all the needed resources. Similarly, it is reasonable to suspect that workers will feel less personal accomplishment as they are unable to fulfil their duties.

3.2 | Work design characteristics

Work design characteristics found to affect burnout include work overload, empowerment of DCWs and role conflicts. *Work overload* has been most often associated with the emotional exhaustion dimension of burnout. Maslach and Leiter (2008) have explained that work overload contributes to exhaustion by depleting the capacity of people to meet the demands of the job. Burnout begins as the worker experiences acute fatigue because she or he is unable to recover from the work demands (Bakker et al., 2002; Leiter et al., 2010). Dickinson and Wright (2008), in a literature review of burnout among mental health nurses, found burnout to be reported when nurses lacked adequate time to complete their day-to-day nursing activities or provide emotional support to their patients. Edward and Hercelinskyj (2007), after conducting a literature review of burnout among nurses, concluded that burnout occurs when a heavy workload prevents nurses from practising their fundamental reasons for entering nursing, such as providing emotional support to patients. Similarly, Shirom, Nirel, and Vinokur (2010), in their study of burnout among physicians, found high workload to predict the physician's level of burnout.

The importance of *empowering DCWs* was emphasised in the late 1970s through the demand-control model, which, in part, highlights the association between low perceived control of the work and burnout (Karasek, 1979). Epp (2012, p.26) has explained this relationship: "Critical care nurses have been found to be more susceptible to burnout than physicians, and it is thought that the key to this difference is that physicians are able to make final decisions whereas nurses must accept and execute them, within reason." Similarly, Maslach and Leiter (2008) have concluded that active participation in decision-making has been associated with lower levels of exhaustion. And, Shirom et al. (2010) in their study of physician burnout found that higher levels of job autonomy reduced burnout (see also Knopp-Sihota et al., 2015; Ball, Murrells, Rafferty, Morrow, & Griffiths, 2013).

Role conflict exists when a person is expected to perform two incompatible roles or where only one of two roles can be performed forcing the neglect of one. Bria et al. (2012) in their review of the literature on burnout among European healthcare professionals found several studies reporting that role conflict increased emotional exhaustion and depersonalisation (Hansen, Sverke, & Naswall, 2009; Tummers, Landeweerd, & van Merode, 2002). Similarly, Skirrow and Hatton (2007) in their study of DCWs serving adults with intellectual disabilities found role conflict to reduce feelings of personal accomplishment and increase emotional exhaustion. Other researchers

have noted that role conflicts between an employee's professional responsibilities and personal life or personal values can produce burnout (Edward & Hercelinskyj, 2007; Epp, 2012; Leiter et al., 2010).

3.3 | Interpersonal characteristics

Research suggests that employees who have access to management and co-worker support experience less burnout. Ramarajan, Barsade, and Burack (2008) conducted a NH longitudinal study and found that those DCWs, who experienced higher levels of *management support* in the form of respect, had lower emotional exhaustion. Leiter and Harvie (1996) found that, among mental health workers, a lack of support from one's head office, along with an absence of mutual trust, affected all three dimensions of burnout. Skirrow and Hatton (2007), in their review of studies of DCWs serving adults with intellectual disabilities, found that workers who felt in need of management support also reported experiencing emotional exhaustion and feelings of depersonalisation. And Leiter et al. (2010) have concluded that employees who feel a sense of confirmation from supervisors are more likely to have a sense of well-being and personal accomplishment (see also Laschinger & Finegan, 2005).

Studies that have focused more specifically on *co-worker support* include that of Leiter and Harvie (1996) who found, in their study of shelters for battered women, that employees who took time to talk to friends and/or co-workers about stressful situations increased their feelings of personal accomplishment and reduced their feelings of depersonalisation. Maslach and Leiter (2008) have come to similar conclusions noting that co-worker support increases feelings of engagement and personal accomplishment. They have noted that where there is a positive work environment, there is less likely to be feelings of burnout. Similar findings have been reported by Skirrow and Hatton (2007). On the other hand, Leiter and Harvie (1996) found that a study of university counsellors showed no such significant effects (Ross, Altmaier, & Russell, 1989).

3.4 | Individual characteristics

There are a variety of individual characteristics that have been associated with employee burnout, including psychological, demographic and personality characteristics. Several psychological characteristics that appear to be important include self-esteem, organisational commitment and feelings of stress. Edwards, Burnard, Coyle, Fothergill, and Hannigan (2000) have noted in their literature review that mental health nurses with low *self-esteem* have been found to have poor relationships with clients and an inability to empathise with them. These, in turn, increase feelings of stress and burnout. Leiter and Harvie (1996) have found that a lack of *commitment* to the organisation increases employee burnout and, similarly, Leiter et al. (2010) have suggested that greater commitment, reflected in greater value congruence with the organisation, is an energising resource that can combat burnout. Work *stress* has been associated with burnout by a variety of researchers (Hudek-Knezevic, Maglica, & Krapic, 2011;

Sharma, Sharp, Walker, & Monson, 2008). They have concluded that, as work stresses go up over time, burnout eventually develops. On the other hand, some researchers have questioned the direction of the effects, noting that burnout may cause feelings of stress (Bria et al., 2012).

There have been many demographic factors considered when examining burnout including education, income, race, gender, age, marital status, number of children and length of employment. However, most have not been found to have independent effects on burnout and, where effects have been found, they have not been consistent across studies (Maslach & Leiter, 2008). Perhaps two of the most often cited demographic characteristics are age and length of employment. Bria et al. (2012) in their review of research examining European healthcare professionals concluded that roughly half of the studies reported an association between *age* and burnout. Where age was found to have an effect, younger workers were reported to have greater feelings of depersonalisation. Knopp-Sihota et al. (2015) have explained this relationship as a result of younger workers being less likely to successfully adapt to stresses in the workplace that cause burnout. On the other hand, Gosseries et al. (2012), in their study of healthcare workers managing patients with disorders of consciousness, found that younger workers scored higher on personal accomplishment. They surmised that younger workers were, in general, more excited about their work while older workers were more concerned about their ability to keep up with new skills and knowledge. Studies examining the effects of *length of employment* on burnout in NHs appear to be more in unison. Pereira, Fonseca, and Carvalho (2011, p.322) have concluded: "...burnout seems to be related to length of professional service. Higher levels of burnout were found in professionals who remained in the same healthcare context for five or more years, especially regarding the emotional exhaustion and depersonalization dimensions." Bria et al. (2012, p.440) and others have attributed this to the accumulation of stress involved when providing health care (Epp, 2012; Khamisa et al., 2013).

Effects of *personality* have been addressed by Maslach and Leiter (2008) who have noted: "Several personality traits have been studied in an attempt to discover which types of people may be at greater risk for experiencing burnout." This includes the consideration of neuroticism, extraversion, conscientiousness and agreeableness (Bria et al., 2012). Perhaps the personality type most associated with burnout is neuroticism. Neurotic individuals tend to be emotionally unstable and susceptible to psychological distress and subsequently the experience of burnout.

3.5 | Other characteristics considered by previous researchers

While an examination of the organisational, workplace, interpersonal and personal levels covers many variables, there are still others that are being considered and are likely to be important to understanding DCW burnout in NHs. Perhaps the most important of these are the *characteristics of those being served* by the DCWs (Epp, 2012;

Gosseries et al., 2012; Hirata & Harvath, 2015). For example, caring for residents who are largely independent may produce less burnout than caring for residents who are overly aggressive, or those who have multiple serious needs such as help with activities of daily living (Edward & Hercelinskyj, 2007; Edwards et al., 2000; Hirata & Harvath, 2015). On the other hand, Skirrow and Hatton (2007) have reported several studies that did not find a relationship between client characteristics and employee burnout. *Characteristics of the family members* of the residents may also affect DCW burnout. It has been suggested that family members who are constantly scrutinising and commenting on DCW performance may increase the likelihood of burnout among DCWs (Epp, 2012). On the other hand, it has also been suggested that family members, who provide constant support to DCWs, may reduce the likelihood of DCW burnout (Chappell & Novak, 1992; Maslach & Leiter, 2008).

4 | DESIGN AND METHOD

The purpose of this study was to identify factors associated with burnout among DCWs in NHs. Provided below is a description of the data collection procedures and the DCW participants, followed by a description of the questionnaire items, concepts, indices created and data analysis techniques.

4.1 | Data collection and DCW characteristics

A complete description of the data collection procedures is provided in Yeatts and Cready (2007). The data come from a larger study focused on DCWs in NHs and received IRB approval from the University of North Texas. A self-administered survey instrument was completed by 410 DCWs working within 11 NHs in the north Texas region. These questionnaires were typically distributed and collected by the research team at an "all-staff" meeting. Absentees were later contacted by a member of the research team and invited to participate. DCWs in the 11 NHs were surveyed between 2002 and 2005. NHs were selected to allow for variation in size, private versus non-profit status, location (urban, suburban, rural) and income level (per cent of residents receiving Medicaid). The response rate was 78%.

4.2 | Questionnaire items, concepts and indices

The DCWs responded to a series of statements by using a five-point Likert-type scale ranging from 1 for "strongly disagree" to 5 for "strongly agree." Many of these items were drawn from existing instruments that measure the concepts of interest, including those developed by Maslach, Jackson, & Leiter, 1996; Hackman and Oldham (1980); Spreitzer (1995); and Yeatts and Hyten (1998). When necessary, statements were modified to reflect the uniqueness of the nursing home environment. When measures could not be found in previous studies, items were developed and pretested.

For most concepts of interest, at least three questionnaire items were used to create an index to represent the concept. For example,

to measure the independent variable, "adequately staffed," the three items used included: "Usually, we have enough CNAs working to do a good job." "There are usually enough CNAs working to do a good job." "Usually, we do NOT have enough CNAs working to do a good job." An index was created by adding a respondent's individual scores on each of these three items and then dividing that number by the number of items (or in this example, 3). This calculation allowed the index score to remain in the original range of the individual items (i.e., 1–5 or strongly disagree to strongly agree).

To measure the dependent variable, burnout, a factor analysis was performed using 14 Likert-type statements that were originally designed to measure three dimensions of burnout (Maslach & Jackson, 1981; Maslach et al., 1996). Some statements were modified slightly from the original in order for them to be consistent with the nursing home environment. For example, the original statement "I don't really care what happens to some *recipients*" was revised to "I don't really care what happens to some *residents*" (see Appendix 1 for all statements used). Factor analysis is a means of determining the extent to which there is measurement overlap among items— that is, shared variance among a set of statements or variables (Mertler & Vannatta, 2013). The factor analysis used a varimax rotation, which resulted in the extraction of three components with initial eigenvalues above 1.0 and a Kaiser–Meyer–Olkin (KMO) "measure of sampling adequacy" of .810 and significant (.000). The three components were found to match the three dimensions of burnout proposed in the Maslach Burnout Inventory Manual: emotional exhaustion, depersonalisation and personal accomplishment (Maslach et al., 1996).

Twelve independent variables were measured. Three reflect organisational characteristics including training, the reward system and available resources. For example, available resources were measured by statements such as: "When working, I usually have all the supplies and work materials I need to do a good job (such as towels, gowns, etc.)." Three variables were used to reflect the work design including adequate staffing, ability to modify the work and role conflict. While there were three statements each for adequate staffing and ability to modify the work, the questionnaire did not include a set of statements designed to measure role conflict. Therefore, we selected a single statement included in the questionnaire to serve as a proxy measure which stated: "I am NOT always able to turn the residents in bed when they should be turned." One of the roles of DCWs is to turn residents in their bed when needed. Not always being able to do so when it is needed is a role conflict. This variable was coded 1 if the respondent agreed or strongly agreed with the statement and coded 0 if the respondent was neutral, disagreed or strongly disagreed.

Two variables were used to measure interpersonal characteristics including management trust and co-worker support. Finally, personal characteristics were measured by four variables: age, months of employment at the NH, commitment and self-esteem. Appendix 1 provides all the independent variables, items used to measure each, and the Cronbach's alpha for each. Appendix 2 provides the bivariate correlations for all the variables considered.

4.3 | Data analysis

A variety of checks for outliers were performed on the data. Given the length of the questionnaire (113 items), there was some concern that some DCWs may not have read all statements carefully. To test for this problem, three pairs of statements were included in the questionnaire with each statement in a pair identical or with one of the two worded in the opposite direction (positive statement vs. negative statement). If the respondent was not consistent in his or her responses for at least two of the three pairs of questions, the case was removed from the analysis. As a result, nine cases were removed. Further, multivariate outliers were checked by examining Mahalanobis distance measures and box plots. The most extreme cases were examined for possible typing errors or cases in which the respondent did not follow the instructions. Subsequently, two cases were removed. Finally, listwise removal of missing cases was used for the regression analyses, resulting in 312 DCWs being included in all analyses.

4.3.1 | Analytical strategy

The DCWs were working at one of 11 NHs (i.e., 11 clusters). Therefore, tests were run to determine whether a multilevel, cluster analysis was most appropriate. Peugh (2010) and others recommend ignoring the cluster variable if the model's design effect (DEFF) is 2.0 or less (DEFF equals the standard error with nested random effects divided by the standard error without random effects). Hox and Maas (2002, p.5), Muthen and Satorra (1995) and others have taken a more conservative approach, that a DEFF less than 1.1 indicates little to no effect of the cluster variable so that there is no need to adjust for it. Our analyses found the design effects of the 11 nursing homes to range from .8 to 1.1. Therefore, we chose to use Stata's "svy" command (a widely accepted procedure) to adjust for any potential cluster effect and thus reduce the chances of underestimating the standard errors (Huang, 2014, p.4). An underestimated standard error can lead to underestimating uncertainty in the results, leading to confidence intervals that are too small, and thus spuriously statistically significant results (i.e., inflated Type 1 error rates; Lai & Kwok, 2014, p.2; Snijders & Bosker, 2012; Hox, 2010). Further, Lai and Kwok (2014, p.13) in their simulation studies concluded that adjusting for clustering in single-level analyses may be the more preferable option when there are 20 or fewer clusters even when DEFF is small and very close to one.

Unfortunately, adjusting for cluster effects makes problematic the calculation of beta scores. The standardised regression coefficients, or beta scores, are typically used in ordinary least squares (OLS) regression to examine the relative effects of the IVs. A beta score refers to how many standard deviations the dependent variable will change, per standard deviation increase in the independent variable, controlling for the other independent variables in the model. There are a number of other statistical procedures for calculating relative effects while adjusting for clustering, such as standardising respondent scores, but each appears to have shortcomings and

no one procedure is widely accepted by the social science statistics community. Therefore, to obtain some insight into the relative effects, we present betas calculated from the unadjusted OLS regressions. This procedure should be followed only when unadjusted regressions and regressions adjusted for clustering are minimally different with regard to their standard errors and p values. An examination of the results found this to be true. This finding came as no surprise based on our earlier analysis of design effects. Thus, in Table 2 we report the unadjusted OLS betas since we have confidence in these and we report the *p* values from regressions adjusted for clustering since these are expected to be the most accurate *p* values. However, for dummy-coded dichotomous variables, Fox (1997) and others have noted that the usual interpretation of standardised estimates (betas) does not apply as they cannot be increased by one standard deviation. Consequently, the dummy variable "role conflict" was included in the regression equations, but beta estimates were not calculated.

Also reported are structure coefficients squared (SCs²; Table 2). Beta weights can lead to erroneous conclusions when *even a small amount* of multicollinearity exists between one or more independent variables (IVs). In these cases, the shared explanatory power for the variation in the dependent variable (DV) is assigned to only one of the two correlated IVs. Consequently, among two correlated IVs, one can appear to have a significant effect and high correlation with the DV while the second can appear to have no significant effect and little correlation with the DV. As Courville and Thompson (2001, p. 231) have noted: "A predictor (IV) may have a large absolute correlation with Y (DV) but have a zero beta weight, if one or more other correlated predictors (IVs) are assigned credit for that predictor's shared explanatory ability." SCs avoid this shortcoming by providing the correlation between an IV and DV that is not reduced by any multicollinearity or shared association with one or more other IVs. If there is no multicollinearity between IVs, then the beta scores and the SCs will be ranked identically with regard to level of association with the DV. On the other hand, if an IV is correlated with one or a combination of other IVs, then its SC ranking may differ substantially from its beta ranking. Tolerance checks of the data revealed no substantial levels of multicollinearity among the independent variables. Nevertheless, SCs can help to identify cases where the association between an IV and the DV is hidden by the IVs correlation with one or more other IVs. Therefore, we chose to include SCs in the analysis. Squaring the SC of an IV provides more intuitive understanding of the relationship between the IV and DV. A squared SC is directly related to the total variation explained by the IV. More specifically, a squared SC provides an IV's contribution to the total variation explained. For example, if an IV's SC² equals .50, this would indicate that the IV accounts for 50 per cent of the total variation explained by all the independent variables. Of course, some, all or none of this contribution could be shared with the other IVs depending on the level of multicollinearity between IVs.

Table 2 presents three regression equations, one for each of the three dimensions of burnout. The coefficient of determination or R^2 provides a measure of "goodness of fit" of a model to the actual

data. That is, the R^2 represents the total amount or percentage of variance explained by the independent variables included in the model. Post hoc power analysis is the statistical power of the test performed based on the effect size estimate from the data (i.e., $f2$). In the current study, the effect sizes of the multiple regressions were .634, .277 and .497 ($f2 = R^2/1 − R^2$). Additionally, the sample size was 312, the alpha level was .05, and there were 12 predictors in the models. Based on these parameters, the probability of finding a statistical difference from 0 (assuming one existed) was 1.0 (or 100% likely).

(to be put in place of the yellow above) Post hoc power analysis is the statistical power of the test performed based on the effect size estimate from the data. In this case, it is the statistical power of the multiple regressions adjusted for clustering. A post hoc analysis of power for each of the three regression analyses found the probability of finding a statistical difference from 0 as 1.0 (100% likely).

5 | RESULTS

DCW respondents had an average age of 37 and their average months of employment was 40 (Table 1). The average score on

TABLE 1 Means and standard deviations for organisational, work design, interpersonal and personal characteristics[a]

Characteristics	Mean	Standard deviation
Emotional exhaustion	2.40	0.776
Depersonalisation	1.68	0.657
Personal accomplishment	3.96	0.525
Organisational		
Resources available	3.70	0.973
Skills and knowledge provided	4.23	0.673
Paid fairly	2.75	1.120
Work design		
Staffed adequately (workload)	2.83	1.000
Role conflict (1 = role conflict)	.32	0.357
Empowered to modify the work	3.04	0.811
Interpersonal		
Management trust	3.43	1.000
Co-worker support	3.64	0.773
Individual		
Age	36.82	12.010
Months of employment	39.65	54.690
Commitment	3.84	0.821
Self-esteem	4.17	0.487

[a]All means and standard deviations were calculated using the same 312 respondents as used to estimate listwise regression coefficients (see Table 2). The higher the mean, the higher the score for the characteristic with all variables ranging from 1 (less of the characteristic) to 5 (more of the characteristic), with the exceptions of age, months of employment and role conflict. For the dichotomous variable, "Role Conflict," the mean is equivalent to the per cent of respondents reporting role conflict.

emotional exhaustion (2.4) was below neutral (3.0 on a 5.0 Likert-type scale) indicating that, as a whole, they tended to not agree with statements that they felt burned out or emotionally exhausted. They were even less likely to agree with statements indicating feelings of depersonalising residents (1.68) and highly likely to agree with statements reflecting feelings of personal accomplishment (3.96). Additional overall employee perceptions of organisational, work design and interpersonal characteristics are provided in Table 1.

Of the three dimensions of burnout, "emotional exhaustion" (EE) is typically the dimension most often associated with burnout with questionnaire items such as "I feel burned out from my work." The variables found to affect EE, in order of magnitude, were self-esteem (beta = −.284, all numbers in parentheses reflect betas unless otherwise indicated), management trust (−.165), fairly paid (−.161), commitment (−.149), months of employment (.129) and age (−.115). Staffed adequately was close to significance (−.102). A beta coefficient could not be calculated for the dichotomous variable "role conflict." While role conflict was found to significantly affect EE, its structure coefficient suggests its association may have been relatively small (SC^2 = .205 and ranked sixth). The coefficient of determination (R^2) suggests that the independent variables explained roughly one-third of the variation (R^2 = .388).

A second dimension of burnout, "depersonalisation," included items such as "I feel I treat some residents as if they were impersonal objects." Self-esteem was again found to explain the most variation (−.328) followed by resources available (.184) staffed adequately (−.160) and empowered (.118). Close to statistical significance was commitment (−.111). The coefficient of determination suggests that the independent variables explained roughly one-fifth of the variation (R^2 = .217). The third dimension of burnout reflected one's feelings of personal accomplishment (PA) with items such as "I feel I am positively influencing other people's lives through my work." Skills and knowledge (.225) explained the most variation in this dimension followed by self-esteem (.217), and resources provided (.212). Other variables close to statistical significance included commitment (.130), staffed adequately (−.115) and empowerment (.113). The independent variables explained roughly one-third of the variation in PA (R^2 = .332).

6 | CONCLUSIONS

The study of burnout suggests that it can be caused by factors found at all levels of the organisation, ranging from broad organisational policies and how the work is designed to interpersonal relationships and characteristics of the employees themselves.

6.1 | Organisational characteristics

Past research suggests that the top managers/administrators of an organisation set policies that can ultimately contribute to a worker's feelings of burnout. These policies include the type of reward system instituted, the amount of training made available and the availability

TABLE 2 Regression models adjusted for clustering examining the effects of organisational, work design, interpersonal and personal characteristics on burnout dimensions

Characteristics	Emotional exhaustion		Depersonalisation		Personal accomplishment	
	Beta (Rank)[a]	SC^2 (Rank)	Beta (Rank)[a]	SC^2 (Rank)	Beta (Rank)[a]	SC^2 (Rank)
Organisational						
Resources available	−.043 (10)	.177 (7)	**.184 (2)****	.001 (12)	**.212 (3)*****	.452 (2)
Skills and knowledge provided	.065 (9)	.037 (10)	−.061 (10)	.127 (4)	**.225 (1)*****	.441 (3)
Fairly paid	**−.161 (3)*****	.276 (4)	.072 (8)	.003 (10)	.048 (7)	.057 (9)
Work design						
Staffed adequately	**−.102 (7)**+	.251 (5)	**−.160 (3)***	.188 (3)	**−.115 (5)**+	.022 (10)
Role conflict (1 = has conflict)	— **	.205 (6)	—	.078 (7)	—	.058 (8)
Empowered to modify the work	.080 (8)	.024 (11)	**.118 (4)***	.003 (10)	**.113 (6)**+	.194 (5)
Interpersonal						
Management trusted	**−.165 (2)** **	.456 (2)	−.015 (11)	.106 (6)	−.019 (10)	.141 (7)
Co-worker support	.026 (11)	.151 (8)	−.094 (7)	.107 (5)	.031 (8)	.175 (6)
Individual						
Age	**−.115 (6)***	.063 (9)	.100 (6)	.045 (8)	.021 (9)	.022 (9)
Months of employment	**.129 (5)****	.002 (11)	.071 (9)	.033 (9)	−.015 (11)	.006 (11)
Commitment	**−.149 (4)***	.389 (3)	**−.111 (5)**+	.219 (2)	**.130 (4)**+	.291 (4)
Self-esteem	**−.284 (1)*****	.491 (1)	**−.328 (1)*****	.564 (1)	**.217 (2)***	.561 (1)
R^2	.388		.217		.332	
Number of cases	312		312		312	
F test	15.829***		6.926***		12.437***	

SC^2, structure coefficient squared; R^2, coefficient of determination.

Level of significance obtained from multiple regressions adjusted for clustering and using a two-tailed test: ***p = <.001; **p = <.01; *p = <.05.; +p = <.10.

[a]Beta scores were obtained from unadjusted OLS regressions because betas cannot be calculated from OLS regressions that are adjusted for clustering. Betas of dichotomous variables are not presented because such variables cannot be increased by one standard deviation.

Betas found to be significant (.05 or less) or near significance (less than .10) are bolded.

of resources that the employees need to do a good job. The current data support these propositions. All three characteristics were found to be associated with one or more dimensions of burnout. The *availability of resources* was positively associated with both depersonalisation and personal accomplishment and these associations appeared to be strong relatively to the other characteristics in the models (Table 2). DCWs who perceived resources available to them, such as supplies and work materials, were more likely to feel personal accomplishment. It is reasonable to suspect that they were able to accomplish more when the needed resources were available and conversely unable to accomplish all their tasks adequately when resources were missing. The availability of resources had a surprising association with depersonalisation. As resources were perceived to be more available, DCWs were more likely to perceive themselves as depersonalising NH residents. Conversely, as resources were perceived as less available, they were less likely to perceive themselves as depersonalising residents. One explanation is that the DCWs, who lacked resources, attributed their depersonalising behaviour to this, rather than their own personal choice to be insensitivity to the residents. In other words, if resources were not always available, the DCW could use this as the rational for their not meeting the needs

of the residents rather than reporting themselves as choosing to be insensitive.

A strong positive association was found between *training*, measured as the perceived level of skills and knowledge provided, and personal accomplishment (PC). It appears that having all the training needed contributes to the DCWs ability to do the job and subsequently have a feeling of PC. This supports the work of Leiter and Harvie (1996) who also found a positive association in their study of mental health workers. They further found a negative association between training and depersonalisation which the current study did not. However, an examination of this relationship (Table 2) does show the beta coefficient in the direction expected, more training was associated with less depersonalisation, but the association was not large enough to reach an acceptable level of significance. On the other hand, the structure coefficient (SC) does show training to rank fourth among the characteristics included in the depersonalisation model. This suggests that the regression model may have attributed some of the association between training and depersonalisation to other characteristics in the model. Other studies that have found a negative association between training and burnout include those by Kubicek et al.

(2012) and Obschonka et al. (2012). Thus, the current study does appear to support these earlier works that concluded adequate training reduces feelings of burnout, particularly considering its personal accomplishment dimension.

Research by Bria et al. (2012), Siegrist (1996) and others have found burnout to be associated with perceived *unfair or insufficient pay*. Bakker et al. (200) have described this relationship within the "effort–reward imbalance model," which proposes that burnout is the consequence of a perceived lack of pay for the amount of effort given. The current data support these previous studies. Fairness of pay included statements such as: "I am fairly paid for the work I do." This organisational characteristic was negatively associated with emotional exhaustion (EE) and found to be one of the most highly associated characteristics both in terms of the beta and the SC. Fairness of pay was not found to be associated with depersonalisation nor with PA.

6.2 | Work design

The work design within a nursing home can vary in many ways including the level of staffing (work overload), role conflicts and DCW empowerment. Perhaps the characteristic most often associated with burnout is work overload or too few employees for the work to be done. When the employee has more work to do than is possible and this occurs on a daily basis, burnout may be the end result. A variety of studies have supported this proposition, and our data offer no exceptions (Dickinson & Wright, 2008; Edward & Hercelinskyj, 2007; Maslach & Leiter, 2008). The perception of *adequate staffing* had a negative association with depersonalisation and a similar association with emotional exhaustion. DCWs who perceived that "There are usually enough CNAs working to do a good job" (statement taken from our study questionnaire) experienced less emotional exhaustion and expressed less depersonalisation. While the significance level for emotional exhaustion was just beyond the .05 level, the SC shows its association was ranked fifth among the characteristics associated with emotional exhaustion, suggesting some shared variance with other characteristics.

Role conflict in the workplace occurs in many forms such as when an employee is unable to perform a particular duty because of other competing responsibilities. Knopp-Sihota et al., (2015), in their study of DCWs in nursing homes, found role conflict to occur when there was not enough time to perform all the assigned tasks. A variety of studies have associated role conflict with burnout (Bria et al., 2012; Knopp-Sihota et al., 2015). As the employee chooses between responsibilities, with some going undone so that others can be accomplished, burnout develops. The current study provides support for this proposition. A major responsibility of DCWs is "to turn the residents in bed when they should be turned" (statement taken from our study questionnaire). DCWs who reported an inability to always perform this task also reported more emotional exhaustion. There was a lack of association with depersonalisation and with personal accomplishment. There was some concern that perhaps there was

some shared association between role conflict and level of staffing since both seem to be associated with time available to complete all required tasks. However, no evidence for this was found. For example, the bivariate correlation between role conflict and staffing was only −.162 (Appendix 2).

The *empowerment of workers* has received a great deal of attention over the past several decades with a variety of positive effects being associated with it (Epp, 2012; Shirom et al., 2010; Yeatts & Cready, 2007). For example, Maslach and Leiter (2008) found employee empowerment to be associated with lower levels of emotional exhaustion among the 466 employees they surveyed. The current study provides conflicting results related to this proposition. DCWs who agreed with statements such as "I sometimes provide solutions to problems at work that are used" (statement from study questionnaire) scored higher on personal accomplishment with the beta coefficient just above the .05 level of significance and the SC ranked fifth among the characteristics included in the model. This supports the proposition by indicating that feelings of personal accomplishment increased as the DCW was empowered to modify the work. On the other hand, DCWs who felt empowered were MORE likely to report feelings of depersonalisation. That is, those who felt they treated some residents in an impersonal way also felt that they had the opportunity to make changes to the workplace. Conversely, those who perceived no choice but to do what they were told were less likely to feel that their actions were a sign of their being insensitive to residents. Perhaps when DCWs are more empowered, they are more likely to report "feeling insensitive" since they are sometimes involved in the decisions that require some level of insensitivity. For example, getting 15 residents up for breakfast by 7:00am may require getting the first one's up at 5:00am so that all 15 are in the dining hall by 7:00. DCWs who feel they contributed to the decision to wake some residents up at 5:00 may feel they are being somewhat insensitive to these residents. On the other hand, those DCWs who have no input to such decisions and were required by their managers to get the residents up at 5:00 a.m. may attribute the insensitivity of this requirement to those who made it a requirement. No association was found between empowerment and emotional exhaustion.

6.3 | Interpersonal characteristics

Some studies have suggested that good interpersonal relationships can help to prevent feelings of burnout. For example, Ramarajan et al. (2008) found that *management support* in the form of respect lowered emotional exhaustion while Skirrow and Hatton (2007) obtained similar positive results, finding it to be associated with fewer feelings of depersonalisation as well as less emotional exhaustion. The current findings provide some support for these previous studies, particularly when considering emotional exhaustion, where a strong negative relationship was found. Employees, who were more likely to agree with statements such as "I can trust the management staff to lend me a hand if I need it" (statement from study questionnaire), were less likely to feel emotional

exhaustion. Further, the strength of this association was ranked second among all the characteristics considered, both in terms of the beta coefficient and the SC. On the other hand, management support was not found to be related to depersonalisation nor personal accomplishment.

Co-worker support is a second interpersonal characteristic that has been found to affect burnout. For example, Leiter and Harvie (1996) found that employees who were assisting women in shelters for battered women were able to reduce their feelings of depersonalisation and increase their feelings of personal accomplishment when they took time to talk with their co-workers about the stressful situations they encountered on the job. The current findings show no support for this proposition. The beta coefficients for the three dimensions of burnout were not significant. Examination of the structure coefficients shows co-worker support to rank fifth with regard to depersonalisation, with the negative effect suggesting that co-worker support may have reduced feelings of depersonalisation. Similarly, the SC is ranked sixth with regard to personal accomplishment with the association in the direction expected, suggesting more co-worker support was associated with more personal accomplishment. However, given that the SCs are relatively small and the beta coefficients do not reach significance, it appears that co-worker support was not associated with burnout or at best only minimally.

6.4 | Individual characteristics

An overview of the individual characteristics considered suggests that they had the largest associations with burnout. *Self-esteem* was ranked first in its association with all three dimensions of burnout. As self-esteem increased, emotional exhaustion and depersonalisation were less and personal accomplishment was higher. This supports the findings of Edwards et al. (2000) who found that mental health workers with high self-esteem appeared to have better relationships with their clients and were better able to empathise with them.

Commitment of the DCW was also highly associated with burnout, having a strong negative association with emotional exhaustion and depersonalisation. DCWs who agreed that they "feel a strong sense of belonging to this nursing home" (statement from study questionnaire) were less likely to report emotional exhaustion or feelings of depersonalisation. Leiter et al. (2010) have reported similar findings and attributed commitment to an energising resource that combats burnout.

Age and *length of employment* are two personal characteristics that have also been associated with burnout. Knopp-Sihota et al. (2015) have concluded that older workers are better able to adapt to the stresses of the workplace because they have had more time to learn what can be done to minimise feelings of stress. They have explained that reducing stress is directly related to reducing feelings of burnout. The current findings support their conclusions. Older workers were less likely to express feelings of emotional exhaustion. On the other hand, no associations were found with depersonalisation or personal accomplishment. Regarding length of employment, Pereira et al. (2011) have suggested that burnout is more likely to occur the longer a person remains in the

same healthcare context such as a nursing home. Bria et al. (2012) attribute this to an accumulation of stress over time. The current study supports this proposition with length of employment having a positive association with emotional exhaustion. No association was found regarding depersonalisation or personal accomplishment.

7 | RELEVANCE TO CLINICAL PRACTICE

It is quite possible that work overload is the factor that most people associate with employee burnout. When there is more work to do than the employee is able to do (work overload) and this condition continues for an extended period of time, feelings of burnout develop. However, past research and the current findings suggest that burnout is more complex than that. As might have been expected, being over worked was found to be positively associated with emotional exhaustion, the dimension most often associated with burnout in general. However, the association between work overload and emotional exhaustion was relatively small in comparison with other characteristics. The current findings suggest that burnout may be the result of factors at various levels of the organisation from the organisational policy regarding fairness of pay to interpersonal factors such as management support and, perhaps most influential, the individual characteristics of the employee, including feelings of self-esteem and commitment to the organisation.

Maslach et al. (1996) have suggested that employee burnout is reflected by not only emotional exhaustion but also depersonalising others and feeling a substantial lack of personal accomplishment. When the concept of burnout is expanded to include these additional dimensions, the factors found to be most highly associated with burnout were individual characteristics along with organisational policies. An examination of the individual characteristics suggests that employees, who had relatively high self-esteem and personal commitment to the organisation, were not only less likely to feel emotional exhaustion but were also less likely to depersonalise others and were more likely to have a sense of personal accomplishment on the job. An examination of the organisational policies suggested that those employees, who were provided all the resources they needed to do the job and were provided all the skills and knowledge needed, were more likely to have a perception of personal accomplishment. Unfortunately, the data do not allow for the testing of causal relationships so that any conclusions in this regard are speculative.

The current findings found the relationship between depersonalisation and the independent characteristics to be less straightforward. One explanation is that the act of depersonalising others is a negative one that employees would prefer to blame on their work conditions rather than their own choosing. However, when the work conditions could not be turned to as a reason for their depersonalising behaviour, then the employee was more likely to admit to it. For example, if the employee had all the resources needed to do the job, this could not be used as a reason for any depersonalising behaviour related to resources, leaving the employee to take ownership of it. Consequently, the availability of resources was positively associated

with the employee's perception that she or he was displaying depersonalising behaviours. Similarly, if employees were empowered to modify the work, they could not as easily blame others for their depersonalising behaviour. Consequently, the ability to modify the work was positively associated with perceived depersonalisation of residents. On the other hand, the association between depersonalising residents and the individual characteristics was straightforward. Employees who had relatively high levels of self-esteem were less likely to perceive themselves as depersonalising others. Similarly, those who had relatively high commitment to the organisation were less likely to perceive themselves as showing depersonalising behaviour.

In sum, characteristics ranging from organisational policies to the individuals themselves were found to be associated with DCW burnout. While the data do not allow for the testing of causal relationships, the significant associations found do suggest possible causal relationships. Providing adequate staffing, perceived fair pay, sufficient work resources (e.g., towels, gowns) and management support may result in lower emotional exhaustion. Adequate staffing may also contribute to the prevention of DCW depersonalisation of residents. An increase in the DCWs' feelings of personal accomplishment may be achieved by empowering the DCWs to modify their work, providing them with the skills and knowledge they need to do a good job, and providing them with the needed work resources. Further, to the extent that DCW self-esteem and commitment to the NH can be increased, emotional exhaustion and depersonalisation may be reduced.

8 | LIMITATIONS OF THE STUDY

There are a number of limitations that should be kept under consideration. This was a cross-sectional study with the data collected at one point in time. Therefore, causal relationships cannot be confirmed. One can have confidence in the associations found but, making causal conclusions, is beyond the ability of the data. The data come from 11 nursing homes in the Dallas-Fort Worth-Denton area in north Texas. The nursing homes and DCWs were not randomly selected from across the United States. Therefore, the data do not allow for generalisations to all DCWs in all NHs in the United States. A factor analysis of 14 statements was conducted in the process of developing measures for the three dimensions of burnout. These statements came from those developed by Maslach et al. (1996). In their previous work, they included 22 statements. While we used their statements found to be most highly associated with the three dimensions or factors of burnout, we did not use all 22 statements. Further, an examination of the Cronbach's alphas for the three dimensions found depersonalisation to be relatively low (.474), which is undesirable but also unavoidable (Appendix 1). On the other hand, the Cronbach's alpha for emotional exhaustion was relatively high (.801). Finally, the analyses did not include all the variables believed to affect burnout. Consequently, the beta weights may be over- or underestimated due to the specification error (also referred to as omission bias).

CONTRIBUTIONS

Study design: DEY, CC; data collection and analysis: DEY, YS, CC, MT, GS; and manuscript preparation: DEY, DA; literature review: DEY, DA.

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REFERENCES

Ahola, K., & Hakanen, J. (2007). Job strain, burnout and depressive symptoms. *Journal of Affective Disorders*, *104*, 103–110. https://doi.org/10.1016/j.jad.2007.03.004

Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2002). Job demands, job resources, and their relationship with burnout and engagement. *Journal of Organizational Behavior*, *15*, 245–260.

Ball, J. E., Murrells, T., Rafferty, A. M., Morrow, E., & Griffiths, P. (2013). 'Care left undone' during nursing shifts: associations with workload and perceived quality of care. *BMJ Quality and Safety*, *23*(2), 116–125. https://doi.org/10.1136/bmjqs-20120001767

Bria, M., Baaban, A., & Dumitrascu, D. L. (2012). Systematic review of burnout risk factors among European healthcare professionals. *Cognitie, Creier, Comportament/Cognition, Brain, Behavior*, *16*(3), 423–452.

Chappell, N. L., & Novak, M. (1992). The role of support in alleviating stress among nursing assistants. *The Gerontologist*, *32*(3), 351–359. https://doi.org/10.1093/geront/32.3.351

Courville, T., & Thompson, B. (2001). Use of structure coefficients in published multiple regression articles. *Educational and Psychological Measurement*, *61*(2), 229–248. https://doi.org/10.1177/0013164401612006

Dickinson, T., & Wright, K. (2008). Stress and burnout in forensic mental health nursing. *British Journal of Nursing*, *17*(2), 82–87. https://doi.org/10.12968/bjon.2008.17.2.28133

Edward, K. L., & Hercelinskyj, G. (2007). Burnout in the caring nurse: Learning resilient behaviours. *British Journal of Nursing*, *16*(4), 240–242. https://doi.org/10.12968/bjon.2007.16.4.22987

Edwards, D., Burnard, P., Coyle, D., Fothergill, A., & Hannigan, B. (2000). Stress and burnout in community mental health nursing. *Journal of Psychiatric and Mental Health Nursing*, *7*(1), 7–14. https://doi.org/10.1046/j.1365-2850.2000.00258.x

Epp, K. (2012). Burnout in critical care nurses. *Dynamics*, *23*(4), 25–31.

Fox, J. (1997). *Applied regression analysis, linear models, and related methods*. Thousand Oaks, CA: SAGE.

Gosseries, O., Demertzi, A., Ledoux, D., Bruno, M. A., Vanhaudenhuyse, A., Thibaut, A., . . . Schnakers, C. (2012). Burnout in healthcare workers managing chronic patients with disorders of consciousness. *Brain Injury*, *26*(12), 1493–1499. https://doi.org/10.3109/02699052.2012.695426

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley Publishing.

Hansen, N., Sverke, M., & Naswall, K. (2009). Predicting nurse burnout from demands and resources in three acute care hospitals under different forms of ownership. *International Journal of Nursing Studies*, *46*, 96–107. https://doi.org/10.1016/j.ijnurstu.2008.08.002

Hirata, H., & Harvath, T. A. (2015). The relationship between exposure to dementia-related aggressive behavior and occupational stress among

Japanese care workers. *Journal of Gerontological Nursing*, 41(4), 38–46. https://doi.org/10.3928/00989134-20141014-01

Hox, J. J. (2010). *Multilevel analysis*. New York, NY: Routledge.

Hox, J. J., & Maas, C. J. M. (2002). Sample sizes for multilevel modeling. In J. Blasius, J. J. Hox, E. de Leeux, & P. Schmidt (Eds.), *Social science methodology in the new millennium: Proceedings of the fifty international conference on logic and methodology (2nd expanded edition)*. Opladen, RG: Leske + Budrich.

Huang, F. L. (2014). Alternatives to multilevel modeling for the analysis of clustered data. *The Journal of Experimental Education*, 84(1), 1–22.

Hudek-Knezevic, J., Maglica, B. K., & Krapic, N. (2011). Personality, organizational stress, and attitudes toward work as prospective predictors of professional burnout in hospital nurses. *Croatian Medical Journal*, 52, 538–549. https://doi.org/10.3325/cmj.2011.52.538

Karasek, R. A. Jr (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285–308. https://doi.org/10.2307/2392498

Khamisa, N., Peltzer, K., & Oldenburg, B. (2013). Burnout in relation to specific contributing factors and health outcomes among nurses. *International Journal of Environmental Research and Public Health*, 10 (6), 2214–2240. https://doi.org/10.3390/ijerph10062214

Knopp-Sihota, J. A., Niehaus, L., Squires, J. E., Norton, P. G., & Estabrooks, C. A. (2015). Factors associated with rushed and missed resident care in western Canadian nursing homes. *Journal of Clinical Nursing*, 24, 2815–2825. https://doi.org/10.1111/jocn.12887

Kubicek, B., Korunka, C., & Ulferts, H. (2012). Acceleration in the care of older adults. *Journal of Advanced Nursing*, 69, 1525–1538.

Lai, M. H. C., & Kwok, O.-M. (2014). Examining the rule of thumb of not using multilevel modeling. *The Journal of Experimental Education*, 1–17.

Laschinger, H. K. S., & Finegan, J. (2005). Empowering nurses for work engagement and health in hospital settings. *Journal of Nursing Administration*, 35 (10), 439–449. https://doi.org/10.1097/00005110-200510000-00005

Leiter, M. P., Gascon, S., & Martinez-Jarreta, B. (2010). Making sense of work life. *Journal of Applied Social Psychology*, 409(1), 57–75. https://doi.org/10.1111/j.1559-1816.2009.00563.x

Leiter, M., & Harvie, P. (1996). Burnout among mental health workers. *International Journal of Social Psychiatry*, 42(2), 90. https://doi.org/10.1177/002076409604200203

Leiter, M., & Maslach, C. (2009). Nurse turnover. *Journal of Nursing Management*, 17(3), 331–339. https://doi.org/10.1111/j.1365-2834.2009.01004.x

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behaviour*, 2, 99–113. https://doi.org/10.1002/(ISSN)1099-1379

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual*, 3rd ed. Palo Alto, CA: Consulting Psychologists Press Inc..

Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *Journal of Applied Psychology*, 93(3), 498–512. https://doi.org/10.1037/0021-9010.93.3.498

Mertler, C. A., & Vannatta, R. A. (2013). *Advanced and multivariate statistical methods*. Glendale, CA: Pyrczak Publishing.

Moustou, I., Montgomery, A., Panagopoulou, E., & Benos, A. (2010). Burnout predicts health behaviors in ambulance workers. *The Open Occupational Health and Safety Journal*, 2, 16–18.

Muthen, B. O., & Satorra, A. (1995). Complex sample data in structural equation modeling. *Sociological Methodology*, 25, 267–316. https://doi.org/10.2307/271070

Obschonka, M., Silbereisen, R., & Wasilewski, J. (2012). Constellations of new demands concerning careers and jobs. *Journal of Vocational Behavior*, 80, 211–223. https://doi.org/10.1016/j.jvb.2011.08.002

Pereira, S. M., Fonseca, A. M., & Carvalho, A. (2011). Burnout in palliative care. *Nursing Ethics: An International Journal for Health Care Professionals*, 18(3), 317–326. https://doi.org/10.1177/0969733011398092

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, 48, 85–112. https://doi.org/10.1016/j.jsp.2009.09.002

Ramarajan, L., Barsade, S., & Burack, O. R. (2008). The influence of organizational respect on emotional exhaustion in the human services. *Journal of Positive Psychology*, 3(1), 4–18. https://doi.org/10.1080/17439760701750980

Ross, R. R., Altmaier, E. M., & Russell, D. W. (1989). Job stress, social support, and burnout among counseling center staff. *Journal of Counseling Psychology*, 360(4), 464–470. https://doi.org/10.1037/0022-0167.36.4.464

Shanafelt, T., Bradley, K., Wipf, J., & Black, A. (2002). Burnout and self-reported patient error in an internal medicine residency program. *Annals of Internal Medicine*, 136(5), 358–367. https://doi.org/10.7326/0003-4819-136-5-200203050-00008

Sharma, A., Sharp, D. M., Walker, L. G., & Monson, J. R. T. (2008). Stress and burnout in colorectal and vascular surgical consultants working in the UK National Health Service. *Psycho-Oncology*, 17, 570–576. https://doi.org/10.1002/pon.1269

Shirom, A., Nirel, N., & Vinokur, A. D. (2010). Work hours and caseload as predictors of physician burnout. *Applied Psychology*, 59(4), 539–565.

Siegrist, J. (1996). Adverse health effects of high effort-low reward conditions. *Journal of Occupational Health Psychology*, 1, 27–41. https://doi.org/10.1037/1076-8998.1.1.27

Skirrow, P., & Hatton, C. (2007). Burnout amongst direct care workers in services for adults with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 202(2), 131–144. https://doi.org/10.1111/j.1468-3148.2006.00311.x

Snijders, T., & Bosker, R. (2012). *Multilevel analysis*, 2nd ed. Thousand Oaks, CA: SAGE.

Spreitzer, G. (1995). Psychological empowerment in the workplace. *Academy of Management Journal*, 38(5), 1442–1465. https://doi.org/10.2307/256865

Tummers, G. E. R., Landeweerd, J. A., & van Merode, G. G. (2002). Work organization, work characteristics, and their psychological effects on nurses in the Netherlands. *International Journal of Stress Management*, 9(3), 183–206. https://doi.org/10.1023/A:1015519815319

Yeatts, D. E., & Cready, C. M. (2007). Consequences of empowered CNA teams in nursing home settings: A longitudinal assessment. *The Gerontologist*, 47(3), 323–339. https://doi.org/10.1093/geront/47.3.323

Yeatts, D. E., & Hyten, C. (1998). *High-performing self-managed work teams: A comparison of theory to practice*. Thousand Oaks, CA: SAGE.

APPENDIX 1

DEPENDENT VARIABLES

Three dimensions of burnout

Emotional exhaustion (.801)

- I feel burned out from my work.

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[1]Numbers in parentheses report the Cronbach's alphas for each concept where an index was created. Nurse aides responded to the statements with either: 1 = Disagree Strongly, 2 = Disagree, 3 = Neutral, 4 = Agree, or 5 = Agree Strongly.

- I feel emotionally drained from my work.
- I feel used up at the end of my shift.
- Working with people all day is really a strain for me.
- I worry that this job is hardening me emotionally.
- I feel residents blame me for some of their problems

Depersonalisation (.474)

- I feel I treat some residents as if they were impersonal objects.
- I don't really care what happens to some residents.
- I've become less sensitive towards people since I took this job.

Personal accomplishment (.602)

- I feel I am positively influencing other people's lives through my work.
- I have accomplished many worthwhile things in this job.
- I deal very effectively with the problems of my residents.
- I can easily understand how my residents feel about things.
- I can easily create a relaxed atmosphere with my residents.

INDEPENDENT VARIABLES: ORGANISATIONAL, WORK DESIGN, INTERPERSONAL, INDIVIDUAL

Organisational characteristics

Resources (.899)

- When working, I usually have all the supplies and work materials I need to do a good job (such as towels, gowns, etc.).
- When I am working, I usually have all the supplies and work materials I need to do a good job (such as towels, gowns, etc.).
- When I need supplies or work materials, I can usually get them (such as towels, gowns, etc.).

Skills and knowledge provided (.689)[2]

- I have all the skills and knowledge needed to do a good job and I use them
- I have all the skills and knowledge I need to do a good job and I use them.

Fairly paid (.815)

- I am fairly paid for the work I do.

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[2]As noted in the methods section, the same question was asked of the respondent, with one located near the beginning of the survey instrument and the other near the end of the instrument. The purpose was to obtain not only the respondents perceived level of skill and knowledge but also to obtain an indication of the respondent's reliability. If respondents did not answer the two questions in a similar direction, they were removed from the analyses given the inconsistency in their responses (e.g., for one statement the respondent agreed or agreed strongly and for the other the respondent disagreed or disagreed strongly).

- I feel I am fairly paid for the work I do.

Work design characteristics

Adequately staffed (.802)

- Usually, we have enough CNAs working to do a good job.
- There are usually enough CNAs working to do a good job.
- Usually, we do NOT have enough CNAs working to do a good job.

Role conflict

- I am NOT always able to turn the residents in bed when they should be turned.

Empowered to modify the work (.724)

- I sometimes provide new ideas at work that are used.
- I sometimes provide solutions to problems at work that are used.
- I sometimes suggest new ways for doing the work that are used.

Interpersonal characteristics

Management trust (.677)

- I can trust the charge nurses I work with to lend me a hand if I need it.
- I can trust the management staff to lend me a hand if I need it.

Co-worker support (.697)

- I have the support that I need from the other nurse aides to do a good job.
- CNAs listen to each other's suggestions for how to do their work.
- I can trust the other nurse aides I work with to lend me a hand if I need it.

Individual characteristics

Age

- Age:_____

Months of employment

- How long have your worked at this nursing home? Years_____ Months_____

Commitment (.726)

- I feel a strong sense of belonging to this nursing home.
- I feel emotionally attached to this nursing home.
- I do NOT feel a strong sense of belonging to this nursing home.

Self-esteem (.570)

- I feel that I am a valuable person, at least as valuable as others.

- I feel that I have a number of good qualities (things about myself).
- I feel I do NOT have much to be proud of.
- I take a positive attitude towards myself.
- At times I think I am no good at all.
- I am able to do things as well as most other people.

APPENDIX 2

BIVARIATE CORRELATIONS OF ALL DEPENDENT AND INDEPENDENT VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Emotional exhaustion	1.000	.313	−.240	−.262	−.120	−.327	−.312	.282	−.096	−.420	−.242	−.156	.034	−.389	−.436
2. Depersonalisation	.313	1.000	−.236	−.012	−.166	−.025	−.202	.130	.025	−.152	−.152	.098	.076	−.218	−.350
3. Personal accomplishment	−.240	−.236	1.000	.387	.383	.137	.086 9	−.13	.254	.216	.241	.085	.062	.310	.432
4. Resources available	−.262	−.012	.387	1.000	.317	.164	.316	−.226	.228	.311	.377	.094	.082	.216	.329
5. Skills and knowledge provided	−.120	−.166	.383	.317	1.000	−.019	.143	−.159	.051	.186	.195	.079	.167	.168	.362
6. Fairly paid	−.327	−.025	.137	.164	−.019	1.000	.230	−.044	.087	.309	.278	.071	.026	.337	.127
7. Staffed adequately	−.312	−.202	.086	.316	.143	.230	1.000	−.162	.090	.411	.291	.070	.102	.307	.182
8. Role conflict	.282	.130	−.139	−.226	−.159	−.044	−.162	1.000	−.019	−.216	−.176	−.041	−.003	−.139	−.224
9. Empowered to Modify the Work	−.096	.025	.254	.228	.051	.087	.090	−.019	1.000	.236	.225	.066	.002	.254	.233
10. Management trusted	−.420	−.152	.216	.311	.186	.309	.411	−.216	.236	1.000	.429	.216	.057	.359	.319
11. Co-worker support	−.242	−.152	.241	.377	.195	.278	.291	−.176	.225	.429	1.000	.030	−.006	.310	.217
12. Age	−.156	.098	.085	.094	.079	.071	.070	−.041	.066	.216	.030	1.000	.400	.135	.067
13. Months of employment logged	.034	.076	.062	.082	.167	.026	.102	−.003	.002	.057	−.006	.400	1.000	.145	.022
14. Commitment	−.389	−.218	.310	.216	.168	.337	.307	−.139	.254	.359	.310	.135	.145	1.000	.387
15. Self-esteem	−.436	−.350	.432	.329	.362	.127	.182	−.224	.233	.319	.217	.067	.022	.387	1.000