

# Predictors of job strain in residential dementia care nursing staff

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## Predictors of job strain in residential dementia care nursing staff

**Aim** To identify predictors of job strain in residential nursing care staff working with people with dementia.

**Background** It is well known that nursing staff experience high levels of stress, but less is known about how to predict job strain.

**Methods** The job strain of nursing care staff ( $n = 344$ ) within residential dementia care settings was assessed. Standard linear regression analysis was used to explore predictors of job strain.

**Result** Data from the study shows that nursing staff in residential dementia care have a demanding job and experience high levels of strain. The linear regression model with four predictor variables explained 19% of the variability in job strain scores. Perceived caring climate of the unit, staff education level, possibilities to have discussions of difficulties and ethics at work and staff age, had a statistically significant association with job strain.

**Conclusions** The caring climate, staff education, reflective practice and staff age can be used as screening variables when predicting job strain.

**Implications for nursing management** These predictors can assist managers and directors to identify targeted strategies for supervision and support of nursing staff to secure their well-being, and by that securing the quality of care provided to residents.

**Keywords:** dementia, job satisfaction, nursing staff

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## Introduction

Nursing staff in residential-aged care settings have a difficult and challenging job. Nursing work is considered to be inherently stressful and stressors associated with nursing include exposure to death and dying, together with frustrated ideals of what one wants and can provide (Decker 1997). Nursing staff stress has been

said to emerge from a combination of high emotional involvement with others and at the same time experiencing a heavy workload (McGrath *et al.* 1989). Studies of nursing staff in residential-aged care have shown that stress was more often reported by younger carers and carers who had been working within aged care for less than 2 years (Zimmerman *et al.* 2005), thus suggesting age and work experience as being two demographic risk

factors for work stress. Also, staff in residential-aged care has been shown to have annual turnover rates of up to 96% (Cohen-Mansfield 1997), and there is a high correlation between turnover rates and perceived job stress (Hinshaw & Atwood 1993).

However, whether or not stress is experienced as strain varies between individuals. It has been suggested that individual factors such as self-esteem, emotional stability, coping skills and extent of social support influence whether stress is experienced as strain (Fagin *et al.* 1996). Also, the extent to which individuals perceive that their situation is comprehensible and meaningful, conceptualized as a sense of coherence, is said to be influential in coping with stress to prevent strain (Antonovsky 1987). Strain has been described to have external and internal dimensions; external dimensions such as lack of support, lack of recognition, or devaluation that fosters internal feelings of irritation, frustration and dissatisfaction (Revicki *et al.* 1991). Burnout is one of the most severe consequences of prolonged strain at work, and can develop when work demands exceed individual capacities for a prolonged period of time (Maslach *et al.* 1996).

The demand/control model (Karasek & Theorell 1990) of job strain is widely used in studies of the relationship between work characteristics and health outcomes. The model postulates that people experiencing high work demands combined with low work control experience job strain, and thus are at risk of adverse health effects. There is ample evidence from research in occupational health that high job strain among workers is associated with increased risks of a multitude of illnesses, for example, coronary heart disease and cardiovascular mortality (Kivimäki *et al.* 2002, Kuper & Marmot 2003). Interventions to reduce staff stress have been tested within dementia care, for example, showing that clinical supervision and reflective practice had positive effects on staff well-being as well as on the care provided to people with dementia (Hallberg & Norberg 1993, Berg *et al.* 1994, Hallberg *et al.* 1994, Edberg & Hallberg 1996, Olsson *et al.* 1998). Such staff interventions have been shown to increase creativity and reduce burnout among staff (Berg *et al.* 1994), reduce experiences of job strain (Hallberg & Norberg 1993), increase comfort and co-operation in the work group (Hallberg *et al.* 1994) and improve knowledge and understanding of the person with dementia and better understanding of colleagues (Olsson *et al.* 1998).

However, even although there is sufficient evidence to say that nursing staff caring for older people with dementia are at risk of experiencing high job strain and

that such high job strain has detrimental health effects, we still do not know enough about factors that can be used to predict job strain among staff. There is a fair amount of research into conducting and measuring effects of interventions for staff, but a dearth of studies exploring predictors of job strain for nursing staff. Identifying such predictors of job strain within this high-risk work group can assist in identifying staff members at risk of experiencing job strain.

## Aim

The aim of this study was to explore predictors of job strain experienced by nursing staff in residential dementia care settings.

## Sample

Data were derived from a larger intervention study exploring the effects of an educational programme for nursing staff. Baseline data from the larger study were used as a sample for this analysis, and the sample consisted of 344 nursing staff within 40 residential care units for people with dementia in northern Sweden. The participating residential dementia care units were small-scale special care units of 6–14 beds, with a mean age of residents of  $82.1 \pm 7.8$  years, of which 245 (71.2%) were women. The sample of nursing staff contained the following characteristics: mostly female staff members (89.9%), with a mean age of  $42.6 \pm 12.1$  years, having a mean work experience of  $15.9 \pm 10.9$  years. 8.2% of the participants were registered nurses division 1, 56.3% registered nurses division 2, and 35.6% personal care attendants. The response rate was 88% ( $n = 346$ ). Descriptive data for the sample are given in Table 1.

## Measures

The self-report demand and control questionnaire (Karasek & Theorell 1990) was used in this study as a measure of the job strain experienced by nursing staff. The job strain model as developed by Karasek and Theorell (1990) is widely used when researching associations between psychosocial characteristics of working environments and human health. As postulated by this model, workers experiencing high job strain have a higher risk of health problems than those with low or no such strain, and published research strongly supports this assumption (Kivimäki *et al.* 2002, Kuper & Marmot 2003). The questionnaire consisted of 17 statements regarding the working characteristics as experienced by the worker, and responses on the scale

**Table 1**Descriptive statistics for all variables and comparisons between staff with high and low job strain ( $n = 327$ )

	High job strain	Low job strain	P-value	Total sample
Cases (n/%)	164/50.2	163/49.8		327/100
Women (%)	150/91.5	147/90.2	0.55	89.9
Age (mean/SD)	42.2/12.1	43.2/11.9	0.45	42.6/12.1
Education % (PCA&Div 2/Div 1)	96.3/3.7	87.2/12.8	<0.01	91.8/8.2
Work experience (mean/SD)	16.8/10.9	15.5/10.8	0.29	15.9/10.9
Knowledge in caring for people with dementia (mean/SD)	71.6/16.7	67.8/19.2	0.06	69.8/18.2
Perceived caring climate (mean/SD)	60.4/23.5	74.5/16.4	<0.01	67.3/21.2
Possibilities to have ethical discussions (%)	97.6	99.4	0.53	98.0
Education at work (%)	72.0	75.0	0.53	73.1

Higher values indicate better perceived knowledge and climate for variables 'Knowledge in caring for people with dementia' and 'Perceived caring climate'.

are given along a four-point Likert-scale ranging from 4 = totally agree to 1 = totally disagree. Five items on the scale concern job demand (e.g. 'My job requires working very fast') and the job demands index is calculated through the sum of response scores. Six items on the scale operationalizes job control (e.g. 'My job requires that I learn new things') and as with the demand scoring, the job control index consisted of summed scores. Lastly, six items of the scale concern social support (e.g. 'I get along well with my work mates'). The social support index was the sum of response scores divided by six. The reliability coefficient (Cronbach's Alpha) of the scale in this sample was 0.49 for the whole scale, 0.29 for demand, and 0.40 for control subscales. The dependent continuous variable job strain were calculated by dividing demand by control scores (cf. Santavirta *et al.* 2007) for all participating nursing staff in the study.

In addition to the demand and control questionnaire, perceived unit caring climate and own knowledge in caring for people with dementia were determined using two 100-mm visual analogue scales, ranging from 'Very Bad' to 'Very Good' and from 'Greater knowledge' to 'Lesser Knowledge', respectively. Questions regarding to what extent staff had possibilities to discuss difficulties and ethical conflicts at work, and whether they had had workplace-based education or not provided additional data. Demographical data were also collected.

## Analysis

First, data were separated into two groups of high and low job strain using a median split of job strain as a continuous variable. The responses on the job strain scale were then compared between high and low job strain groups. Staff characteristics such as gender, age, education, length of work experience, knowledge in

caring for people with dementia, and perceived caring climate, possibilities to have discussions regarding difficulties and ethical conflicts at work, and workplace-based continuous education were also compared between the high and low job strain groups.

Second, bivariate correlation analyses were performed to explore associations and strengths of the associations between independent variables and the dependent variable job strain for further inclusion in a regression model. To be included in the final linear regression model, variables needed to be significantly associated with job strain. Third, a multiple regression model was constructed to evaluate its explanatory contribution of the sample variance in job strain for nursing staff. Bivariate correlation coefficients between the predictor variables were calculated to ensure that predictors were not highly interrelated.

In addition to descriptive statistics, Pearson's product-moment correlation was used to examine relationships between variables,  $\chi^2$  statistic was employed to examine differences between dichotomized variables, independent Student's *t*-test was employed on scale variables, and multiple linear regression analysis was employed to identify predictors of job strain for nursing staff. *P*-values of 0.05 or less (two-tailed) were considered statistically significant. SPSS for Windows (Version 11.0) was used to analyse all data (SPSS Inc., Chicago, IL, USA).

## Ethics

The study had approval by the Ethics Committee of Umeå University, Sweden (§92/02, No. 02-105).

## Results

As shown in Table 2, it was found that for job demands, a majority of participating nursing staff

**Table 2**Comparisons between high and low job strain staff responses to work demand and work control ( $n = 328$ )

	High job strain ( $n = 164$ ) approved (%)	Low job strain ( $n = 164$ ) approved (%)	P-values	Total sample ( $n = 344$ ) approved (%)
Work demand variables				
My job requires working very fast	95.1	73.8	<0.001	84.4
My job requires working very hard	94.5	56.1	<0.001	75.9
My job requires a too high work effort	92.1	51.8	<0.001	72.4
I have enough time to accomplish the work	46.3	8.5	<0.001	27.3
There are often conflicting demands in my work	87.8	47.0	<0.001	67.5
Work control variables				
My job requires that I learn new things	62.2	89.0	<0.001	75.7
My job requires skills	95.7	98.2	0.168	96.8
My job requires creativity	98.2	100.0	0.124	99.1
My job means doing the same thing over and over again	3.0	7.9	0.044	5.2
I have the freedom to decide how to accomplish my work	76.8	98.2	<0.001	86.9
I have the freedom to decide what to accomplish my work	61.6	84.1	<0.001	72.7

agreed that their job required working very fast and hard (84.4% and 75.9%, respectively), that a slight majority agreed that their job required too much high effort (72.4%), that there were often conflicting demands in their work (67.5%), and that they did not have enough time to accomplish their work (27.3%). The results also show that in relation to work control, a majority of respondents agreed that their job required learning new things (75.7%), required skills (96.8%) and creativity (99.1%), and most agreed that they have the freedom to decide how to accomplish (86.9%) and what to accomplish (72.7%) in their work. Furthermore, when looking at statements from respondents in the high job strain group, it becomes evident that they reported significantly more frequent high work demands in all variables ( $P < 0.001$ ) and significantly less low work control in four out of the six variables ( $P < 0.05$ ) (Table 2).

As illustrated in Table 2, staff reporting high and low job strain was to a large extent similar and comparable. However, the groups differed in relation to some variables, the group of staff reporting higher job strain consisted of a significantly greater proportion of less educated nursing staff ( $P < 0.01$ ), who perceived the caring climate at their workplace as being significantly less positive ( $P < 0.01$ ) than nursing staff reporting lower job strain.

To explore the strength of the association between independent variables on the dependent variable job strain, and also to select variables for inclusion in the regression model, bivariate correlation analyses were performed. These revealed that a caring climate perceived as more negative was associated with higher job strain ( $r = -0.39$ ,  $P < 0.01$ ), that younger carers were associated with higher levels of job strain ( $r = -0.13$ ,

$P < 0.05$ ), that lower education was associated with higher job strain ( $r = -0.15$ ,  $P < 0.01$ ), and that fewer possibilities to have discussions of difficulties and ethical conflicts at work were associated with higher job strain ( $r = -0.12$ ,  $P < 0.05$ ). Furthermore, analyses revealed that the following independent variables were not significantly associated with job strain in the sample: self-reported knowledge of caring for people with dementia ( $r = 0.03$ ,  $P = 0.59$ ), workplace-based education ( $r = -0.08$ ,  $P = 0.17$ ), gender ( $r = -0.06$ ,  $P = 0.51$ ) and work experience ( $r = 0.07$ ,  $P = 0.19$ ).

A multiple regression model was constructed to explore predictors of job strain for nursing staff. The model consisted of the following four predictor variables meeting the inclusion criteria of being significantly associated with the criterion variable job strain: perceived caring climate of the workplace, staff age, education, and possibilities to have discussions of difficulties and ethical conflicts at work. The continuous variable job strain was set as the criterion variable. As presented in Table 3, bivariate correlation coefficients showed that one out of the 9 correlations between predictor variables were statistically significant and correlation coefficients ranged from  $-0.11$  to  $0.09$ . Thus, none of the correlations among the predictors were high enough to cause the problem of multicollinearity in the regression model.

The linear regression model with four predictor variables explained 19% of the variability in job strain scores. The caring climate of the unit had the largest independent association with job strain ( $B = -0.359$ ), followed by staff education ( $B = -0.135$ ), possibilities to have discussions of difficulties and ethical conflicts at work ( $B = -0.113$ ) and staff age ( $B = -0.108$ ). All predictor variables had a statistically significant association

**Table 3**  
Bivariate correlations between the predictor variables ( $n = 344$ )

Predictors	Climate	Age	Education
Climate			
Age	0.08		
Education	0.06	0.07	
Ethics	0.09	0.01	-0.11*

\* $P < 0.05$ .

**Table 4**  
Summary of standard multiple regression analysis for variables predicting job strain ( $n = 344$ )

Variable	B	SE	Beta	T	Sig
(Constant)	1.306	0.095		13.738	<0.001
Climate	-0.003	<0.001	-0.359	-6.997	<0.001
Age	-0.002	0.001	-0.108	-2.118	0.035
Education	-0.088	0.033	-0.135	-2.622	0.009
Ethics	-0.163	0.075	-0.113	-2.175	0.030

$R = 0.43$ ,  $R^2 = 0.19$ , Adj  $R^2 = 0.18$ .

( $P < 0.05$ ) with job strain in the multiple regression model (Table 4).

## Discussion

Data from this study support the view that nursing staff in residential dementia care settings have a demanding job as 72.4% of the sample reported that their job required too high an effort, 67.5% that there were conflicting demands in their work and 72.7% of the total sample reported that they did not have enough time to accomplish their work. Furthermore, when selecting the responses from staff experiencing high job strain according to the demand/control model, those numbers increased significantly. On the positive side, a vast majority of participants both in the total sample and in the high strain group agreed that their job required skills and creativity.

When it comes to predicting job strain, all four variables in the regression model were significant predictors and the whole model explained 19% of the variability in job strain scores of nursing staff in the sample. Based on the beta coefficients, the component with the strongest association with job strain in the regression model tested was the variable perceived caring climate of the unit. This variable had the strongest unique association with job strain when all the other variables in the model were controlled for. One interpretation of this result is that the caring climate of units can be used as a quick and practice friendly screening measure for the risk of job strain in staff. This

finding provides statistical support to recent arguments that the emotio-cultural environment (the caring climate) is important to whether nurses are content and satisfied in their work (Jasper 2007). In line with further arguments that nurse managers are expected to have an understanding of how their staff experience their working environment (Jasper 2007), this study suggests that ratings on a visual analogue scale for perceived caring climate of units can be used both to interpret staff perceptions of the emotio-cultural environment at the unit, and screen for job strain risks to provide managers with that understanding. Understanding how staff experience their working environment is clinically relevant from several perspectives as job satisfaction is associated with staff retention (Hinshaw & Atwood 1993, McCarthy *et al.* 2007) and burnout (Maslach *et al.* 1996), the quality of care for residents (Norbergh *et al.* 2002, Pekkarinen *et al.* 2006) and with physical health of staff working in these environments as well (Kivimäki *et al.* 2002, Kuper & Marmot 2003).

The second strongest variable associated with job strain was the level of education among staff. Lower education was a significant predictor of job strain. These findings support the results of Zimmerman *et al.* (2005), who found that more educated workers were more likely to report dementia-sensitive attitudes. This finding is perhaps not surprising as having skills and knowledge in any work environment provides workers with a degree of control and confidence. This might be especially important in dementia care environments where lack of staff knowledge can in fact contribute to cause and/or exacerbate the residents' behaviour which staff find stressful. In an Australian study (Nay & Closs 1999), it was reported that staff who felt sufficiently educationally prepared reported greater satisfaction working in dementia units than those without specific education.

The component with the third strongest association to job strain was opportunities to have discussions of difficulties and ethical conflicts at work. This finding also supports previous studies, as it has been shown that over 30% of nursing staff were dissatisfied in that there were not enough opportunities at work to discuss the psychological stress of the job (Brodsky *et al.* 2003) and that providing nursing staff with the opportunity to reflect on practice has benefits on their well-being as well as on the care provided to residents (Hallberg & Norbergh 1993, Berg *et al.* 1994, Hallberg *et al.* 1994, Edberg & Hallberg 1996, Olsson *et al.* 1998). The strength of such reflective sessions has been described as providing staff with opportunities to narrate their own reasoning as well as listening to others, something that

can tease out thinking, perspectives, strategies and solutions new to the individual staff member and by that widen the individual's basis of caring (Schön 1983). Thus, there is substantial evidence indicating the benefits of providing space in everyday work for conducting reflective sessions with staff.

It was also found that age of nursing staff was a significant predictor of job strain. Even although age was the fourth and weakest component of the model it still made a significant contribution, indicating that younger age in nursing staff was associated with higher job strain. Zimmerman *et al.* (2005) also found that younger staff reported stress more often than older staff, but also that younger staff with less work experience were more likely to espouse hopeful or person-centred attitudes towards the resident in comparison to their older colleagues. Furthermore, nursing home staff have reported that when feeling overwhelmed by workload and lack of time they felt forced to lower their standards and goals, something that evoked a troubled conscience (Hagstrom 2005). Such stress of conscience has been linked to burnout within nursing (Juthberg *et al.* 2007), and being attentive to staffs' feelings of troubled conscience has been described as important in preventing burnout in health care (Glasberg *et al.* 2007). One possible interpretation of these findings are that young nursing staff with high standards, goals and expectations (Zimmerman *et al.* 2005) might find work so strained and demanding that they are not able to live up to their own expectations, and by that develop a stressed conscience and risks for burnout. Is it possible that the practice settings these new staff members enter are infused with traditional medical models of care, task orientation and lack of person centredness which drains their views of residents as persons and their enthusiasm? Further research is needed. However, it seems to be of utmost importance to provide continuous support and a nurturing environment for young and less educated staff to prevent experiences of job strain, stress of conscience and fading of their person-centred views. There is evidence to suggest that the establishment of a person-centred philosophy of care is paramount for the integration and provision of person-centred care, and that managers are in a key position to initiate the development of person-centred care and to keep this alive through continuous discussions (Edvardsson *et al.* 2005, Brooker 2007). The job strain scores found in this sample seems somewhat higher than previously found in health care staff (e.g. Escriba-Aguir *et al.* 2006). One possible interpretation is that people with dementia are challenging to care for, and working with this clientele might be more strenuous than with other diagnoses in

health care. Further comparative studies would be valuable.

## Conclusions

Four significant predictors of job strain were discovered, perceived caring climate of the unit, staff education, the extent to which staff had opportunities to have discussions of ethics at work and staff age. These variables can assist nurse managers and directors of nursing to identify targeted strategies for supervision and support of nursing staff. As it has been shown that work satisfaction among staff is a prerequisite for positive attitudes towards dementia care and exhibiting a person-centred view (Zimmerman *et al.* 2005), and also that staff and resident well-being are associated (Norbergh *et al.* 2002, Pekkarinen *et al.* 2006), preventing experiences of high job strain among staff may be of utmost importance for managers in securing the well-being of their staff as well as securing the quality of care provided to residents in their units.

## Limitations

This study aimed to explore predictors of job strain for nursing staff in residential dementia care. The whole regression model explained 19% of the variability in job strain scores of nursing staff in the sample. From these results it appears that there are a number of other factors not accounted for by this model that are also associated with job strain among nursing staff. Thus, further research is needed to expose additional factors that can be used to predict job strain in nursing staff caring for people with dementia. The reliability coefficient (Cronbach's Alpha) of the demand and control questionnaire and its subscales ranged from 0.49 and 0.29 in this sample, as compared with previous reported reliability values exceeding 0.65 for the scale and subscales in French and Finnish versions (Niedhammer 2002, Santavirta 2003). Thus, there seems to be a need for further psychometric evaluation for reliability of the Swedish language demand and control questionnaire between samples.

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