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ORIGINAL PRACTICE DEVELOPMENT AND RESEARCH

The role of working environment and employee engagement in person-centred processes for older adults in long-term care services

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Abstract

Background: Assuring high-quality, person-centred practice in long-term care organisations requires attention to the wellbeing of the staff who deliver it – a factor sometimes overlooked amid the increasing challenges such organisations confront internationally. Research has shown that job demands and job resources are distinct aspects of the working environment that interact in predicting staff wellbeing and motivation. Work engagement can serve as a means to improve job motivation and performance, and also potentially facilitates activities that operationalise person-centred practice.

Aims: To explore the influence of job demands and job resources on work engagement and person-centred processes, and examine whether engagement moderates or mediates the effects of demands and resources on person-centred processes.

Method: A cross-sectional survey design with standardised self-report questionnaires was used to collect data on job resources, job demands, work engagement and person-centred processes from 128 registered nurses and nursing assistants in municipal care homes and nursing homes for older adults in Norway.

Findings: Both work engagement and person-centred processes were positively associated with job resources. There was no significant negative association between person-centred processes and job demands. Work engagement was neither a significant moderator nor a mediator between job resources and person-centred processes.

Conclusions: Enhancing job resources for nursing staff can positively impact their work engagement and support person-centred processes. In contrast to predictions by the dominant Job Demands-Resources (JD-R) model, work engagement did not moderate nor mediate the influence of job resources on person-centred processes.

Implications for practice:

- Providing job resources such as meaningful tasks, colleague fellowship, development and autonomy is important to enhance nursing staff's work engagement
- Improving organisational and psychosocial working conditions could build an organisational culture that is favourable for person-centred processes
- Building a supportive working environment within long-term care organisations is strategically important to resource-efficient delivery of person-centred care

Keywords: Work engagement, working environment, Job Demands-Resources model, person-centred processes, long-term care, health promotion

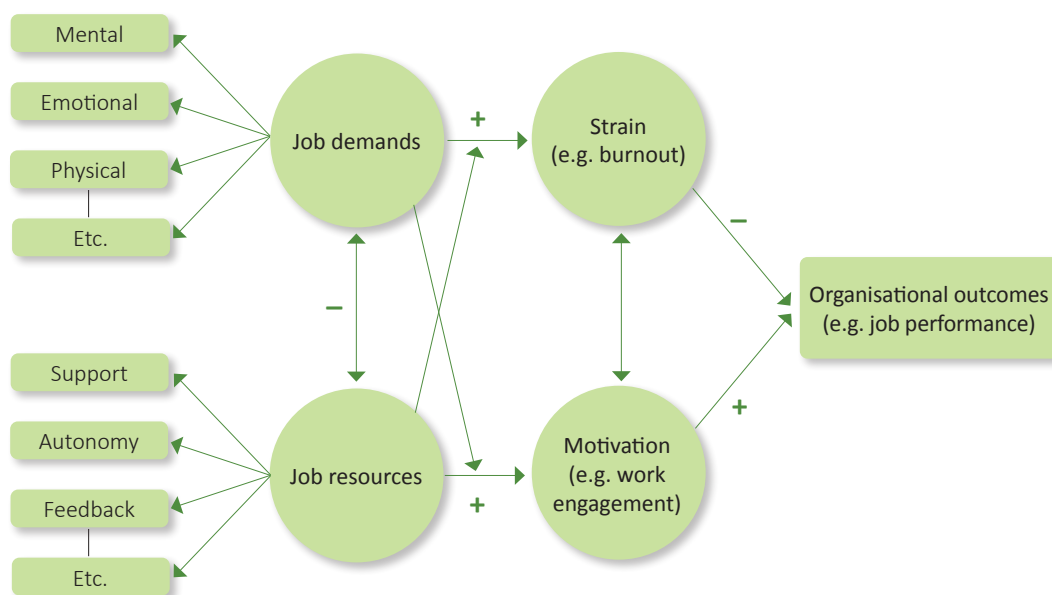
Introduction

A global trend towards population ageing is increasing the number of people living with chronic diseases and/or functional and mental health conditions, highlighting the need to boost capacity for the provision of long-term care and responsive services that match the preferences and needs of their users (Brodsky et al., 2002; World Health Organization, 2016). More resources directed towards healthcare can address the ongoing problems of high turnover rates among nurses, skill-mix imbalances and the fact that a large proportion of the physician and nursing workforce is nearing retirement (Wells and Norman, 2009; Hayes et al., 2012; World Health Organization, 2016). Although the supply of healthcare personnel in Norway is high compared with other European countries, a continuing growth in demand for qualified staff in long-term caregiving organisations is forecast (Norwegian Directorate of Health, 2017; Grødem, 2018; Sperre Saunes et al., 2020). Assessments of the adequacy and continued development of long-term care services in Norway have made the provision of person-centred care a major concern of organisational strategy (McCormack et al., 2015). Meeting the demands of high-quality healthcare while addressing the challenges of rising costs, a shortage of nursing staff, high rates of sickness-related absenteeism and a high proportion (25%) of non-licensed assistant personnel, have accelerated the need to improve organisational functioning and make more efficient use of human resources in long-term care services in Norway (Grødem, 2018; Sperre Saunes et al., 2020).

Engaging the self and personal qualities is vital in person-centred care and, correspondingly, developing an institutional culture that attends to staff wellbeing is key (McCance and McCormack, 2017; Midje et al., 2021). Work engagement is defined as ‘...a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption’ (Schaufeli et al., 2002, p 74). Within healthcare, engagement should be recognised as a multilevel construct of cognition, knowledge and behaviour, and as a process manifesting at intrapersonal, interpersonal and group levels (Dewing and McCormack, 2015; Midje et al., 2021). Work engagement and work-related wellbeing are positively associated with occupational commitment and negatively associated with turnover and turnover intentions among registered nurses and nursing assistants in hospitals (Laschinger, 2012; Shahpouri et al., 2016; De Simone et al., 2018) and long-term caregiving organisations (Rosen et al., 2011; Hara et al., 2021). Further, engagement is positively associated with job satisfaction (Bailey et al., 2017), work effectiveness (Laschinger et al., 2009), patient satisfaction (De Simone et al., 2018) and patient quality of care (García-Sierra et al., 2016; Keyko et al., 2016; Wee and Lai, 2021). Given that research has linked the practice environment to work engagement, targeted efforts to build working environments aimed at raising levels of engagement seem beneficial for employees, organisations and patients alike (Schaufeli and Taris, 2014; García-Sierra et al., 2016).

Bailey and colleagues (2017) suggest work engagement is most often explained in the context of the Job Demands-Resources (JD-R) model and theory (Bakker and Demerouti, 2007; 2017). Originally, the JD-R model was used to explain antecedents of the two burnout dimensions – exhaustion and disengagement from work (Demerouti et al., 2001). Later, the model was revised to be a more comprehensive framework for work-related wellbeing, treating burnout as a unitary construct by including its positive counterpart, namely engagement (Schaufeli and Bakker, 2004). In this new form, which retains the JD-R’s basic schema as its core, the model is considered well-suited for assessing employee wellbeing across various jobs and organisations (Lesener et al., 2019).

Figure 1: The Job Demands-Resources model (Bakker and Demerouti, 2007)



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The JD-R model (Figure 1) posits that job demands and job resources are two distinct categories of working environment conditions, with differential relationships to burnout and engagement (Bakker and Demerouti, 2007; Bakker et al., 2014). Burnout results from high demands and inadequate levels of resources. Job demands (such as physical demands, workload and work pressure) require sustained physical and mental effort and therefore relate to burnout and health impairment through energy depletion and exhaustion (Demerouti et al., 2001; Bakker et al., 2005; Bakker and Sanz-Vergel, 2013; van den Broeck et al., 2017). Job resources (such as autonomy, social support, performance feedback and role clarity) buffer the impact of job demands, facilitate employees' learning and development, and serve as a means to achieve work goals (Bakker and Demerouti, 2017). Job resources activate a motivational process, which results in work engagement, which, in turn, helps workers and organisations function at a high level (Bakker et al., 2014; Bakker and Demerouti, 2017). On the JD-R model, engagement – as a positive affective-motivational state – is presumed to mediate the effects of job resources on organisational outcomes (Schaufeli and Taris, 2014) – such as person-centred care, when set as a fundamental standard to achieve.

By operationalising the theoretical concepts of prerequisites, care environment, care processes and person-centred outcomes by the constructs that constitute them, the Person-centred Practice Framework (McCance and McCormack, 2017) gives guidance on how to develop person-centred cultures that ensure sustainable practices that support person-centredness for both patients and staff (Edgar et al., 2020). The job resources identified by the JD-R theory, as mentioned above, match some of the constructs that comprise 'the care environment' in the Person-centred Practice Framework, such as effective staff relationships, power sharing, supportive organisational systems, potential for innovation and risk taking, and shared decision-making systems (McCance and McCormack, 2017). In residential care units for older people, there is evidence of an association between staff's perception of the organisational and psychosocial working environment and the quality of person-centred care (Sjögren et al., 2014, 2017). Equally, the findings of Kvæl and Bergland's study (2021) with older adults, their relatives and healthcare professionals in intermediate care in Norway show the practice environment is vital for optimal person-centred care. Recently, the results of a multidisciplinary study by McCance and colleagues (2021), statistically supported the Person-centred Practice Framework, and thus also confirmed the Person-Centred Practice Inventory – Staff (PCPI-S; Slater et al., 2017) to be a valid tool for accurate measurement of the constructs relevant to achieving this standard of care.

In their review of research conducted among registered nurses, mainly in a hospital setting, Keyko and colleagues (2016) concluded that research on the antecedents of work engagement is more common than research on outcomes of engagement. They point to the need for more global research on the influencing factors and the organisational and patient-related outcomes of nurses' work engagement across broader practice settings and within various organisations. In a meta-analysis of longitudinal studies on the JD-R model, Lesener and colleagues (2019) call for more such research and studies that also examine staff wellbeing as a mediator in relation to working environment conditions and different positive and negative outcomes.

Abdelhadi and Drach-Zahavy (2012) found that nurses' work engagement mediates the relationship between staff's socially shared service climate perceptions and their observed patient-centred care behaviours. Based on interviews with healthcare workers in long-term care services in Norway, Midje and colleagues (2021) concluded that work engagement both influences and is influenced by factors related to the attributes of staff and the care environment, and thus improves staff ability to engage in person-centred processes; this study follows up that 2021 study. To the best of the authors' knowledge, this is the first study to use the PCPI-S (Slater et al., 2017) to measure care processes and to explore the influence on them of job resources and job demands via investigating work engagement as one possible underlying mechanism.

Aims

This study aimed to explore the relationships between working environment conditions (job resources and job demands), work engagement and person-centred processes among nursing staff in municipal long-term care services in Norway. It uses the terms 'person-centred processes' and 'care processes' interchangeably; by 'care processes' the authors are focusing on them with respect to the essential principles for person-centred practice. Based on previous research and theory, the following hypotheses were advanced:

- Hypothesis 1: Job resources have a positive association with care processes
- Hypothesis 2: Job resources have a positive association with work engagement
- Hypothesis 3: Job demands have a negative association with care processes

Midje and colleagues (2021) concluded that work engagement improves nursing staff's ability to engage in person-centred processes but did not report on whether this was a direct, moderated or mediated effect. Through three additional hypotheses, this study set out to investigate care processes as an outcome of work engagement and consider how the level of job resources impacts care processes through engagement:

- Hypothesis 4: Work engagement has a positive association with care processes
- Hypothesis 5: Work engagement moderates the effects of job resources on care processes
- Hypothesis 6: Work engagement mediates the effects of job resources on care processes

Method

Setting and participants

This cross-sectional study took place in a municipality in southeastern Norway and was conducted in care services providing long-term stays for people living with complex and/or chronic health conditions. Study participants were a multidisciplinary sample of nursing staff – registered nurses and licensed and non-licensed nursing assistants – all drawn from selected units of nursing homes and care homes. In Norway, nursing homes are institutions offering private rooms and full-time assistance and healthcare services to older people (>67 years), often with a diagnosis of dementia (Grødem, 2018). Care homes are sheltered homes targeted at older persons and/or persons who have a disability (>18 years) and have round-the-clock caring needs (Grødem, 2018). The term 'older adults' is used as a shorthand to refer to the residents in both settings, because older adults so heavily outnumbered younger persons with a disability.

In Norway, the municipalities are responsible for the organisation of primary care and social services, and also for the financing through co-payments with the National Insurance Scheme, municipal general tax revenue, earmarked state block grants and, to some extent, user payments (Grødem, 2018; Sperre Saunes et al., 2020). The nursing homes and care homes included in this study were all nonprofit and owned and managed by the local municipal government. Although ranging in institutional size from 44 to 100 beds, the featured working units were quite similar in terms of resident characteristics (that is, mostly involved with elderly populations with complex health challenges) and organisational factors, such as staffing, skill-mix, daily management and service routines, and environment.

Recruitment and data collection

This study used (baseline) data collected from December 2019 to February 2020 during an interventional study to conduct an effect- and process-evaluation of a group-based course programme for increased work engagement. In collaboration with the director of the municipal department of health, a sample of nursing staff from six institutional care services, representing four working units in nursing homes and two in care homes, were purposively selected to participate in the interventional study. Inclusion criteria at unit level were: i) experiencing various working environment challenges and high sick leave, ii) the local management and the unit's union and safety representatives agreeing on the need for assistance, iii) not having previously participated in the work engagement intervention, and iv) currently not undergoing any other group-based interventions. Inclusion criteria at the individual level were: i) having permanent employment or a fixed-term contract, ii) working in at least a quarter-time position, and iii) being willing to participate.

In a plenary meeting with all the local senior and middle managers and unit union and safety representatives, the first author (HHM) described the project, supported by a visual presentation. All invited working units agreed to participate. Some weeks later, all employees were invited to a meeting for each participating unit to be informed about the project, to have their questions answered and to complete a self-report paper-based questionnaire. The first author distributed the questionnaires and was physically present throughout to offer help in answering them, together with a co-worker from the health and safety service. The questionnaires were completed anonymously and submitted in sealed envelopes.

Sample size

Of 130 employees invited to participate in the interventional study, 128 agreed. Nevertheless, in March 2020, that study had to be terminated because of the outbreak of the Covid-19 pandemic in Norway. It was decided to use the (baseline) data already collected as the basis of a cross-sectional study. Consequently, a traditional power analysis was not performed for the present study. However, based on the set sample size of 128 individuals, the number of independent variables included in the planned statistical analysis was assessed by the formula $n > 50 + 8m$ (where m equals the number of independent variables) devised by Tabachnick and Fidell (2019). According to this formula, the sample size was sufficient to investigate a regression model with five variables.

Measures

Demographic factors

Information about sex, age, profession, employment status, position (full or part time) and tenure (years at the current facility) was collected.

Working environment conditions

Organisational and psychosocial conditions in the working environment were assessed by a selection of variables from KIWEST 2.3, an instrument aimed for use in workplace interventions and in research (Innstrand et al., 2015; Undebakke et al., 2015). KIWEST is developed in a Norwegian university setting and has proven valid and reliable psychometric properties (Innstrand et al., 2015). The theoretical underpinning of the measure is the Job Demands-Resources (JD-R) model (Bakker and

Demerouti, 2007; Bakker et al., 2014). KIWEST covers a selection of well-known job demands and job resources and is based on previously validated and standardised European and Nordic measures, such as the Copenhagen Psychosocial Questionnaire (COPSOC II; Pejtersen et al., 2010) and the Nordic Questionnaire on Positive Organisational Psychology (N-POP; Christensen et al., 2012). The selection of variables from KIWEST 2.3 was based on the most regularly included variables in research testing the JD-R theory.

Job resources included in the present study are: work being meaningful, social community, investment in development and job autonomy. Job demands included are: illegitimate work tasks, role conflict and role overload. All resources and demands were developed as individual variables (construct level) and included in a composite measure (concept level), and analysed accordingly. Items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Work engagement

Work engagement was measured using the Norwegian version of the nine-item Utrecht Work Engagement Scale, UWES-9 (Schaufeli et al., 2002, 2006; Nerstad et al., 2010). UWES-9 is the most-used measurement of work engagement (Bailey et al., 2017) and consists of three items for each of its three constituent constructs – vigour, dedication and absorption. Items were scored using a seven-point Likert scale, ranging from 0 (never) to 6 (daily). As recommended by Schaufeli and Bakker (2010), the analysis included all nine items in a composite measure (concept level).

Person-centred processes

The Norwegian translation and cultural adaptation of the Person-centred Practice Inventory – Staff, PCPI-S (Bing-Jonsson et al., 2018), was used to assess person-centred processes. Aligned with the Person-centred Practice Framework by McCance and McCormack (2017), the 59-item PCPI-S tool is developed to measure 17 essential constructs for the provision of person-centred care among healthcare workers across a range of settings. These constructs pertain to the following three concepts of the Person-centred Practice Framework: prerequisites, care environment and care processes. In this study, only the 16 items constituting the five constructs of care processes – working with patients' beliefs and values, shared decision making, engagement (that is, engaging authentically in the person), sympathetic presence and holistic care – were included in the statistical analysis. All items in the PCPI-S are measured on a five-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). The five constructs of care processes were developed as individual variables (construct level) and included in a composite measure (concept level) and analysed accordingly.

Statistics

Scale means were used as construct indicators. Negatively framed items were reversed before the calculation of scale means. The overarching concept levels – job resources, job demands, work engagement and care processes – were calculated by averaging across scale means for each of their constituent constructs. Within the total data material, there were just three missing items. Only participants with complete data were included when calculating the mean scores and conducting the data analyses. Data were analysed using IBM's Statistical Package for the Social Sciences (SPSS) version 28.0. A simple moderation and mediation model was tested by using the macro called PROCESS 4.0 for SPSS (Hayes, 2018).

Ethics

The research was conducted according to the Helsinki Declaration (World Medical Association, 2017) and approved by the Norwegian Centre for Research Data and the municipality's data protection officer. The study was set to adopt the values and methods for doing person-centred research (McCormack, 2003). This included, for example, the first author being open to the participants about her intentions and motivations for the study, attentive and committed to dialogue, and sensitive to the context of practice (McCormack, 2003; Jacobs et al., 2017). Participation in the study was strictly voluntary and

signed informed consents were collected. Participants were guaranteed confidentiality and anonymity during the whole process and informed about their right to withdraw from the study at any time and without consequences. Participants were informed by the local management about the change from an interventional study to a cross-sectional survey. With the first author working as a health and safety consultant in the municipality, the participating nursing staff were assured of onsite support in acting on results of the survey.

Results

Descriptive data

The demographic characteristics of the total sample are presented in Table 1.

Table 1: Demographic characteristics of total sample of nursing staff (n=128)	
Gender	<ul style="list-style-type: none"> • Female: 105 (82%) • Male: 23 (18%)
Age (years)	<ul style="list-style-type: none"> • <30: 16 (13%) • 30-39: 38 (30%) • 40-49: 34 (27%) • 50-59: 29 (23%) • >60: 11 (9%)
Profession	<ul style="list-style-type: none"> • Registered nurses: 43 (34%) • Licensed nursing assistants: 60 (47%) • Non-licensed nursing assistants: 25 (19%)
Employment status	<ul style="list-style-type: none"> • Permanent: 122 (95%) • Temporary: 6 (5%)
Position (full or part time)	<ul style="list-style-type: none"> • 100 per cent: 68 (53%) • 50-99 per cent: 50 (39%) • 25-49 per cent: 10 (8%)
Tenure (years)*	<ul style="list-style-type: none"> • <5: 33 (26%) • 5-9: 43 (34%) • >10: 52 (41%)
<i>Percentages rounded to the nearest whole number</i>	

Table 2 presents all items and variables included in the analysis of the study. To describe the sample and assess the internal consistency of the variables, mean, standard deviation (*SD*), range and Cronbach's coefficient alpha (α) were calculated. The Cronbach's α ranged from 0.52 (role conflict) to 0.85 (work engagement). At concept level, the mean value for care processes was 4.09 (*SD*=0.46) and for work engagement 4.81 (*SD*=0.92).

Table 2: Item content, descriptive data and internal consistency of variables among nursing staff (n^a=128)

Constructs ^b	α	Mean (SD)	Min-Max	Items included ^c
Resources^d		3.80 (0.46)	2.6-4.8	
Work being meaningful	0.61	4.20 (0.57)	2.3-5.0	<ul style="list-style-type: none"> • My work is meaningful • I feel that the work I do is important • I feel motivated and involved in my work
Social community	0.65	4.09 (0.63)	2.3-5.0	<ul style="list-style-type: none"> • There is a good atmosphere between me and my colleagues • There is a good sense of fellowship between the colleagues at my unit • I feel that I am part of a community in my unit
Investment in development	0.71	3.42 (0.62)	1.4-5.0	<ul style="list-style-type: none"> • My unit is constantly evolving to meet the employees' needs • In my unit, no one listens to new suggestions and ideas • My unit is flexible and continually adapts to new ideas • My unit is open-minded and adapts to changes • My unit strives to retain status quo rather than to change
Job autonomy	0.59	3.49 (0.63)	1.5-4.8	<ul style="list-style-type: none"> • I have a sufficient degree of influence in my work • I can make my own decisions on how to organize my work • There is room for me to take my own initiatives at work • I manage my own work situation in the direction I want
Demands^d		3.07 (0.57)	1.5-4.3	
Illegitimate work tasks	0.65	2.88 (0.75)	1.0-5.0	<ul style="list-style-type: none"> • I must carry out work that I think should be done by someone else • I must carry out work that I feel demands more of me than is reasonable • I must carry out work that put me into awkward positions • I must carry out tasks that I think are unfair that I should do
Role conflict	0.52	2.90 (0.67)	1.0-4.3	<ul style="list-style-type: none"> • I have to do things that I feel should be done differently • I am often given assignments without adequate resources to complete them • I frequently receive incompatible requests from two or more people • My job involves tasks that are in conflict with my personal values
Role overload	0.59	3.43 (0.78)	1.3-5.0	<ul style="list-style-type: none"> • I have enough time to do what is expected from me at work • It happens quite often that I have to work under heavy time pressure • I frequently have too much to do at work
Work engagement^e	0.85	4.81 (0.92)	2.1-6.0	
				<ul style="list-style-type: none"> • At my work, I feel bursting with energy • At my job, I feel strong and vigorous • When I get up in the morning, I feel like going to work • I am enthusiastic about my job • My job inspires me • I am proud of the work that I do • I feel happy when I am working intensely • I am immersed in my work • I get carried away when I am working
Care processes^d		4.09 (0.46)	2.4-5.0	
Working with patients' beliefs and values	0.70	4.03 (0.49)	2.5-5.0	<ul style="list-style-type: none"> • I integrate my knowledge of the person into care delivery • I work with the person within the context of their family and carers • I seek feedback on how people make sense of their care experience • I encourage the people to discuss what is important to them
Shared decision-making	0.73	3.86 (0.66)	2.0-5.0	<ul style="list-style-type: none"> • I include the family in care decisions where appropriate and/or in line with the person's wishes • I work with the person to set health goals for their future • I enable people receiving care to seek information about their care from other healthcare professionals
Engaging authentically	0.80	4.13 (0.58)	2.0-5.0	<ul style="list-style-type: none"> • I try to understand the person's perspective • I seek to resolve issues when my goals for the person differ from theirs • I engage people in care processes where appropriate
Sympathetic presence	0.81	4.19 (0.54)	2.0-5.0	<ul style="list-style-type: none"> • I actively listen to people receiving care to identify unmet needs • I gather additional information to help me support the people receiving care • I ensure my full attention is focused on the person when I am with them
Providing holistic care	0.74	4.27 (0.52)	2.3-5.0	<ul style="list-style-type: none"> • I strive to gain a sense of the whole person • I assess the needs of the person, taking account of all aspects of their lives • I deliver care that takes account of the whole person

α =Cronbach's alpha SD=standard deviation

a) n=127 for the constructs 'Investment in development' and 'Role conflict' and for the concept 'Work engagement'

b) The constructs of Resources, Demands, Work engagement, and Care processes are presented at concept level

c) Items included: Precise wording in English from the original questionnaires

d) Resources, demands and care processes scoring: Likert scales with response options between 1=Strongly disagree and 5=Strongly agree

e) Work engagement scoring: Likert scales with response options between 0=Never and 6=Every day

Working environment, work engagement, and care processes

Table 3 shows bivariate correlations between all variables at construct level. Just over half the correlations between the different constructs of care processes and job resources were significantly positive. Most of the associations between care processes and job demands were negative, but none significantly so.

Table 3: Bivariate correlations (Pearson *r*) at construct level[†] for all variables among nursing staff (n=128^{††})

Scales	1	2	3	4	5	6	7	8	9	10	11	12
Resources												
Work being meaningful	1											
Social community	0.38***	1										
Investment in development	0.45***	0.43***	1									
Job autonomy	0.38***	0.43***	0.39***	1								
Demands												
Illegitimate work tasks	0.00	-0.33***	-0.20*	0.01	1							
Role conflict	-0.21*	-0.33***	-0.30***	-0.12	0.47***	1						
Role overload	-0.10	-0.30***	-0.17	0.01	0.34***	0.35***	1					
Dependent variables												
Work engagement												
	0.40***	0.37***	0.29***	0.23**	-0.12	-0.24**	-0.34***	1				
Care processes												
Patients' beliefs and values	0.27**	0.23**	0.29**	0.28***	-0.02	-0.09	-0.02	0.10	1			
Shared decision making	0.12	0.24**	0.22**	0.15	-0.04	-0.04	0.11	0.17	0.64***	1		
Engaging authentically	0.09	0.13	0.20*	0.14	-0.04	-0.07	0.15	-0.07	0.64***	0.65***	1	
Sympathetic presence	0.23**	0.18*	0.23**	0.09	-0.08	-0.14	-0.08	0.14	0.59***	0.56***	0.63***	1
Providing holistic care	0.23**	0.20*	0.19*	0.17	-0.04	-0.07	-0.08	0.06	0.55***	0.53***	0.60***	0.68***

[†]Work engagement is included in the analysis at concept level
^{††}n=127 for the constructs 'Investment in development' and 'Role conflict' and for the concept 'Work engagement'
 P* < 0.05, *P* < 0.01, ****P* < 0.001

Table 4 shows bivariate correlations between all variables included in the analyses – that is, at concept level. It also includes the demographic factors gender, age, profession and tenure. The associations between job resources and care processes were positive ($r=0.31$), meaning that employees experiencing high levels of person-centred processes also experience high levels of resources. Work engagement was positively correlated with job resources ($r=0.43$) and negatively correlated with job demands ($r=-0.30$), indicating that employees scoring high on resources and low on demands are more likely to score high on engagement. The correlation between work engagement and care processes at concept level was low ($r=0.10$), indicating no association between employees' level of engagement and care processes. Gender, age and tenure did not correlate significantly with any of the other variables. Nevertheless, nurses were more likely to report high levels of job resources and care processes than nursing assistants.

Table 4: Bivariate correlations[†] (Pearson *r*) at concept level for all variables among nursing staff (n=127^{††})

Scales	1	2	3	4	5	6	7
Demographic factors							
1. Gender (female=1, male=2)	1						
2. Age ^a	-0.15	1					
3. Profession (nurse=1, other=2)	0.12	0.02	1				
4. Tenure ^b	-0.16	0.47***	0.09	1			
Independent variables							
5. Job resources	0.03	0.06	-0.18*	-0.01	1		
6. Job demands	-0.01	-0.09	-0.14	0.12	-0.30***	1	
Dependent variables							
7. Work engagement	0.01	0.13	-0.02	0.11	0.43***	-0.30***	1
8. Care processes	-0.03	-0.01	-0.20*	-0.09	0.31***	-0.05	0.10

[†]Correlations for Gender and Profession are point-biserial correlations
^{††}n=128 for all the demographic factors
^a Age is coded 1=<30 years, 2=30-39 years, 3=40-49 years, 4=50-59 years, 5=≥60 years
^b Tenure is coded 1=<5 years, 2=5-9 years, 3=≥10 years
*P < 0.05, **P < 0.01; ***P < 0.001

Work engagement as a moderating or mediating factor

Hypotheses 1 and 2 were supported, as the results showed that nursing staff experiencing high levels of job resources reported higher levels of care processes and work engagement than staff low on resources. According to the findings, hypotheses 3 and 4 were not supported, as care processes were neither negatively associated with job demands nor positively associated with work engagement. Hypothesis 5 was not supported, as the results from the moderated regression model indicated that engagement did not moderate the effects of job resources on care processes when controlled for the effects of job demands (Table 5). The interaction term was not statistically significant and including this term in the model did not account for any added variation in care processes.

Table 5: Moderated regression with care processes as dependent variable (n=127)

	β	95% CI	t	p	R	R ²
Model summary					0.31	0.10
Constant	-0.01	-0.19, 0.18	-0.06	0.96		
Job resources (JR)	0.34***	0.14, 0.53	3.41	0.00		
Work engagement (WE)	-0.03	-0.23, 0.17	-0.30	0.77		
Interaction term (JR×WE)	0.00	-0.17, 0.17	0.05	0.96		
Job demands	0.04	-0.14, 0.23	0.48	0.63		

β =Standardized Coefficients Beta CI=Confidence Interval *P < 0.05, **P < 0.01; ***P < 0.001

Hypothesis 6 was not supported, as the results showed that engagement did not mediate the effects of job resources on care processes (Table 6). Analysing the indirect effect, the findings indicated this effect to be small and not significantly different from zero, as the bootstrap confidence interval included zero (Hayes, 2018).

Table 6: Mediation analysis: path estimates (n=127)

	β	95% CI [†]	t	p	R	R ²
Dependent variable: work engagement						
Model summary					0.47	0.22
Constant	0.00	-0.15, 0.16	0.05	0.96		
Job resources	0.37***	0.21, 0.54	4.44	0.00		
Job demands	-0.19 [†]	-0.36,-0.03	-2.32	0.02		
Dependent variable: care processes						
Model summary					0.31	0.10
Constant	-0.00	-0.17, 0.17	-0.00	1.00		
Job resources	0.34***	0.14, 0.53	3.44	0.00		
Work engagement	-0.03	-0.22, 0.16	-0.31	0.76		
Job demands	0.04	-0.14, 0.23	0.48	0.63		
Indirect effect						
Mediation effect of work engagement	-0.01	-0.07, 0.05				
Total effect model: care processes						
Model summary					0.31	0.10
Constant	-0.00	-0.17, 0.17	-0.00	1.00		
Job resources	0.32***	0.15, 0.50	3.60	0.00		
Job demands	0.05	-0.13, 0.23	0.56	0.58		
β =Standardized Coefficients Beta CI=Confidence Interval * $P < 0.05$, ** $P < 0.01$; *** $P < 0.001$ [†] 95% CI estimated using bootstrap method with 5000 resamples						

Discussion

This study investigated the associations between conditions in the working environment, work engagement and person-centred processes. The results show job resources are positively associated both with care processes and work engagement (hypotheses 1 and 2). No association was found between job demands and care processes (hypothesis 3), or between work engagement and care processes (hypothesis 4). The results suggest work engagement neither moderates nor mediates the effects of job resources on care processes (hypotheses 5 and 6).

Using the nine-item Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2002, 2006), the mean score on work engagement in this study was 4.81 (on a Likert scale ranging from 0 to 6) among nursing staff in Norway. In a study by Hakanen and colleagues (2019), data from various work- and organisation-related groups in 30 European countries were collected to measure work engagement. Assessed with a three-item version of UWES and resulting in a mean score of 4.04, their findings show health and social care workers to be among the groups experiencing the highest levels of engagement. Van den Broeck and colleagues (2017) show similar results, finding work engagement to be higher in the Belgian healthcare sector than in the industrial, service or public sectors. In that study, work engagement was assessed using UWES-9 and resulted in a mean score of 5.4 among healthcare workers. Compared with the findings of the two studies cited, the mean score on work engagement in this study falls somewhere in between and thus indicates high levels of engagement among nursing staff in municipal long-term care services in Norway.

Among the aspects of the working environment that are important to work engagement in various occupational groups and sectors are 'social resources' (such as co-worker and supervisor support, and social relations), 'task-related resources' (such as autonomy, feedback, team empowerment and skill discretion) and 'development resources' (such as feedback and learning opportunities) (Hakanen et al., 2021; Mazzetti et al., 2021). Nevertheless, the relative importance of the different types of resources varies depending on time and context (Hakanen et al., 2021; Mazzetti et al., 2021). This study confirms work engagement to be positively associated with the 'social resource' of social community (colleague fellowship), the 'task-related resources' of job autonomy (job control) and work being meaningful (knowing the meaning and purpose of one's job), and the 'development resource' of investment in development (innovation in the organisational unit). Lesener and colleagues (2020) concluded that resources at organisation level (such as autonomy, development opportunities and role clarity), at group level (such as social support and support climate) and at leadership level (such as supervisor support and feedback) are all strong and stable predictors of work engagement over time. Still, in that study, organisation-level resources reflecting the design and management of work seem the strongest contributors.

Within nursing, previous studies have consistently shown work engagement to be positively influenced by job resources such as social support, autonomy, reward, feeling part of a community and managers' leadership (García-Sierra et al., 2016; Keyko et al., 2016). In this study, engagement was associated with all four included job resources, but most strongly with autonomy. This is in line with the results of a concept analysis of work engagement in nursing by Bargagliotti (2012), where autonomy and trust were classified as relational resources inherent in and fundamental to nurses' professional practice and more likely to explain work engagement than other types of resources. Further, a recent cross-sectional study among 552 nurses in 1,200 nursing homes in Japan shows autonomous clinical judgement, as a constituent factor of professional autonomy, to be positively associated with nurses' work engagement (Hara et al., 2021).

In this study, work engagement was negatively associated with job demands and positively associated with job resources at both construct and concept levels. However, the traditional JD-R conceptualisation of demands as solely negative and resources as solely positive has been challenged (Crawford et al., 2010; Bakker and Sanz-Vergel, 2013; Noesgaard and Hansen, 2018). In two separate studies among nursing staff in home caregiving organisations for older people, work pressure, emotional work and the opportunity to help patients in need were experienced to have both hindrance and challenge effects – that is, having both negative and positive impacts on work engagement depending on the occupational group and individual perceptions of the setting (Bakker and Sanz-Vergel, 2013; Noesgaard and Hansen, 2018). In our study, the number of included job demands and job resources was limited and neither did we focus on their possible dual effects on engagement. Hence, there still is a need for continued organisational interest and research on work engagement and its various types of antecedents and their differential impact on engagement across a broad range of occupational groups and settings, and over time (Lesener et al., 2019; Hakanen et al., 2021; Mazzetti et al., 2021).

In a cross-sectional study based on a multidisciplinary sample of health professionals in Ireland, McCance and colleagues (2021) report evidence to support the Person-centred Practice Framework, which posits that the provision of person-centred outcomes for all is a complex and demanding process dependent on individual, environmental and organisational factors. Using the Person-centred Practice Inventory – Staff (Bing-Jonsson et al., 2018) to measure care processes and resulting in a mean score of 4.09 (Likert scale 1 to 5), this study's findings indicate that a high level of person-centred care is currently provided by nursing staff in care homes and nursing homes in a municipality in Norway. This resembles the results of a study by Slater and colleagues (2015) among registered nurses in acute hospital settings in the UK. That study shows high scores (mean scores above 4) for each of the five constructs making up the concept of care processes.

A study by Kvæl and Bergland (2021) in intermediate care services in Norway concludes it is crucial to take into account both physical and psychosocial conditions in the environment in order to facilitate patient participation – a key factor of high-quality person-centred care. Lower levels of job strain and higher levels of social support are identified as substantial contributors to variation in person-centred care (Sjögren et al., 2014). This study confirms an association between certain working environment conditions (work being meaningful, social community, investment in development and job autonomy) and care processes. This highlights the dependent relationship among key concepts of the Person-centred Practice Framework and that in relation to achieving the outcomes of high-quality care processes and a healthful culture, the care environment must be considered (McCance and McCormack, 2017). Further, this study shows that work engagement and care processes share similar antecedents; in an earlier study (Midje et al., 2021) the authors suggest that in nursing, work engagement and its antecedents (such as commitment to the job, effective staff relationships and power sharing) and outcomes of engagement (such as authentic engagement and sympathetic presence), resemble key constructs in the Person-centred Practice Framework. Thus, the working environment conditions associated with engagement found in this study seem to be consistent with the enabling factors for effective and healthful workplace cultures focused on providing sustainable and high-quality person-centred care based on the participation of all, and person-centred ways of working in collaborative teams (Cardiff et al., 2020; Edgar et al., 2020).

Within healthcare settings, work engagement is found to be valuable to nurses' performance (García-Sierra et al., 2016; Keyko et al., 2016; De Simone et al., 2018; Wee and Lai, 2021). In this study, the choice of introducing work engagement as an antecedent to care processes particularly is inspired by the research by the authors' earlier research (Midje et al., 2021). Based on personal interviews with healthcare workers, the 2021 study shows engagement is experienced as positively influencing employees' perceived ability to exhibit high-quality person-centred behaviours in a natural setting. Nevertheless, the results from this study do not support an association between work engagement and care processes. This is in line with the results of a study among hospital nurses by van Bogaert and colleagues (2017), showing the direct impact of work engagement on nurse-assessed quality of care to be less relevant – that is, with an explained variance of $\leq 5\%$. The meta-analysis and systematic review of work engagement and patient quality of care by Wee and Lai (2021), on the other hand, shows engagement is positively associated with quality of care and that the association is stronger if quality of care is measured by self-assessment.

The JD-R model postulates that the impact of job resources on various positive job-related outcomes increases where work engagement is present (Schaufeli and Taris, 2014). Hence, the choice of investigating engagement as a moderator/mediator in this study is based on the theoretical arguments within that model. Nevertheless, this study's analyses show engagement neither moderates nor mediates the effects of job resources on care processes. This is contrary to the results of a study by Abdelhadi and Drach-Zahavy (2012) among 158 nurses working in retirement homes in Israel, which shows motivated and engaged nurses exhibit higher-quality person-centred care behaviours than others who are less engaged. Also, those authors report the service climate in the ward was positively associated with nurses' work engagement, and that engagement mediated the effects of the service climate on nurses' person-centred care behaviours. Further, a study by van Bogaert and colleagues (2014) among 1,201 registered hospital nurses in Belgium suggests both work engagement and certain environmental conditions (such as perceived workload, social capital and decision latitude), mediate the effects of the nurse practice environment (that is, the nurse-physician relationship, nurse management, hospital management and organisational support) on nurse-assessed quality of care. A possible explanation for the lack of support for a moderating/mediating effect of engagement in this study can be found in a meta-analysis focused on antecedents and outcomes of work engagement by Mazzetti and colleagues (2021). In that study, there is a stronger association of engagement with attitudinal variables (such as job satisfaction and job commitment) than behavioural and intentional variables (such as turnover intention, job performance and health). Their results confirm job performance as an outcome of work engagement but suggest the link is not a strong one.

The PCPI-S (Slater et al., 2017) is confirmed as a valid and reliable tool, well aligned to the Person-centred Practice Framework, and thus it permits the comparison of evidence internationally (McCance et al., 2021). To the best of the authors' knowledge, there are no other studies using PCPI-S to investigate associations between working environment conditions, work engagement and care processes. Being the first study to explore care processes as an outcome of engagement, this research offers new knowledge about the category of performance and care outcomes, as described by Keyko and colleagues (2016). Further research is needed to offer better insight in articulating the relationships between conditions in the nursing staff's working environment, work engagement, patient-related outcomes and the development of person-centred practices and cultures.

Strengths and limitations

This study features a cross-sectional design with data collected at a single time point, meaning the effects between variables cannot be interpreted as causal relationships. Relying on self-reported data, the findings may be influenced by common method bias. Nevertheless, Theorell and Hasselhorn (2005) argue that cross-sectional study designs and subjective assessment methods of psychosocial conditions and health play an important role in identifying risks and groups of risk in a research field that has not been properly investigated.

All variables showed satisfying internal consistency, except for role conflict, which had a quite low Cronbach's alpha value ($\alpha=0.52$) (Nunnally and Bernstein, 1994). This study's authors chose not to include data using the PCPI-S care environment concept because of concerns over statistical adequacy and also because the job resources from the JD-R model seemed to cover those aspects of the working environment. This study used the JD-R model as a point of departure, but it would be beneficial for future research to aim to test the whole Person-centred Practice Framework by using all concepts within the PCPI-S.

Although the response rate was 100%, the generalisability of the results regarding nursing home and care home settings may be limited because the study was conducted in a Norwegian context and with a lack of geographical spread across municipalities. Further, when focused on assessing person-centred processes, collecting the perspectives of the older adults themselves could have helped to inform the findings and contribute to a greater understanding. Nevertheless, because data were collected from the professional groups most directly involved in care processes, a broad range of experiences were captured. Also, the study provides new insight about the development of patient-related outcomes.

Conclusion

The present study investigates the associations among working environment conditions, work engagement and person-centred processes. The results reinforce much of what is known about the antecedents of work engagement, and support the association between nursing staff's perceived level of job resources on the one hand and work engagement and person-centred behaviours on the other. Nevertheless, a moderating/mediating effect of engagement is not supported. Taken together, the findings indicate that to provide effective care throughout the care processes, managing key conditions in the care environment is essential – and that work engagement as such is not necessary for person-centred processes to develop. However, promoting engagement still is worthwhile because of its other well-known positive effects at individual and organisational levels. Thus, this study provides an updated picture of empirical evidence and adds new theoretical insight to the JD-R theory applied to nursing staff within municipal long-term eldercare services in Norway. Further, the study highlights relevant topics for future research about work engagement within nursing and the development of person-centred practices and cultures.

Key messages for practice

- Understanding the associations between the antecedents of work engagement and care processes is important to the development of person-centred practices
- To promote employee engagement and person-centred processes, unit managers should invest in collaboration with nursing staff to provide job resources such as job control, colleague fellowship, meaningful tasks and scope for development
- Given the various challenging factors associated with long-term caregiving services, helping nursing staff to stay engaged in their work is important to secure future high-quality employee and organisational performance

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