

# Work-related resources and demands predicting the psychological well-being of staff in children's hospices

## Original Article

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**Corresponding author:** Lucy Ziegler;

Email: [l.e.ziegler@leeds.ac.uk](mailto:l.e.ziegler@leeds.ac.uk)

Andre Bedendo, PH.D.<sup>1</sup> , Andrew Papworth, PH.D.<sup>2</sup>, Jo Taylor, PH.D.<sup>1</sup>, Bryony Beresford, PH.D.<sup>2,3</sup>, Suzanne Mukherjee, PH.D.<sup>2,3</sup>, Lorna K. Fraser, PH.D.<sup>4</sup> and Lucy Ziegler, PH.D.<sup>5</sup> 

<sup>1</sup>Department of Health Sciences, University of York, York, UK; <sup>2</sup>School of Business and Society, University of York, York, UK; <sup>3</sup>Social Policy Research Unit, University of York, York, UK; <sup>4</sup>Cicely Saunders Institute of Palliative Care, Policy and Rehabilitation, King's College London, London, UK and <sup>5</sup>School of Medicine, University of Leeds, Leeds, UK

### Abstract

**Objectives.** This study assessed the work-related resources and demands experienced by children's hospice staff to help identify staff support systems and organizational practices that offer the most potential to prevent staff burnout and enhance well-being at work.

**Methods.** The relationships between individual and organizational characteristics, work-related resources and demands, and burnout and work engagement outcomes experienced by children's hospice staff were explored using two surveys: the Children's Hospice Staff survey, completed by UK children's hospice staff, and the Children's Hospice Organisation and Management survey, completed by the Heads of Care. We used structural equation modeling to assess the relationships between the variables derived from the survey measures and to test a model underpinned by the Job Demands-Resource (JD-R) theory.

**Results.** There were 583 staff responses from 32 hospices, and 414 participants provided valid data for burnout and work engagement outcome measures. Most participants were females (95.4%), aged 51–65 years old (31.3%), and had more than 15 years of experience in life-limiting conditions (29.7%). The average score for burnout was 32.5 (SD: 13.1), and the average score for work engagement was 7.5 (SD: 1.5). The structural model validity showed good fit. Demands significantly predicted burnout ( $b = 4.65, p \leq 0.001$ ), and resources predicted work engagement ( $b = 3.09, p \leq 0.001$ ). The interaction between resources and demands only predicted work engagement ( $b = -0.31, p = 0.115$ ). Burnout did not predict work engagement ( $b = -0.09, p = 0.194$ ).

**Significance of results.** The results partly supported the JD-R model, with a clear association between resources and work engagement, even when the demands were considered. Demands were only directly associated with burnout. The findings also identified a set of the most relevant aspects related to resources and demands, which can be used to assess and improve staff psychological well-being in children's hospices in the UK.

### Introduction

Pediatric palliative care is defined as an “active and total approach to care” for a child and their family throughout the child's life (Knapp et al. 2011; Chambers 2018; WHO 2017). In UK, hospices play an important and valued role in its provision (Department of Health 2016; Keeble et al. 2022; Taylor and Aldridge 2017). Between 2003 and 2017, 2,453 children died in hospices in England (Gibson-Smith et al. 2021) and 8,159 children received active clinical care from a children's hospice charity in England in 2018/2019 (Together for Short Lives 2019). The important role of the staff working in this specialty has been acknowledged (Hall et al. 2016; Han et al. 2019; Sizmur and Raleigh 2018), but there is little evidence about their psychological well-being (Papworth et al. 2023b), despite the fact that this has been shown to have implications for staff sickness, absence rates, and staff retention (Hall et al. 2019, 2016; Koutsimani et al. 2019; Sizmur and Raleigh 2018; Vachon 1995) and have impacts on the quality, cost, and safety of patient care (Han et al. 2019; National Academies of Sciences, Engineering, and Medicine 2019; Sizmur and Raleigh 2018).

There is evidence that burnout and distress are lower among health professionals who work in palliative care than those who work in other specialities (McConnell et al. 2016; Meier and Beresford 2006; Parola et al. 2017; Vachon 1995), but staff who work with dying patients are exposed to specific potential demands, such as death anxiety due to recurrent exposure to death, patient suffering, and the requirement to break bad news

to patients and their families (Ablett and Jones 2007; Nia et al. 2016; Vachon 1995). There has been little consideration paid to these specific demands, and there is little understanding of what works to modify them for staff working in this important setting (McConnell et al. 2016; Meier and Beresford 2006; Parola et al. 2017). Research has also highlighted the limited organizational and emotional support available for staff (Koutsimani et al. 2019; Meier and Beresford 2006). The authors' recent systematic review (Papworth et al. 2023b) on psychological well-being in hospices (both adult and children's) found that only two of the 23 eligible studies collected data from children's hospice settings. Both were qualitative studies (McConnell and Porter 2017; Taylor and Aldridge 2017) set in a single hospice and did not collect systematic data on interventions to improve psychological well-being.

The UK children's hospice sector has become increasingly concerned about levels of work-related stress and the need to review and develop staff support systems to enhance staff well-being and reduce burnout (Goodrich et al. 2015; Hospice UK 2017). Evidence on how to prevent these negative outcomes is weak (NHS Employers 2014) and limited to particular settings or sections of the workforce (Ahola et al. 2017). A core set of work-related demands are found in most workplaces, but specific jobs have their unique resources and demands (Mukherjee et al. 2014). It is, therefore, essential to understand what factors affect staff well-being in UK children's hospices and what impact existing interventions can have.

This study was underpinned by the Job Demands-Resource (JD-R) theory of occupational stress (Bakker and Demerouti 2017). This theory argues that job and personal "Resources" are positively related to motivation (e.g., work engagement) and that "Demands" are positively related to strain (e.g., exhaustion and burnout). Resources and Demands involve physical, psychological, social, or organizational aspects. Resources help in the achievement of work goals (e.g., organizational and social support, autonomy, performance feedback, and opportunities for growth). In contrast, Demands are related to physiological or psychological costs and require sustained physical, emotional, or cognitive effort (e.g., workload and working relationships, high work pressure, and emotionally demanding tasks/relationships) (Bakker and Demerouti 2007, 2017; Bakker et al. 2014; Demerouti et al. 2001).

In JD-R theory, Resources are the most important predictor of work engagement and Demands are the most important predictor of burnout (Halbesleben 2010; Schaufeli and Bakker 2004). The two constructs also interact with each other (Bakker and Demerouti 2017), with work-related well-being moderated by a balance between Demands and the Resources available to meet those Demands (Bakker and Demerouti 2007, 2014). When an individual's responses to Demands create obstacles that undermine their performance, this is termed self-undermining (Bakker and Costa 2014; Bakker and Demerouti 2017). When an individual makes changes to tasks or how tasks are completed, this is called job crafting (Bakker and Demerouti 2017; Van Wingerden et al. 2017). Despite evidence partly supporting the JD-R model among hospice workers, generalization to the UK context is limited (Stensland and Landsman 2017).

In this study, we aimed to address the gap in the evidence on the well-being of children's hospice staff in the UK by using JD-R theory to predict burnout levels and work engagement in this population. We also sought to identify what staff support systems and organizational practices were related to staff burnout and work engagement.

## Methods

### Study design

The study team developed two surveys with the content informed by a systematic review of the literature (Papworth et al. 2023b) and focus groups in three different UK children's hospices. The Children's Hospice Organisation and Management survey (CHOM) was completed by the Heads of Care, or equivalent, in each hospice. This collected information about hospice organizational and staffing characteristics and included questions on the hospice size and services provided, staffing, staff support mechanisms, and funding. The Heads of Care (or equivalent) completed the survey in each hospice.

The Children's Hospice Staff survey (CHSS) comprised a suite of questionnaires and was completed by UK children's hospice staff. These included demographic, role, and employment information; staff well-being information from validated scales; and information about the rewards and stressors that hospice staff experience using the Work-related Rewards Scale-Children's Hospices (WRS-CH) and Work-related Stressors Scale-Children's Hospices (WSS-CH) scale (Papworth et al. 2023a), which were developed for this study. The measures used in the surveys are detailed further below.

### Measures

#### Outcomes

**Burnout.** This was measured using the Copenhagen Burnout Inventory (CBI), a 19-item scale with items rated on a 5-point scale, assessing three aspects of burnout: personal, work related, and client related (Kristensen et al. 2005). We calculated CBI total scores by summing the items.

**Work engagement.** This was measured by questions taken from the National NHS Staff Survey 2017 (NHS 2017). It asked *how satisfied are you with each of the following aspects of your job?* related to eight aspects of their work (e.g., The recognition I get for good work or their level of pay). Participants used a 5-item Likert scale from very dissatisfied to very satisfied.

#### Resources

**Rewards.** Work-related rewards were measured using the WRS-CH (Papworth et al. 2023a). The measure consists of 27 items assessing the intensity of rewards experienced by an individual during the previous 6 months. Participants responded how rewarding they found each of the items (0 = not at all; 1 = a little; and 2 = a lot). A total score was then calculated summing all responses.

**Management standards.** We used the UK's Health & Safety Executive (HSE) Management Standards indicator tool (Brookes et al. 2013; Cousins et al. 2004) as a measure of how staff believe that the organization they work for is managing the risks associated with work-related stress. The HSE tool is a 35-item measure with items rated on a 5-point scale varying from Never to Always or from Strongly Disagree to Strongly Agree. Scores were calculated for each of the seven sets of working conditions, which were (I) demands – includes issues such as workload, work patterns, and the work environment; (II) control – how much say the person has in the way they do their work; (III and IV) manager and

peer support (calculated separately) – includes the encouragement, sponsorship, and resources provided by the organization, line management, and colleagues; (V) relationships – includes promoting positive working to avoid conflict and dealing with unacceptable behavior; (VI) role – whether people understand their role within the organization and whether the organization ensures that they do not have conflicting roles; and (VII) change – how organizational change (large or small) is managed and communicated in the organization.

**Staff support interventions.** Participants reported how often they have accessed 13 supporting interventions in the last 12 months, with the interventions included derived from the relevant literature (Papworth et al. 2023b). For analysis, the interventions were grouped as clinical reflective practice (e.g., clinical supervision and reflective practice), peer support (e.g., peer support group, peer supervision, or mentoring), employee well-being (e.g., training or event focused on stress management, mindfulness or meditation, relaxation or exercise class, counseling or psychological therapy, complementary or other therapies, occupational health involvement, and employee assistance program), flexible working options (e.g., altered shift patterns and working times), and training and development (training or support for personal or professional development). First, responses were coded as No (never accessed the intervention) or Yes (accessed the intervention less than monthly, at least monthly, or at least weekly). Participants reporting not available were excluded from the analyses. Second, we created a total score summing participant responses and reflecting the number of staff supporting interventions accessed (ranging from 0 to 5).

**Experience in LLC.** Participants reported how long they have worked with children with life-limiting or life-threatening conditions and their families (0 = less than 1 year, 1 = 1–2 years, 2 = 3–5 years, 3 = 6–10 years, 4 = 11–15 years, and 5 = more than 15 years).

**Employed clinician and employed specialist nurse.** These questions were assessed via the CHOM survey and described whether the hospices had an employed clinician (0 = No and 1 = Yes) or specialist nurse (0 = No and 1 = Yes).

### **Demands**

**Stressors.** Work-related stressors were measured using the WSS-CH, which mirrors the WRS-CH (Papworth et al. 2023a). The WSS-CH has 42 items assessing the intensity of stressors experienced by an individual during the previous 6 months. Participants responded how stressful they found each of the items (0 = not at all; 1 = a little; and 2 = a lot). A total score for each of the three subscales (child, parent, and organization stressors) was created by summing the items.

**Occupational group.** Participants reported their occupational group. Responses were collapsed into clinical (i.e., medical and registered nurse) and other (i.e., allied health professionals, nursing or healthcare assistant, nursery nurses, psychologist, social work, other).

**Managerial, community, or bereavement roles.** Participants reported if they had any managerial responsibilities (Yes or No), work in the community (Yes or No), or work with bereaved families as part of their roles (Yes or No).

**Number of child deaths.** The total number of child deaths in the hospice in 2019 was assessed from the CHOM survey.

### **Inclusion criteria**

All UK children's hospices were invited to participate in the survey. All employed children's hospice staff providing direct care to children or their families were invited to respond to the CHSS. For the CHOM, we sought to recruit the most appropriate person to answer the survey, which the hospices themselves nominated.

### **Recruitment**

We used Qualtrics, a secure web-based survey platform, to administer the survey. Staff were invited to respond to the CHSS by a study champion in each participating hospice organization. We sent the participant information sheet and a link to the online survey to this individual, who then sent it on to eligible staff. The participant information sheet explained the voluntary nature of participation and the anonymity afforded to participants. We used a prize draw to incentivize responses. For the CHOM, the study team sent a separate email and participant information sheet directly to whomever was felt to be the most appropriate person to complete the survey. No data that can be linked to specific individuals from either of the surveys are presented here.

### **Data analysis**

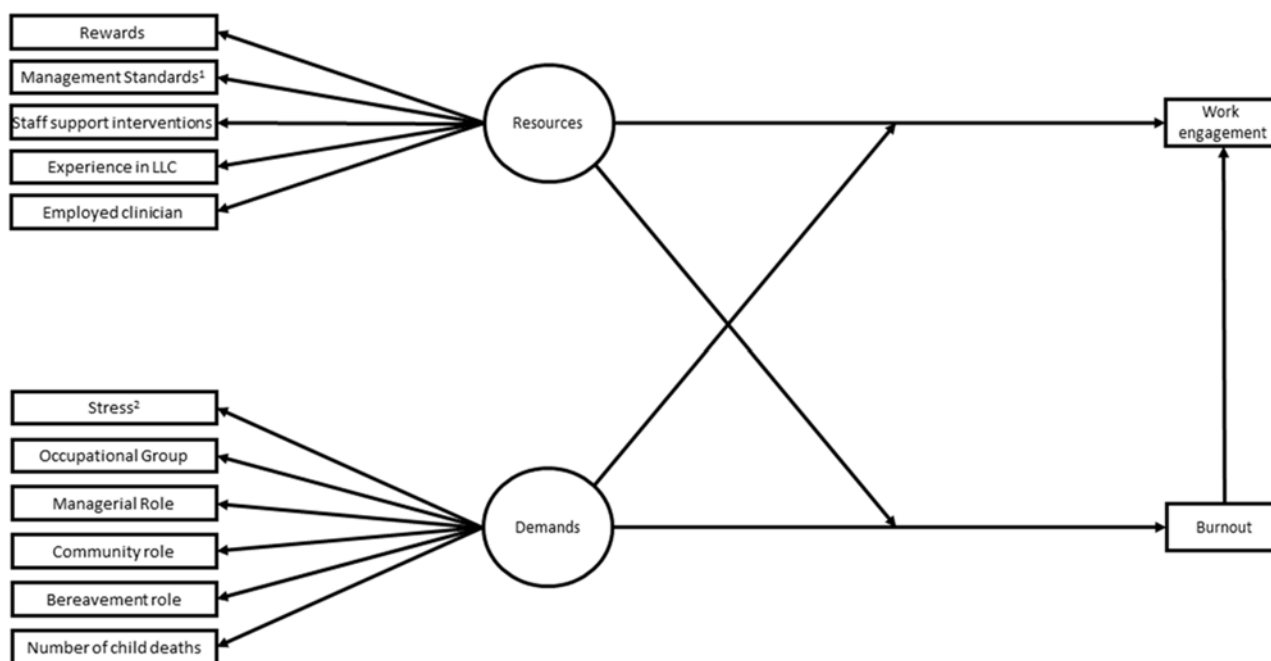
We assessed the linear relationships between variables using Spearman correlation followed by multivariate linear regression models to predict the outcomes. Structural equation models (SEM) evaluated whether Resources, Demands, and Resources\*Demands interaction predicted work engagement and burnout levels. The theoretical model is presented in Fig. 1.

Due to large variation on the ranges of the scales, burnout, rewards, and stressors scores were rescaled (divided by 10) for the SEM analysis. Missing data were treated using pairwise deletion. Interaction between Resources and Demands used residual centering (Schoemann and Jorgensen 2021). We tested the SEM using *lavaan* (Rosseel 2012) with an unweighted least squares estimator (Li 2016), and model fits were examined using root mean square error of approximation (RMSEA) of  $\leq 0.07$  (Steiger 2007), standardized root mean square residual (SRMR)  $< 0.10$  (Kline 2015), and values above 0.9 for comparative fit index (CFI) (Hu and Bentler 1999), Tucker–Lewis index (TLI) (Byrne 1994), and goodness-of-fit index (GFI) (Hair et al. 2019). Modification indices were assessed (Brown 2015), and indices higher than 11 were checked (Ebesutani et al. 2010) for the plausibility of the relationship. Models were then updated and checked for fit improvements. All analyses were performed using R v4.2.1 and R Studio v2022.07.1+554 with statistical significance set at 5%.

## **Results**

### **Sample characteristics**

A total of 583 staff responses were obtained from 32 hospices from all four nations; sample characteristics are presented in Table 1. Missing data varied depending on variables, with 308 (53%) participants providing complete data and 414 (71%) providing data on the outcomes. Most participants were females (95.4%,  $N = 502$ ), aged 51–65 years old (31.3%,  $N = 165$ ), and had more



**Figure 1.** Theoretical model diagram. 1- Assessed as seven separate factors: Demands, Control, Manager’s Support, Peer’s Support, Relationships, Role, Change. 2- Assessed as three separate factors: child, parent and organizational.

than 15 years of experience working with life-limiting conditions (29.7%,  $N = 123$ ).

The average score for burnout was 32.5 (SD: 13.1), for work engagement was 7.5 (SD: 1.5), and for rewards (WRS-CH) was 51.4 (SD: 10.3). The HSE Management Standard average scores ranged from 4.2 (SD: 0.6) for the “Role” domain to 3.2 (SD: 0.8) for the “Change” domain. When compared to the HSE benchmark ([Health and Safety Executive, UNDATED](#)), results showed that hospices performed well: above the 80th percentile for “Demands” and “Peer and manager support”; between the 50th and 80th percentiles for “Role,” “Relationships,” and “Change”; and between the 20th and 50th percentiles for “Control” (Bedendo et al. 2023).

All hospices reported having a specialist nurse ( $N = 467$ ), and 46.3% an employed clinician ( $N = 216$ ). On average, participants reported that 3.6 (SD: 1.1) staff support interventions were available.

Most participants responded that they had a clinical role (medical and registered nurse). Within the three specific types of work surveyed, most respondents reported having a bereavement role (88.0%,  $N = 453$ ), with half reporting they had a community role (49.9%,  $N = 258$ ), and about a third reported having a managerial role (35.3%,  $N = 183$ ).

The stressors intensity scores derived from the WSS-CH were highest on the child factor (M: 14.6, SD: 7.4) and lowest on the organizational factor (M: 9.7, SD: 5.7).

### Correlation

Figure 2 shows the correlation between the variables of interest for building the SEM. Work Engagement was negatively correlated with burnout ( $r(412) = -0.46, p \leq 0.001$ ). All variables showed a significant correlation with the outcomes of the study (burnout and work engagement), except participants’ experience in life-limiting conditions, whether they were employed as a clinician,

their occupational group, and the number of child deaths. Variables with non-significant correlations with the outcomes also showed few and overall weak correlations with other variables.

HSE variables and rewards showed the highest correlation coefficient with the outcomes (negative correlation with burnout and positive correlation with work engagement), followed by stressors factors (positive correlation with burnout and negative correlation with work engagement).

High correlation coefficients were also observed among stressors factors (Child and Parent:  $r(404) = 0.78, p \leq 0.001$ ; “Child” and “Organizational”:  $r(406) = 0.65, p \leq 0.001$ ; “Parent” and “Organizational”:  $r(404) = 0.76, p \leq 0.001$ ).

### Regression

The regression models using all Resources and Demands variables predicting burnout score and work engagement are presented in Table 2. Rewards score, “HSE Relationships,” and “HSE Demands” were significant predictors of both outcomes.

The strongest predictors of burnout score were HSE Demands ( $b = -6.06, p < 0.001$ ), Child stressors ( $b = -3.41, p = 0.01$ ), and HSE Relationships ( $b = -2.90, p = 0.02$ ). “Rewards score,” “Staff support interventions accessed,” and “Number of child deaths (2019)” also significantly predicted burnout scores. The strongest predictors of work engagement were “HSE Role” ( $b = 0.59, p < 0.001$ ), managerial role ( $b = -0.56, p < 0.001$ ), and Organization stressors ( $b = -0.55, p = 0.005$ ). Rewards score, three HSE dimensions (“Control,” “Relationships,” “Demands,” and “Change”), “Employed clinician,” and “Occupation group” were also significantly associated with work engagement.

An additional analysis examining specific staff support interventions showed that lower burnout scores were reported when the staff accessed “Reflective practice” ( $b = -3.81, p < 0.019$ ) and “Training or support opportunities” ( $b = -4.63, p = 0.008$ ).

**Table 1.** Sample characteristics, outcomes, resource, and demands variables

	Overall (N = 414)	
	M (SD)/N (%)	Missing
Sex		–
Female	396 (95.7%)	
Age		–
21–30	62 (15.0%)	
31–40	103 (24.9%)	
41–50	119 (28.7%)	
51–65	126 (30.4%)	
66+	4 (1.0%)	
<i>Outcomes</i>		
Burnout score	32.1 (12.8)	–
Work engagement	7.5 (1.5)	–
<i>Resources</i>		
Rewards score	51.8 (10.1)	13
Management standards		5
Control	3.4 (0.7)	
Managers support	3.8 (0.8)	
Peer support	4.1 (0.6)	
Relationships	4.0 (0.7)	
<i>Demands</i>		
Role	4.2 (0.6)	
Change	3.2 (0.8)	
Experience in life-limiting conditions		–
Less than 1 year	19 (4.6%)	
1–2 years	42 (10.1%)	
3–5 years	69 (16.7%)	
6–10 years	87 (21.0%)	
11–15 years	74 (17.9%)	
More than 15 years	123 (29.7%)	
Staff support interventions available (sum score)	3.6 (1.1)	2
Employed clinician (yes)	165 (49.4%)	80
Employed specialist nurse (yes)	334 (100.0%)	80
<i>Demands</i>		
Stressors intensity score		
Ill Child	14.6 (7.4)	10
Parent	10.0 (6.0)	12
Organization	9.7 (5.7)	10
Occupation group clinical		–
Clinical (medical and registered nurse)	227 (54.8%)	
Other	187 (45.2%)	
Managerial role	142 (34.3%)	–
Community role	209 (50.5%)	–

(Continued)

**Table 1.** (Continued.)

	Overall (N = 414)	
	M (SD)/N (%)	Missing
Bereavement role	370 (89.4%)	–
Number of child deaths (2019)	21.7 (20.4)	81

No specific intervention was associated with work engagement (Supplementary Table S1).

### SEM

We first assessed the measurement model validity of our *a priori* model as stated in Fig. 1.

The model fit was not adequate ( $X^2 = 678.507$ , CFI = 0.792, TLI = 0.772, GFI = 0.970, RMSEA = 0.099, SRMR = 0.172), so the model was updated considering the correlation between variables, goodness-of-fit, model diagnostics, and theoretical framework. Respecifications removed the variables that were not correlated with the outcomes. Modification indices also suggested using “HSE Demands” in the demand latent factor, as opposed to Resources. This was also in line with the core aspects measured by those items. Finally, we included error covariance between stressors, as suggested by the correlations and the original scale study. The updated model showed an overall good fit ( $X^2 = 106.429$ , CFI = 0.975, TLI = 0.970, GFI = 0.962, RMSEA = 0.022, SRMR = 0.096).

We then assessed the structural model validity, which also showed a good fit ( $X^2 = 129.704$ , CFI = 0.994, TLI = 0.993, GFI = 0.982, RMSEA = 0.019, SRMR = 0.087). Demands significantly predicted burnout ( $b = 4.67$ ,  $p \leq 0.001$ ) and Resources predicted work engagement ( $b = 3.06$ ,  $p \leq 0.001$ ), but burnout did not predict work engagement ( $b = -0.10$ ,  $p = 0.127$ ). Since the original theoretical framework also suggests that Resources and Demands interact, we re-fitted the structural model adding an interaction term between those variables (Fig. 3). The results were similar to the model without the interaction, showing good fit ( $X^2 = 503.217$ , CFI = 1.00, TLI = 1.00, GFI = 0.995, RMSEA = 0.000, SRMR = 0.072), with Demands significantly predicting burnout ( $b = 4.65$ ,  $p \leq 0.001$ ) and Resources predicting work engagement ( $b = 3.09$ ,  $p \leq 0.001$ ). The interaction (Resources\*Demands) only predicted work engagement ( $b = -0.31$ ,  $p = 0.115$ ) but not burnout ( $b = 0.31$ ,  $p = 0.115$ ). Burnout again did not predict work engagement ( $b = -0.09$ ,  $p = 0.194$ ).

### Discussion

Our model partly supported the JD-R model, with clear relationships between Resources and the Resources and Demands interaction on work engagement and between Demands and burnout. However, there was no clear support that Resources had a buffering effect on Demands effects on burnout. Also, the effects of Demands did not amplify the impact of job resources on work engagement.

In our study, Resources and its interaction with Demands predicted work engagement, and in previous research, Resources have been found to be generally the most important predictors of work engagement (Bakker et al. 2007, 2010). The effects of the interaction were smaller than the isolated effects of Resources. It has been suggested that when confronted with challenging Demands,

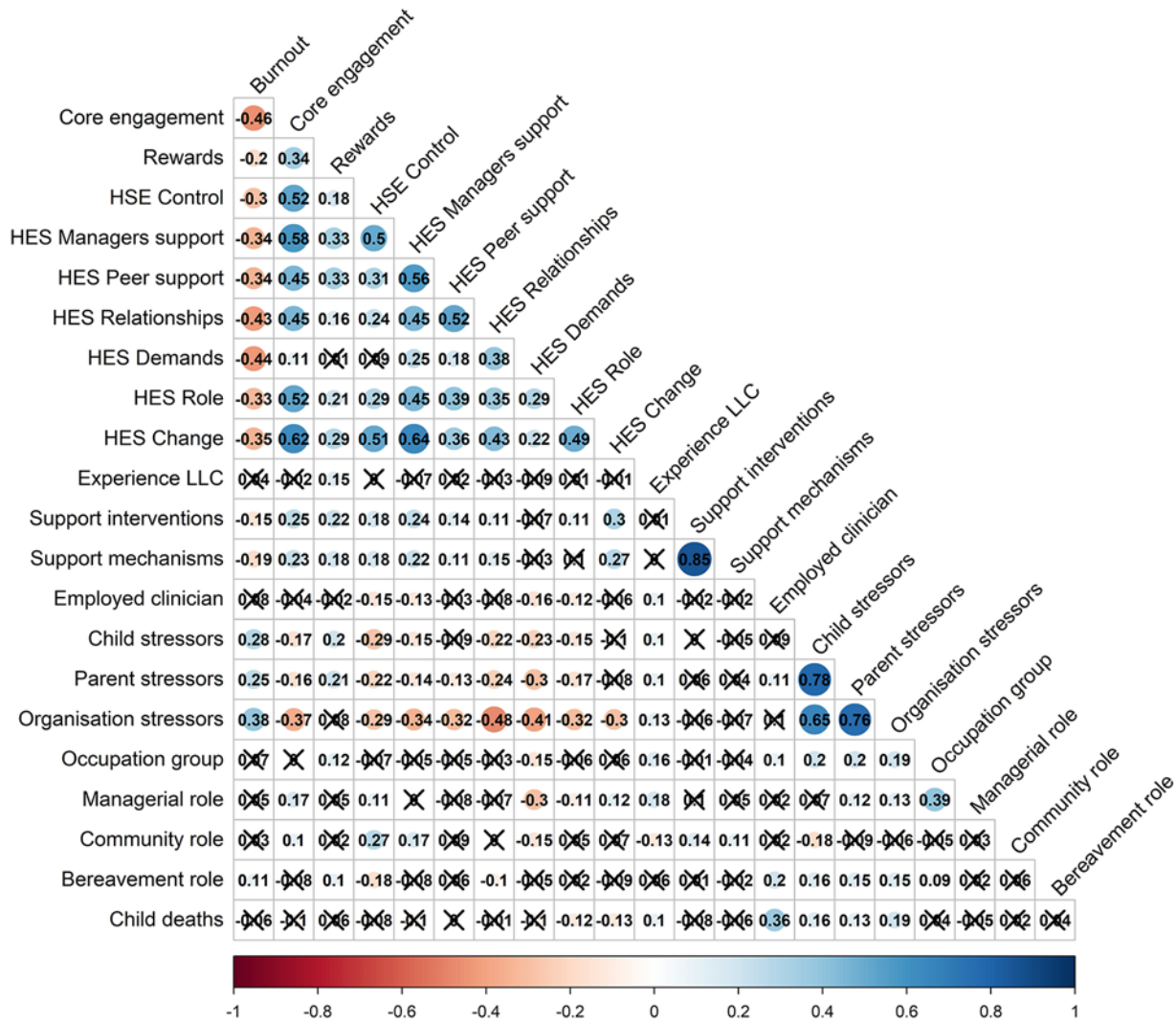


Figure 2. Correlogram showing correlations between variables. Crossed values were not significant at 5% level. Employed nurse not shown due to lack of variation as all hospices reported having this professional.

Resources become valuable to individuals and help them to foster dedication to the tasks at hand (Bakker and Demerouti 2014). For example, Demands amplify the impact of Resources on motivation/engagement in some contexts (e.g., dentistry and education) (Bakker et al. 2007; Hakanen et al. 2005), but our study did not corroborate these findings. However, our results are in line with evidence suggesting that burnout undermines Resources and that a fine balance between Resources and Demands is needed to foster work engagement and cope with Demands (Bakker and Costa 2014; Crawford et al. 2010).

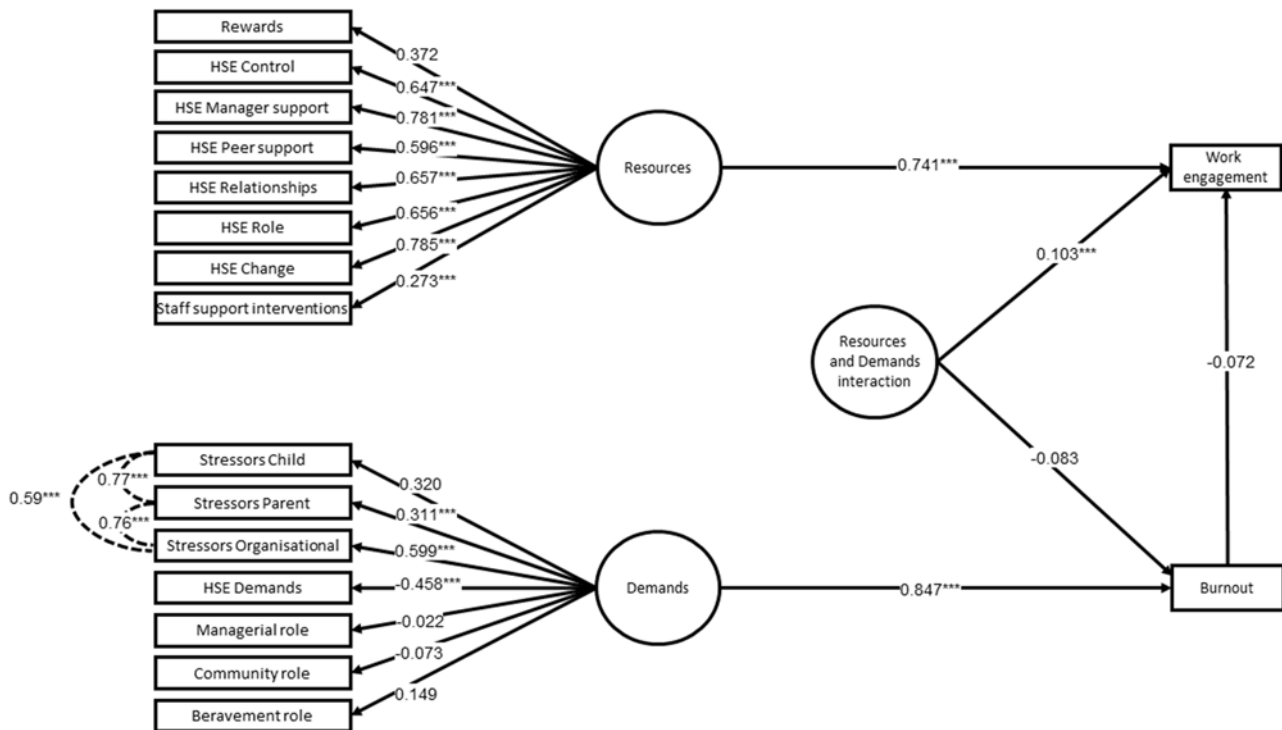
Only Demands predicted burnout in our model, in line with previous research showing that Demands have been found to be widely associated with burnout (Bakker et al. 2014), but Demands interaction with Resources did not significantly predict burnout. It would be expected that having greater Resources would help staff to cope with Demands, as Resources can mitigate the negative impact of the Demands on burnout (Bakker and Demerouti 2017; Bakker et al. 2005, 2010), and this was partly confirmed in our data. The interaction between Resources and Demands effects on burnout were not statistically significant, but

the addition of Resources changed the direction of the relationship between Demands and burnout (i.e., they were associated with lower levels of burnout once Resources were included in the model). This indicates that although the Resources in our study population reduced the effects of Demands on burnout, those effects were not strong enough to significantly moderate the relationship.

Factor loadings for the three job role variables (managerial, community, and bereavement) were small but were kept in the final model due to their relevance to the topic. Compared to other variables, organizational stressors were the most relevant aspect of Demands, followed by the HSE Demands dimension. Both were significantly associated with work engagement (regression models). The results also suggest a higher relevance of the organizational aspects compared to more individual aspects (e.g., occupational group, experience, or stressors related to patient caring or dealing with patient’s families). Additionally, the analysis showed that lower burnout scores were associated with those accessing *Reflective practice* or those accessing *Training or support for personal or professional development*. This result is particularly

**Table 2.** Regression models predicting burnout score and work engagement

	Burnout score			Work engagement		
	B	Conf. Int (95%)	p-Value	B	Conf. Int (95%)	p-Value
Rewards score	-0.33	-0.47 to -0.19	<0.001	0.03	0.02-0.05	<0.001
HSE control	-0.81	-2.93 to 1.30	0.45	0.42	0.20-0.64	<0.001
HSE managers support	1.63	-0.57 to 3.83	0.146	0.17	-0.06 to 0.40	0.139
HES peer support	-1.77	-4.26 to 0.72	0.163	-0.09	-0.35 to 0.16	0.478
HES relationships	-2.90	-5.35 to -0.45	0.02	0.49	0.24-0.74	<0.001
HES demands	-6.06	-8.17 to -3.96	<0.001	-0.30	-0.52 to -0.08	0.007
HES role	-1.71	-4.09 to 0.68	0.159	0.59	0.34-0.83	<0.001
HES change	-1.20	-3.25-0.85	0.249	0.32	0.11-0.53	0.004
Staff support interventions accessed	-1.34	-2.35 to -0.33	0.009	-0.02	-0.12-0.09	0.748
Experience in life-limiting conditions (years)	0.34	-0.43 to 1.11	0.385	-0.05	-0.13 to 0.03	0.205
Employed clinician (Yes)	0.73	-1.75 to 3.22	0.563	0.26	0.00-0.52	0.05
Child stressors	3.41	0.79-6.02	0.01	-0.02	-0.29 to 0.25	0.877
Parent stressors	0.38	-3.43 to 4.19	0.844	0.16	-0.23 to 0.56	0.42
Organization stressors	1.10	-2.49 to 4.69	0.546	-0.55	-0.92 to -0.18	0.004
Occupation group (clinical vs other)	0.51	-1.97 to 2.99	0.688	-0.26	-0.52 to -0.00	0.048
Managerial role (Yes)	-1.78	-4.51 to 0.94	0.198	0.56	0.28-0.85	<0.001
Community role (Yes)	0.91	-1.50 to 3.33	0.458	-0.10	-0.35 to 0.15	0.443
Bereavement role (Yes)	2.25	-1.58 to 6.08	0.248	-0.14	-0.54 to 0.25	0.476
Number of child deaths (2019)	-0.07	-0.13 to -0.01	0.023	0.00	-0.00 to 0.01	0.676
Observations	307			307		
R <sup>2</sup> /R <sup>2</sup> adjusted	0.442/0.403			0.598/0.570		



**Figure 3.** Model diagram for SEM (Structural Equation Modelling) showing standardised effects (N=393).

relevant to hospices aiming to provide their staff with such support strategies.

Overall, HSE *Management Standards* presented the highest loadings on Resources, with manager support and change showing the highest values. In the multivariate regressions, HSE Demands was one of the few variables predicting both burnout and work engagement. Our final SEM analysis showed that this variable fitted better as a Demand rather than a Resource, in contrast to the other HSE Management Standard variables. This variable also had the second highest factor loading in the SEM model, suggesting that this is a potential point of attention for future work and clinical practice. Providing employees with appropriate Demands that consider their hours of work, skills, capabilities, and concerns is likely to be particularly helpful to reduce overall Demands pressure and burnout levels.

Our model partly supported the JD-R model, with clear relationships between Resources and the Resources and Demands interaction on work engagement and between Demands and burnout. However, there was no clear support that Resources had a buffering effect on Demands effects on burnout. Also, the effects of Demands did not amplify the impact of job resources on work engagement. We also did not find support that burnout was associated with work engagement, whereas the JD-R model clearly states a negative relationship between exhaustion (e.g., burnout) and work engagement (Bakker and Demerouti 2014); however, this evidence is limited and temporality seems to play an important role. Directionality suggests that despite the association between burnout and work engagement occurring in both directions, some evidence suggests that it is stronger from burnout to work engagement than in the opposite direction. However, this is time-specific (i.e., only observed on a 12-month time lag) (Maricuțoiu et al. 2017) and remains an unresolved issue (Bakker and Demerouti 2017).

Overall, the evidence from this study provides important contributions as to how JD-R theory possibly operates in children's hospice working environments. This is the first study examining organizational and personal aspects in a large sample of hospice staff and testing for multiple relationships within a single model. The model takes into account the intricate connections between Resources and Demands and their effects on burnout and work engagement and provides a better representation of how the relationships may occur within a hospice setting. Our results partly supported the JD-R model. Resources did not show a significant buffer effect on burnout, but Demands were significantly associated with burnout (even controlling for its interaction with Resources). In conjunction with a previous study that showed no support for "perceived respect" (a Resource associated with higher work engagement) as having buffer effects on role conflict or deep acting (Demands) among hospice workers (Stensland and Landsman 2017), our findings suggest that a buffer effect of Resources may not clearly operate in hospice-related settings, although further research is still needed to confirm this. Future studies may also examine whether changes in how Resources or Demands variables were composed may affect their effects on the outcomes.

### Strengths and limitations

The study collected information from a large sample across multiple UK hospices and assessed both organizational and personal Resources and Demands, and so the tested model is likely to be a

good depiction of how Resources and Demands interact and affect burnout and work engagement.

Despite the large sample and efforts to recruit all children's hospices, we were not able to retrieve responses from every hospice. This was partly related to COVID limitations at the time of data collection. The methods used do not allow to infer any causal relationships. Our final model showed a good fit, but this does not mean it is the only true relationship between the variables.

### Conclusion

The interaction between Resources and Demands predicted work engagement only. Our findings also present a set of variables that can represent Resources and Demands and may help identify aspects that can be used to improve staff well-being in children's hospices. Our model partly supported the JD-R model, showing that Resources were positively related to work engagement and Demands were related to burnout. Overall, knowledge generated from this study provides an important evidence base from which to identify staff support systems and organizational practices that offer the greatest potential to improve staff well-being in children's hospices and its associated outcomes.

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/S147895152300161X>.

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