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Intensified job demands in healthcare and their consequences for employee well-being and patient satisfaction: A multilevel approach

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Abstract**Aims:** Intensified job demands (IJDs) and their effects on employee burnout, work engagement and patient satisfaction were investigated across different work units and occupational groups in a healthcare setting.**Design:** A multilevel study.**Methods:** One thousand twenty-four healthcare employees responded to a survey in 2019 and rated their experiences of IJDs, burnout and work engagement. Nine hundred fifty-one patients rated their satisfaction with care received from healthcare staff.**Results:** Work units and occupational groups who shared more experiences of increased time pressure and multitasking reported higher exhaustion. Shared perceptions of increased planning and performing one's work autonomously correlated with higher exhaustion and lower patient satisfaction at the work-unit level. Moreover, work intensification was found to be highest in emergency care and among nurses, while job-related planning demands were highest in leadership services.**Conclusion:** IJDs are a shared risk to employee well-being among heterogeneous healthcare staff and relate negatively to customer-rated patient satisfaction. We found that high time-pressure demands increase the shared risk of burnout—especially among nurses and healthcare staff working in emergency care. Furthermore, increased independence and self-determination in planning and executing work tasks also increase the shared risk of burnout especially among those in leadership services. This can lead to lower customer/care satisfaction among patients.**Impact:** With the accelerating pace of socio-economic change, the pace of work is also getting faster. Our findings help understand how IJDs are experienced among heterogeneous healthcare staff. Because different occupational groups and work units had different demands, this research shows that attempts to mitigate the negative effects of IJDs need to be planned and implemented in a context-specific way. It seems crucial to pay more attention especially to adequate nurse staffing so that the adverse effects of IJDs could be mitigated among them.

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KEYWORDS

Burnout, healthcare, intensified job demands (IJDs), leaders, multilevel, nurses, patient satisfaction, work engagement

1 | INTRODUCTION

Hospitals are inherently stressful organizations where different healthcare professionals are frequently exposed to various job stressors that can adversely affect their treatment outcomes and personal well-being (Hall et al., 2016). Employees are also affected by the accelerating pace of socioeconomic change (Rosa, 2013) arising from digitalization and globalization. Such changes have led to expectations of employees that emphasize speed, productivity, planning, decision-making and knowledge (Kubicek et al., 2015). Overall, work-life has become more intense and demanding, and healthcare employees are no exception. Technological improvements have brought new challenges in terms of acquiring, updating and mastering new skills, which has increased the cognitive work demands on employees (Korunka et al., 2015). To be able to guarantee both the quality of care and the well-being of healthcare staff, we need to investigate in greater detail how they experience the contemporary demands of their jobs (Kubicek et al., 2015).

1.1 | Background

The issue of high job stress, especially among nurses, has received a lot of empirical interest (for reviews, see, e.g., Clegg, 2001; Martín-Del-Río et al., 2018; McVicar, 2003; Woo et al., 2020). However, the empirical research on the consequences of work intensification (explicitly defined as an *increase* of amount of effort employees need to invest in their work) is still limited among healthcare employees. The studies that have been conducted among nurses have shown that intensification is related to poor health and well-being (Hart & Warren, 2015; Holland et al., 2018; Kubicek et al., 2013; Zeytinoglu et al., 2006, 2007). However, up to a certain point, job stressors can also represent positive challenges that can have favourable consequences to employees (Cavanaugh et al., 2000; LePine et al., 2005), allowing them to learn new skills that may lead to professional development and increased work motivation. Such positive and/or negative consequences of job demands might also be transferred to patients, although this suggestion lacks broader empirical evidence as yet (Bidwell et al., 2017; Firth-Cozens, 2001).

There has also been less attention paid to how the whole spectrum of other hospital staff, beyond nurses and doctors, experience stress at work (Fiabane et al., 2013). This is a notable shortcoming, as to better understand work-induced risk factors, we need to take into account a range of occupational groups, that is, not just those who do care work but also hospital administrators, support staff and others. They each bring their own history, occupational values, and work structures to the workplace (Leggat, 2008). They are likely to have different collective understandings of the purpose, norms, values

and culture of their work (Scott et al., 2003). These understandings will in turn be developed and transmitted to others through socialization processes (Schein, 1990). Consequently, employee groups can have different interpretations of job-stress factors that are independent from their shared work environment.

The theoretical model of our study is based on the multidimensional model of intensified job demands (Kubicek et al., 2015), which includes a dynamic aspect of temporal change (Franke, 2015): employees reflect back on their earlier experience of five years ago and then evaluate their current situation. These job demands are potential antecedents of employee well-being based on the challenge-hindrance approach to work demands (Cavanaugh et al., 2000; LePine et al., 2005). Finally, we adopt a systems approach (Montgomery et al., 2019), according to which the organizational context needs to be taken into account in addressing work stressors and in supporting better employee well-being at work. We will next present our hypothesized associations in more detail.

Following the model presented by Kubicek et al., (2015), we define *intensified job demands* (henceforth referred to as IJDs) as new pressures placed on employees, which have been fuelled by accelerated societal and organizational changes. Kubicek et al. identified five subdimensions for IJDs based on relevant literature, previous empirical findings, and their own multisample scale development and validation study. The first dimension in this model is *work intensification*, which refers to the increasing effort employees need to invest in their daily work. It is characterized by working at a quicker pace, multitasking, and having fewer and shorter work breaks (Kubicek et al., 2015). The second dimension is *intensified job-related planning and decision-making demands*, referring to the ever-increasing expectations that employees should be planning, executing and evaluating their work- and task-related goals autonomously. The third dimension is *intensified career-related planning and decision-making demands*, which is similar to the second but in relation to personal career development. Modern employees face pressures to continuously prove their worth and role within their workplace and in the job market in general, and they must simultaneously plan and pursue future careers in a self-directed manner, both inside and outside their current organization (Kubicek et al., 2015; Pongratz & Voß, 2003). The final two dimensions—*intensified (a) knowledge-related and (b) skill-related learning demands*—stem from keeping on top of technological and societal changes (Korunka et al., 2015). These require employees to constantly update and develop both their theoretical knowledge or expertise and their practical skills—for instance with new equipment (Kubicek et al., 2015). Based on the strong conceptual and empirical overlap of these two final dimensions (see Kubicek et al., 2015; Mauno et al., 2019), we combined as one dimension, which we called *intensified learning demands*. To summarize, IJDs represent a higher-order construct, which comprises of the aforementioned subdimensions.

A growing number of studies have shown that IJDs associate with employee well-being, most of them focusing on the first dimension of work intensification as a health-hampering job stressor. For example, an increase in the pace of one's work has been shown to correlate with higher emotional exhaustion and lower engagement among eldercare nurses, above and beyond other, more traditionally studied cognitive, emotional, and physical demands (Kubicek et al., 2013). Work intensification has also been shown to correlate with an increase in psychosomatic complaints and job dissatisfaction (Franke, 2015; Green, 2004), and based on longitudinal evidence, work intensification can also lead to an increase in emotional exhaustion and less job satisfaction overall (Korunka et al., 2015).

However, according to the challenge-hindrance approach to work demands (Cavanaugh et al., 2000; LePine et al., 2005), not all demands are solely negative for employee well-being. Although hindrance demands may threaten the accomplishment of personal goals and impair employees' well-being, other demands may also include inherently supportive elements that actually help them reach personal goals and foster personal development, eventually leading to positive work outcomes such as higher job satisfaction and work engagement (Cavanaugh et al., 2000). This approach is in line with the transactional theory of stress (see LePine et al., 2005), which states that the appraisal of job demands rather than demands themselves trigger individuals' emotions and cognitions. These reactions, in turn, influence subsequent attitudes and behaviours.

From this perspective, IJDs can include positively challenging elements that could lead to heightened motivation at work (Korunka et al., 2015). For example, job-related planning demands can also mean increased autonomy at work. Career-related planning demands imply there is individual freedom to make personally meaningful career choices that may also improve one's career prospects and employability. Knowledge- and skill-related learning demands provide opportunities to learn new things at work, which can also have positive implications. Thus, though IJDs are likely to deplete individual resources, they can also boost motivation. For example, Korunka et al., (2015) found that learning demands associated with a decrease in exhaustion and an increase in job satisfaction. Thus, they seemed to have beneficial effects even beyond those expected from a challenge stressor.

We used two central indicators that tap into both the negative and positive sides of well-being among healthcare staff. Firstly, we investigated *burnout*, which is a syndrome characterized by emotional exhaustion (energy depletion and fatigue), cynicism (negative, indifferent attitudes towards work and the people one works with) and inefficacy (diminished sense of accomplishment) (Maslach & Leiter, 2008). Burnout can develop as a response to prolonged exposure to work-related stressors and is especially typical among professionals working in human services, such as healthcare. A high workload among nurses, for instance, has repeatedly been shown to correlate with burnout, especially in terms of exhaustion (Fiabane et al., 2013; Kowalski et al. 2010; McVicar, 2003). Secondly, we examined *work engagement* as a positive indicator of well-being. There are three central dimensions to workers who are engaged: vigour

(high levels of energy and resilience at work), dedication (strong involvement in and enthusiasm about their work) and absorption (being immersed in one's work activities) (Schaufeli et al., 2002).

In order to preclude alternative explanations for the relationships between IJDs and well-being outcomes, we considered relevant exogenous variables, which included both demographic factors (gender and age) and structural work-related factors (working hours, supervisor tasks, patient work and work contract type). These exogenous variables were chosen based on previous empirical studies, which have found significant associations between these variables and IJDs (Mauno et al., 2019; Paškvan & Kubicek, 2017) and well-being (Bria et al., 2012; Lepistö et al., 2018). Therefore, they are also relevant factors to control for when investigating healthcare professionals.

Studies have shown that occupational stress and burnout not only have health-hampering consequences for the employees themselves but also negative effects on the quality of care provided to patients (e.g., Argentero et al., 2008; Leiter et al., 1998; Rogers et al., 2004; Vahey et al., 2004). Therefore, we also included a more objective outcome to our study to complement the self-evaluations provided by the healthcare staff. Namely, we investigated how the IJDs correlated with patient/customer-rated evaluations on the quality of care. This was conceptualized as *patients' satisfaction*—in terms of the way they felt they had been treated by staff.

Our study was based on a systems approach, where staff well-being is integrated as a quality marker within the healthcare system (Montgomery et al., 2019). This approach was taken because, as Montgomery and colleagues convincingly argue, an individualistic approach does not consider the sources of (chronic) stressors, which are often related to the workplace (such as staff shortages). Even if individuals are the ones who actually experience indicators of well-being (such as burnout), these shared well-being reactions of the staff are often a response to common job characteristics (such as different stressors). Therefore, albeit individually focused interventions may offer valuable help to the employees, these measures are likely to have less long-term impact than solutions that are organizationally embedded (Montgomery et al., 2019). One fruitful way of achieving such broader, more effective results is to examine the central drivers of ill-being within each organizational unit. In addition, we argue that the occupational context can hold important implications for supporting better employee well-being at work. This is especially relevant in a healthcare setting, where there can be significant differences between work practices, cultures and attitudes towards work among physicians, nurses or other support staff.

Psychosocial working conditions, including different job demands, are at least to some extent shared experiences among employees (Silla & Gamero, 2014). When we aim to understand and support well-being in our turbulent society, we should focus on the specific context we aim to influence (Martin et al., 2016). This means that in order to find ways to mitigate the negative effects of IJDs on the well-being of healthcare employees and on patient satisfaction, we should examine the IJDs by taking into account the hierarchical, nested structures within organizations. In general, there has been a call for conducting more multilevel

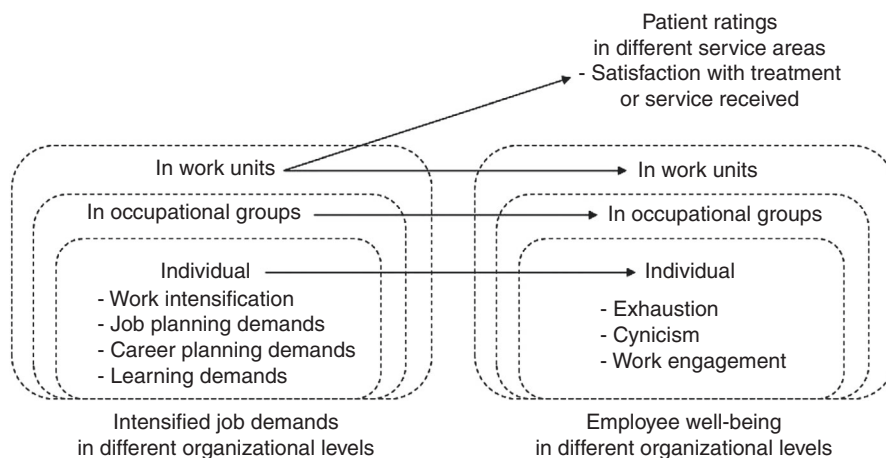


FIGURE 1 A summary of the hypothesized associations between IJDs, employee well-being, and patient satisfaction at different organizational levels.

studies in employee well-being research (Martin et al., 2016), but thus far we have lacked both theoretical understanding and empirical evidence of the shared nature of IJDs. Our study therefore uses multi-level analysis to examine the extent to which IJDs are shared among different employee groups. The risk of using single-level approaches to phenomena that are naturally nested (such as employees in work units or groups within organizations) is that important associations between the focal constructs are missed, and we gain only limited understanding of the phenomena in question (Bliese & Jex, 2002; Klein et al., 2001; Klein & Kozlowski, 2000; Martin et al., 2016).

We address this issue of IJDs in naturally nested, hierarchical data from several different viewpoints. First, the context of societal change behind the IJDs represents the psychosocial work environment related to employee well-being on a macrolevel (Martin et al., 2016), as technological innovation leads to a persistent acceleration in the social pace of life (Rosa, 2003). We also know that members of one organization, work group or other shared context (such as an occupational group) are likely to evaluate features of their work in a similar manner (Dextras-Gauthier et al., 2012; Martin et al., 2016). We therefore focus on how social acceleration is reflected in the IJDs both on the mesolevel and microlevel within one organization. The mesolevel includes the shared, collective perceptions of individuals working together (Rousseau, 1985). We investigate occupational groups with a similar occupational background or job description (such as nurses, HR specialists, or dentists). In addition, we look at the work-unit (also at the mesolevel), where common contextual elements, such as shared perceptions of leadership or practical job resources, can lead to shared experiences of the IJDs. Finally, we investigate the IJDs as personal, microlevel experiences. The theoretical framework for the study is presented in Figure 1 below.

2 | THE STUDY

2.1 | Aims

The aim of the study was to investigate whether and how IJDs might be related to employee well-being and patient satisfaction, both

within and between different organizational levels. Based on the theoretical background, we posed the following three hypotheses for our study.

Hypothesis 1: Employees who belong to the same work unit (H1A) or to the same occupational group (H1B) have similar experiences of IJDs and of well-being, implying that they share these job demands (and their outcomes).

Hypothesis 2: High IJDs correlate with reduced well-being, reflected in high burnout and low work engagement (H2A) at both within- and between-levels, and with low (between-level) patient satisfaction (H2B).

Hypothesis 3: Learning demands have a positive association with employee well-being (H3A) at both within- and between-levels, and with (between-level) patient satisfaction (H3B).

2.2 | Design

A cross-sectional, hierarchical survey design was used to investigate IJDs and well-being among healthcare staff in one hospital district in Finland. In addition, the effects of IJDs were studied in relation to patient-rated satisfaction.

2.3 | Data collection

Data from the healthcare staff were collected between September and October 2019. All employees working in the hospital district were sent an invitation to participate in the study. This email had a link to the electronic survey. It also included a short description of the project, its aims and how it respected confidentiality and voluntary participation, including the right to withdraw personal consent and discontinue participation at any time with no consequences. Data from patients were collected between January and October 2019 by the healthcare organization involved. Any patient who had used its services was given the chance to voluntarily fill out a feedback form available on the district's webpage.

2.4 | Sample

This study was based on a large organizational sample that would allow for maximum variation and thus represent the whole spectrum of healthcare staff. In addition, this sampling provided enough units needed for multilevel modelling—where

the number of level 2 units should ideally be 30 or greater (Hox et al., 2010). The final sample included 1,024 healthcare staff members (level 1) who were nested (level 2) in 149 organizational units (average number of participants per unit: $M = 6.84$, see Figure 2) and in 130 occupational groups (average number of participants per group: $M = 6.99$, see Table 1). The survey was

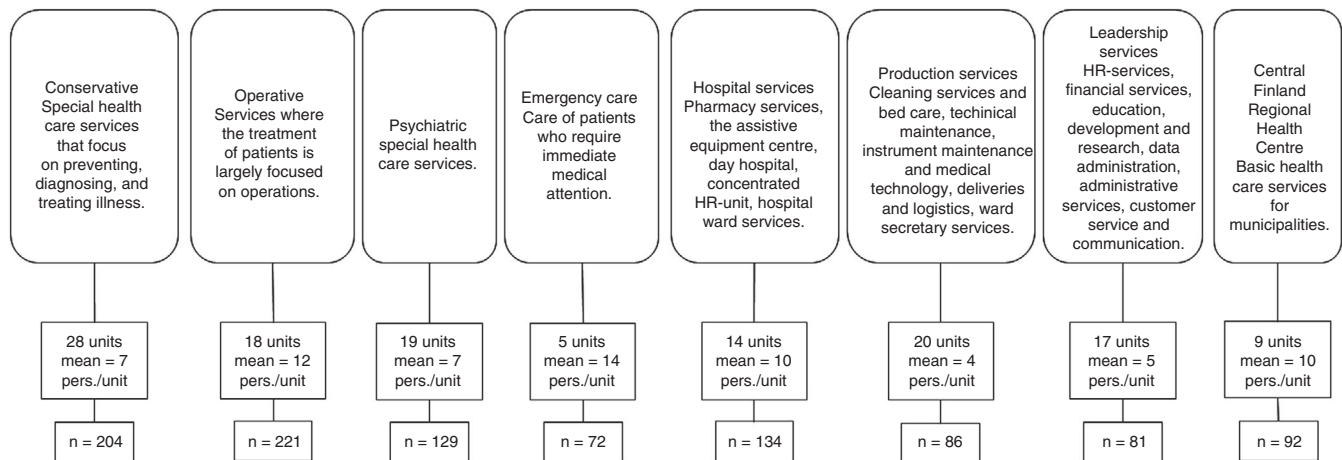


FIGURE 2 The nesting of participants ($n = 1,019$) in work units within different service areas.

TABLE 1 Sample descriptives of employees nested in occupational groups ($n = 909$).

Occupational group	n	Gender/ female n (%)	Largest age group n (%)	Work hours mean (SD)	Supervisor tasks/yes n (%)	Patient work/yes n (%)	Work contract/ fixed term n (%)
1. Nurses (e.g., registered nurses and public health nurses)	551	496 (90)	51–55 85 (15)	37.39 (5.52)	14 (3)	511 (93)	87 (16)
2. Doctors (e.g., specialists and primary care physicians)	72	46 (64)	36–40 13 (18)	42.16 (9.21)	12 (17)	65 (92)	26 (36)
3. Mental health workers (e.g., psychologists, psychiatric nurses)	33	27 (82)	51–55 8 (24)	37.87 (4.06)	0	33 (100)	-
4. Dental care (e.g., dentists, dental nurses)	18	17 (94)	over 60 7 (39)	37.17 (4.80)	0	18 (100)	-
5. Rehabilitation (e.g., physiotherapists, occupational therapists)	44	41 (93)	36–40 9 (21)	36.63 (7.59)	-	37 (84)	-
6. Social care (e.g., social workers)	14	12 (86)	51–55 4 (29)	39.14 (3.10)	0	13 (93)	-
7. Hospital services/logistics (e.g., instrument technicians)	58	38 (66)	55–60 14 (24)	37.64 (6.72)	-	-	13 (23)
8. Pharmaceuticals (e.g., chemists)	14	11 (79)	-	36.14 (8.61)	0	-	-
9. Secretaries/assistants (e.g., ward clerks)	40	39 (98)	51–55 10 (25)	36.58 (7.39)	0	10 (25)	-
10. Knowledge workers/experts (e.g., developers, ICT workers)	27	17 (65)	41–45 8 (30)	38.02 (6.78)	-	-	15 (56)
11. Human services (e.g., service advisors, training coordinators)	22	22 (100)	-	39.30 (1.35)	-	0	-
12. Leaders/managers (e.g., nursing directors, service managers)	24	20 (83)	56–60 11 (46)	41.87 (5.75)	20 (83)	-	0

Note: Subgroups that have less than seven respondents are not reported (-).

TABLE 2 Employees nested in organizational work units (*n*within = 1,019, *n*between = 149): Means, standard deviations, and correlations between variables (within-level above the diagonal, between-level below the diagonal).

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. WI	3.70	1.04		0.46***	0.29***	0.35***	0.43***	0.29***	-0.13**	-0.03	0.03	0.05	0.06	0.09*	-0.05**
2. JP	3.57	0.90	0.40**		0.61***	0.50***	0.10*	0.01	-0.00	0.05	0.18**	0.10*	-0.12*	-0.23**	0.01
3. CP	3.57	0.95	0.63**	0.93***		0.46***	-0.02	0.04	0.07	-0.14**	-0.20**	-0.02	0.03	-0.02	0.03
4. LD	3.95	0.84	0.58*	0.28	0.38		-0.02	-0.09*	0.07	-0.01	0.08	0.01	0.10	0.23***	-0.02
5. EXH	3.05	1.10	0.92***	0.18	0.01	0.10		0.58***	-0.31***	-0.12**	-0.03	0.07	0.19***	0.07	0.04*
6. CYN	2.57	1.20	0.56	0.48	-0.36	0.09	0.60		-0.58***	0.09	0.26***	-0.02	-0.27***	-0.04	-0.05*
7. ENG	5.57	1.25	-0.24	0.03	0.02	-0.10	-0.26	-0.61		-0.03	0.01	0.11*	-0.10*	-0.16**	-0.04*
8. Gender			0.08	-0.33	0.58	-0.58	0.02	-0.67	-0.35		-0.09*	0.01	0.09*	0.08*	-0.00
9. Age			-0.43	0.16	0.24	0.00	-0.32	0.25	0.44	0.51**		-0.10*	0.12***	-0.19***	-0.30***
10. Work hours			0.38	-0.39	-0.17	0.36	0.61	0.21	0.26	0.73	0.44		0.14**	-0.03	0.12
11. Supervisor			0.10	0.12	0.18	-0.17	0.38	-0.08	0.08	-0.15	0.50*	0.26		-0.24***	-0.00
12. Patient work			0.07	-0.50**	0.41	0.40	0.39	-0.21	-0.02	-0.41**	-0.55***	-0.35	-0.58*		-0.00
13. Work contract			-0.01	0.00	0.01	-0.01	0.00	-0.01	0.01	0.01	-0.01	-0.01	-0.00	-0.03	

Note: Gender: 0 = female, 1 = male; work hours: per week; supervisor: 0 = no, 1 = yes; patient work: 0 = no, 1 = yes; work contract: 0 = permanent, 1 = fixed term.

Abbreviations: CP, career planning demands; CYN, cynicism; ENG, work engagement; EXH, exhaustion; JP, job planning demands; LD, learning demands; WI, work intensification.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

TABLE 3 Employees nested in occupational groups (*n*_{within} = 909, *n*_{between} = 130): Correlations between variables (within-level above the diagonal, between-level below the diagonal).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. WI		0.44***	0.31***	0.34***	0.48***	0.29***	-0.08**	-0.01	0.01	0.04	0.06	0.07**	-0.05**
2. JP	0.18		0.64***	0.48***	0.31***	0.17***	-0.02	0.08*	0.20***	0.13*	-0.06	-0.10	0.02*
3. CP	0.34	0.50		0.43***	0.21***	0.14***	0.04	-0.17***	-0.17**	-0.02	-0.02	0.04	0.04*
4. LD	0.46	0.29	0.23		0.21***	0.10***	0.02	-0.00	0.04	-0.03	0.07	0.04	-0.02**
5. EXH	0.78***	0.29	0.51	-0.01		0.58***	-0.27***	-0.09	-0.18***	0.03	-0.01	-0.03	0.04*
6. CYN	0.53	-0.23	-0.44	-0.08	0.52		-0.57***	0.05	0.28***	-0.02	0.00	0.07	-0.07**
7. ENG	-0.30	0.45	0.48	0.10	-0.36	-0.90***		-0.01	0.06	0.13**	-0.03	-0.06	-0.04**
8. Gender	0.14	-0.26	0.67*	-0.10	-0.34	-0.25	-0.30		-0.08*	-0.02	-0.01	0.04	0.00
9. Age	0.12	0.15	0.20	-0.08	0.33	0.47	0.28	0.24		-0.07*	0.00	-0.07**	-0.27***
10. Work hours	0.20	-0.34	-0.13	0.41	0.12	-0.02	0.19	0.13	-0.24		0.06	-0.04	-0.00
11. Supervisor	0.41	0.46**	-0.26	-0.14	0.11	-0.60***	-0.17	0.00	0.54***	0.37*		-0.16	0.00
12. Patient work	0.53**	-0.18	0.08	-0.00	-0.32	0.25	-0.03	0.08	-0.44**	0.03	-0.23**		-0.01
13. Work contract	-0.01	-0.01	0.02	-0.02	0.01	-0.00	.02	0.01	-0.07	0.30	-0.02	-0.01	

Note: Gender: 0 = female, 1 = male; supervisor tasks: 0 = no, 1 = yes; patient work: 0 = no, 1 = yes; work contract: 0 = permanent, 1 = fixed term.

Abbreviations: CP, career planning demands; CYN, cynicism; ENG, work engagement; EXH, exhaustion; JP, job planning demands; LD, learning demands; WI, work intensification.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

TABLE 4 Multilevel estimates from the two hierarchical models (work units and occupational groups as clustering variables).

Outcome	Predictor	Employees nested in work units		Employees nested in occupational groups	
		Between level	Within level	Between level	Within level
Exhaustion	Work intensification	0.923***	0.468***	0.773***	0.477***
	Job planning demands	0.984***	0.295***	ns	0.312***
	Learning demands	-	-	ns	0.219***
	Age			0.498**	
Work engagement	Work intensification	ns	-0.106**	ns	-0.099**
	Job planning demands	ns	ns	ns	ns
	Learning demands	-	-	ns	ns
	Working hours	ns	0.118***	ns	0.132**
Patient satisfaction	Job planning	-0.371*	-	-	-

Note: Variables that did not have statistically significant interclass correlations were excluded from the multilevel models (-). Patient satisfaction was estimated only at the between level in work units, as it did not have any within-level variance.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

addressed to all employees working in the chosen hospital district in Finland (total number of employees $N = 3,748$), resulting in a response rate of 27.3%.

The representativeness of the sample was then checked against information that was available for the whole organization. Figures for the whole organization were 82.5% women, 52.3% aged over 45 years, and 55–59 years old as the largest single age group. Corresponding figures for our sample of respondents were 85% women, 51.5% aged over 45 years, and 51–55 years old as the largest single age group. This means our study sample was representative of the whole organization. As for the patient ratings, these were based on evaluations given by a total of 951 patients and clients of health-care services in the hospital district.

Of the respondents, 73% did patient work, 6% had leadership tasks, 85% had a full-time job, and 82% had a permanent work contract. In addition, 56% did regular day shifts throughout the week, 18% regularly did two or three shifts per week (but at irregular times), while 26% did irregular shifts as and when they were needed. Of the participants, 36% had a vocational degree, 38% had a Bachelor's degree, and 23% had a Master's degree. The respondents' distribution within the organizational work units is described in more detail in Figure 2, and more background information regarding the different occupational groups is given in Table 1.

2.5 | Measures

IJDs were measured with the Intensification of Job Demands Scale developed and validated by Kubicek et al., (2015). The employees were asked to rate their experiences of the IJDs by indicating

whether they had experienced an increase in each of the demands during the last 5 years in their work (or during their whole time on the current job, if a participant had worked less than 5 years in the organization). Of the original five dimensions, knowledge and skill related learning demands were combined into intensified learning demands because of the high correlations between their mean scores ($r = 0.83$, $p < 0.0001$). Similarly high correlations between the knowledge- and skill-related learning dimensions have also been found in previous studies (Kubicek et al., 2015; Mauno et al., 2019). Thus, we used four subscales in the current study: work intensification (5 items; e.g., 'Ever more work has to be completed by fewer and fewer employees', $\alpha = 0.90$), job planning demands (5 items; e.g., 'One increasingly has to check independently whether the work goals have been reached', $\alpha = 0.84$), career planning demands (3 items; e.g., 'One increasingly has to plan one's professional career independently', $\alpha = 0.78$), and learning demands (6 items; e.g., 'One has to acquire new expertise for the job more often', $\alpha = 0.92$). The items were rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*completely*), higher mean scores indicating a higher level of IJDs.

Burnout was measured with the 9-item Bergen Burnout Inventory (BBI-9; Näätänen et al., 2003; Salmela-Aro et al., 2011; see also Feldt et al., 2014). We used the dimensions of exhaustion and cynicism, which are generally seen as the core dimensions of burnout (Schaufeli & Bakker, 2004). The BBI-9 includes three items for both, e.g., 'I am snowed under with work' (exhaustion, $\alpha = 0.66$) and 'I feel dispirited at work and I think of leaving my job' (cynicism, $\alpha = 0.86$). The items were rated on a 6-point frequency-based scale ranging from 1 (*completely disagree*) to 6 (*completely agree*), higher mean scores indicating a higher level of burnout. The scores for emotional exhaustion score ($r = 0.87$) and cynicism ($r = 0.88$) have

shown a strong positive correlation with the respective dimensions of the widely used Maslach Burnout Inventory (MBI, Maslach et al., 1996; Näätänen et al., 2003).

Work engagement was measured with the ultrashort version of the Utrecht Work Engagement Scale (UWES-3, Schaufeli et al., 2019), which is a reliable and valid indicator of work engagement that can be used as an alternative to the longer 9-item version (Schaufeli et al., 2019). The UWES-3 includes three dimensions that reflect the underlying dimensions of engagement: vigour ('At my job, I feel bursting with energy'); dedication ('My job inspires me'); and absorption ('I am immersed in my work'). Responses were given on a 7-point frequency scale from 1 (*never*) to 7 (*every day*), higher mean scores indicating a higher level of work engagement.

Customer-rated patient satisfaction was measured by getting participants to evaluate a statement using a 5-point Likert scale. The statement was 'the personnel treated me well', and the evaluations ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The participating health-care organization provided the researchers with data that included the percentages of patients who had given positive ratings (values 4–5) in each area of healthcare service. The ratings ranged from 46% to 96%, with a higher percentage indicating a higher level of satisfaction.

Demographic variables of the employees included gender (0 = female, 1 = male) and age (an ordinal variable consisting of nine age groups treated as a continuous variable). Structural work-related factors included weekly working hours (mean), supervisor tasks (0 = no, 1 = yes), patient work (0 = no, 1 = yes), and work contract (0 = permanent, 1 = fixed term).

2.6 | Ethical considerations

The first page of the employee survey gave information about the collection and use of personal data in the research, in line with the GDPR guidelines of the EU. All potential participants marked their informed consent on this page before they continued any further in the survey. The research project followed the guidelines of the Finnish National Board on Research Integrity, which clarified that no approval was required by an ethical or institutional review board to conduct the research.

2.7 | Data analysis

The main statistical analyses were performed using a multilevel modelling technique (Heck & Thomas, 2015) on the Mplus programme (version 8.0; Muthén & Muthén, 1998–2017). It captures the hierarchical structure of the data by allowing individuals to be nested within higher levels of classification. We treated the study variables as latent constructs, broken down into two sets of latent variables, rather than using them as observed variables—as they would be in conventional multilevel regression modelling (e.g., using random slopes or intercepts). Thus, the data was modelled at the two levels of 'within' (level 1) and 'between' (level 2): the former

TABLE 5 Analysis of variance of intensified job demands between different service areas.

Intensified job demands (range 1–5)	1. Conservative (n = 205)		2. Operative (n = 219)		3. Psychiatric (n = 129)		4. Emergency care (n = 72)		5. Hospital services (n = 134)		6. Production services (n = 87)		7. Leadership services (n = 82)		8. Regional health care (n = 92)		F test	Pairwise comparisons ^a
	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE	M	SE				
Work intensification	3.46	1.05	3.86	1.08	3.60	1.07	4.12	0.83	3.98	0.94	3.64	0.96	3.51	1.07	3.49	1.01	6.62***	1 < 2, 5 4 > 1, 3, 7, 8 5 > 7, 8
Job planning demands	3.39	0.86	3.49	0.97	3.59	0.99	3.54	0.67	3.63	0.83	3.48	0.99	4.00	0.84	3.74	0.82	4.92***	7 > 1, 2, 3, 4, 6
Career planning demands	3.45	0.98	3.62	0.98	3.58	0.93	3.66	0.90	3.59	0.87	3.34	1.01	3.75	1.03	3.69	0.76	2.02*	ns
Learning demands	3.85	0.87	4.12	0.82	3.81	0.74	4.09	0.64	4.18	0.67	3.48	1.02	3.90	0.99	4.06	0.71	8.43***	2 > 1, 3 5 > 1, 3 6 < 1, 2, 4, 5, 7

^aBonferroni.

* $p < 0.05$; *** $p < 0.001$.

explaining employees' individual perceptions (i.e., variance within a group), and the latter explaining their shared perceptions (i.e., variance between groups).

Two separate models were estimated, where employees were first nested based on their work units and then based on their occupational group. Thus, only two levels (individual and nested) were investigated simultaneously. The interclass correlations (ICC) were calculated for each of the key variables by dividing the between-level variance by the total variance, which provided an estimate of what percentage of total variance is accounted for by the between level (Heck & Thomas, 2015). Only when the ICCs showed a statistically significant between-level variation, did we then proceed to further multilevel analyses. Those variables that had variance on both levels were then used in the final multilevel models which used two different cluster variables; the first being employees nested in work units and the second those nested in occupational groups.

To summarize, we calculated what proportion of the variance in the observed variables was attributable to the same work unit (H1A) or to the same occupational group (H1B) and what was attributable to the individual level. To investigate whether high IJDs correlate with high burnout and low work engagement (H2A) and whether learning demands have a positive association with employee well-being (H3A), we estimated two multilevel models (work units and occupational groups as the between-level cluster variable). In both models, the within-level estimates describe the associations between IJDs and outcome variables among (within) individuals. The between-level estimates represent the associations from the shared IJDs to shared burnout and shared work engagement (between individuals).

2.8 | Validity and reliability

In order to preclude alternative explanations for the effects between IJDs and well-being outcomes, several control variables were considered and tested for how they correlated with both dependent and independent study variables (see Tables 2 and 3). All the exogenous variables that were confirmed to have significant correlations

with the outcomes were then used as covariates in the final multi-level models.

We also conducted a confirmatory factor analysis to assess the psychometric properties of our focal measures, which were exhaustion, cynicism, work engagement and the four above mentioned IJDs. The confirmatory factor model revealed an acceptable fit with the data ($\chi^2 = 1605.095$, $df = 436$, $p < 0.0001$, CFI = 0.93, TLI = 0.92, RMSEA = 0.05, SRMR = 0.05). The items loaded on their respective latent factors with coefficients ranging from 0.57 to 0.94 without any strong cross-loadings of items to other factors.

3 | RESULTS

First, we examined the extent to which IJDs and well-being were shared experiences among healthcare staff clustered into (a) work units and (b) occupational groups.

Among *work units*, we found statistically significant ICCs: 0.18 for work intensification, 0.13 for job planning, 0.07 for exhaustion, and 0.05 for work engagement. These results indicated that only 13%–18% of variance in ratings of work intensification and job-related planning demands can be attributed to between-group differences in work units, while 82%–87% of variance in these IJDs occurred at the within-group level. Similarly, the amount of shared variance for well-being was only 5%–7%, indicating that 93%–95% of variance for exhaustion and work engagement occurred at the within level (i.e., individual level). These findings partially support our H1A.

For *occupational groups*, the statistically significant ICCs were 0.09 for work intensification, 0.16 for job planning, 0.21 for learning demands, 0.06 for exhaustion, and 0.09 for work engagement. These results indicate that 9%–16% of variance in IJDs, and 6%–9% of variance in well-being were attributable to between-group differences—partially supporting our H1B. Career-planning demands and cynicism, however, did not have statistically significant ICCs in any of the hierarchical data, indicating that these were individually experienced phenomena and should be left out of the final multilevel models (inclusion requires between-level variance to be significant). Employees thus had partially similar experiences when it

TABLE 6 Analysis of variance of intensified job demands between different occupational groups.

Intensified job demands (range 1–5)	1. Nurses (n = 548)		2. Doctors (n = 72)		3. Mental health workers (n = 33)		4. Dental care (n = 18)		5. Rehabilitation (n = 44)		6. Social care (n = 14)	
	M		M		M		M		M		M	
	SE		SE		SE		SE		SE		SE	
Work intensification	3.84	1.01	3.61	1.03	3.72	1.17	2.99	0.82	3.04	1.09	3.00	0.62
Job planning demands	3.54	0.85	3.30	1.03	3.26	1.11	3.33	0.72	3.57	0.85	3.69	0.75
Career planning demands	3.61	0.91	3.51	1.07	3.33	1.00	3.59	0.60	3.62	0.90	3.45	0.83
Learning demands	4.11	0.71	3.72	0.95	3.67	0.97	3.81	0.79	3.69	0.73	3.67	0.91

^aBonferroni.

** $p < 0.01$; *** $p < 0.001$.

came to three out of four IJDs, exhaustion, and work engagement—though for these last two, the similarity was to a lesser extent than for the three IJDs.

Next, we studied the multilevel associations between IJDs, employee well-being and patient satisfaction. These results are presented in Table 4, where the between-level estimates represent the association between shared-level experiences of IJDs and shared-level experiences of burnout and work engagement (in work units and in occupational groups). Partially in line with H2A, the findings indicated that two of the IJDs associated with poor employee well-being. *Work units* (between-level) that had shared experiences (i.e., variance explained by work unit homogeneity) regarding work intensification and job-related planning demands had higher exhaustion among their employees. *Occupational groups* (between-level) that shared views on increased work intensification also experienced higher exhaustion. However, between-level IJDs did not correlate with work engagement in either work units or occupational groups.

Among *individual employees* (within-level) all four IJDs associated with higher exhaustion. In addition, work intensification correlated with lower work engagement at the within-individual level. H2B got partial support, as high job-related planning demands (but not the other IJDs) correlated with low patient satisfaction at the work-unit level. However, H3 was not supported, as learning demands showed no positive correlation with either employee well-being (H3A) or patient satisfaction (H3B) at either (individual or shared) level.

Finally, we ran additional analyses to identify which work environments and occupational groups would represent the highest risk in relation to the above between-level findings. Based on our analyses of variance (see Table 5), we found that there were significant differences in work intensification ($F[7, 1012] = 6.63, p < 0.001$) and job-related planning ($F[7, 1012] = 4.92, p < 0.001$) between the different service areas. Work intensification was highest in emergency care ($M = 4.12$) and job-related planning demands were highest among those in leadership services ($M = 4.00$). In addition, work intensification ($F[11, 902] = 6.17, p < 0.001$) differed between occupational groups (see Table 6), so that work intensification was highest among nurses ($M = 3.84$).

4 | DISCUSSION

This study investigated the extent to which different IJDs were shared among employees who belong either to the same work unit or occupational group in a particular healthcare organization. We studied how these IJDs associated with employee well-being and patient satisfaction. Our main findings indicated that work intensification and increased demands to plan and perform one's work autonomously were the two IJDs that were partly shared stressors in work units and in occupational groups. These shared stressors associated with a collective risk of exhaustion, especially among nurses and employees working in emergency care. Meanwhile, job-related planning demands were understandably an issue in leadership services. These increasing demands also correlated with lower customer-rated patient satisfaction. However, career-related planning demands and feelings of cynicism were found to be solely individual experiences.

We found only partial support for our original hypotheses, which were based on the challenge-hindrance approach to work demands (Cavanaugh et al., 2000; LePine et al., 2005). Although the theoretical model assumes that some IJDs can include positive and challenging elements which lead to positive employee outcomes (Korunka et al., 2015), we did not find any positive effects of IJDs on well-being. Instead, all IJDs were found to relate to either higher exhaustion (at both share and individual levels) or lower work engagement (at the individual level). This might well relate to the overall excessive workload and work pressure on the healthcare sector, especially among nurses (Janssen et al., 2020), who represented most participants in this study. When job demands are high, employees may struggle to handle them effectively, and this can lead to health impairment (Bakker & Demerouti, 2017). In this case, even a potentially motivating challenge (to learn new skills, for instance) is instead experienced as a stressor.

We also found that learning demands—hypothesized to have positive well-being outcomes (LePine et al., 2005)—correlated with higher exhaustion (at the individual level). This result contradicted a previous study by Kubicek et al., (2013), who found that an increasing need to update one's knowledge was positively related to work

7. Hospital services (n = 58)		8. Pharmaceuticals (n = 14)		9. Secretaries (n = 40)		10. Knowledge workers (n = 27)		11. Human services (n = 22)		12. Leaders (n = 24)		F test	Pairwise comparisons ^a
M	SE	M	SE	M	SE	M	SE	M	SE	M	SE		
3.64	1.06	3.20	0.95	3.82	0.86	2.93	1.14	3.41	1.00	3.54	0.93	6.17***	1 > 4, 5, 10 9 > 5, 10
3.29	0.97	3.06	1.08	3.76	0.98	3.92	0.79	3.73	0.76	4.31	0.60	4.13***	12 > 1, 2, 3, 4, 7, 8, 9
3.19	0.98	2.71	0.97	3.52	1.00	3.74	0.98	3.76	0.93	3.63	0.87	2.47**	1 > 8
3.40	0.90	4.02	0.94	3.93	0.92	3.72	1.13	3.97	0.76	4.03	0.65	6.40***	1 > 2, 5, 7

engagement among healthcare staff in elderly care. One potential explanation for this might be because the two studies were conducted in different work contexts: our study focused on employees in a large healthcare district rather than just in nursing homes (Kubicek et al., 2013). Learning demands in the present study relate to constantly changing technology, software and other administrative systems. Thus, instead of having motivating opportunities to develop occupationally relevant knowledge and skills, learning demands might involve tasks that are not directly related to one's core occupational roles (Thun et al., 2018), such as keeping up with frequently changing computer programmes. To summarize, healthcare organizations should pay attention to the types of demands they make of their employees. To prevent burnout and boost work engagement, there should be a balance so that the overall number of demands does not exceed the resources available.

Our findings reveal more about the shared experiences of IJDs at different organizational levels in healthcare. *Work intensification* (increased time pressure and multitasking demands) associated with a shared risk of exhaustion especially among healthcare staff working in emergency care (when compared to other work units), and among nurses (when compared to other occupations). These findings indicate that emergency care is characterized not only by high work intensity, infrequent breaks, and highly demanding patients (see Choi et al., 2019) but also by the fact that these demands are now increasing at an ever-faster pace.

We found, however, that *increased job-related planning demands* associated with a shared risk of exhaustion in leadership, and this corresponded to lower patient satisfaction. This would indicate that people working in human resources, administrative services and customer services are increasingly obliged to plan and execute their work more and more independently. In line with the challenge-hindrance approach (LePine et al., 2005), it also implies that *too much* autonomy in one's work might be more of a hindrance than a positive opportunity—those who must perform their job without any support from others may experience excessive autonomy as a stressor. This can lead not only to employee exhaustion but also poor feedback from patients.

As a practical implication, leaders should pay close attention to the attitudes and messages they convey within their work community. For example, from the perspective of psychosocial safety climate, Dollard and Bakker (2010) showed that if managers failed to value worker well-being, it was reflected in increased demands towards employees (potentially resulting from a lack of attentiveness to work scheduling and adjustments of workload), which led to poor employee well-being. Thus, one potential approach to mitigate the negative effects of excessive, intensifying job demands could be to highlight policies, practices and procedures for the protection of worker psychological health and safety. This could potentially reduce job demands, bolster resources and build working environments that support worker health and engagement and affect subsequently to better quality of care.

In addition, because work intensification was particularly likely to associate with shared exhaustion among nurses, it means that the target organization of our study should pay special attention to nurses' working conditions. Although we highlight the importance of

investigating job demands in a context specific manner, this finding is very likely to have also broader relevance in healthcare sector. A previous qualitative study has shown that greater workload among nurses was induced by new procedures, more documentation, more liability awareness and increased patient demands in combination with too few nurses and too little time to carry out these extra tasks (Hart & Warren, 2015). This led the nurses to feel stressed by the rush to get things done quickly, and the loss of time to care for patients, although providing good patient care was the fundamental part of their job (Hart & Warren, 2015). Taken together, it seems crucial to pay more attention to adequate nurse staffing so that the adverse effects of intensified job demands and especially of work intensification (time pressure and multitasking) could be mitigated. This could enable nurses to experience less workload and less burnout, consequently supporting their retention (see, e.g., Zeytinoglu et al., 2006) and future recruitment.

4.1 | Limitations and future directions

The strength of our study was that it was based on a hierarchical, naturally nested sample that represented a large healthcare district with heterogeneous work units and occupational groups. However, one limitation of the study was that it was based on cross-sectional data, so we cannot draw any conclusions about the causality of our findings; for example, already exhausted employees might be more prone to feel their job demands have increased. Secondly, we studied only one organization, which means that context-specific findings would need to be replicated in different healthcare work environments—Is it really that generalizable a phenomenon that nurses experience greater work intensification than other healthcare employees? Thirdly, patient satisfaction ratings were based on feedback received via the organization's website; this meant it included feedback, not just on how clients were treated as patients but also those dissatisfied with the customer service. This might partially explain the lower satisfaction ratings with leadership services (which include the customer service). Future studies might consider using a variety of objective measurements to investigate in more detail how the IJDs experienced by healthcare staff may affect the quality of care. Another potential area for future studies would be to investigate potential mechanisms (i.e., explanatory variables or mediators) that could explain how different IJDs affect patient satisfaction. For example, leaders who experience heavy job-planning demands might be facing excessive autonomy in decision making, and so solving complex situations alone might not always lead to best practices in the midst of competing priorities. Thus, both lack of support and the leadership actions which follow might together explain the relationship between high job-planning demands and low patient satisfaction.

5 | CONCLUSION

Thus far, research has lacked both theoretical understanding and empirical evidence on the shared nature of intensified job demands in

different work contexts. Our study has responded to the call for conducting more multilevel analyses that focus on employee well-being in specific contexts (Martin et al., 2016). It has showed that the accelerating pace of socioeconomic change is reflected in different healthcare contexts in different ways. Like the findings by Montgomery et al., (2019), our study highlights the importance of identifying stressors in the workplace which are shared among different occupations and work units. It means that interventions to promote employee well-being can be properly developed and directed to those contexts where they are most urgently needed. Based on the findings of this study, nurses should be the priority target group when aiming to mitigate the aversive effects of intensified job demands in healthcare organizations.

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CONFLICT OF INTEREST

All the authors declare that there is no conflict of interest.

AUTHOR'S CONTRIBUTION

M.H., S.M. and T.F.: Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; M.H., S.G., S.M. and T.F.: Involved in drafting the manuscript or revising it critically for important intellectual content; M.H., S.G., S.M. and T.F.: Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; M.H., S.G., S.M. and T.F.: Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

PEER REVIEW

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