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# The impact of extended shifts on strain-based work–life conflict: A qualitative analysis of the role of context on temporal processes of retroactive and anticipatory spillover

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## Abstract

Twelve-h shifts can facilitate 24-h service provision and are often implemented in pursuit of financial goals. Existing evidence on the benefits of extended shifts is mixed. This study examines the impact of extended shifts on employee strain in a large mental healthcare organisation in England. Semi-structured interviews were conducted with nurses and healthcare assistants at 6 and 12 months intervals ( $n = 70$ ). Findings illustrate how extended shift patterns have a profound negative effect on high demands already confronting mental health staff, shaping spillover of strain. Analysis contributes to development of strain-based work–life conflict theory by conceptualising spillover as temporal and iterative. We argue theory should differentiate between retroactive (backward facing) and anticipatory (forward facing) spillover processes. Using context as a lens and identification of new dimensions to strain-based spillover aids interpretation of differential effects of extended shifts across settings. The study discusses implications for organisations, recovery and scheduling of shift work.

**Abbreviations:** CWW, compressed work week; HCA, healthcare assistant; NHS, National Health Service; RMN, registered mental health nurse; WLC, work–life conflict.

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**KEYWORDS**

12-h shifts, compressed work week, context, spillover, well-being, work-home interference, work-life conflict

## 1 | INTRODUCTION

Universal pressures for cost reduction alongside the need for high-quality care emphasise the importance of effective workforce management within the healthcare sector (Cooke & Bartram, 2015; Khatri, Gupta, & Varma, 2017). Healthcare organisations are reliant on shift workers, however considerable evidence suggests shift work exposes employees to physical and psychological harm (Angrave & Charlwood, 2015; Raediker, Janssen, Schomann, & Nachreiner, 2006) and can cause conflict between work and home (Jacobsen & Fjeldbraaten, 2018). Designing cost-efficient shift patterns whilst minimising strain and potential conflicts between work and non-work domains are a central concern for human resource management (HRM). Work schedules organised around 12-h shifts are often assumed a cost-efficient way of delivering 24 h nursing, with wage savings arising from fewer handover periods and less overtime (Dall'Ora, Ball, Recio-Saucedo, & Griffiths, 2016). These shifts are increasingly popular amongst healthcare employers to address staffing and financial pressures, particularly in North America and the United Kingdom (Harris, Sims, Parr, & Davies, 2015). Whilst a tempting model for controlling labour costs, this needs to be reconciled with ensuring high-quality care via a high performing and healthy workforce.

12-h shift patterns lend themselves to a compressed working week (CWW), where standard working hours are limited to 3–4 days. Employers might assume employees prefer extended shifts as they are compensated by additional days off (Hyatt & Coslor, 2018), offering a win-win solution. However, mixed evidence of the impact of extended shift patterns on workers reveals variability across study findings (for a review, see Dall'Ora et al., 2016; Knauth, 2007). We propose the role of context could explain differential outcomes. It is increasingly recognised that context is an important shaper of employee experience (Cooke, 2018; Fletcher, Bailey, Alfes, & Madden, 2020; Johns, 2006, 2017), but is often overlooked. Extant work-life conflict (WLC) research has paid limited attention to context, as studies often recruit participants outside of their employing organisation and so do not account for situational influences shaping spillover processes (Casper et al., 2007; Eby et al., 2005; Gisler et al., 2018; Poppleton, Briner, & Kiefer, 2008; Williams, Berdahl, & Verdello, 2016).

In this study, we examine how employees respond to the introduction of a 12-h shift pattern in a context characterised by a tight labour market, high demands and limited resources, namely acute wards in a large National Health Service (NHS) mental health trust in England. A high and increasing demand for mental health services with an estimated increase of 2 million service users in the United Kingdom by 2030 (Mental Health Foundation, 2013) has led to severe financial pressures resulting in staff shortages, increased workloads and work-related stress (UNISON, 2017). Burnout is a problem for the mental health workforce, as acute mental health wards are inherently stressful workplaces characterised by high emotional labour of caring for mentally unwell patients, a high risk of physical assault and continuous monitoring of patients at risk of self-harm (Johnson et al., 2018). Our analysis focuses on interrogating how context shapes employee experience of extended shift patterns and how this influences strain. With the introduction of 12-h shift patterns, and subsequent CWW, one might expect a reduction of WLC. Conversely, our analysis exposed how longer shifts and extended periods away from the workplace amplified demands in this context, and how this has a powerful influence on the temporal *nature* and *processes* of strain-based spillover.

Cross-sectional quantitative studies predicting relationships between work and family variables dominate management research on the work-life intersection, with qualitative research under-utilised, limiting our understanding (Beigi & Shirmohammadi, 2017). Studies on the relationship between shift work and WLC tend to focus on time-based conflicts, for example, examining how unsocial hours interfere with family responsibilities (e.g., Arlinghaus & Nachreiner, 2016; Karhula et al., 2018). We contribute to the work-life interference literature by demonstrating how the context in which a work schedule is introduced shapes the process of spillover, creating

**Practitioner notes****What is currently known about the subject matter?**

1. Evidence for the impact of 12-h shifts on staff and organisations is mixed and contradictory
2. Employers may assume employee preference for 12-h shifts due to the pay-off of a compressed work week
3. Shift work can cause conflict between work and home, negatively affecting satisfaction, burnout and absence

**What the paper adds?**

1. Addresses the issue of contradictory evidence by using context as a lens to understand how employee experience of strain is shaped
2. Extended shift patterns can exacerbate strain in anticipation of return to a challenging and unpredictable workplace context
3. Through interrogating context, we illustrate the temporal nature of strain-based spillover
4. Methodological limitations of existing cross-sectional research were addressed by collecting data at 6 and 12 month intervals

**Implications of study findings for practitioners**

1. Organisations should consider the context in which extended shift patterns are introduced as in demanding and dynamic environments strain may be amplified
2. Greater flexibility and control over work hours provides an opportunity to reduce work-life conflict and may be significant to shift workers, particularly in dynamic work contexts
3. Anticipated financial savings from moving to a 12-h shift pattern may not be realised if performance costs arising from exhaustion, anxiety and work intensification are incurred elsewhere

conflict that fluctuates over time. We extend strain-based WLC theory by arguing conceptualisation of strain-based spillover should differentiate between retroactive (backward facing) and anticipatory (forward facing) processes. Our focus on context and identification of new dimensions to strain-based spillover also contributes to extant literature on extended work patterns to understand differential effects across settings. Policy implications emerge for managers regarding adoption of extended shift schedules in unpredictable and high demand contexts.

In the following section, we examine literature that informs our study beginning with health impacts of shift work, and of extended shifts more specifically, before reviewing WLC and spillover theory and identifying how attention to context can enhance understanding. Next, we outline the research method—a qualitative longitudinal design, enabling an in-depth analysis of employee experience and situational context. We then present our findings and conclude by discussing the implications for theory and practice.

## 2 | BACKGROUND

A large body of management and occupational health research exists articulating effects of shift work on employee health and well-being. Working long hours is frequently associated with ill health and is amplified by shift work (Raediker et al., 2006). Macdonald and Bendak (2000) report the combination of a higher workload and a 12-h workday led to increased fatigue manifesting as 'worse bodily discomfort', suggesting the impact of

extended shifts on well-being might vary with the demands of a particular job role. Evidence of the impact of 12-h shift patterns at the work–life interface is mixed or contradictory. Employees may prefer to work extended shifts as doing so might improve job satisfaction and cause less social disruption (Knauth, 2007). Notably, studies reporting employee preferences for extended shifts often examine populations where job roles are predictable and/or reliant on technology (e.g., Dwyer et al., 2007: intensive care nurses; Johnson & Sharit, 2001: production workers; Mitchell & Williamson, 2000: power station workers). Other research reveals contradictory outcomes within samples as despite a preference for extended shifts this can coincide with social and health problems (e.g., Estryn-Behar et al., 2012; Iskra-Golec, Folkard, Marek, & Noworel, 1996; Tucker, Barton, & Folkard, 1996).

Jacobsen and Fjeldbraaten (2018) found an indirect effect of shift work on sickness absence through perceived health and WLC amongst healthcare workers, indicating a complex mechanism at play in the relationship between shift work, WLC and health outcomes. Yet few studies of shift work examine how WLC changes with the introduction of extended shifts, which is surprising given these shift patterns and a subsequent CWW might temper some of the negative consequences for work–life interference. Karhula et al.'s (2018) analysis of Finnish Public Sector questionnaire data shows changes towards unsocial working hour characteristics, such as long or non-standard hours, were consistently associated with parallel changes in WLC. Using self-report data from 137 machine operators, Loudoun (2008) concludes 12-h shifts offered neither benefits nor disadvantages to WLC. Conversely, Amendola et al. (2011) report improvements in the quality of life amongst police officers working a CWW organised around 10-h shifts, however these improvements were not realised by those working 12-h shifts. Neither study details the empirical setting despite the potential of some explanation for differential outcomes, as one examined machine operators where job roles might be relatively predictable and less psychologically demanding, and the other police officers, where job roles might have unpredictable routines and higher psychological demands. Without understanding more about the context in terms of the working environment, tasks conducted and social norms (Johns, 2006), interpreting results remains difficult.

Overall, mixed and contradictory evidence on the impact of extended shifts, both between and within studies, suggests a complex interplay between the nature of work, contextual circumstances and employee outcomes.

## 2.1 | WLC and spillover

WLC, sometimes referred to as work–life interference, is defined as incompatible demands between work and non-work domains (Geurts, Kompier, Roxburgh, & Houtman, 2003; Sturges & Guest, 2004). Greenhaus and Beutell (1985) propose three types of WLC—behaviour, time and strain based. Gisler et al. (2018) emphasise the importance of distinguishing between different types of WLC, as each can demonstrate divergent patterns of relationships with health. Understanding how each type is detrimental to health can better inform targeted interventions. This study focuses on strain-based WLC, defined as occurring when strain experienced in one domain impacts an individual's ability to meet demands in the other (Grosswald, 2003). Demerouti, Geurts, Bakker, and Euwema (2004) emphasise how job strain arising from shift work may interfere with recovery, functioning and types of activities in the non-work domain. Spillover is the process connecting work and non-work domains (Edwards & Rothbard, 2000) and in the case of WLC theory, is the pathway to conflict or facilitation of employee outcomes. Negative work-to-non-work spillover processes may involve emotions, behaviours and attitudes (Geurts & Demerouti, 2003), is the most relevant spillover in relation to well-being at work arising from job exhaustion (Kinnunen, Feldt, Geurts, & Pulkkinen, 2006), and might lead to burnout and increase sickness absence (Jacobsen & Fjeldbraaten, 2018).

## 2.2 | The role of context

Addressing calls for greater attention to context (e.g., Farndale, McDonnell, Scholarios, & Wilkinson, 2020), and informed by Johns (2006), we seek to scrutinise the role of context and the powerful effect it can have on how individuals adapt and respond to a change to shift patterns and how this influences strain. Cooke (2018: 1) argues that context is 'important in making sense of what is happening at workplaces in order to provide relevant solutions' and observes 'a positivist trend of de-contextualisation in HRM research'. Ignoring or downplaying the role of context makes a phenomenon under investigation difficult to understand and might account for the varied and contradictory outcomes of extant shift work research. Johns (2006: 386) defines context 'as situational opportunities and constraints that affect the occurrence and meaning of organisational behaviour as well as functional relationships between variables'. He refers to the many faces of context, emphasising that context can be viewed as situational strength, which can vary with both subtle and powerful effects. Following John's (2006) layered definition of context, we consider salient dimensions of the discrete context, including job roles, nature and organisation of work, task uncertainty/autonomy and social norms, alongside the omnibus context of the mental health workforce.

Quantitative research has consistently found work role stressors as predicting WLC (Allen, 2012). Conceptualisations of WLC have focused on discrete measures within each domain, with quantitative measures combining effects into a single measurement scale (e.g., Netemeyer, Boles, & McMurrian, 1996). Whilst this body of research has made important contributions, this leads to a unidimensional perspective of the impact of strain on functioning across domains and neglects the role of context. Scant qualitative analysis limits understanding of how context shapes the nature and process of work interfering with the non-work domain. One exception is a qualitative diary study of white and blue-collar workers by Poppleton et al. (2008) which demonstrates how context plays an important role in influencing work-non-work events, with the experience of spillover and WLC shaped by the nature of the work, a flexible working culture and working patterns. Analysing spillover effects in a context-sensitive way illuminated differences and similarities in spillover patterns in two contrasting contexts. The nature of work, in terms of the occupation and task, were particularly influential features of context influencing the subjective experience of spillover. Due to the mentally demanding nature of the work of the white-collar knowledge workers, negative thoughts passed into the non-work domain, shaping strain-based WLC. Conversely, the more physically demanding and mentally undemanding work amongst blue-collar unskilled manual workers led to spillover of tiredness as well as the carry-over of negative thoughts and mood.

In summary, a qualitative analysis of how the interplay between extended shifts, a CWW and situational context shape the nature and process of strain-based spillover effects can extend understanding of how the two domains interrelate.

## 3 | METHOD

### 3.1 | Study design

Findings reported here form the qualitative component of a concurrent mixed methods study that sought to evaluate the impact of 12-h shifts on employee and organisational outcomes (see Suter et al. (2020) for an analysis of the impact on employee well-being and Rodriguez Santana et al. (2020) which reports how extended shifts are associated with increased sickness absence). Data were drawn from six mental health wards in one geographical locality of a large NHS mental health care provider in England. The sample included staff from a Learning Disability Services ward, three Adult Mental Health and two Older People Services wards. Each ward transitioned to a mandatory 12-h shift pattern, having previously operated a shift system where employees worked an 8-h early or late shift and 12-h nightshifts. In the present study, the change to work schedules were

evaluated at 6 months, with a follow-up evaluation 6 months later (a year in total), moving beyond the cross-sectional nature of the majority of extant research (Dall'Ora et al., 2016; Gisler et al., 2018; Tucker, 2006). A purposive sampling framework was used to collect data from three layers of participants (managers, nurses and healthcare assistants). Thirty-five in-depth semi-structured interviews were conducted in the first phase of data collection, with a further 35 interviews 6 months later. Participants self-selected (Saunders, 2012) and interviews were conducted in the workplace, on an ad hoc basis during times when ward demands allowed minimal disruption to service delivery. This had practical benefits in terms of facilitating recruitment at each phase; however, data from two cohorts prevent person-to-person longitudinal analysis. Despite this, our design allows analysis at the job role level over time, a distinct advantage given our focus on context. It also allows for an evaluation of how the policy embeds over time, beyond any initial satisfaction or dissatisfaction with an imposed regime. Proportionate representation of different job roles was achieved in both interview phases. Table 1 provides sample characteristics.

An interview guide was developed. Topics included: an overview of work roles; experiences of broader organisational changes; nature and organisation of shift working; experiences and reflections of transitioning onto an extended shift pattern; whether changes to working hours were accompanied by other changes for example the organisation of work, workload, colleague support, supervisory configuration; perceptions of the impact on well-being. Interviews were audio recorded and full verbatim transcripts created. Field notes were made to aid analysis. Three participants did not consent to recording. In these cases, detailed notes were taken.

### 3.2 | Research team, data analysis and reflexivity

Interviews were conducted by two female academics from the research team who are qualified to PhD level and experienced qualitative researchers. The research team had no prior relationship with the study organisation and limited knowledge of the mental healthcare context prior to commencement of the study. Participants received a project information sheet outlining the purpose of the study and reassuring participants of confidentiality and anonymity. The research team had sole access to data and were careful to remove personal information identifying individual staff.

Data were managed using Nvivo software and analysed thematically. Following Gioia, Corley, and Hamilton (2013), we coded transcripts, reviewing these iteratively, looking for terms with similar meaning, amending and collapsing coding as we worked. First level coding included positive and negative consequences of the shift change, coping mechanisms, well-being and organisational outcomes. A conceptual explanatory framework was developed from these codes (Silverman, 2016), drawing upon literature to clarify emerging themes. The research design enabled exploration of differences between job role holders and across the two interview phases. Table 2 provides a summary of the data structure relating to changes to job demands and WLC. We coded references to negative emotions (Table 3) and compared these across cases, which aided identification of strain-based spillover.

A second analyst reviewed the coding framework throughout the process, allowing for clarification of interpretation of transcripts, reflexivity on the role of the interviewer, and potential bias regarding coding and selection of data to present in the analysis. Both analysts were also the interviewers, which facilitated these discussions.

## 4 | FINDINGS

Informed by participant responses, we first describe the situational context. We then analyse modifications to the context incurred by the introduction of the 12-h shift pattern, before reporting how this shapes temporal strain-based spillover.

TABLE 1 Phase 1 and 2 interview sample characteristics

	Phase 1 (P1)	Phase 2 (P2)
Gender		
Male	10	6
Female	25	29
Job role		
Healthcare assistant	11	19
Nurse	15	10
Ward and other senior managers	9	6
Age range		
18–29	7	5
30–39	2	6
40–49	4	8
50–59	9	10
60+	4	0
N/a (managers)	9	6
Length of service in NHS		
Less than 5 years	7	9
6–14 years	6	13
More than 15 years	22	13

Abbreviations: HCA, healthcare assistant; NHS, National Health Service.

TABLE 2 Data structure

Second order themes and aggregate dimensions	Example excerpt
Changes to job demands triggering stress	
Playing 'catch-up'	It feels to me that sometimes people are just playing catch-up all the time. Whereas, if you're around five days a week, there's less to catch-up on (Manager 4: P2)
Greater stamina needed to work longer shifts	You can only keep going at a certain rate for so long, I can usually get through it and keep a smile on me face, but it's difficult (Nurse 2: P1)
Reduced time to do 'activities' with patients	At one point you had more staff so that you could take them out and do activities. You know, leave the unit, take them out for the day or stuff like that (HCA 6: P1).
Consequences for work–life conflict	
Retroactive spillover	I did far more at home on the short shifts, because I remember going home and getting dressed quickly, getting my gardening stuff on, let me get in that garden and, and it was nice, yeah (Nurse 3: P1).
Anticipatory spillover	I still wake up on a morning and think, oh! I get up at 6:00 and it's like I won't get back home until half-past-eight tonight (HCA3: P1)



TABLE 3 Coding for emotions

Code	Example excerpt
Tired/exhausted	I struggle. But yeah, I find, I get to about six o'clock and I'm starting to really drag myself around (Nurse 3: P1).
Sad or upset	I just find it a bit sad and that's why I wanted to speak to you really, I just find it sad, I think it's a cost, it's to save money, it's to save money, that's all it is (Nurse 10: P1).
Irritable	Yes, definitely, because it's, you know—and I'm tired as well, so I'm like getting grumpy with the children and I hate being grumpy with my kids (HCA 17: P2).
Helpless or resigned	I just think I'm just going to go to work, come home. It means we can live in the house. I can afford to pay my mortgage. I—it's not the job I love. It's not any more (Nurse 11: P1).
Guilt	It's, err, difficult, I suppose. I don't want to be too negative. I love looking after these guys. I've got a lot of empathy for them; that's why I'm here, but, you do feel like you're letting them down (Nurse 2: P1).
Anxiety or dread	Like it's more psychological, I think, doing three, I just think, 'Oh no, three.'...But I, but I know that they are really tiring, you know, and think, 'Oh I've got to come back again tomorrow' (HCA 2: P1).
Angry or frustrated	So I think there was a bit of animosity to that we'd not been heard or respected in our choice as such (HCA 16: P2).

## 4.1 | Context

Table 4 provides an overview of job roles within the mental healthcare setting and key tasks and responsibilities associated with these. Across all wards, the demands of the job had reportedly increased in recent years in light of The National Service Framework's investment in community care (see NHS England and NHS Improvement and the National Collaborating Centre for Mental Health, 2019). Overall, participants emphasised the challenge of combining physical care with managing mental health symptoms, and more frequent assessments, admissions and discharges, with only patients needing the most intensive care admitted. As a manager described:

It's either quite heavy, where people need more physical support, or are quite challenging...a lot of gentlemen are quite violent, aggressive, very loud, a lot more of the line of sight observations...a lot of falls with the type of chaps that we've got. So it's very intense. (Manager 1: P1)

## 4.2 | Consultation process

A consultation process was conducted prior to the implementation of the new shift schedule. Concerns were raised by some, with many perceiving the move as a cost saving exercise and voiced that this should have been stated explicitly:

I think it's a shame...I understand the business of liking the days off...but I think there should be a bit of honesty about it, one, from the staff, that it's not that they love long days, it's they like the time off, and secondly from the management that they know it's bad for patients, but they're saving money and I just think if there was honesty, I think that's fair, do it, but be honest about the reasons. (Nurse 8: P1).

TABLE 4 Overview of job roles and responsibilities

	Healthcare assistant (HCA)	Registered mental health nurse (RMN)	Ward Manager
Hours worked/length of shift	12-h shifts	12-h shifts	9-5
Location of work	Most time spent on ward, or one-to-one observations of patients	Time spent between ward and office	Mainly office based Supernumerary (not included in staffing numbers) unless an emergency
Key responsibilities	Personal care and routines	Personal care and routines	Management responsibility for ward
	Escorting patients on supervised leave	Escorting patients on supervised leave	Liaise with senior managers in the trust/other wards
	Writing up patient notes	Writing up patient notes and drawing up care plans	Responsible for ward budget
		Administering and reviewing medication  Handovers, report out, liaison with multidisciplinary healthcare professionals	
Task uncertainty/autonomy	Unpredictable symptoms and behaviour of patients fast turnaround of patients		
	Standardised routines and procedures for care for example medicine administration, patient reporting and restraint technique		
	One-to-one observations of patients at risk of self-harm, removing staff from other ward duties		
	Routine clinical and managerial supervision		
	Extensive use of agency and bank staff requiring increased supervision due to unfamiliarity of ward		
	Compulsory e-learning training requirements with rigid deadlines and sometimes inaccessible technology		
Social norms	High levels of social support integral to job roles		
	Heavy use of reflective practice		
	Working in multidisciplinary teams		

The change was implemented nonetheless, with those that felt the 12-h shift pattern was imposed left feeling frustrated. Of note, the mandatory nature of the change and perceived lack of flexibility for staff was a key issue affecting staff perceptions of and attitudes towards the 12-h shift policy from the outset.

4.3 | Modification of context with introduction of extended shifts

Findings reveal how reorganising working time around a 12-h shift pattern was accompanied by changes to the working environment in ways unforeseen by decision-makers. Table 5 maps how the situational context of acute mental health wards was modified, amplifying job strain. Changes in part arose because a middle handover period became obsolete as a 24-h period was covered by two rather than three shifts. Participants emphasised how the

TABLE 5 Changing context and the impact on strain

Context of acute mental health wards	Modification of context with introduction of extended shifts	Impact of modified context on strain
Patients with increasingly complex behaviour	Reduced voice and opportunity for team meetings	Longer exposure to demanding context leading to exhaustion and impeding/slowing recovery
Rapid admission and discharge cycle	Reduced time for reflection on patient care practices and stressful instances	Increased strain from negative emotions relating to perceptions of reduction in patient care and inability to provide care to a standard previously accustomed to
Care plans with specific routines and covert administration of medication	Reduced hand over times and often between staff who have extended time away from ward due to compressed work week	Feeling out of touch with the clinical environment and playing catch-up after extended time away
Physically and mentally demanding	Disruption to non-routine patient care	
Colleague and supervisory support integral	Diminished access to colleague support	

removal of a longer middle handover period limited opportunities to complete tasks previously done with more staff present, for example, holding team meetings, debriefs and reflecting with other colleagues after stressful instances, engaging in supervision or completing mandatory e-learning. Reduced staffing in the middle handover period resulted in less time to do 'non-routine' care such as accompanying patients to the shops or attending to a patient's hair or nails:

[with 8-hour shifts] there's a good chunk or period in the day where you've got a lot of staff about. So it's so much easier to do things like your escorts and stuff like, oh, this person needs to go on escorted leave to their house or this person's broken their tooth, they need to go to the emergency dentist and we can go with them. It was so much easier when we've got the staff about to be able to facilitate stuff...which now kind of seems a bit unfair to people. (Nurse 17: P2)

Participants reflected on how the quality of handovers reduced because these were shorter and sometimes delivered by agency staff, or staff that had been away from the ward for an extended period, this could be up to 8 days depending on the scheduling of shifts. Similarly, participants reflected on how reduced frequency of working alongside familiar colleagues diminished access to social support.

#### 4.4 | Impact of modified context on strain

Participants reported some positive perceptions. These tended to relate to a better fit with other life/family commitments. Of note, a minority of participants with initial negative views reported adapting to the change more positively over time. Individual characteristics (e.g., age), coupled with circumstances (e.g., caring responsibilities) affected how staff adapted and responded to the new shift pattern. Despite these differences, strain in terms of fatigue and anxiety was a consistent theme across all roles, gender and age.

Despite participants anticipating satisfaction with a CWW prior to implementation, the experiences of many were in direct contrast. Participants relayed arriving home too exhausted to make purposeful use of the remainder of the day or additional days off, particularly where they had worked several 12-h shifts in a row:

Tiredness, trying to catch up on the boring mundane things like your housework, dog walking, this type of thing. And then after you've done all that you're really shattered, and so any hobbies that you do, don't happen anymore. (HCA 2: P1)

A perceived reduction in quality of care, and opportunities for 'non-routine' care discussed above, influenced staff wellbeing. Participants recounted feeling 'upset', 'guilty', 'saddened' and 'frustrated' by a constrained ability to fulfil patient needs to the extent or standard they were accustomed. Reflecting on this, participants described ways they adapted or coped with additional demands, citing disengagement as a key strategy:

*"I have to be less concerned. I have to withdraw myself from the process".* (Nurse 21: P2)

Because of extended periods away from the workplace, participants reported losing confidence in their knowledge of the clinical environment due to rapid admission and discharge cycles. Most participants referred to '*playing catch-up*' and reflected on how this led to work intensification. Managers in both interview phases emphasised this, corroborating that this issue remained long after any initial adaptation to change:

They're here for that condensed amount of time, but due to the amount that they're missing, that's caused a lot of stress and anxiety for when people are coming back on. They're coming into the ward round, they've been off for six, seven days, and they're in charge. They don't know what's been going on, so a lot's getting missed. (Manager 1: P1)

There is quite a disconnect, at times, when people have had runs of shifts and then they've had long blocks between...they're constantly playing catch-up on things...so actually, it doesn't save time in a way it creates more work. (Manager 15: P2)

Nurses and HCAs reported struggling to familiarise themselves with new or revised patient care plans as the patient population often changed considerably since last on shift. This disconnect from the clinical context was a source of anxiety, particularly for nurses:

I feel like I'm winging it all the time—I answer the phone and I'm like 'errrrr I just have to check that'—I feel out of my depth all of the time. (Nurse 11: P1)

The consultant's there asking you, 'How was that person when they were acting like this? What was done about it?' And it's like, 'I don't know because I've only got the information that's in front of me', Which is not a good feeling to have when you're in a roomful of pharmacists, occupational therapists, consultants and psychologists. (Nurse 17: P2)

Regularly working with agency staff, due to endemic staff shortages, was reportedly stressful and tiring for core staff, and compounded when working a 12-h shift. Staff might consequently take on extra work and supervision, as agency workers are often unfamiliar with ward and patient routines. If qualified agency nurses cancelled or arrived late for their shift, the nurse currently on shift was required to stay on, due to their medication responsibilities, highlighting different impacts for HCAs and nurses.

## 4.5 | Temporal strain-based spillover

Findings reported above show how the situational context and changes to the job demands arising from an extended shift pattern can amplify both physical and emotional strain and anxiety of working in an unpredictable and dynamic context. Below we analyse the interplay between modified job demands, spillover and strain-based WLC, illustrating how participants experienced spillover when off-shift. We conceptualise this as encompassing *retroactive* and *anticipatory* temporal spillover processes.

Exhaustion of working extended shift patterns, particularly during periods when patients were volatile or violent, carried over into the non-work domain. We define this as *retroactive* spillover, as job strain builds-up within the workplace influencing the non-work domain, for example, interfering with recovery or limiting the range of activities carried out after work. Striking in our data was how this retroactive spillover process was an issue for both healthcare assistants and nurses, despite different roles and responsibilities. For many, the effects of retroactive spillover of strain were accumulative and embedded over time, something that was evident at phase 2 interviews, 1 year after implementation of 12-h shifts:

Exhausted. I wasn't at first when it first started, I adapted to it quite well and I quite enjoyed it, but now because it's more challenging as work, it's physically and mentally draining. So you go home and you're absolutely shattered. (HCA 28: P2)

It was quite positive at first, because I thought the longer I'm here, the more time I have at home doing the things I want to do, you know, for your own mental health care. Hobbies and things like this. But now I find I'm too tired to do anything at home...So 12-hour shifts. It's killing me. (HCA 13: P2)

In terms of adapting to or coping with longer shifts, participants emphasised the need to pace themselves over a 12-h shift, reflecting a necessity for increased physical and psychological stamina, something older participants found especially challenging. Notably, whilst physical and emotional fatigue were common themes amongst older workers, these experiences were not exclusive to them. Participants revealed how mental resilience depleted over 12 h and reflected on how dealing with challenging patients for an extended period increased strain:

How you deliver that care might be different, depending on the person you are because irritability sets in when you're tired...depending on the calibre of patient we've got in, the thought of 12-hour shifts with some of those patients, after a few sessions you'd be wanting a bed here yourself. (Nurse 4: P1)

Accounts of strain-based WLC stretched beyond physical and emotional exhaustion built up at work, with participants emphasising anxiety around returning to work in a rapidly changing ward environment. Nurses and HCAs reported feelings of dread prior to working 12-h shifts: *"I'm quite horrified at the thought of it and in the build-up to it"* (HCA 2: P1); *"you know they're looming"* (HCA 5: P1); *"dread to go in, to doing those long shifts"* (Nurse 19: P2). This suggests the process of strain-based spillover was temporal and had an *anticipatory* element too.

Here, a nurse describes how anxiety built up in anticipation of a 12-h shift, resulting in sickness absence:

I'd been getting anxious, I couldn't sleep. It got to about four o'clock in the morning and then the anxiety, which is such a circle of panicking, thinking I've got to get through a 12-and-a-half-hour shift...and getting more and more anxious about it, and I phoned in work, I think, about five o'clock, and I just thought I cannot get through. If I'd been on normal early shift, I could have spoken to the

manager, said, 'Look, can I go a couple of hours early' and left at dinnertime, when the afternoon shift came on, but I just knew I couldn't get through a 12-and-a-half-hour shift (Nurse 21: P2)

This dread seemed related to anticipation of working long exhausting shifts, particularly for two or more consecutive shifts, but additionally reflected the influence of workplace context in anticipation of returning to a dynamic and unpredictable environment. For participants, anxiety related to '*playing catch-up*' and loss of confidence in their roles after an extended period off led to apprehension of returning to work:

You think God, what am I going to walk into next week? There were quite a few empty beds, so God knows what you're going to enter the ward to, so, it's just constant, constant, constant. (HCA 10: P1).

To summarise, findings demonstrate how dimensions of context shape experiences of a 12-h shift pattern, amplifying job strain in this setting. Heightened fatigue and stress arising from exposure to this demanding environment leads to *retroactive spillover*. With prolonged periods away from an unpredictable and dynamic ward environment, participants can experience anxiety around returning to work and on return, leading to *anticipatory spillover*.

## 5 | DISCUSSION AND CONCLUSIONS

Through interrogating how modifications to the context incurred by the introduction of a 12-h shift pattern shape employee experiences of strain, our study demonstrates how strain emerged with longer shifts but also consolidated with a CWW as this heightened anxiety. We identify how the situational context shapes the nature (physical and psychological) and processes (iterative and temporal) of spillover, extending understanding of strain-based WLC. Generalisability of our findings is limited since analysis is confined to six wards within one locality and from one organisation. Nevertheless, the qualitative approach enabled an in-depth consideration of context, which has been lacking in extant literature on WLC (Casper et al., 2007; Eby et al., 2005; Gisler et al., 2018; Williams, Berdahl, & Verdello, 2016) and on extended shift working patterns more broadly. Addressing Johns' (2017: 578) call for identification of 'variables that are differentially susceptible to contextual opportunities and constraints', we identify strain-based WLC as an example of this, by illustrating the power of situational influence on the nature and process of spillover, particularly in relation to job demands, job roles and the unpredictability of tasks. We propose differentiating between dimensions of spillover: *retroactive spillover*, where exhaustion and stress from the demands of a job carry-over to life outside of work; and *anticipatory spillover*, where staff experience a sense of dread about returning to work, particularly after long periods away.

Implementing cost-efficient shift patterns, whilst minimising strain for employees is of significant importance for HRM. When organising schedules around a CWW, human resources (HR) should consider the organisational context and how this might amplify retroactive and anticipatory spillover effects, and subsequent implications for fatigue, recovery, performance, retention, sickness absence and presenteeism. In this study, the physical and emotional intensity of the role, and maintaining this for longer periods, placed high demands on participants. Ungard, Kroger-Jarvis, and Davis (2019) report improved recovery for nurses working 12-h shifts compared with 8-h shifts. However, demanding work may require greater recovery time (Sonnetag & Zijlstra, 2006), with high psychological work demands reportedly the most challenging for recovery (Han, Trinkoff, & Geiger-Brown, 2014). Additionally, the rapid admission and discharge cycle meant registered nurses responsible for administering medications, can find themselves returning to work in a ward of unfamiliar patients, creating anxiety.

Our longitudinal research design highlights how strain arising from the experience of 12-h shifts fluctuated, with some perceiving exhaustion and negative emotions as embedding over time. Impact on recovery and non-work activities could take some months to materialise. This supports evidence of a relationship between strain-based

WLC and exhaustion across time, suggesting an accumulative effect (Demerouti, Sanz-Vergel, Petrou, & van den Heuvel, 2016) and complements existing theories of strain-based spillover (e.g., Geurts et al., 2003) which emphasise depleted resources arising from stress built up on the job affecting recovery. The accumulative effect of strain may be contingent on context. In less demanding contexts, employees may see a reduction in negative emotions and acclimatise to change, whereas the high emotional and physical demands in this context led to the opposite. Returning to work without adequate recovery time might lead to emotional exhaustion, a predictor of burnout (Leiter, Bakker, & Maslach, 2014) and encourage absence. Exhaustion is a more significant predictor of presenteeism than absence (Aboagye et al., 2019). Presenteeism (attending work whilst unwell) is more prevalent amongst those with a strong work identity (Aronsson & Gustafsson, 2005), suggesting mental health nurses are more likely to be affected, further embedding spillover effects in this context.

Findings indicate the need to examine not only how fatigue influences recovery mechanisms relating to *retroactive* spillover, but also how anxiety related strain might build-up in *anticipation* of returning to work, and how this combination affects performance on return. If staff experience spillover effects following working 12-h shifts but also in the run up to commencing 12-h shifts this may compound strain-based WLC, exacerbating strain and negating benefits of a CWW. A build-up of anxiety prior to return (e.g., on occasions when staff have had an extended time away from work and are anxious about 'playing catch-up' or because of the dread of completing a demanding 12-h shift), may interfere with recovery, particularly where there is insufficient time for recovery from retroactive spillover. Feelings of anxiety ahead of returning to work may adversely influence non-work life experiences and relationships. Psychological strain can affect sleep quality and interfere with recovery between shifts (Winwood & Lushington, 2006). The amalgamation of this is that performance on return to work may be impeded by both exhaustion and anxiety, with irritability and fatigue affecting the quality of patient care.

One of the perceived benefits of a compressed workweek is enabling more consecutive days off, facilitating improved work-life balance and time to recuperate. However, in this context, working three 12-h shifts in a row (which would allow for four consecutive days off) was not manageable by many participants. Moreover, unlike retroactive spillover, which may be countered by extended time off, feelings of anxiety are unlikely to benefit in the same way and in this context a CWW could intensify negative emotions. Of concern is that the dual spillover effect might hasten progression from acute (recoverable) to chronic fatigue by inhibiting recuperation, significantly affecting shift worker health and well-being (Gifkins, Johnston, Loudoun, & Troth, 2020).

The impact of retroactive spillover and anticipatory spillover, and the role these have in recovery has implications for the scheduling of shifts, questioning how many can be worked in a row and the optimal days off in between. Amendments to shift patterns may offset some of the negative effects. Research indicates three rest days are necessary to recuperate after working two consecutive extended working days (Blasche, Bauböck, & Haluza, 2017). As such, fewer shifts in a row coupled with more time off between shifts might ameliorate the effects of fatigue. Yet this might exacerbate anticipatory spillover arising from a stressful and fast-moving context, creating a paradox where regular shifts might reduce anxiety associated with a loss of confidence in the acute clinical context opposed with a compressed work schedule that allows for more rest days.

Spillover of strain from working extended shifts is unlikely consistent across occupations and organisations, particularly in settings where the pace of work is slower, more predictable, less physically demanding or with less intense interactions with service users or customers. In such settings, staff might also be less apprehensive about returning to work and therefore less exposed to anticipatory spillover. Further research on extended shifts should examine different occupational and organisational contexts and evaluate which contextual features have a powerful influence over the desired outcomes of shift scheduling for employees and how this shapes employee experience. Theoretically, further research on WLC should explore a more nuanced, context-sensitive understanding of strain-based WLC, to illuminate the *process* of spillover, with quantitative studies testing the notion of 'anticipatory spillover' and consequences for well-being.

Notable in our findings, was a desire for employee choice, at all stages of the organisational change process, from the initial consultation process, which many respondents felt was a foregone conclusion, to the

implementation of the extended shift pattern and co-ordination of rostering. The perceived mandatory imposition of the change to working patterns may have exacerbated negative responses further. Previous research demonstrates work schedule policies driven by an employer concern for flexibility, can create WLC, at least for some (Hyatt & Coslor, 2018). Staff need flexibility to manage fatigue, particularly as where conflict occurs shift workers might move into roles with more standardised working hours (Jansen, Mohren, van Amelsvoort, Janssen, & Kant, 2010) further exacerbating staff shortages in this context. Older staff working longer shifts can suffer greater fatigue and physical strain (Arbon, Facer, & Wadsworth, 2012), something that is exaggerated in acute mental health wards, and limited flexibility for older workers risks losing an important skill-set from the profession (Armstrong-Stassen & Schlosser, 2010). One approach to achieve employee flexibility is a hybrid shift pattern, where shorter shifts run alongside 12-h shift patterns, a move that might help to retain older workers too. Whilst recognising hybrid shift patterns are difficult to manage, a 'one size fits all' approach to shift scheduling may be inappropriate for recruitment and retention in this context.

This study reaffirms the critical contribution for HR in policy change stemming from cost considerations, with ongoing review of subsequent effects on employee well-being needed. Findings indicate how a mandatory extended shift pattern was implemented with little consideration to unintended consequences for job demands. As such, diminished employee satisfaction, well-being and retention might dilute cost reductions arising from wage savings and limiting 'unproductive' time during the day. This indicates that greater commitment by senior managers and HR to understand the day-to-day running of wards and experiences of staff in order to anticipate and navigate downstream effects on job demands and spillover of strain is essential. Routinely collecting organisational level data can ascertain the effectiveness of cost savings measures enabling HR to identify which initiatives are successful longer term. Although specific to the mental health context, implications of this research resonates with organisational change more broadly. Of methodological importance, future studies should move beyond cross-sectional analysis and incorporate qualitative data to examine the nuances of individual experiences and responses to organisational change, which 'de-contextualised' surveys of well-being are unlikely to capture.

For public sector healthcare organisations characterised by staff shortages and financial constraints, our findings have implications that might temper a desire to introduce extended shift patterns to reduce staffing costs. Implementing initiatives that place staff under further duress could be potentially damaging to the long-term well-being of staff, their commitment to the organisation and the quality of patient care. As Guest (2017) acknowledges, for many years the central focus for much HRM research has been on performance, with employee well-being often a secondary consideration, if considered at all. In an unpredictable and dynamic context, spillover of strain might fluctuate, with consequences to well-being embedding over time, thereby questioning the sustainability of extended shifts in this setting. Although extended working hours may seem like a win-win in the short term, for longer-term benefits to emerge, choice, flexibility and opportunities for employee led flexibility will be key and even more pertinent due to the ageing workforce in this sector.

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## CONFLICT OF INTEREST

We have no known conflict of interest to disclose.

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