



# The important factors nurses consider when choosing shift patterns: A cross-sectional study

Talia Emmanuel BSc, MRes, Postgraduate Researcher<sup>1</sup>  | Peter Griffiths RN, PhD,  
Chair of Health Services Research<sup>1,2</sup>  | Carlos Lamas-Fernandez PhD,  
Associate Professor<sup>2,3</sup> | Ourega-Zoé Ejebu PhD, Research Fellow<sup>1,2</sup> |  
Chiara Dall'Ora RN, PhD, Associate Professor<sup>1,2</sup>

<sup>1</sup>School of Health Sciences, University of Southampton, Southampton, UK

<sup>2</sup>National Institute for Health Research (NIHR) Applied Research Collaboration, Wessex, UK

<sup>3</sup>Southampton Business School, University of Southampton, Southampton, UK

## Correspondence

Talia Emmanuel, School of Health Sciences, University of Southampton, Southampton, UK.  
Email: [te2n17@soton.ac.uk](mailto:te2n17@soton.ac.uk)

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## Abstract

**Aim:** To gain a deeper understanding of what is important to nurses when thinking about shift patterns and the organisation of working time.

**Design:** A cross-sectional survey of nursing staff working across the UK and Ireland collected quantitative and qualitative responses.

**Methods:** We recruited from two National Health Service Trusts and through an open call via trade union membership, online/print nursing profession magazines and social media. Worked versus preferred shift length/pattern, satisfaction and choice over shift patterns and nurses' views on aspects related to work and life (when working short, long, rotating shifts) were analysed with comparisons of proportions of agreement and crosstabulation. Qualitative responses on important factors related to shift preferences were analysed with inductive thematic analysis.

**Results:** Eight hundred and seventy-three survey responses were collected. When nurses worked long shifts and rotating shifts, lower proportions reported being satisfied with their shifts and working their preferred shift length and pattern. Limited advantages were realised when comparing different shift types; however, respondents more frequently associated 'low travel costs' and 'better ability to do paid overtime' with long shifts and 'healthy diet/exercise' with short shifts; aspects related to rotating shifts often had the lowest proportions of agreement. In the qualitative analysis, three themes were developed: 'When I want to work', 'Impacts to my life outside work' and 'Improving my work environment'. Reasons for nurses' shift preferences were frequently related to nurses' priorities outside of work, highlighting the importance of organising schedules that support a good work-life balance.

**Relevance to Clinical Practice:** General scheduling practices like adhering to existing shift work guidelines, using consistent and predictable shift patterns and facilitating flexibility over working time were identified by nurses as enablers for their preferences and priorities. These practices warrant meaningful consideration when establishing safe and efficient nurse rosters.

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**Patient or Public Contribution:** This survey was developed and tested with a diverse group of stakeholders, including nursing staff, patients, union leads and ward managers.

**Reporting Method:** The Strengthening the Reporting of Observational Studies (STROBE) checklist for cross-sectional studies was used to guide reporting.

#### KEYWORDS

flexible working, nursing, preferences, rostering, scheduling, shift work, working patterns

## 1 | INTRODUCTION

Nurses' shift patterns are characterised by various aspects, including shift length, timing and rotation, total/distribution of weekly working hours and recovery periods—all of which should be organised in ways that protect nurse wellbeing. In Europe and the United Kingdom, official guidance and regulations offer shift pattern design strategies to reduce harm, for example, capping weekly working hours, limiting consecutive working days and ensuring a minimum of 11 h of rest between shifts (Health and Safety Executive (HSE), 2006). Complimentary to this guidance exists a well-established body of evidence highlighting the impacts of shift work and night work on employee physical health, mental health and social wellbeing (Arlinghaus et al., 2019; Grzywacz, 2016; Moreno et al., 2019), as well as on their performance and safety while at work (Dall'Ora et al., 2016; Folkard & Tucker, 2003; Wagstaff & Sigstad Lie, 2011). Given all these elements, the task of organising shifts into rosters is often challenging, especially with competing priorities like maintaining service delivery and managing staffing numbers and skill mix.

Some nursing roles may offer more autonomy over when and how long to work, as well as pay premiums when working during unsocial hours (e.g. night shifts and weekend shifts; NHS Employers, 2022; NHS Staff Council, 2020). Subsequently, nurses themselves may prefer to work certain shift configurations or modified weekly working hours to suit their personal needs in and outside of the workplace. A popular example includes nurses who prefer to work long shifts (i.e. shifts lasting 12 h or more), as it is thought to enable better patient care continuity and more days off from work when compared to working short shifts (i.e. shifts lasting 8 h or less; Ball et al., 2015). Nonetheless, research has also shown that working long shifts can lead to harmful outcomes for patients as well as increased burnout and job dissatisfaction for nurses (Dall'Ora et al., 2022). The conflict between these viewpoints stresses a need for closer examination of the relationships between different shift configurations and nurses' choices over working time.

A recent literature review of studies exploring nurses' views and preferences around shift patterns (Ejebu et al., 2021) highlighted that nurses had varied opinions about the benefits and drawbacks of different shift types, for both themselves and for patients. Views also differed according to personal characteristics

### What does this paper contribute to the wider global community?

- Nurses consider many factors when expressing their shift preferences, with most relating to their priorities outside of work, such as protecting personal health and wellbeing, making time for social activities and relationships and managing childcare responsibilities.
- Nurses valued rostering practices that supported their priorities and a good work-life balance, including using existing guidance on shift pattern organisation, ensuring shift patterns are consistent and predictable and facilitating flexibility over working hours.

and attributes (e.g. age, having childcare responsibilities) rather than shift types alone. This review concluded that the factors that lead nurses to prefer certain shifts are not well understood, as there are likely many work- and life-related priorities that are considered when expressing shift preferences. Understanding these mechanisms is critical for successfully operationalising nurses' preferences in the rostering process, which is a key target for employers wanting to promote flexible working practices as a means of attracting and retaining nurses.

Therefore, the aim of this study was to gain a deeper understanding of what is important to nurses when thinking about their shift patterns and the organisation of their working time.

## 2 | METHODS

### 2.1 | Participants

We undertook an anonymous cross-sectional survey distributed to nursing staff across the United Kingdom and Ireland. Respondents eligible for survey participation included all nursing staff working in the following roles: registered nurse (i.e. those who completed a nursing degree at the university level), health care assistant or support worker (those with varied and/or informal training who assist with hygiene, feeding and other elements of basic care) and nursing

associate (those who completed a formal 2-year diploma and help bridge the gap between registered nurses and assistants/support workers). Nurses working in roles that did not involve care provision (e.g. managerial or academic positions) were not eligible for participation.

## 2.2 | Survey design

The survey was developed in consultation with a diverse group of stakeholders to ensure questions were relevant to the target population, including registered nurses, health care assistants and nursing union leads. Variables related to characterising shift patterns were selected from a key literature review summarising the impact of shift work on workers' performance and wellbeing (Dall'Ora et al., 2016). Further details on survey development and distribution are published elsewhere (Dall'Ora, Ejebu, et al., 2023), and the full survey dataset is publicly available (Dall'Ora, Griffiths, & Ejebu, 2023). The Strengthening the Reporting of Observational Studies (STROBE) checklist for cross-sectional studies was used to guide reporting (von Elm et al., 2007; File S1).

We defined shift work as any work scheduled outside of standard daytime hours on weekdays (i.e. before 7:30AM and after 6:00PM) or working on weekends. We defined shift length as 'long' (11 or more hours), 'short' (fewer than 9h) or 'medium' (between 9 and 11h). After accounting for unpaid break time, shifts of 11h or more were compatible with a two-shift '12-h' system, whereas shifts of <9h were compatible with a three-shift '8-h' system with some overlap between shifts. We defined rotating shifts as day and night shifts worked within the same rota.

Descriptive data included respondents' demographics (gender, role, age, geographical location, childcare responsibilities) and the distribution of usual shift characteristics (length, pattern). We also asked nurses to rate their satisfaction with their work pattern, to rate the level of choice they have over their shifts and to indicate their ideal shift length and pattern. To understand perceptions about working different shifts, we asked nurses to indicate if they agreed, disagreed or didn't believe that working short/long/rotating shifts influenced 14 aspects of work and personal life (e.g. having enough breaks during shifts, enough days off to recover from work). For example, when considering 'ability to provide good patient care', nurses were asked to indicate if they agreed, disagreed or didn't believe that working short/long/rotating shifts influenced the aspect in question; the original survey items are included in File S2. To capture a greater breadth of opinions, nurses could indicate their views regardless of the shift types they actually worked. Data for the aspects 'enough breaks during shift' and 'healthy diet' when working rotating shifts were not collected in the online survey and are therefore not included in comparisons.

Qualitative data were collected from a single, open-ended question located at the end of the survey asking, 'If you could choose your shift patterns, what would be the most important factor in that choice'. No limits on response length were imposed.

## 2.3 | Data collection

Responses were collected between June and October of 2021. We launched the survey through two routes: (1) to a targeted nursing staff population in two large National Health Service (NHS) trusts in the South of England and (2) through open invitation via social media (Twitter/X), nursing union membership contact lists and select nursing journals. With the use of open-ended recruitment channels, we could not estimate a target sample size in advance. However, examination of the resulting confidence intervals provide an alternative estimate for the precision achieved. For example, the proportion of nurses satisfied with their current working pattern was estimated with a margin of error of less than +/- 4% based on the binomial exact 95% confidence interval (Newcombe, 1998).

## 2.4 | Data analysis

Descriptive data were summarised to understand respondents' demographics and common shift characteristics. To aid direct comparison of nurses' satisfaction with different worked shift patterns, responses were dichotomised to 'satisfied' versus 'not satisfied' (i.e. 'neither satisfied nor dissatisfied', 'moderately dissatisfied' and 'very dissatisfied' responses were grouped to 'not satisfied'). Comparisons of ideal versus worked shift length and shift pattern were analysed with cross-tabulation and Cohen's Kappa to determine if and which nurses' shift preferences were being realised. Percentages of agreement for aspects related to work and life were calculated to compare differences across the three-shift types. As the range of percent missing data for our variables of interest was low (ranging from 0.3% to 10.3%, with most falling below 8.0%), we used pairwise deletion to minimise loss of data from partially completed surveys (Newman, 2014). Quantitative data were analysed using SPSS version 28.

Qualitative data were analysed through thematic analysis (Braun & Clarke, 2012). Open-ended responses were extracted from the response dataset and imported into a separate spreadsheet. All responses were read-through, and general observations about the data and potential categories/themes were recorded. Responses were then re-read to identify codes, or the 'essential' elements contained within each response. We then grouped codes into categories and overarching themes that captured descriptive information within responses and latent connections between responses. We analysed the full dataset inductively so that codes, categories and themes could be constructed directly from nurses' responses. We quantified codes and categories; however, we interpreted the resulting frequencies as a rough measure of what respondents were willing or able to discuss and not as a direct measure of significance (Vaismoradi et al., 2013).

## 2.5 | Rigour

Core elements regarding researcher trustworthiness and reflexivity were used to establish study rigour (Nowell et al., 2017; O'Brien

et al., 2014). The development of codes, categories and themes was completed by the first author, who is a current PhD student with formal training in qualitative methods and experience in analysing short- and long-form survey responses from health care workers. Categories and themes were refined during multiple rounds of peer debriefing with three additional authors who are research experts in NHS workforce organisation, nurses' shift work and patterns and operational research methods in scheduling problems. Responses were analysed through a critical realist lens (McEvoy & Richards, 2006) in the following manner: there are objective phenomena related to shift pattern organisation (e.g. length of working hours, night work, sufficient time to rest between shifts) that will influence nurses' shift preferences and the factors that bring about those preferences, but how nurses perceive and value these phenomena will change across different people, contexts and timepoints. To check analysis validity, categories and themes were repeatedly compared with nurses' original responses as well as against patterns uncovered from quantitative data where possible.

## 2.6 | Ethical approval

Approval for this study was obtained from the University of Southampton's office for Ethics and Research Governance (approval IDs 65122.A2 and 57489.A2).

## 3 | RESULTS

### 3.1 | Description of participants

After the removal of non-eligible responses (e.g. non-nursing staff, working outside the UK and Ireland), a total of 873 valid responses remained; 790 responses (90.5%) were collected through the open call, and 83 responses (9.5%) were collected from the targeted Trust population. Registered nurses made up the majority of respondents ( $n=658$ , 75.3%), while 188 (21.5%) were health care assistants/support workers and 25 (2.8%) were nursing associates. Respondents were 42 years old on average (range 20–70 years old), and 752 (86.1%) identified as female. Most nurses worked for the NHS (92.2%), worked in hospital inpatient units (66.9%), and reported 'acute adult care' as their primary area of practice (38.3%). Among the 372 (42.6%) respondents who cited having childcare responsibilities, 183 (49.2%) had primary responsibility and 150 (40.3%) shared responsibilities more or less equally with their spouse/partner.

Most nurses reported working long shifts ( $\geq 11$  h;  $N=575$ , 66.4%), while 227 (26.2%) worked short shifts ( $\leq 9$  h), and 64 (7.4%) worked medium shifts (9.1–10.9 h). Just over half of nurses ( $N=449$ , 52%) usually worked night shifts as part of a rotating schedule. Table 1 provides details on the respondents' 'usual' shift configurations distributed by shift length category. Among the nurses who normally worked long shifts, 287 (50.2%) worked 4 days or more per week, 172 (32.1%) worked 48 h or more per week and 98 (17.2%) worked 4 or more days in a row.

### 3.2 | Nurses' satisfaction, choice and preference over shifts

The distribution of nurses' satisfaction over their shift patterns was varied: 10.7% were very dissatisfied, 18.3% were moderately dissatisfied, 19.2% were neither satisfied nor dissatisfied, 33.5% were moderately satisfied and 18.3% were very satisfied. When dichotomised, half of nurses ( $N=449$ , 51.8%) reported being satisfied with their shift patterns overall, with the highest proportion of nurses satisfied when working day shifts (including evening/late shifts) and the lowest proportion when working rotating shifts (60.9% vs. 44.1%, respectively). Regarding choice, 59.1% of nurses reported having little or no choice over their shifts, and 68.5% reported that their shifts were mostly or completely determined by their employer. To determine which nurses are having their preferences met, crosstabulations of worked versus ideal shift pattern and shift length were performed (Table 2). There was only moderate agreement between worked and preferred shift pattern (Cohen's  $\kappa=.393$ , 95% CI 0.34–0.44,  $p<.001$ ) (Sim & Wright, 2005). Eighty-nine percent of nurses working day shifts and 86% working permanent night shifts were working their preferred shift pattern; however, only 44% working rotating shifts preferred this pattern. Similarly, there was only moderate agreement between worked and preferred shift length (Cohen's  $\kappa=.321$ , 95% CI 0.27–0.37,  $p<.001$ ). Seventy-eight percent of nurses working short shifts were working the shift length they preferred, but only 56% working long shifts preferred this length. When stratified by age, level of agreement differed for some groups (when compared to the total): more older nurses reported working their ideal shift pattern (age 50–59, Cohen's  $\kappa=.547$ , 95% CI 0.44–0.66,  $p<.001$ ) and fewer younger nurses reported working their ideal shift length (age 20–29, Cohen's  $\kappa=.196$ , 95% CI 0.08–0.31,  $p<.001$ ).

### 3.3 | Nurses' perceptions when working different shifts

Distributions of nurses' responses when asked about the influence of working short, long and rotating shifts on various aspects of work and life outside of work are included in Table S1 (File S3). Direct comparisons of the proportions of nurses who agreed with each statement are further illustrated in Figure 1.

Proportions of agreement for most items generally fell in the low-middle range, indicating that there was no shift type that clearly provided more advantages for nurses. This was particularly true for aspects related to nurses' lives outside of work, like having enough days off for recovery, efficient childcare costs/arrangements and having a good social life. Some exceptions were noted, including 'low travel costs' and 'better ability to do paid overtime' when working long shifts and 'healthy diet/exercise' when working short shifts. For items related to patient care, a higher proportion of nurses agreed that long shifts offer good patient relationships, whereas a higher proportion agreed that short shifts offer good quality of care. For other work-related aspects, higher proportions agreed that working

TABLE 1 'Usual' shift pattern characteristics distributed by shift length category.

	All shift lengths N (col %)	Short shifts ( $\leq 9$ h) N (row %)	Medium shifts (9.1–10.9 h) N (row %)	Long shifts ( $\geq 11$ h) N (row %)
<b>Shift pattern (Main job)</b>				
No shift work (traditional hours)	90 (10.4)	81 (90.0)	5 (5.6)	4 (4.4)
Day shifts only (including evening)	273 (31.6)	89 (32.6)	39 (14.3)	145 (53.1)
Rotating shifts (including night)	449 (52.0)	52 (11.6)	13 (2.9)	384 (85.5)
Night shifts only	51 (5.9)	3 (5.9)	7 (13.7)	41 (80.4)
Total	863 (100.0)	225 (26.1)	64 (7.4)	574 (66.5)
<b>Total weekly working hours (All jobs)</b>				
37.5 h or less (part-time)	184 (22.3)	69 (37.5)	22 (12.0)	93 (50.5)
Between 37.5 and 48 h	411 (49.9)	102 (24.8)	38 (9.2)	271 (65.9)
48 h or greater	229 (27.8)	27 (11.8)	30 (13.1)	172 (75.1)
Total	824 (100.0)	198 (24.0)	90 (10.9)	536 (65.0)
<b>Days worked per week (All jobs)</b>				
$\leq 2$ days	60 (6.9)	9 (15.0)	4 (6.7)	47 (78.3)
3 days	278 (32.3)	28 (10.1)	12 (4.3)	238 (85.6)
4 days	278 (32.3)	40 (14.4)	33 (11.9)	205 (73.7)
5 days	189 (22.0)	123 (65.1)	9 (4.8)	57 (30.2)
$\geq 6$ days	56 (6.5)	26 (46.4)	5 (8.9)	25 (44.6)
Total	861 (100.0)	226 (26.2)	63 (7.3)	572 (66.4)
<b>Days worked in a row (All jobs)</b>				
$\leq 2$ days	336 (39.0)	23 (6.8)	12 (3.6)	301 (89.6)
3 days	234 (27.2)	38 (16.2)	23 (9.8)	173 (73.9)
4 days	102 (11.8)	27 (26.5)	16 (15.7)	59 (57.8)
5 days	135 (15.7)	102 (75.6)	9 (6.7)	24 (17.8)
$\geq 6$ days	54 (6.3)	35 (64.8)	4 (7.4)	15 (27.8)
Total	861 (100.0)	225 (26.1)	64 (7.4)	572 (66.4)
<b>Rest days per week (All jobs)</b>				
1–2 days	339 (40.6)	151 (44.5)	21 (6.2)	167 (49.3)
3–4 days	445 (53.4)	53 (11.9)	35 (7.9)	357 (80.2)
5–6 days	50 (6.0)	10 (20.0)	4 (8.0)	36 (72.0)
Total	834 (100.0)	214 (25.7)	60 (7.2)	560 (67.1)

short shifts offer enough breaks and the ability to pace oneself during shifts. Aspects in relation to working rotating shifts usually had the lowest proportion of agreement and were considerably lower (when compared to short or long shifts) for items like 'pacing during shifts', 'enough days off', 'good childcare arrangements' and 'good social life'.

### 3.4 | Qualitative Themes & Categories—What factors are important to nurses when choosing shifts?

A total of 778 valid responses were collected when nurses were asked, 'If you could choose your shift patterns, what would be the most important factor in that choice?'. Responses usually contained three types of information: the factors themselves, why these factors were important and what would help/hinder attaining that factor (i.e. their preferences). Many nurses described more than one factor, resulting in most

responses having multiple codes assigned. Thematic analysis resulted in the generation of 54 unique codes organised into eight categories, which were then grouped into three themes: 'When I want to work', 'Impacts to my life outside work' and 'Improving my work environment'. Themes, categories and codes are described in the following sections and are illustrated in Figure 2; segments of this diagram represent code frequency (i.e. the total number of times a code was assigned across all responses, divided by category (outer ring) and theme (inner ring)), with larger segments indicating higher frequency.

#### 3.4.1 | Theme 1: 'When I want to work'

This theme contains three categories (*shift characteristics*, *scheduling practices* and *days off & rest*) and had a code frequency of  $N=614$  (55.4%). Different working time preferences were

TABLE 2 Crosstabulation of worked versus preferred shift pattern\* and worked versus ideal shift length.

	Preferred shift pattern			
	Day shifts only (inc. evening) N (row %)	Rotating shifts (inc. night) N (row %)	Permanent night shifts N (row %)	Total N (column %)
Worked shift pattern				
Day shifts only (including evening)	242 (89.6)	25 (9.3)	3 (1.1)	270 (35.4)
Rotating shifts (including night)	209 (47.2)	194 (43.8)	40 (9.0)	443 (58.1)
Permanent night shifts	5 (10.0)	2 (4.0)	43 (86.0)	50 (6.6)
Total	456 (59.8)	221 (29.0)	86 (11.3)	763 (100.0)
	Ideal shift length			
	Short ( $\leq 9$ h) N (row %)	Medium (9.1–10.9 h) N (row %)	Long ( $\geq 11$ h) N (row %)	Total N (Column %)
Worked shift length				
Short ( $\leq 9$ h)	168 (77.8)	21 (9.7)	27 (12.5)	216 (26.0)
Medium (9.1–10.9 h)	35 (57.4)	16 (26.2)	10 (16.4)	61 (7.3)
Long ( $\geq 11$ h)	166 (29.9)	77 (13.9)	312 (56.2)	555 (66.7)
Total	369 (44.4)	114 (13.7)	349 (41.9)	832 (100.0)

\*Only direct comparisons are included (i.e., 'other' and 'no shift work' category responses are excluded)

identified, including individual shift pattern characteristics (e.g. shift length, shift timing and rotation speed, patterns of days off), as well as what should be done during the scheduling process to ensure rotas are fair and safe. Some nurses stated their specific preferences without providing additional context (e.g. 'Monday long day. Tuesday to Friday days off. Saturday & Sunday long day. Following week have the weekend off...' (participant 192)), but in responses that included more information, pathways between factors and resulting shift preferences varied or even contrasted. For example, when citing health and wellbeing, one nurse stated that they'd prefer to work 'only nights, for regular body rhythm, physically and mentally...' (pt. 172), whereas another nurse stated their preference for 'straight days because this suits my health better...' (pt. 276). A summary of nurses' shift preferences is described in the following paragraphs.

#### Shift characteristics

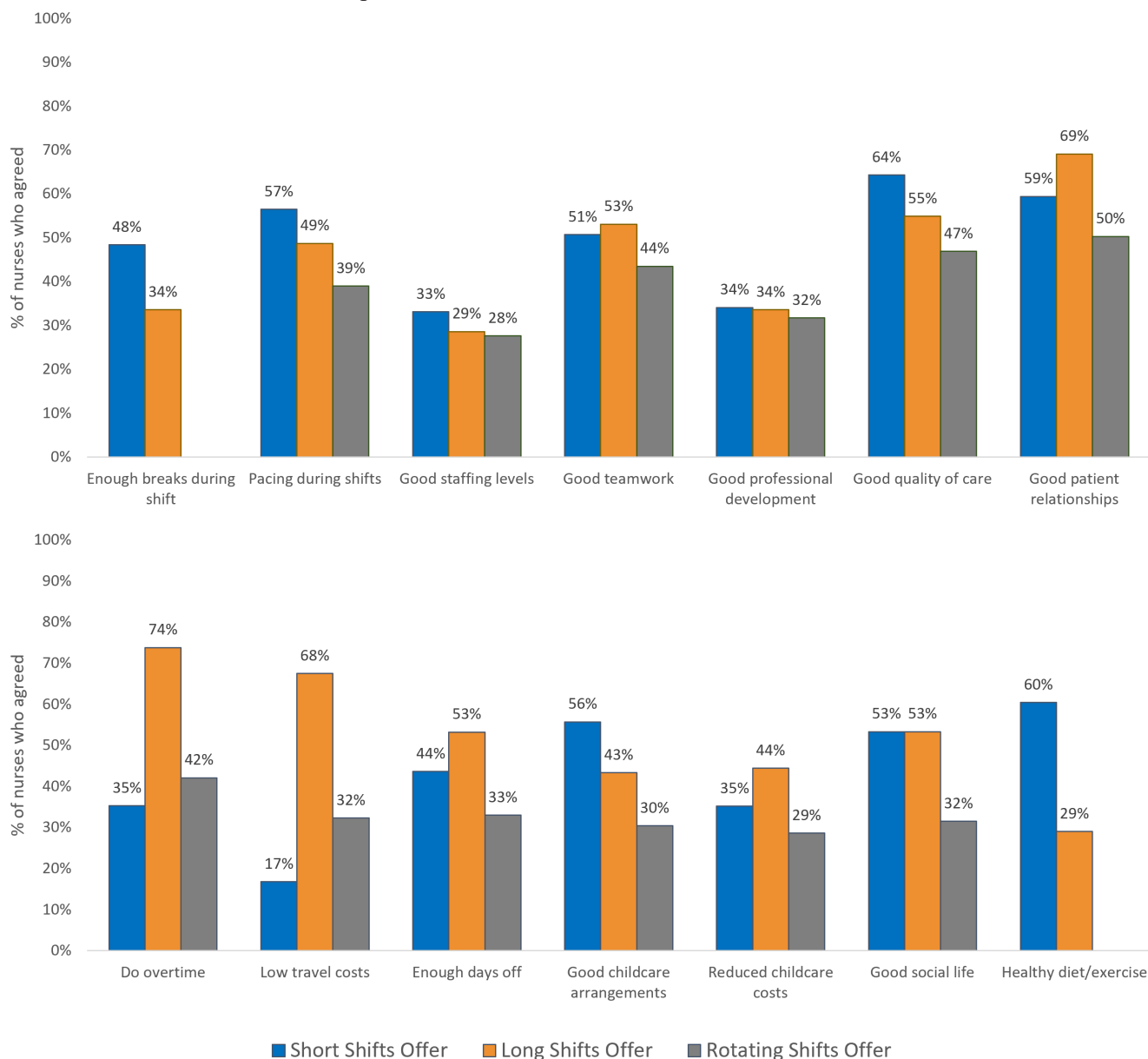
Many nurses preferred to only work during the day, while others shared their willingness to work night shifts. Some disliked how night shifts were assigned and shared how they would prefer these shifts to be organised—some preferred to work all night shifts in one continuous stretch, while others preferred to work evenly spaced-out night shifts. Nurses also commented on shift start time and end time. While some preferred shifts that started earlier in the day (e.g. 7:00 AM), others wanted to avoid early shift start times, particularly if they were coming off of nightwork. Comments about shift end time centred on wanting to finish shifts on time (i.e. avoid working longer than scheduled) rather than wanting to finish at a particular time of the day. When nurses mentioned shift length, many wanted to work shorter shifts, to avoid working long shifts or to have the flexibility to choose which shift length to work. Reasons for preferring short shifts centred

around wanting to not feel exhausted or fatigued (e.g. 'Working 8–9 h shifts maximum where I can practice safely and effectively, without mental and physical exhaustion' (pt. 582)). Preferring long shifts was also prevalent, most frequently to enable shorter workweeks and more days off (e.g. 'long shifts therefore maximising number of rest days in between' (pt. 732)). However, working too many long shifts in a row (e.g. more than 2–3 in a row) made this shift length less desirable.

Respondents also voiced preferences for patterns of work. Nurses wanted to avoid working day and night shifts within the same week or work earlys/days immediately after working nights (e.g. 'Not rotating from nights to days then back to nights in a short space of time' (pt. 305)). Preferences for the number of shifts worked in a row depended on whether days off or personal wellbeing were prioritised: some preferred to work all shifts together so that rest days were also successive, whereas others preferred to limit consecutive shifts so that they could avoid exhaustion (e.g. 'All shifts back to back, so days off feel more beneficial...' (pt. 168) vs. '...not working consecutive shifts so that I am exhausted by the time I get a day off' (pt. 417)).

#### Scheduling practices

Beyond the specifics of when to work, many nurses described long-term preferences for their rotas, like needing more consistency and predictability. Consistency could be achieved in different ways, like when shifts were worked in recognisable blocks (e.g. 'know what I am doing each week, either set days or set nights, so I can predict what I am working...' (pt. 580)) or when nurses could predict which days of the week they would be working (e.g. 'set days in and off e.g. 4 on 4 off' (pt. 240)). Nurses specifically disliked working rotas with no discernible order (e.g. '...at the moment it seems random or dictated purely by staffing needs' (pt.



**FIGURE 1** Nurses' beliefs related to aspects of work and life outside work—proportions of agreement. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/jocn.16974)]

782)). Alongside rota consistency, appropriate lead time for roster publishing was important (e.g. a minimum of 6–8 weeks; 'Late rota completion is hugely disappointing and makes life outside work harder to organize' (pt. 692)). However, some respondents warned that finalising rosters too far in advance impedes one's ability to plan around unforeseen conflicts.

Flexibility in the scheduling process was represented by nurses' desire to have more choice over their shifts from the start (e.g. 'Allowing people to choose what is right for them' (pt. 520)). For some, flexibility was needed to recover from or change adverse shift patterns (e.g. 'Having the freedom to give myself more days to recover between weekly shifts (pt. 518)', 'Being able to choose patterns where you have enough days to rest and reset between shifts' (pt. 647)). Honouring these flexible requests must also be done equitably,

particularly when it comes to undesirable shifts (e.g. '...treating everyone's rota equally and not favouring others' (pt. 375)). Flexibility was also mentioned by one nurse who valued coordinating coverage with colleagues (e.g. 'Opportunity to liaise with colleagues and negotiate when is good for them and myself to work' (pt. 976)).

#### *Days off & rest*

Rather than discussing the arrangement of their working time, nearly 200 nurses wrote about how their days off should be organised. Having appropriately arranged days off was needed to make this period meaningful and worthwhile (e.g. '...have 2–3 days off to actually feel like I'm resting' (pt. 715)). For some nurses, days off were specifically needed to recover after work (e.g. 'Having enough time off to recover emotionally and physically between shifts' (pt. 696)), but for others, enough rest

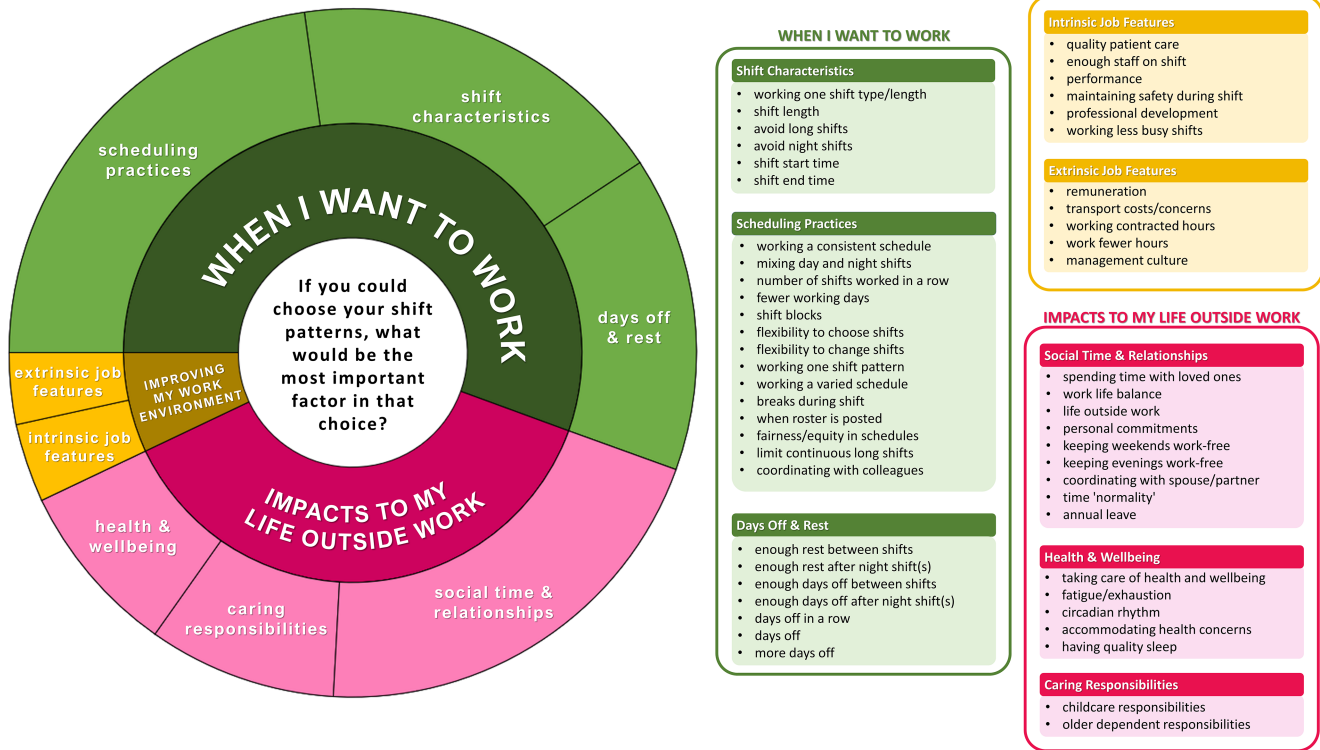


FIGURE 2 Qualitative themes, categories and codes. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

was needed in order to prepare for the next series of shifts (e.g. 'To have my days off to myself to re energise myself for my next shift' (pt. 523)). Most commonly, a single day's rest in between ending a night shift and starting early/day shift was problematic (e.g. 'Enough rest time between day and night shifts. I often have only 24h between finishing a night shift to going to days and find it really hard' (pt. 628)). The rest period given between shifts within a single stretch was also important for some (e.g. 'Having at least 11 h between shifts, we sometimes finish shifts at 9:30 pm and start the next day at 7 am' (pt. 949)).

In summary, nurses provided rich information on the shifts they preferred. Preferences were diverse, ranging from very specific (e.g. the exact days and times one would like to work) to more general (e.g. wanting to avoid working too many shifts in a row). Nurses also described the scheduling practices that they believed could improve their experiences in the long term—working less adverse shift configurations from the start, improving roster consistency and predictability and having more flexibility to work the hours that they can. These concepts were also identified as enablers for organising one's personal life outside of work, as discussed in the next theme.

### 3.4.2 | Theme 2: 'Impacts to my life outside work'

This theme explored the first subset of factors that led nurses to have the preferences described in the first theme. Many of these factors related to nurses' personal lives (code frequency of  $N=415$ ,

37.5%), signifying that shift preferences were largely determined by how those shifts might impact priorities outside of work. These priorities were organised into three categories: *social time & relationships*, *caring responsibilities* and *health & wellbeing*. Reasons for having shift preferences were presented as non-negotiable (e.g. 'I consider my children before choosing a shift' (pt. 199), '...I suffer from migraines, so I am unable to work long days and do Monday-Friday...' (pt. 685)) or as desirable if possible (e.g. 'I would like to sleep. After night shifts, I cannot stabilise my sleep...' (pt. 507), 'I would want to come home earlier shorter days to rest, see family, exercise...' (pt. 768)), indicating that some reasons were prioritised higher than others.

#### *Social time & relationships*

Of the 58 nurses who mentioned 'work-life balance', 41 simply cited the term itself without any additional context. When more information was provided, work-life balance was related to activities at home (e.g. 'Work life balance, having days off to manage home life and family' (pt. 373)). Nurses also wanted time for other personal commitments and activities, like hobbies, housework, shopping and appointments, exercise and social time with friends. While some individual shift types supported these priorities, above all, rota consistency and flexibility were repeatedly mentioned as enablers for work-life balance and organising personal commitments (e.g. 'Having one day off the same each week so that I could structure activities at home around that day' (pt. 88), 'Consistency in having same 8 shifts to have a decent personal life outside work' (pt. 502), 'Choose what



suits my personal life' (pt. 274), 'What works for me and gives me work life balance' (pt. 501)).

Nurses specified that the mere fact of having days off from work did not necessarily result in having quality family time—especially when they felt exhausted as a result of work (e.g. 'Time off with family where I'm not exhausted' (pt. 393), 'Quality time with my children and family without being permanently drained, exhausted, and sad' (pt. 138)). Coordinating schedules with a spouse/partner was also important, particularly if they also worked shifts and conflicts were frequent. Many nurses wanted to protect specific times/days that they believed to be more conducive to social activities and relationships. For these 'normal' social hours—such as evenings and weekends—nurses wanted to minimise the shifts that disturbed these periods and thus preferred working day shifts on weekdays (e.g. 'Ensuring enough social time - i.e. weekend/evenings' (pt. 783), 'Increased time with my family so less night shifts or weekends' (pt. 344), 'It would be early shifts to feel like you have more time with family' (pt. 936)). One nurse also specifically expressed feelings of guilt when working shifts that disturb family time ('...as little disruption as possible to my children's routines at home, also not working on important days like Christmas and bank holidays because I feel guilty for not spending them with my family' (pt. 62)).

#### *Caring responsibilities*

Over 100 nurses stated that caring for responsibilities was the most important factor. Some mentioned needing enough time to care for older dependents (i.e. older parents); however, this factor overwhelmingly focused on the task of childcare. Arranging childcare was described as difficult and costly, particularly when reconciling assigned shifts with the operational hours of daycare facilities and schools. Depending on each nurses' individual situation, shift preferences varied (e.g. 'Ability to care for my kids and reducing the stress of trying to sort out childcare as it's very difficult to do so on long days/nights' (pt. 872), 'I would prefer to work longer shifts [...] I wouldn't have to pay as much childcare costs for my daughter to go to nursery which would create a lot less stress from my life' (pt. 950), 'Child care is one thing I struggle with, easier when [they're] in school, but the cost of after school care is very expensive and it all stops at 5! So easier to do night shifts...' (pt. 442)). Nurses mentioned that having predictable working hours helped with this task, once again highlighting the importance of consistency (e.g. 'That the pattern could stay the same each week so it would be easier for childcare needs. Many nurseries like set days and when our rota is changing from week to week this can be difficult' (pt. 911)).

#### *Health & wellbeing*

For those who mentioned specific long-term health conditions (e.g. chronic pain, migraines), late starts/finishes, long shifts or having too many working days in a row exacerbated illness symptoms. In general, however, rather than connecting health/wellbeing concerns with performance or productivity at work, more nurses focused on their rest days and lives outside of work. As discussed in the first

theme, rest days are frequently used to recover from working shifts. For some nurses, recovery explicitly meant having to look after one's own wellbeing (e.g. 'Allowing enough blocked days off to recover mentally and physically from work and look after my health...' (pt. 391), 'Enough time for self-care' (pt. 618)). Similarly, some nurses wanted to have enough time to live healthier lifestyles overall (e.g. 'Having time to recover from work, spend time with family & have a healthy lifestyle' (pt. 888)).

In addition to impacts on general health, many nurses mentioned feeling excessive tiredness, exhaustion and/or fatigue as a result of shift work (particularly when working many long shifts in a row, rotating shifts within short periods of time and overtime). These symptoms spilled over into life outside work and impacted one's ability to engage in social activities (e.g. 'Not feeling tired and being home with family' (pt. 263), 'Personal life, childcare and family. Long days leave me exhausted on my days off' (pt. 236)). Nurses also cited disruption to sleep cycles and wanted to work shifts that established a better routine for their 'body clocks' (e.g. 'Consistent, regular hours so your body clock can get into a routine' (pt. 106), '...not mixing days and nights in a week [...] this does not observe HSE best practice guidelines and messes with the body clock and sleep patterns. It should not be allowed to happen' (pt. 471)).

In this theme, nurses described many factors that influence their shift preferences. Overall, the organisation of working time impacted rest periods in problematic ways, often resulting in nurses not having enough time and energy to engage in activities outside of work. Resulting shift preferences aimed to minimise disruption to life outside work, for example, reducing the number of working days, having sufficient time off for rest and recovery, fewer evening/weekend shifts to protect social time or preferring night shifts to ensure availability during childcare days. The high code frequency of this theme suggests that many preferences for working time depended on nurses' priorities outside of work. In contrast, the third and final theme reviews the smaller number of responses related to nurses' experiences at work.

### 3.4.3 | Theme 3: 'Improving my work environment'

This theme explored the second subset of factors influencing nurses' shift preferences, containing two categories (*intrinsic job features and extrinsic job features*) and a code frequency of  $N=79$  (7.1%). Here, nurses described the performance- and administrative-related factors they prioritised (e.g. 'Workload and staffing levels' (pt. 811), 'Better rates of pay' (pt. 179), 'A shift where I feel I have accomplished the care I have wanted to give for my patients' (pt. 258)). Overall, responses centred around nurses' desire to have their working environment, as well as their ability to fulfil duties at work, improved.

#### *Intrinsic job features*

Using terms such as 'care continuity', 'care mistakes', 'patient safety' and 'time spent with patients', some nurses stated that being able to

provide high-quality patient care was an important factor. When it came to their resulting preferences, nurses had different opinions on the shift lengths that enabled better patient care. Long shifts (and reduced number of handovers) were seen as beneficial by some (e.g. 'Patient continuity, reduced handovers less likely to miss information...' (pt. 816)). However, several more called out the risks of working long shifts (or more than 8 hours at a time), particularly in terms of their own productivity (e.g. 'Not 12 hours. More mistakes & patients deserve a nurse not pacing themselves!' (pt. 630), '...patient safety should be the main concern and long shifts are not conducive to good patient care. Short shifts are far more productive and safe.' (pt. 710)). Nurses also identified staffing levels as an important factor, and adequate staffing was needed so that nurses could manage their workloads and take their designated breaks during shifts (e.g. 'To not have so much pressure on the shift, with the right amount of staff on and to take my break when needed' (pt. 938)). Having downtime for continuous learning was also identified (e.g. 'Days off and nights as they are a time I can do my e-learning and not rush about all shift' (pt. 795)).

#### *Extrinsic job features*

Remuneration was important, with nurses wanting the best arrangements for shifts to optimise working hours and take-home pay. Some nurses preferred to work shifts that had pay premiums or to work additional shifts on their days off to supplement basic pay (e.g. 'Shift that pays best so I can reduce my total hours' (pt. 601), 'The ability to work extra shifts between. I can't live on my basic pay' (pt. 357)). While pay was important, other nurses were careful to balance this priority with spending time with family during normal social hours (e.g. 'To have enough time with family however being well paid' (pt. 370), 'Working weekends brings in extra income but does not allow for spending time with family and friends' (pt. 573)). Commuting costs and concerns were mentioned by a few, and for one nurse, this meant preferring to work fewer shifts per week to minimise travel time ('Long days as I travel 1 hour each way...means less shifts/week if I prefer' (pt. 559)). Lastly, perceived support from management was mentioned, highlighting nurses' need for supervisors who were flexible and respectful of their time (e.g. 'I would like to be able to leave early, if possible, without management making me feel like I am 'committing fraud' given that I don't get breaks or claim for TOIL' (pt. 925)).

In summary, this theme highlighted the importance of organising nurses' working conditions in ways that benefit them and enable them to do their jobs efficiently. Some shift preferences were mentioned; however, nurses prioritised other important work organisation elements, like having adequate numbers of staff and having enough time/opportunity to take breaks and complete training. While all responses were collected in the context of understanding shift pattern preferences, responses in this theme highlighted some complementary intrinsic and extrinsic job features that warrant consideration when examining nurses' perceptions of work and working time.

## 4 | DISCUSSION

The aim of this study was to gain a deeper understanding of nurses' experiences and preferences when working shifts. Compared to previous research, we report a broader and deeper examination of shift preferences: what shifts nurses usually work and how this is compared with ideal/preferred shifts; nurses' views on aspects related to work and life when working long, short and rotating shifts; and the important factors nurses consider when expressing their preferences.

We found that proportions of nurses who were satisfied with their shift patterns were lower when they worked long shifts and rotating shifts. This mirrors previous findings, where nurses working in these configurations were more likely to be dissatisfied with their job overall and more likely to have intentions of leaving their job (Dall'Ora et al., 2015; Ferri et al., 2016; Lu et al., 2012). Mismatching between preferred and worked shifts may partially explain or moderate this dissatisfaction, as we also found a greater disconnect between ideal and actual work hours when nurses worked long shifts and rotating shifts. However, many nurses in this study preferred and were satisfied with what they usually worked, suggesting that for some, preferences and wishes are realised. Responses on aspects of work and life demonstrated some perceived benefits when working certain shifts—greater proportions of nurses agreed that long shifts offer good patient relationships, the ability to do overtime and low travel costs, and that short shifts offer good quality of patient care and a healthy diet/exercise pattern—echoing previous research (Dall'Ora et al., 2022; Nicholls et al., 2017; Richardson et al., 2007). Rotating shifts did not offer clear advantages for any of the domains addressed—this was also reflected in nurses' qualitative responses, where the poor arrangement of shift start/end time and rest time when working rotating shifts were mentioned as difficult in many contexts. Many of the other factors identified as important in qualitative responses—like having good staffing levels, having enough days off for rest and recovery, efficient childcare organisation, having a good social life and having a healthy lifestyle—had low proportions of agreement regardless of shift type. This finding complements previous research exploring the influence of different shift configurations, as the mere fact of working short, long or rotating shifts is unlikely to influence views or preferences alone. Rather, the organisation of shift types and weekly working hours in relation to one another and over the long term likely play more important roles (Dall'Ora et al., 2016).

Focusing on what nurses considered important when choosing shift patterns, a great number of factors were related to their priorities outside of work. Similarly, a considerable number of nurses wrote about how they prefer their days off to be arranged, signifying the importance of having work schedules that support a good work-life balance. Work-life balance is traditionally framed by the conflict arising between work and family roles and responsibilities, including childcare (Greenhaus & Beutell, 1985; Netemeyer et al., 1996). Over 100 nurses in this study cited childcare responsibilities as an

important factor. We attributed this high code frequency to two possible explanations: arranging childcare is important for nurses and takes clear precedence when choosing shifts, and/or, given traditional interpretations of work-life balance, nurses feel that childcare is one of the few reasons accepted as valid when expressing shift preferences in practice. Evidence of the latter has been found elsewhere, particularly among hospitals evaluating rostering processes/policies, where an inherent 'hierarchy of preferences' (with childcare taking top priority) was flagged as an obstacle to remove (Harris et al., 2010; NHS Employers, 2020). In contrast, contemporary definitions approach work-life balance more holistically, making room for more priorities, including rest, social time and leisure (Kalliath & Brough, 2008; Pichler, 2009), all of which were also found in nurses' qualitative responses.

Certain configurations of shift patterns and working time, including long weekly working hours, unpredictable shifts and shifts worked during social hours and nights, have been identified as potential stressors on work-life balance (Albertsen et al., 2008; Arlinghaus et al., 2019; Arlinghaus & Nachreiner, 2016; Grzywacz, 2016). Some shift configurations may be actively chosen by nurses to enable work-life balance, like long shifts or compressed working weeks (Dall'Ora et al., 2022). However, consequences can appear in the long term, such as increased fatigue and longer time needed for recovery, which nurses identified in this study as disruptive to their priorities in and outside of work. With increasing numbers of nurses in the UK citing work-life balance as the reason for leaving their current role (NHS Digital, 2022), finding feasible ways of improving work-life balance for nurses, especially when considering the design of their work schedules, remains an important area of inquiry. However, as work-life balance may not always be explicitly defined, researchers and ward managers should take care to understand what factors nurses have in mind when stating this concept, as different priorities attributed to the work-life balance 'umbrella' (e.g. childcare responsibilities vs. rest and recovery) will likely result in conflicting shift preferences.

Incorporating nurses' varied individual preferences is undoubtedly difficult from a scheduling perspective, both in terms of safeguarding ward coverage and ensuring fair consideration of requests. To avoid the difficult and time-consuming task of reconciling these elements in practice, ward coverage is likely to be prioritised, and limited (or no) choice over working time may be offered to nurses, as demonstrated in this study. As an alternative to this challenging status quo, more 'universal' scheduling practices could be applied that still support nurses' individual needs and preferences. In their qualitative responses, nurses mentioned three concepts that could work in this sense: reducing the use of adverse shift patterns, improving consistency in personal rotas and increasing flexibility and control over working time.

Although relevant guidance urges employers to avoid the use of adverse or non-ergonomic shift patterns (e.g. excessive weekly working hours or inadequate rest periods between shifts) (Health and Safety Executive (HSE), 2006), this may not be prioritised in settings that are resource constrained. With the worsening health

workforce crisis in the UK, nurses report having to work longer hours and more challenging schedules to ensure some level of minimum ward coverage (Nursing & Midwifery Council, 2022; Royal College of Nursing, 2021). Evidence of this was also present in the current study, as nurses mentioned many difficulties with working non-ergonomic shift patterns. Furthermore, among the nurses who usually worked long shifts, notable proportions also worked at least 4 days per week, more than 4 days in a row and more than 48 h per week—all exceeding guidance. Being made to work difficult shift patterns poses negative implications for rates of sickness absence, job satisfaction and retention, likely as a result of increased burnout, disrupted recovery and poor work-life balance (Dall'Ora et al., 2020; Gifkins et al., 2020; Jacobsen & Fjeldbraaten, 2018).

To support ward managers in creating rosters that are safer for nurses, modern rostering technology could be used to develop ergonomic rotas while also balancing ward coverage, staffing numbers and patient demand. Previous research has demonstrated benefits for health care workers when embedding ergonomic shift work recommendations in rostering software, particularly in terms of reducing adverse working patterns, sleep difficulties and occupational injury (Härmä et al., 2022; Karhula et al., 2021; Shiri & Härmä, 2023), but outcomes related to work-life balance are less understood. Moreover, nurses may still prefer to work more difficult shift patterns when given the choice (Karhula et al., 2018, 2020), but in these cases, risk could still be mitigated thereafter (e.g. if a nurse prefers to work long shifts only, limit the number of long shifts that are worked in a row).

Rota consistency and predictability were also identified as enablers of better experiences in and outside of work. Even if individual preferences differed, the need for consistency frequently united responses and was defined by nurses as working the same shift types or start times, having the same working days and days off each week or having a more predictable shift pattern rotation. In the UK, the issue of working unpredictable shift patterns has been recently prioritised by the NHS Long Term Plan (NHS, 2019) as well as the Royal College of Nursing (Royal College of Nursing, 2020); however, solutions have yet to be identified. Having rosters published in reasonable timeframes facilitates nurses' ability to manage personal commitments (Carter, 2016; Drake, 2018); however, if planned shifts have no discernible pattern or sense of consistency, nurses may still find it difficult to plan and engage in their lives outside of work. Moreover, in a recent analysis of pan-European survey data on working conditions, high levels of employer-enforced worktime variability (i.e. variable weekly working hours, working days per week and daily start/end times) resulted in poorer self-rated health, wellbeing and sleep for workers. The authors also found that high worktime variability (and low worktime control) was a more frequent feature of the health sector when compared to the retail or hospitality sectors (Backhaus, 2022).

Nurses also wanted more flexibility around their shift patterns. Our findings align with nurses' definitions of 'flexible working' in other studies, where flexibility centres more on choice and control

rather than short-notice rota changes or increased variability in work tasks (Atkinson & Hall, 2011; Beckers et al., 2012; Nabe-Nielsen et al., 2012). Recent NHS guidance (NHS Staff Council, 2021a, 2021b) has encouraged employers to adopt flexible working policies to give nurses more control over their working time and reduce barriers to requesting alternative arrangements, which could include working fixed patterns, staggered start/finish times and compressed or elongated workhours. This guidance also emphasises that these arrangements should be accessible to everyone, and not only for those with caring responsibilities. Previous research exploring the objective working hours of health care staff with high worktime control showed that these workers chose greater variability in shift types (i.e. more evening and weekend shifts) and length when compared to those with intermediate or low worktime control but did not necessarily compromise ergonomic recommendations for shift patterns (Garde et al., 2012; Karhula et al., 2019).

Other flexible worktime interventions, like self-/team-scheduling (where employees schedule their rota themselves, given pre-established rules) or participatory-scheduling (where coverage needs, guidance on working time arrangements and employees' preferences are combined through formal processes), are gaining popularity in some settings. Previous research exploring the success of such interventions has shown mixed results (Beckers et al., 2012; Wynendaale et al., 2021). Employer and management concerns on implementation and feasibility of such policies and interventions can also hinder uptake and success. Nevertheless, given that nurses in this study mentioned flexibility in the context of choosing shift patterns that are more predictable or less adverse, many flexible working requests could theoretically be addressed by safeguarding ergonomic guidelines and predictable working patterns.

#### 4.1 | Limitations

Although we undertook extensive piloting and cognitive testing to develop the survey, we did not assess test-retest reliability, and therefore the stability of expressed preferences and opinions over time cannot be inferred. Second, respondents were prompted to be brief in their qualitative response (i.e. '...what would be the most important factor'), and therefore some context related to shift choice/preference was likely to have been missed. Nonetheless, many respondents still provided multiple and related elements in their responses despite this prompt. Third, given that the survey was anonymous and was in part distributed online, we could not track the possibility of respondents submitting more than one response. However, with the survey's length, the required level of engagement and the absence of participation incentives/rewards, we estimate that the likelihood of the submission of multiple responses was low. Lastly, our survey did not explicitly capture the views and experiences of managers and schedulers. Future research should explore the scheduling process from their point of view, particularly when it comes to managing nurses' shift preferences alongside operational

needs, workforce shortages and the recent increased demand to support employee work-life balance.

## 5 | CONCLUSIONS

Nurses consider and value a variety of factors when thinking about their shift pattern preferences. Many of these factors were related to nurses' priorities outside of work, such as looking after their personal health & wellbeing, protecting social time & relationships and managing caring responsibilities. Our findings contribute to the growing body of research on the importance of nurses' wellbeing in and outside of the workplace by highlighting the need to organise shift patterns in ways that protect and promote a good work-life balance. Working short, long or rotating shifts did not offer clear advantages in terms of fulfilling nurses' priorities when compared to one another, and therefore, assumptions about relevant outcomes when working specific shift types (e.g. 'long shifts are great for work-life balance') should be questioned.

## RELEVANCE TO CLINICAL PRACTICE

Nurses described three general scheduling practices that would support their individual priorities and shift preferences: using ergonomic shift pattern recommendations when establishing rosters, ensuring shift patterns are consistent and predictable and facilitating more flexibility and control over working time. These concepts have previously shown benefits for workers in healthcare settings and could be feasibly implemented with existing guidance and modern rostering software. However, the use of these practices must be equally balanced with organisational demands and patient wellbeing, which is challenging given ongoing issues related to nursing staff retention and shortages.

## AUTHOR CONTRIBUTIONS

Talia Emmanuel: Conceptualisation, Formal analysis, Writing (original draft). Peter Griffiths: Conceptualisation, Formal analysis, Writing (original draft). Carlos Lamas-Fernandez: Formal analysis, Writing (original draft). Ourega-Zoé Ejebu: Conceptualisation, Project administration, Writing (review & editing). Chiara Dall'Ora: Conceptualisation, Methodology, Project administration, Formal analysis, Writing (original draft).

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### CONFLICT OF INTEREST STATEMENT

The authors declare no competing or conflicting interests.

### DATA AVAILABILITY STATEMENT

The survey dataset analysed in this study has been deposited in the University of Southampton Institutional Repository, available via <https://doi.org/10.5258/SOTON/D2278>.

### ORCID

Talia Emmanuel  <https://orcid.org/0000-0001-5595-685X>

Peter Griffiths  <https://orcid.org/0000-0003-2439-2857>

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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