

The Health and Safety Impacts of Night Working

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Introduction

Official figures report that over one quarter (27%) of the UK workforce, or roughly 8.7 million people, were night-time workers in 2022¹. While over half of night-time workers are male (56%), in the past decade the number of female night-time workers has increased. In 2017 19% of those in employment were engaged in shift work, 20% of males and 17% of females (ONS, 2018). There are proportionately more people from Black and Minority Ethnic backgrounds working at night, compared to the overall UK workforce (Young Foundation, 2011), while between 2012 and 2022, the number of night-time workers born outside of the UK rose by 33% to 2.0 million (ONS,2022).

The UK HSE states that 'only a limited number of workers can successfully adapt to night work' since night shifts disrupt the internal body clock (2006). A substantial international body of work has demonstrated that night and shift work are linked to a wide range of mental and physical health conditions (Torquati, et al., 2019; Moreno, et al., 2019; Gurubhagavatula, et al., 2021). These conditions have significant effects on workers, but also their relationships, families and social lives (Arlinghaus, 2019). Managerial and organisational responses to these trends have largely been to suggest that the impacts of night work on the health of workers may also or instead be explained by lifestyle habits or personal preferences; an argument which deflects responsibility from employers and their duty of care, onto individual workers.

This report provides a review of the literature on the impact of night and shift work on workers' health and their families and an analysis of night work premia, based on rates provided by the Labour Research Department. It then sets out research exploring workers' experience of night work and the impact it has upon their lives, the factors that shape their decision-making about night work, how both organisational and labour market factors and changes shape night work and the measures that employers and unions take to mitigate risk. The overall research covers five unions: The Communication Workers' Union (CWU), The Rail and Maritime Transport Union (RMT), The Transport Salaried Staffs' Association (TSSA), Equity and Community. It is based on interviews with a national officer from each union and 55 union members working night shifts in a range of workplaces and job roles.

The research aimed to:

- i) Examine the experiences and perceptions of night working, including on-call work and its impact on the physical and mental health of workers.
- ii) Explore the impact of changes in work, regarding both organisational psychosocial risks including workloads, supervisor and social support, job cuts and vacancies as well as the labour market level, for example, outsourcing, on experiences of night working.
- iii) Interrogate workers' preferences for night work and the factors that may influence their reasons for undertaking night work.

¹ A night-time worker is where someone "usually" works either in the evening or the night, irrespective of whether they also "usually" work in the day (ONS, The Night-Time Economy, 2022)
<https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/articles/thenighttimeeconomyuk/2022>

- iv) Develop potential union demands relating to shiftwork and night work. These demands may exist as standalone issues or within the context of longer-term demands for a shorter working week.

Summary

The Literature

- In the academic literature there is strong evidence linking shift and night work to negative health outcomes including cardiovascular, gastro-intestinal and metabolic disorders such as diabetes and metabolic disorder, with weaker links to cancer, reproductive disorders and mental health. These negative impacts may be gender-specific, with risks varying between men and women. Proposed biological pathways for these associations are related to circadian rhythm disturbance and sleep deprivation, as well as social desynchronisation. However, the relative contributions of these factors and whether they are direct or indirect mediators remains unclear. Poor diets and insufficient exercise associated with shift and night work are likely to exacerbate these impacts on health.
- The evidence linking shift work to cancer is less strong, but there appears to be relationships with shift intensity (time off between shift schedules), years spent working shifts and to types of shift system. Recent evidence suggests links between intensive night shift work and hormone-dependent breast cancer women in who commence night shifts before they reach menopause.
- Again, the evidence linking shift work to mental health and reproductive problems is inconclusive. However, evidence of the impact of shift and night work on depression indicates this is of concern, especially in the case of female night shift workers.
- The literature shows that psychosocial risks in the work environment can exacerbate the negative impacts of and night work and shift work on workers' health.
- Shift work, and night shift work in particular, results in workers' lives being socially desynchronised from family, social networks and communities. There is evidence that shift work can have a negative impact on partner relationships and on pre-adolescent children's development.
- The negative impacts of social desynchronisation can be ameliorated to a degree at the workplace level when workers have genuine control of their shift schedules and are able to adjust their working hours to the demands of family and social relationships.

Labour Research Department data on shift premia

- A survey of collective agreements show that night shift premia vary widely, but the average and median are both 30% of the equivalent day rate.

- While rates as a proportion of day rates appear to be stable over time, the interviews suggest that changes have been made for those on newer contracts, including increasing the amount of night and weekends shifts required.

Interviews with night shift workers

- In interviews with union members, a small number said that they prefer night work as they are 'night owls' and it fits around the rest of their lives, or, as in the theatre industry, they are committed to work that is characterised by evening and week-end work.
- Preferences for night work can reflect the labour market and poor experiences in alternative jobs or become required due to staff shortages. In some occupations nights can be seen as less stressful and providing workers with more autonomy over their work. In saturated labour markets, as in the theatre industry, workers often feel they cannot turn down intermittent contracts – this can result in working for protracted periods of time without a break.
- Night shifts are generally worked for financial reasons, with workers reliant on premia in a period in which the value of wages has declined. There are specific night work contracts where workers are on permanent nights with no premia; one respondent was reliant on Universal Credit.
- For some, night work fits with caring responsibilities, particularly school runs, and means that workers can avoid paying childcare costs. Yet, while night work may facilitate childcare, it can also limit both the quantity and quality of the time parents have with their children and family, with some reporting negative impacts on children and relationships. Workers in the theatre industry largely perceived that having children was incompatible with their careers due to the associated work regimes.
- Overwhelmingly, workers reported that night shifts result in fragmented and split sleep which is erratic with disturbed sleep patterns and of poor quality and having difficulties in re-adjusting to normal sleep patterns when not working nights. This resulted in sleep deprivation and fatigue. Sleep deprivation is cumulative over the number of nights worked. This is aligned with the academic literature which describes sleep deprivation as common amongst shift and night workers due to poor quality, split sleep of short duration related to circadian rhythm disturbances and external noise. The majority of workers reported feeling exhausted for several days following night shifts, including during their annual leave, and that this affects their mood and potentially their mental health.
- Fatigue associated with night work is exacerbated for older workers, who reported poorer quality and more disturbed sleep as they aged. This is aligned with the research suggesting that older workers are less tolerant of night work.
- Recovery time following night shifts, and particularly between rotating shift patterns is not well-built into rosters and is often insufficient to recover from fatigue or to allow re-adjustment to normal day sleeping patterns. Recovery time eats into workers' days off

work and annual leave. This is not a burden experienced by normal day shift workers, yet recovery time is not paid for by organisations and forms part of workers' 'free time.'

- There appears to be a move in some organisation towards 12-hour shifts. Some workers prefer 12-hour shifts over shorter periods, giving them more time away from work or opportunities for overtime. However, working 12 rather than eight hours shifts has significant implications for fatigue. This is likely to be significant in safety critical industries and where workers drive home after night shifts.
- Respondents reported several psychosocial risks in the work environment especially work intensification and extensification (overtime). Staff shortages led to excessive work demands and placed pressures on workers, including to work overtime to cover for vacancies or colleagues' absence, further extending hours and intensifying fatigue. This was particularly significant in the rail industry. Overtime may be motivated by financial reasons, managerial pressure or by a commitment to public services and to help colleagues out in the context of staff shortages.
- Requirements for on-call working on top of normal night shifts present particular risks in terms of working hours and fatigue.
- Those on night shifts may be lone workers and thus face significant risk, including dealing with violence, but often with limited support.
- Night shifts were reported as having negative impacts on relationships and family life, particularly where children are involved, confirming research that shows shift-working can increase the risk of relationship breakdown. Social desynchronisation can make it more difficult for workers to form new relationships and to have a social life which confers resilience, including in relation to mental health.
- The imposition of changes to shift patterns can disrupt workers' carefully orchestrated work-life balance.
- Many workers reported poor diets because of night shifts and struggled to eat healthily at work and home or to find the energy and time to exercise. This was underpinned by excessive fatigue associated with night shifts.
- Night workers could feel like 'poor relations' in terms of provision of facilities, such as canteens.
- Night shift workers can have difficulties accessing services, including medical appointments and public transport to get them to and from work. Shift workers may use annual leave for medical appointments.
- The lack of public transport means workers generally drive home after night shifts and can commute long distances, some taking over two hours, when fatigued. As a result, there are reports of traffic accidents and/or near misses.
- Getting to car parks and travelling home on public transport after an evening shift can put workers, particularly women, at risk and there are specific safety risks for theatre workers when touring and staying in unfamiliar locations.

- While workers are generally aware of the impact of working nights on health and mortality, some workers distanced themselves from prevailing knowledge and were reluctant to reveal health conditions that might entail their removal from nightwork.
- There was limited evidence of specific employer support for night workers and an apparent move away from onsite occupational health services accessible at night. In rail there are questions about the extent to which Fatigue Management responsibilities are taken seriously by management.
- The literature shows that genuine worker control over shift patterns and rosters can reduce the negative impact on social and family life, however, respondents often found management unreceptive to requests to change shifts or to drop the number of night shifts worked. Management inflexibility is exacerbated where there are staffing shortages.
- Union reps supported individuals in negotiating changes to shift patterns and there were examples of where unions had negotiated rosters with more work-life balance. However, there can be tensions where members prefer longer shifts over shorter periods or who choose to work overtime.

Background – Night and shift work patterns

There is substantial variation in shift patterns including start times, the sequence of working days and off days, pattern of weekends off, and whether the schedule uses permanent or rotating shifts. Common patterns are three-shift working, continental shifts, permanent nights and movement between day and night shifts. In a three-shift pattern the working day is divided into three working periods - morning, afternoon and night involving one or more weeks of mornings, followed by one or more weeks of afternoons, followed by one or more weeks of nights. Continental shifts are a continuous three-shift system that rotates, for example three mornings, then two afternoons, then two nights, generally with a break between shift changes.

Distinctions are made in the speed of the rotation (how quickly the work shift times change), between fast and slow rotation. Fast rotation involves working different shifts within the same week (for example, day shift for two days, evening shift for the next two days, night shift for one day, and then two days off). Slow rotation involves working each shift type for one week or more (for example, one weeks of day shifts followed by one week of evening shifts, followed by one week of night shifts). The HSE (2006) does not recommend slow rotations of one or two weeks since the body starts to re-adjust its circadian rhythm over several days and then has to reset after each shift change with risks of sleep deprivation and fatigue. Fast rotations are recommended since the short times on different shifts minimises the disruption to the internal body clock (HSE, 2006). There are also distinctions between forward rotation where workers move from day shift to evening shift to night shift; and backward rotation where they move from night shift to evening shift to day shift. It is suggested that forward rotations are easier to adjust to than backward rotations (US National Institute for Occupational Safety and Health), although this is more likely to be relevant for slow rotation shifts.

The UK Health and Safety Executive (2006) recommends that permanent night shifts should be avoided. Permanent night workers run the risk of chronic sleep debt, fatigue, ill health

and disruption of family and social life. However, while rotating shifts share night work between workers, continually changing shift patterns mean that workers may have difficulty adapting to the changes.

The HSE (2006) advises avoiding shifts that are longer than eight hours, 'where work is demanding, safety critical or monotonous and/or there is exposure to work-related physical or chemical hazards' (2006). Shifts of 12 hours should be limited to between two and three consecutive night shifts with a two to three days for recovery. Frequent and regular breaks should be introduced to reduce the risk of fatigue. The HSE advocates allowing adequate recovery time between shifts and notes that commuting times and availability of public transport may contribute to the fatigue related to long shifts.

Regulation 25 of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) places specific fatigue management duties on controllers of safety critical work in the railway industry. Failure to manage rail staff fatigue properly, including excessive overtime, has been identified as a contributory factor to a range of railway accidents and incident reports. The Office for Rail Regulation (ORR) report on Managing Rail Staff Fatigue (2024) recognises that that working long weekly hours over long periods increases the risk of accidents and incidents and cites literature demonstrating that 'the incidence of health problems such as sleep, gastrointestinal and cardiovascular disorders has been estimated to be greater in shift workers than day workers' (2024: para 1.18). It cites Folkard (2000) to conclude that 'sleep-related accidents could cost UK companies some £115-240 million per year.' The report advocates a fatigue risk management system (FRMS) for those working longer hours or who do shift work, including fatigue risk assessments, non-punitive fatigue reporting systems and staff fatigue surveys. The ORR advocates maximum shift lengths of 12 hours for a day shift, 10 hours for night and early shifts and eight hours for shifts starting before 05:00. It also suggests that 'time at work' should consider travel times to and/or from the place of work and possible limits on maximum 'door-to-door' times. It advises a minimum rest period of 12 hours between consecutive shifts, increasing to 14 hours in the case of consecutive night shifts. Good practice for the maximum number of consecutive shifts before a rest day are seven for days (including mixed patterns), three for nights and five for early shifts.

Literature review: Nightwork and shift work - Impacts on health, psycho-social risks and workers' families and communities

This review examines the literature on the impact of shift work and night work on workers' health, their families as well as the interactions between night and shift work and organisational psychosocial risks. It draws largely on the Working Time Society reviews of these issues conducted in 2019 and supplemented by more recent additional literature to further develop key aspects where relevant.

Shift work, night work and health

The Working Time Society is a scientific committee on shiftwork and working time and a sub-committee of the International Commission on Occupational Health (ICOH), an NGO that works closely with the World Health Organisation and International Labour

Organisation. In 2019 they produced a series of Consensus Statements on issues related to shiftwork and other forms of non-standard work based on transparent and rigorous processes of assessment of the literature (Wong, Dawson and Van Dongen, 2019). Moreno et al. (2019) conducted a robust review of the link between shiftwork (including night shift work) and health for the Working Time Society. The review provides a clear protocol for assessing the strength of the evidence of the reports in the review, as well as the strength of the evidence taken overall based on Koch's postulates. Koch's postulates are used to determine the causes of diseases and have five criteria:

- the strength of the association between the disease and putative cause;
- credible biological pathways of causality;
- consistency across various research investigations;
- the time sequence, for example the timing between exposure and onset of disease is reasonable considering the causal mechanism;
- that there is a dose dependent relationship, for example, that the degree of exposure to shiftwork increases the likelihood of the disease occurring.

As part of the criteria for assessing the robustness of the evidence, Moreno et al., (2019) investigated the proposed biological, physiological and social causal pathways between shift work and various diseases, including laboratory-based research simulating different shift patterns and patterns of sleep disturbance. Moreno et al. (2019) were attentive to gender differences in the associations between shiftwork and health, which may be based on biology, variations in shift patterns and psychosocial risks in different gendered occupations, as well as considering women's dual role in both paid and domestic work and how these interact with shift and night work. Moreno et al.'s (2019) review formed the basis for the Consensus Statement on the evidence-based effects of shift work on physical and mental health. This Consensus Statement concluded that there

'is strong evidence linking shift work and negative health outcomes such as cardiovascular diseases, gastrointestinal and metabolic disorders (type 2 diabetes; metabolic syndrome). There was less consistent evidence linking shift work to cancer, mental health problems and reproduction-related problems.'

Shiftwork and cancer

In 2007 the International Agency for Research on Cancer (IARC) classified shift and/or night work in group 2A of 'probable carcinogens' since 'they involve a circadian disorganisation.' This was re-evaluated and re-confirmed in 2019 by a working group of 16 scientists from 26 countries, 'based on limited evidence of cancer in humans, sufficient evidence of cancer in experimental animals, and strong mechanistic evidence in experimental animals.' The IARC identified three domains that may be influence these risks – the type of shift system; duration over time of participation in the shift system, and the shift intensity (time off between the shift schedules), i.e. these are all dose dependent aspects (Ward et al., 2019).

There have been seven recent systematic literature reviews of the link between shift work or night work and cancer with three examining breast cancer and two examining prostate cancer (Dun et al., 2020; Jahn et al., 2024; Riviera-Izquierdo et al., 2020; Fagundo-Riviera et al., 2020; Manouchehri et al., 2021; Riviera et al., 2020, Hong et al., 2022). Despite methodological issues in the research on the link between shift work, night work and cancer (including heterogeneity of occupations, poor definitions of shift work and night work, insufficient attention to dose dependant relationships, etc) in the more robust meta-analyses there is accumulating evidence of a link between shift work and hormone-dependant breast cancer which is dose-dependent. This is especially for the case of night shift work. There is no strong evidence of a link to prostate cancer at this time.

Shift work and depression

A rapid review of the association between shiftwork and mental health focused on high quality reviews and meta-analyses over the past five years (see appendix for details of the procedure). The link between disruptions of circadian rhythm and a range of mood disorder, including depression and anxiety is well established (de Leeuw et al., 2023) and likely to be bi-directional (meaning that circadian rhythm disturbance can lead to depression at the same time as depression can lead to circadian rhythm disturbance) (Walker et al., 2020). Walker et al.'s (2020) review discussed underlying psychological and biological causal mechanisms. Most of the studies reviewed focussed on circadian rhythm disruption due to night shift work or to jet lag. De Leeuw et al. (2023) provides evidence of physiological and biological pathways between circadian rhythm disruptions and mood disorders, including depression.

Okechukwu et al.'s (2023) systematic review and meta-analysis of the association between night work and depression is robust and included assessment of the quality of the methodology and evidence, providing an estimate of the statistical significance of association. They report a significant association between night shift work, the circadian and sleep disruption that it causes, and the risk of depression in nurses. It concludes that nurses who work night shifts are at risk of developing depression.

Further research using longitudinal, case-controlled studies designs, more specific diagnostic criteria for specific mental health issues, and more consistent definitions of shift or night work would enable a clearer understanding of the association between shift work, night work and mental health. Nevertheless, regarding depression there are well-understood relationships between circadian rhythm disruption and mood disorders and their underlying biological pathways, so there is good reason to be concerned about the association between shiftwork especially night shift work and depression, particularly for female night shift workers in the light of Torquati et al.'s (2019) review.

Causal pathways linking shift work/night shifts and ill health

Moreno et al.'s (2019) review identifies several causal pathways supported by evidence from laboratory studies underpinning the associations between shiftwork/nightshift and ill health, in particular circadian rhythm disturbances, sleep restriction (i.e. insufficient sleep) and social desynchronisation. However, from the existing evidence they conclude that the extent to which these causal mechanisms play a role and whether they mediate the association between shiftwork/nightwork and ill health either directly or indirectly, is not

clear. They also identify that gender influences the response to shiftwork and nightwork and that men and women may have different risks for negative health outcomes.

Shift work, night shifts and psychosocial risks

In addition to the direct biological effects of shiftwork and night work on workers' health, a range of psychosocial issues affect workers as a consequence of engaging in shiftwork and nightwork. These psychosocial effects are likely to form feedback loops (both positive and negative) on the impact of shiftwork and night work on the health of workers. Examples of psychosocial risks factors include high job demands such as excessive workloads, fast pace of working, long working hours, high cognitive or emotional demands, poorly designed work schedules; job insecurity and lack of career prospects; low job autonomy or lack of control; role conflict or lack of role clarity; lack of managerial or peer support; poor communication; poor work/life balance; poorly implemented organisational change; workplace bullying and violence; work-life conflict. These vary both quantitatively and qualitatively for different shift schedules (Fischer et al., 2019) and so are relevant to understanding the relationship between psychosocial risks and shift and nightwork. The presence of psychosocial risks in the work environment is associated with work-related stress and has negative impacts on workers' physical and mental health. Managers of organisations are required under UK Health and Safety Legislation to assess, prevent or control the psychosocial risks to which workers are exposed.

Psychosocial risks, work-related stress and physical and mental health – models

The concept of psychosocial risks has developed within the occupational health and safety (OHS) literature to understand the effects of the work environment and its organisation on workers' physical and mental health. Work organisation includes 'how work is planned, organised and managed within companies and the choices on a range of aspects such as work processes, job design, responsibilities, task allocation, work scheduling, work pace, rules and procedures, and decision-making processes' (Eurofound, 2022). These shape the psychosocial risks to which workers may be exposed which then affects their levels of work-related stress and subsequently their mental and physical health. The European Agency for Safety and Health at Work (EU-OSHA) describe this link:

'Psychosocial risks ... which are linked to the way work is designed, organised and managed, as well as to the economic and social context of work, result in increased levels of stress and can lead to serious deterioration of mental and physical health' (EU-OSHA, Brun and Milczarek, 2007).

High levels or prolonged periods of exposure to psychosocial risks increase the likelihood that workers will experience work-related stress, which then leads to physical and mental health problems, absence from work, reduced quality of outputs, increased welfare and medical spending and reduced productivity (Eurofound, 2010). There is strong evidence of a link between psychosocial risks and work-related stress, burnout, poor mental health, musculoskeletal disorders, sleeping problems (Leka, Jain, and World Health Organisation, 2010) and cardio-vascular disease (Schnall, Dobson and Landsbergis, 2017). The prevalence of psychosocial risks and work-related stress has been rising in the EU in recent years, with

time pressure or work overload being the highest (19.5% of workers affected (Franklin et al., 2023).

There are several models of the relationship between the work environment and psychosocial risks and their impact on workers' work-related stress, mental and physical health. Karasek's Demand-Control-Support model is one of the most widely used (Rick et al., 2002). This model proposes that when psychological and physical demands are high and/or decision latitude/skills discretion (control) and social support (peer and supervisor) are low then this will lead to high levels of job strain/ work-related stress. While common models, including Karasek's, have been critiqued for lacking the theoretical, reliability and validity robustness (Rick et al., 2002), there is evidence to support the link between high job demands, low job control, and low social support with psychological distress in workers (Madsen et al., 2017). This model is the basis for the approach taken by the HSE in the UK.

Shiftwork and psychosocial risks

Fischer et al.'s (2019) review of the literature on the relationship between psychosocial risks and shift and night work noted the limited research in this area. Nevertheless, they identified a direct relationship between job control and shift scheduling since flexible work arrangements align with employee autonomy and control over the work. Flexible roster scheduling that realistically provides workers with discretion and autonomy over their shift scheduling enables workers to adjust schedules that have become problematic for their work-life balance or health, and both increases workers' sense of control of their work and reduces the risks of negative impacts of shift work and night work on them.

Psychosocial risk may also operate as mediators or moderators of the relationships between shift and night work, circadian rhythms and health outcomes (Fischer et al., 2019). For example, Fischer et al.'s (2019) review identified studies that demonstrated that compared to permanent day shift workers, those on rotating or permanent night shifts experienced higher levels of job strain which were indirectly related to poorer quality sleep (Wong et al., 2016). Higher levels of job strain contributed to increased risk of cardiovascular disease in shift workers compared to day workers (Tenkanen et al., 1997), with Nabe-Nielsen et al. (2019) demonstrating that compared to day shift workers, non-day shift workers had lower job control, less support from managers, and higher physical demands. There is some evidence that shift and night workers may be at increased risk of workplace violence, although this is likely to vary by occupation (Fischer et al., 2019).

These studies demonstrate psychosocial risks operating as moderators and mediators of the differences in impacts on health for shift workers compared to permanent day shift workers, highlighting their importance in exacerbating or ameliorating the negative impacts of shift work and night work on workers' health. There is rather limited research on these relationships at present. Furthermore, understanding these processes requires detailed knowledge of the specific psychosocial risk factors in the particular work environment and how these shape workers' exposure to the risks of negative health consequences associated with shift and night work.

Shiftwork and impacts on family, social networks and communities

There is strong evidence that shiftwork, night work and weekend work patterns disrupt workers' capacity to participate in social relationships, leading to social desynchronisation that contributes to work-life conflict, health and occupational safety even after the direct effects of shift work are accounted for (Arlinghaus et al., 2019). There are several contributory work-related factors; the specific nature of the shiftwork patterns, the number of hours worked as well as job specific psycho-social aspects such as long working hours and overtime, excessive job demands, low control over work processes and skill discretion and whether work is secure or precarious, all of which affect workers' well-being. For example, workers may prefer a compressed working week of longer daily hours over fewer days as this gives them longer blocks of time off work. However, the fatigue impact of long working days may extend recovery time negating some of the social advantage of the compressed week, as well as increasing fatigue-related risks on the job (Arlinghaus et al., 2019).

Arlinghaus et al.'s (2019) review compared long (e.g. five to seven days on the same shift then rotating) and short (two to three days on the same shift then rotating) shift rotations, with some research suggesting that short shift rotations enable some short re-synchronisation with social life which improved subjective work-life balance. This review also highlights several studies on the ameliorating effect of worker control of shift flexibility in reducing the negative impact on social and family life, including in the case of those working irregular hours. Costa et al.'s (2006) study using European data from 16 countries found worker control of working hours flexibility had a strong relationship to 23 different measures of health and well-being, and worker control of shift flexibility had the second strongest impact of several variables, on work-life conflict. However, Arlinghaus et al. (2019) also attends to studies which fail to show such a relationship which may include cases where the degree of flexibility is constrained by workplace characteristics and employers, so flexibility may not be 'usable' for workers.

Impacts of shiftwork on families and children

There is significant body of research on the impact of shiftwork on families and children. Most of this research demonstrates a negative impact on children's emotional and developmental outcomes on those whose parents who work shifts, with larger effects for families on low incomes and on single parent households. There are key mediators of this relationship including parental depressive symptoms, quality of parenting, reduced parent child interaction and unsupportive home environments. The relationship between shift work and outcomes for children was strongest for night-working mothers with pre-school and middle school children (Arlinghaus et al., 2019).

There is significant research demonstrating a negative impact of shift-working on the risk of divorce or separation compared to those working day shifts (Arlinghaus et al., 2019). This effect was worst for both male and female workers who were working nightshifts and parenting, with one study of US workers indicating a six-fold increase in risk of divorce for men and three-fold increase for women (Presser, 2000).

Arlinghaus, et al. (2019) warns against generalisation of these results since the specific types of shift schedules, the degree of control that workers have over them and family

characteristics all play a significant role. For example, where families can reconfigure care and household duties so that fathers take on a greater role the impact on work-life conflict may be ameliorated. This would also be the case where workers have the capacity to flexibly adjust schedules including the capacity to reduce *without penalty* unsocial working hours, to ensure that one parent is available for child-care, which may subjectively outweigh the costs of working shiftwork.

Gender differences in impact of shift work on families

More recent research has begun to consider gender differences in the impact of non-standard work schedules on work-life conflict. For example, Lambert et al. (2023) found that non-standard work schedules increased time-bound work-life conflict more for women than it did for men, with early morning and evening work disrupting socially valuable time for women and weekend work disrupting it for both men and women. This maybe because women tend to take more responsibility for routine, daily and less flexible forms of domestic work than men. Lack of family support was a strong mediator of work life conflict which brings in the importance of extended family structures. Work schedule unpredictability is especially detrimental for women reflecting the impact of sudden shift changes on household management and the organisation of childcare.

Dadashi and Ryans' review of the relationship between night work and health

Dadashi and Ryan's (2022) literature review examined the literature on the links between night work and health, as well as identifying and evaluating interventions to manage these risks. While exploring direct links, it does not consider the wider issue of shift work scheduling or how psychosocial factors interact with night or shift work to mediate or moderate these risks. Neither does it consider the impact of shift work and night work on psychosocial risks, or on night-workers' family and community. While Dadashi and Ryan's review specifically refers to nightwork, many of the reviewed articles refer to shift work so it might be assumed that they focus only on shiftwork that included night-work in particular.

The literature review did not include the significant review of this literature by Moreno et al. (2019) and the associated Working Time Consensus Statement regarding the link between shiftwork (including nightwork) and health (although other Working Time Society Consensus Statements from 2019 are included Dadashi and Ryan's review).

The review does not specify the criteria for evaluating the evidence in the reviewed papers apart from summarily stating if the evidence is conclusive or not. There is no indication of the study designs which would help assess the strength of the evidence and its limitations. The report identifies cardio-vascular disease (CVD), cancer, metabolic disorders as the most frequently reported studies, based on the number of research reports about these illnesses. It is difficult to draw conclusions about the strength of association or prevalence of disease linked to nightwork, from the frequency of studies, given there are many reasons why some diseases are more researched than others, for example available data bases, costs of studies, quality of evidence or robustness of results.

Conclusion

There is strong evidence, including proposed causal biological and social pathways, that shift work is associated with negative health outcomes in relation to cardiovascular disease, gastro-intestinal disorders and metabolic disorders (diabetes and metabolic syndrome). These pathways include circadian rhythm misalignment; sleep restriction (i.e. insufficient sleep) and social desynchronisation. The extent to which these causal mechanisms play a role and whether they mediate the association between shiftwork/nightwork and ill health either directly or indirectly, is not clear. They also identify that gender influences the response to shiftwork and nightwork and that men and women may have different risks for negative health outcomes. These effects are independent of associated lifestyle factors including poor diet and insufficient exercise that are also associated with shiftwork and which can exacerbate these negative impacts on health.

While the evidence linking shift work to cancer is less strong, in 2007 and again in 2019, the International Agency for Research on Cancer (IARC) classified shift and/or night work in group 2A of 'probable carcinogens' since 'they involve a circadian disorganisation.' This is 'based on limited evidence of cancer in humans, sufficient evidence of cancer in experimental animals, and strong mechanistic evidence in experimental animals' (p.1058). The impact of shift and night work on cancer is dose dependant, determined by the type of shift system; duration over time of participation in the shift system, and the shift intensity (time off between the shift schedules) (Ward et al., 2019). There is recent evidence supporting dose -dependent links between night shift work and hormone-dependent breast cancer women who commence night shifts before they reach menopause.

The evidence linking shift work to mental health problems and reproductive problems is less strong. However, evidence since 2019 on the impact of shift and night work on depression, together with emerging work on proposed causal pathways, indicates this is of concern especially in the case of female night shift workers.

Prolonged exposure to psychosocial risks in the work environment is linked to work-related stress, burnout, poor mental health, musculoskeletal disorders, sleeping problems and cardio-vascular disease. Psychosocial risks and work-related stress have been rising in the EU in recent years, with time pressure or work overload being the highest. Exposure to psychosocial risks will exacerbate the negative impact of shift work and night work on employees and there is emerging evidence that workers doing non-day shift work are at higher risk exposure to job strain, low control at work, less managerial support, higher physical demands and exposure to workplace violence. However, the profile of psychosocial risks is likely to be occupation-dependant and assessments need to take into account potential differences between workers on different shift schedules.

Shift work, and night shift work in particular, results in workers' lives being socially desynchronised from family, social networks and communities. There is evidence that shift work has a negative impact on partner relationships and on pre-adolescent child development. These impacts are also affected by the personal, family and economic situations of workers and the availability of affordable child-care that is structured to fit with the working lives of shift workers. The negative impacts of social desynchronisation can be ameliorated to a degree at the workplace level when workers have genuine control

of their shift schedules and are able to adjust their working hours to some extent to the demands of family and social relationships.

Data on shift premia

A review by Incomes Data Research (IDR) of night working in 44 organisations in December 2023, mostly from private services, primary sectors and manufacturing, found that around 90% of respondents schedule night working as permanent shifts with 69% of these operating permanent night shifts and 61% operating a pattern of rotating day/night shifts. Two thirds paid an annual shift premium calculated as a percentage of salary ranging from 12.5% to 35% - a median of 33%. Other employers paid shift premia as a fixed monetary amount each year – a median of just over £5,000. In the case of hourly-paid roles approaching two thirds (63%) applied a percentage uplift (typically worth 30%) rather than a monetary premium (£1.71ph at the median). The survey found a slight increase in the median premium, up from 30% in 2022 to 33% in 2023. The survey suggested that there were recruitment and retention challenges in relation to weekend and late or 'back' shifts, although in most cases employers had not taken steps to address these challenges in terms of pay incentives.

A larger analysis of night shift premia was commissioned from the Labour Research Department including indications of any changes in the levels of premia in recent years. LRD has its own categories for different shift patterns against which it records either a cash amount or a percentage premium for **early**, **middle** and **late** time periods:

- 24 hour 5 day working
- 24 hour 6 day working
- 24 hour 7 day working
- Double days 5 day working
- Double days 7 day working
- Permanent nights 5 day working
- Permanent nights 7 day working
- Premium for night working
- Other arrangements

The analysis presented here looks exclusively at shift patterns where data has been entered either for a percentage or a cash premium for the **late period** within each particular pattern. Exactly what times of day or night are involved in each case varies, from the "backshift" in a double day pattern to the night-encompassing period in rotating 24-hour cover, and time periods associated with permanent night shift or the evening/nighttime hours when a premium rate is defined as being payable.

The analysis includes 3,728 rates in 571 bargaining units, the majority (60%) in the manufacturing sector, followed by transportation and storage (19%). Overall, just under half (46%) of rates were expressed as a cash amount and over half (54%) as a percentage. The

median percentage premium was 33% and the average 32%. The median weekly cash premia is £95.49 and average £101.65.

In each case a corresponding non-shift rate of pay has been identified, so that a cash premium could be used to calculate a percentage premium (and vice versa). Premia range from 0.5% to 318%; both the average and median shift premia is 30%.

Table 1 – Shift premia as a % of equivalent day grades

| % shift rate premia | |
|---------------------|-----|
| Under 10% | 3% |
| 10-20% | 15% |
| 20-30% | 32% |
| 30-50% | 45% |
| 50-100% | 5% |
| Over 100% | 1% |

An analysis of a sample of 689 rates was undertaken to evaluate changes in shift premia over time (where data over time was available). Table 2 shows that in the vast majority of cases the percentage premium appears to be unchanged, in 12% it has increased relative to **at least one earlier year**; and in another 12% it appears to have reduced; in the remainder (5%) something appears to have changed but the direction of change is unclear or inconsistent².

Table 2 – Changes in shift premia

| | | |
|--|-----|------|
| A pattern where the % premium has gone up | 84 | 12% |
| A pattern where the % premium is unchanged | 491 | 71% |
| A pattern where the % premium has gone down | 81 | 12% |
| A pattern where the % premium trend is unclear | 33 | 5% |
| Total | 689 | 100% |

² Those row counts total 689 because, even though bargaining units where only one row of premium is available have been ignored because they offer no ability to show change or continuity, it includes bargaining units where trends have been picked up for more than one shift pattern.

Interviews with night shift workers

The participants

Table 1 shows the participants' characteristics in terms of demographics: Just over one third (36%) are female. Over half (53%) are over 50 – this reflects an ageing workforce, as described by the participants, one third (33%) have been working nights for over 20 years. Just under ten per cent were from black and minority ethnic (BME) backgrounds. Just under half (47%) worked rotating shifts, including nights, a slightly lower proportion (42%) permanent nights and the remainder some other form of nightwork.

Table 3 – The Participants

| Pseudonym | Workplace | Role | Sex | Age | Years in job | Years working nights | Union |
|-----------|-----------------------|--------------------------------|--------|-------|--------------|----------------------------|-----------|
| Matt | East Midlands Airport | Mail screener | Male | 20-30 | 5 | 5 | CWU |
| Helen | East Midlands Airport | Mail screener/HR Administrator | Female | 40-50 | 8 | 8 | CWU |
| Patrick | Parcelforce depot | Driver Trainer | Male | 50-60 | 7 | 7 | CWU |
| Steve | Royal Mail depot | Driver | Male | 50-60 | 38 | 38 | CWU |
| Dina | Royal Mail | OSG | Female | 60+ | 27 | 14 | CWU |
| Greg | Royal Mail | OSG | Male | 60+ | 30 | 30 | CWU |
| Simon | Royal Mail | OSG | Male | 60+ | 22 | On earlies moved to nights | CWU |
| Tania | Royal Mail | OSG | Female | 50-60 | 18 | 18 | CWU |
| Rich | Royal Mail | OSG | Male | 30-40 | 2.5 | 2.5 | CWU |
| Alice | Royal Mail | OSG | Female | 30-40 | 2.5 | 2.5 | CWU |
| Joseph | Royal Mail | OSG | Male | 40-50 | 25 | 25 | CWU |
| Gemma | Royal Mail | OSG | Female | 40-50 | 2 | 2 | CWU |
| Rohan | Royal Mail | Night shift manager | Male | 40-50 | 6 | 6 | CWU |
| Verna | Royal Mail | OSG | Female | 60+ | 35 | 25 | CWU |
| Mike | Royal Mail | Driver | Male | 60+ | 40 | 30 | CWU |
| Nigel | Light Industries | Production Worker | Male | 60+ | 4.5 | 4.5 | Community |

| | | | | | | | |
|---------|--------------------|--------------------------------------|--------|-------|-----|-----|-----------|
| | | | | | | | |
| Sheila | Logistics | Picker | Female | 50-60 | 3.5 | 3.5 | Community |
| Julie | Logistics | Stock Control | Female | 50-60 | 10 | 10 | Community |
| Jessica | Prison Service | Civilian Prison Officer | Female | 40-50 | 3 | 3 | Community |
| James | Prison Services | Prison Custody Officer | Male | 30-40 | 15 | 15 | Community |
| Cheryl | London Underground | Customer Service Manager | Female | 50-60 | 17 | 10 | RMT |
| John | Network Rail | Overhead Maintenance | Male | 40-50 | 17 | 23 | RMT |
| Tim | Network Rail | Signaller | Male | 60+ | 17 | 13 | RMT |
| Paul | Network Rail | Signaller | Male | 40-50 | 43 | 37 | RMT |
| Neil | Network Rail | Team Lead Signals & Telecoms | Male | 60+ | 20 | 20 | RMT |
| Norma | LNER | Station Customer Service Assistant | Female | 40-50 | 8 | 8 | RMT |
| Jack | Network Rail | Operative Track Inspection | Male | 20-30 | 18 | 18 | RMT |
| Ian | Network Rail | Signaller | Male | 60+ | 24 | 22 | RMT |
| Phillip | Network Rail | Team Leader Signals & Telecoms | Male | 30-40 | 22 | 22 | RMT |
| Wayne | Network Rail | Team Leader Off Track | Male | 40-50 | 20 | 20 | RMT |
| Grant | Network Rail | Team Leader Signalling - Maintenance | Male | 50-60 | 29 | 27 | RMT |
| Joan | London Underground | Asset Control Centre Operator | Female | 50-60 | 30 | 23 | RMT |
| Sally | London Underground | Team Lead Maintenance & Failures; | Female | 50-60 | 9 | 9 | RMT |
| Louise | London Underground | Night Tube Driver | Female | 20-30 | 10 | 4 | RMT |

| | | | | | | | |
|---------|---------------------------------|----------------------------------|--------|-------|----|-----|--------|
| Maureen | London Underground | Customer Service Assistant | Female | 40-50 | 6 | 6 | RMT |
| Cheryl | London Underground | Customer Service Manager | Female | 30-40 | 17 | 10 | RMT |
| Rob | Great Western | Train service manager | Male | 20-30 | 10 | 6 | TSSA |
| Jim | Scotrail | Train crew supervisor | Male | 50-60 | 22 | 14 | TSSA |
| Alex | An inner-city transport network | Service controller | Female | 50-60 | 27 | 19 | TSSA |
| Sam | TFW Rail (Wales); | Resource Manager | Male | 40-50 | 24 | 27 | TSSA |
| Ryan | London Underground | Incident Response | Male | 60+ | 40 | 6 | TSSA |
| Sophie | London Underground | Customer service manager | Female | 50-60 | 22 | 20 | TSSA |
| George | Network Rail | Shift station manager | Male | 50-60 | 35 | 32N | TSSA |
| Tony | London Underground | Service manager | Male | 50-60 | 36 | 36 | TSSA |
| Mike | British Transport Police | Communications Officer | Male | 50-60 | 15 | 15 | TSSA |
| Ted | Unnamed railway company | Operations role | Male | 60+ | 52 | 50 | TSSA |
| Bill | Network Rail | Train Running Controller | Male | 50-60 | 29 | 26 | TSSA |
| Lloyd | DB Cargo | Senior Infrastructure Controller | Male | 50-60 | 27 | 36 | TSSA |
| Terry | Network Rail | Senior Construction Manager | Male | 50-60 | 21 | 22 | TSSA |
| Eric | Network Rail | Train Running Controller | Male | 40-50 | 27 | 17 | TSSA |
| Craig | Commercial Theatre | Actor | Male | 30-40 | 36 | 30 | Equity |
| Angela | Various venues | Comedian | Female | 20-30 | 4 | 4 | Equity |

| | | | | | | | |
|---|--------------------|---------------|--------|-------|----|----|--------|
| Oliver | Subsidised Theatre | Actor | Male | 30-40 | 14 | 14 | Equity |
| Hugh | West End Theatre | Stage Manager | Male | 20-30 | 10 | 10 | Equity |
| Catrina | Various theatres | Stage Manager | Female | 30-40 | 16 | 16 | Equity |
| NB: in some cases pseudonyms have been used for organisation's names. | | | | | | | |

In terms of jobs most of the 15 CWU members were in Operational Support Grades (OSG), based in two sorting offices, one was a night shift manager. Two worked as mail screeners at East Midlands Airport and two were drivers in Royal Mail and Parcelforce depots. All were on permanent nights, although the days in the week worked could rotate over three-week periods. Most worked 37-hour weeks, but mail screeners worked 35 hours per week. All but four had always worked on nights. While most participants worked night shifts of 7-8 hours, they also reported that some preferred longer 12-hour shifts over a shorter number of days. In sorting offices, there are weekend shifts starting at 8pm and finishing at 8am. Patrick reported there are driving shifts from 6pm-6am, five days a week Monday to Friday, and also shifts of 13.5 hours – 7am to 9pm over three days.

Two of the five Community members worked in a warehouse, in picking and stock control for online fashion retailers, here workers started as agency workers and many refused permanent contracts because they wanted to remain on weekly rather than monthly pay. Another respondent was on the production line for a company producing specialised plastics and two worked in the prison service –as a Prison Custody Officer and a Civilian Prison Officer.

The 14 TSSA members worked as managers for London Underground, Network Rail, ScotRail, Transport for Wales, Great Western Railways, British Transport Police and two other companies. They were in a range of roles associated with ensuring the timely running of the trains and intervening in cases of accidents, breakdowns, emergencies, including arranging repairs, and involved in the management of train crew, station staff and customer services. All workers had done night work for many years, with the exception of a Service Construction Manager who had worked eight years on nightshifts but was now more office-based but doing some night shifts and a significant amount of on-call work. While most were contracted for a 35 hour week, this was averaged over the year so the length of the working week varied considerably, and could be 48 hours or more if overtime was required.

TSSA respondents worked night shifts on rotating rosters of nights, earlies and lates (although some included middle shifts) – rotating for between four and 13 weeks (with 4, 5, 6, 7 and 10 week rotations common). The number of night shifts in a roster varied with the length of roster. For example, a total of two weeks of night shifts in a 10-week roster, nine nights in a five-week roster, nine nights in a six-week roster, seven nights in a four-week roster, etc.

Shift lengths were generally between seven and 12 hours (7, 7.5, 8, 8.5, 9, or 12 hours long, although some did five hours), while 12 hour shifts predominate on weekends. Some

worked all shifts as 12 hour shifts as this gave them more time and weekends off. On London Underground and ScotRail workers did blocks of seven night shifts in a row. One worker on the London Underground had two of these seven nightshifts as 12 hr shifts. There was also a case of working seven shifts in a row as a combination of 3 earlies and 4 nights which could also include 2 x 12 hour night shifts over the weekend. Most workers had nights shifts in two blocks of three, four or five nights in a row, including 12 hour shifts on the weekends. Most had blocks of time off within the roster, such as five or seven days in a row. For some (with London Underground and ScotRail) longer rest day blocks occurred before a block of night shifts, but with only one day off after night shifts before changing to an early shift pattern (i.e. the day of finishing night shift in the morning).

Of the 15 RMT members, six men worked for Network Rail in maintenance and in Signals and Telecommunications (S&T) roles, including four team leaders, and three men were Signallers. Signallers control the movement of trains from multi-person or single person signal boxes. Maintenance workers are involved in doing on and off-track (e.g. drainage, keeping the sides of the track clear) and overhead work maintenance – all involving heavy physical work. Signals and Telecommunications involve maintenance of signals and telecommunications.

The majority of RMT rail workers (80-90%) on maintenance-type work do a large number of night shifts because maintenance can only be done between about midnight to 05:00 when trains are not running and most large blocks of maintenance time occur over weekends, starting from 22:00 on a Saturday night until 11:00 on Sunday morning. Mid-week there may be a maintenance window of four or so hours, while on the weekend this can go up to eight hours.

Five of the women from the RMT worked for London Underground, as a night tube train driver, asset controller, underground maintenance worker, and two in customer support services (one manager and one assistant). While many stations close overnight there is still one worker on duty and other stations are open 24 hours with night trains running and are staffed by several workers. One woman worked as a customer service assistant for London Northeastern Railway (LNER). All worked night shifts, with one woman doing permanent night shifts full-time and two women doing permanent night shifts part-time.

The nominal working week is 35 hours per week, but this is averaged over the year, so actual working weeks vary significantly. There is an upper limit of 60 hours per week maximum. Those on permanent nights start at 23:00 on Monday and finish at 06:30 Saturday, working 7.5 hours shifts. Contract changes have increased the amount of night and weekends shifts required to 39 weeks per year. There is a requirement to have a minimum of a 56 hour break following a week of night shifts. The recommended maximum working week is 60 hours. Shift length also varies between seven, eight, nine and 12 hours, with 12 hour shifts common on weekends, although some departments have all shifts as 12-hour shifts.

Of the Equity members two were actors working in a range of theatre and screen roles, one was a comedian doing largely stage performances, and two worked in stage management. Most had over 10 years' experience in the industry and had worked evening, day and weekend shifts over that period and were currently doing so. Performers were contracted to work for eight shows per week, with six in the evening and two matinees, so they work six

days per week, with one rest day. Evening performances generally start around 19:00 with performers arriving and preparing one or two hours before that and typically finishing between 21:30 and 22:30. Stage managers will start and finish well before the actual performances, often starting between 08:00 and 10:00 until at least 22:00, with an eight to nine hour day which may extend to 12 hours when there are rehearsals.

Workers often tour in productions travelling from town to town, from week to week. These contracts may last between eight to twelve months and require staying in unfamiliar locations since generally they are too far to return home on a daily basis. On tour, Sunday is a rest day and Monday is a travel day for moving to new locations, although this may vary for stage managers.

Overall, shifts covered by respondents included

- Permanent nights over three to five days non-rotating (7-8 hours);
- Permanent nights over three to five days rotating (7-8 hours);
- Permanent nights 11-12 hours over seven days, seven days on seven days off;
- Permanent nights 12 hours shifts two weeks on and two weeks off nights 7pm-7am, rotating in terms of days per week;
- Permanent weekend shifts Friday to Monday 8.30pm to 7am;
- Rotating rosters from between four and 13 weeks between 7 and 12 hours per day with a varying numbers of days of nights, earlies and lates and varying numbers of rest days;
- Seven or more nights on rotating rosters with seven or more days and seven or more afternoon shifts (slow shift rotations).
- Up to 39 weeks of nights shifts and up to 39 weekends per year worked by many RMT railways workers
- Part-time night shifts Friday and Saturday;
- One week of nights every 22 weeks, followed by a week off;
- Some shifts of 12 hours or more extending from mornings to late evening for stage managers in theatres.

Regarding participants' relevant personal circumstances: just under one quarter (24%) were not in a relationship; 40% had children, however, for a proportion these children were now adults. One worker was caring for their elderly parents. Four of the fifteen RMT workers and four of the fourteen TSSA workers did not have children and neither of the two female Equity members had children, nor did two of the males.

All were union members and half were union reps. Respondents reported that there are union reps on most night shifts – reflected in the interviews. Union representatives had facility time and could book time out if there were daytime union meetings.

Interviews with national officers from each of the five unions were undertaken as key informants to provide context for the research.

Key findings

Motivations for night work

Preference

A small minority (nine) of participants asserted a preference for nightwork on the basis that it suited their lifestyles, often describing themselves as a 'night person' or 'night owl.' Dina works Monday to Thursday 10pm-6am and these shifts fit in with her other career as an England darts player – so she can travel to tournaments on Fridays. However, at one point a change in shift patterns meant she had to work five nights which did not fit in with her darts and led to mental health problems:

'It affected me that bad... ...I had to give up England, I have to give up being an ambassador, travelling to promote the game. Really, I had no time to do it because you think that's [shift] gone into Saturday. So, as I said, finishing Fridays, I can get in, have a good hour's sleep, travel to where I need to travel, because quite often, I'd say "I'm going off" - so I'd have my clothes in my car, finish on a Friday morning, and then I'd just get on the flight and it's just great.' (Dina, CWU)

Some respondents appreciated travelling home after work when there is less traffic, although there were cases where because shift times had been pushed back, they no longer avoided the rush hour.

A number of respondents reported that although workloads can be more intensive, nights can be more relaxed and less stressful than days. In rail, Joan, an Asset Control Centre Operator at London Underground felt there was less managerial surveillance of workers on nights. Sheila loves nights, partly because there are less people on the night shift in her warehouse, her son similarly prefers the more relaxed atmosphere where senior managers are not around, even if there is more to do:

It's like when you're working during the day, you've got all the big managers around and things like that and people can't relax. Whereas over night time, although we have more to do, it is a relaxed atmosphere. To be honest, there's less people about. It's a big warehouse and you got over 4000 people in, but you don't actually see anybody, because you're working. But to me, nights is better for me because obviously I'm, you know, during the day I'm sleeping, I'm not disturbed. I've got no one at home. So, to me it's more sociable for me because I don't actually go out of my house anyway. My youngest boy gets what I need. So I go to work, I come home and I'm indoors. So, to me it's ideal to work night.' (Sheila, Community).

Across the interviews some referred to a sense of 'community' or 'extended family' on night shifts and this appeared to be particularly true where staff were single or divorced – often

as a result of working nights. Terry also talked about the importance of social networks based on work

I have a big, big circle of friends on the railway. You know, railway families are very extensive, and we become very close, and we have a very good social network within my team. We arrange periodically always to meet up for a drink, normally traditionally Friday, and we go out for coffees, and we go out for lunch. (Terry, TSSA).

'Preference' shaped by the labour market

Preference for night work may be influenced by the labour market and workers' experiences of alternative jobs which can be very pressured, particularly where there are staff shortages. For example, Sheila found night work in a warehouse preferable to life as a homecare worker where she had often ended up working between 7am and 10.30pm as she found it hard to say no if the agency asked her to work into the evenings – so she considered that she worked nights anyway. While she loved homecare, she said that she worked twice as hard as in the warehouse, she got attached to clients and felt an obligation to them and to take on extra work:

Because my problem was I could never say no. It was affecting my health, because I was working from like 7:00 o'clock in the morning till 10:30 at night. I love the job, I do, but I need to think about myself. You have to work twice as hard, do you know what I mean? This is where the long hours got into it, the agency, 'cause they kept ringing me.... I find [warehouse work] relaxing, for me, there's no stress for me. And it's more relaxing than care work, well, definitely, because with care work you just tend to feel you have, I don't know what I call it, you get attached to the people. You do get attached, as now I can go to work and come home and not worry about it. (Sheila, Community).

In prisons Jessica reported she finds nights less stressful, with limited direct interaction with prisoners as they are in cells. She also said that unlike when she worked in a large warehouse, there are no performance targets and she has more autonomy at work:

There's no, I'm not under any time scales. I'm not under any KPIs, I've not got a clock particularly ticking against me. I am my own manager, I can do things when I want as long as it gets done. (Jessica, Community)

She reported that PCOs who worked days will move to the less senior CSO civilian position that cover nights only:

We do get people from time to time who have dropped the badge like myself and another female colleague, she dropped her badge to become Operational Support grade because she found days was too stressful for the money and she says it transformed her life, mental health is better, physical health is better. For her, she says she cannot see herself coming off nights until something really significantly was to either change in the prison for her to go back on days or another job opportunity came up somewhere else, completely away from the prison. (Jessica, Community)

James confirmed that his prison colleagues preferred working nights as they find it more relaxed, since day shifts are generally understaffed and more pressured. Since staff ratios at night are subject to statutory regulation with fines for non-compliance, James expressed frustration that it left day shifts understaffed which affected workers:

I've raised this with Community and I've pretty much been quite brash to say basically what you're saying is screw the days as long as we don't get a fine. So as long as they avoid a fine, the day staff suffer in my in my honest opinion. On the male side alone, we've got 12 wings – there are meant to be three officers per wing, but if we have two officers per wing at the minute we're lucky. At the minute it's a regular appearance at the 12 wings to see at least three of them locked down each session, because we haven't got the staff to safely open bearing in mind we hold 900 male prisoners, 400 female prisoners. We haven't got staff and I'll see they don't get let out. They get upset, they start to kick off and it just becomes a massive, massive safety risk for staff. (James, Community)

“We haven't got staff and I'll see they don't get let out. They get upset, they start to kick off and it just becomes a massive, massive safety risk”

The labour market in the creative industries is over-saturated and work is precarious with intermittent contracts. Creative workers' strong desire for and love of their work mean they vulnerability to exploitation:

We can negotiate in good faith, but ultimately, I've got however many hundreds, if not thousands of people behind you, that will bite my arm off for the chance to the job you're trying to negotiate over. That puts real pressure on our members in terms of what they will put up with. So, it's that it's that kind of perfect storm of the self- exploitation that comes from within and the structural inequalities within this sector, that mean all of this can be quite difficult for our members to challenge. (National Officer, Equity).

The risks of excessive working time and associated fatigue or burn-out are often framed as 'self-exploitation' as if this was a worker's choice. However, as the Equity officer points out there are structural issues that constrain workers' choices. Oliver describes actors' desire for work can be manipulated by the industry:

It is a job, but it's also a dream. It's sold as a dream. It's sold as an emotional attachment. You want this, don't you? You're desperate for it. How hard are you prepared to work? You can translate that - how hard are you prepared to exploit yourself? (Oliver, Equity).

Caring responsibilities

A number of respondents reported that working nights could fit in with caring responsibilities. In London Underground two female participants worked permanent 12-hour night shifts on Friday and Saturday nights because the only option for part-time work

was to work weekends and the night work fitted with the need to manage childcare and their partners' work patterns. Another female maintenance worker on London Underground was full-time on permanent 12-hour nightshifts, finishing at 6.30am Saturdays and starting at 11pm Mondays, so she has some of the weekend off to spend with her family. This fitted better with childcare and taking children to and from school with a predictable and regular weekly schedule compared to working rotating shifts. Julie, a warehouse worker, takes her granddaughter to school:

when I finish, I more or less go straight from here and take my granddaughter to school, and then I can go and see to my horse and then do whatever I've got to do and then go to bed. A lot of ladies do it for that reason, so when they finish, they can go home, the partners are looking after [the children] - well, obviously they're all in bed - and then they can take the child to school. Then they sleep then while the child's at school and then get up.' (Julie, Community).

She reported that there are single parents or workers with younger children who do part-time hours or two full shifts, normally a Sunday and Monday, 10.5 hours between 8.30 pm and 7am, which Julie described as 'hard.'

Night shifts work for Jessica as she is divorced and her ex-husband has her 12 year old son on her weeks on – she picks him up on her way home from work and then takes him home and gets him ready for school and then takes him to school. She initially trained as a Prison Custody Officer (PCO), but the shift started at 6.45am (subsequently changed to 6.15am) so this meant she could not take her son to school; finishing times could vary and once in the prison she could not contact anyone to tell them she was late and arrange for her son to be picked up. She thus became an Organisational Support Officer in order to work nights:

I did do the PCO training and I did go on days for a short while, but with things to do with my childcare and my personal life, I opted to stand down and I dropped my badge and I went back to nights because it works better for me personally with my son and my life and everything. So I go straight after work, pick him up, make sure he's suited and booted, get all his kit, drop him at school, then I come home and come to bed, and that's me done. (Jessica, Community).

In the Royal Mail, Tania had found that three nights from 8:15pm to 6.15am Friday and Monday and 6pm to 4am on Sunday had suited her as she could fit it in around childcare, but she resisted a change that would have meant she had to move to five nights from 10pm – 6am:

When I used to do my three nights, it suited my family life. My son was a lot younger so I never had to have childcare or anything like that. But thankfully, these new hours didn't happen, because I'd have left. So yeah, the fifth night ruins you, you're tired, it's too much for family life. (Tania, CWU).

As with Dina, the union had negotiated four nights Monday-Thursday for her, but union officers reported she had to 'beg' to drop a day. As with some others working nights, synchronising shifts with her partner meant they could cover childcare and did not have to pay for it. One respondent recounted how a colleague would bring his son into work and hand him over to his partner at the end of her night shift before he started the early shift so that they could avoid the cost of childcare:

“the fifth night ruins you, you’re tired, it’s too much for family life.”

[he would] bring the little boy in all the way from where they lived so they could swap shifts, but he was like two years old and [she would] bring him out at night, 10:30 at night, 11:00 o'clock so they could swap shift, so he could start work and she could go home with the little boy. (Alice, CWU)

Similarly, Sam, a Resource Manager for Transport for Wales, describes a highly disciplined childcare regime with his wife who also worked shifts, exchanging young children in car parks between their shifts. Childcare when on night shift further limited the time available for sleep:

She did nights and days and we quite often had to balance childcare. We'd quite often hand over our oldest one in the car park of the hospital as I was going home. I'd take him to nursery, go to bed for a few hours and go pick him up from nursery. Then obviously be with him, feed him, be with him in the evening until my wife would come home. It was pretty much as she came home, I would go to work... You don't want to spend the whole time in bed. When they were younger, if I was to finish on a Sunday morning and I'd be off on a Sunday, I'd be at home, I'd be present, but there wouldn't be much socialising for them because I wouldn't be safe to drive. I wouldn't drive a car if I've only had an hour of sleep because it's dangerous. (Sam, TSSA).

Rich and Alice were in a relationship, and both worked nights. They were concerned about how they might fit having children around their work, anticipating that they would not be able to afford childcare and about how easy it would be for one of them to swap shifts:

'We can't both be working the night shift now or paying for childcare on our wages. You're not going to be able to afford full-time care. Are we going to be put in the position where say we were having a child and then it couldn't be accommodated and then everything gets thrown up in there and my God, I couldn't even think about it. I'm stressed enough as it is like I don't I don't need any pressure. ... the way the management are, it seems like it could be quite difficult or it seems like they'll make it as difficult as possible, which they do with quite a lot of things, make everything as difficult as possible. (Rich, CWU).

Reflecting on management's inflexibility, Sheila said that it was difficult to change shifts to accommodate childcare:

It's very hard to change the shifts, especially when they take on agency and they give them the shifts instead of giving it to the actual employees - they tend to put other things first before us, if you like. (Sheila, Community).

Financial

While RMT members on newer contracts are required to do 32 weeks of night work per year and similarly TSSA members are required to do night work, participants reported that the main driver of night work is the premia. In Royal Mail, as of April 2023, night shift premium for OPGs was £100.68 per week (of which, £53.33 is pensionable), however for protected grades it was £114.75, fully pensionable, suggesting a reduction for those on newer contracts. For screeners, the premium is £102.68 (with £54.27 pensionable). Again, those on protected grades were paid £ 117.05, fully pensionable. Night shift premia for drivers was lower at £54.27 pensionable and £48.42 non-pensionable, but the basic rates were higher. In all cases, dawn, early, evening, and late shifts attracted lower premia. As Matt reported, screeners at East Midland airport get night premia, but also Sunday working premia after midnight on Saturday:

My role required no previous experience or higher education, the basic rate is fair, but I would acknowledge that the night work pay compensation topped up my salary enough to afford me opportunities that I would have found it difficult to pursue otherwise. I have been able to buy my own house and I am able to pursue my interests outside of work – it would have been difficult to do both on my basic pay alone. (Matt, CWU).

While he does not see himself working nights forever, he conceded that the pay is hard to match and taking another job would mean a pay cut. His colleague Helen reported that those working nights gained about £52 a week, while Steve, a driver, said it was worth £200 per week and meant he did not need to work overtime. In Royal Mail, Rich and Alice are partners who work the same night shift and agreed that working nights gave them financial security and meant they did not have to rely on overtime. At the same time, it was reported that incentives for overtime had been reduced, with double time for weekends removed over 20 years ago.

The national officer for Community reported that premia varied and could be flat rate or anything up to 25%. In the warehouse there is a 20% shift bonus (the hourly rate is £13.77) and Sheila believed '*most do it for the money.*' Nigel reported a 37% premia for night shifts in his factory:

Well, a lot of it is for family, it fits in with family, a lot of it is for money, because it's extra money. Because it's - well, for me, it fits in, but also it's the money as well - it is good money, so I wouldn't say any other reason why, to be honest. (Nigel, Community).

Nigel said there was no advantage to night work apart from the money and it was the only way to maintain his lifestyle - the company had no problem recruiting, even under the new management:

You just put up with nights because, you know, the remuneration ... and as the new broom tries to sweep clean there's been like attrition with the older

guys and it's not quite the place it used to be, but that was always the thing that it was, if you could get in, it was one of those that you had to know somebody to get in and once in you wouldn't leave because of the money. (Nigel, Community.)

In prisons, Jessica was on a flat rate with no premia and said there was a feeling amongst the workforce that there should be a premium, particularly as, unlike those on days, they are effectively lone workers:

I think there should be something that because we are responsible for a lot. Yeah, so I do think there should be a night shift premium. Personally, a lot of us feel the same. Because you are classed as a lone worker, that is a fact, yes. The communication room, they will do a net test every hour and make sure everybody's signals and radios are working and that there's nobody, you know, collapsed dead in a toilet, but you are classed as a lone worker and it doesn't happen on days because you've always got other colleagues around you, but on nights you're classed as lone working. (Jessica, Community).

“I just felt exhausted all the time”

In theatres there are no premia and night work is part of the job, but workers are paid an allowance for food and accommodation while on tour, as low as £250-£300 a week. Contracts are often of short duration of around three months or shorter. The exception is, for example, a successful West End show that may go on for 12 months or more. Workers move from job to job, but unless they are well-established in their careers they may have to undertake other work both inside and outside of the industry in order to live. For these workers zero hours contracts enable them to leave their non-theatre related work more easily to take up the intermittent theatre-related work when it becomes available, and to return to the previous work when it suits them. Angela, a comedian, reflected on working 9am to 5pm in marketing and then doing gigs in the evening:

It was just too much, I think doing a full-time job and trying to ... I would say it impacted much more on my social life then, or I just felt exhausted all the time, whereas now it's more manageable.

For those in theatre work being able to combine regular work with theatre gigs, while providing some financial security, can become exhausting.

Psychosocial Risks

Work intensification and extensification

As discussed above, psychosocial risks in the work environment especially those involving excessive work demands, poor managerial support and work-related stress associated with

the risk of violence or harassment are likely to exacerbate the fatigue associated with night work. The Community National officer highlighted the issue of night workers expected to do overtime, particularly in the context of staff shortages:

It's all associated with fatigue, working long hours through night shift periods. So, we have to try and challenge that the best we can - the companies need to employ more people so that we've got people not having to do overtime.

RMT respondents commonly stated that 'the railways run on overtime', meaning there was insufficient staff to get the work required done. This was widely reported to be as a consequence of recurrent restructures with redundancies and reduced staffing widespread. While night work has always been part of workers' contracts, new contracts for maintenance workers and Signal and Telecomm workers with Network Rail have increased the required amount of night work from 28 weeks per year with 32 weekend shifts to 39 weeks per year of night work and 39 weekend shifts. At London Underground one respondent reported that blocks of night shifts had recent changed so that 12-hour shifts at weekends now extended to Friday nights. Night work in rail is embedded in an organisational work environment with significant psychosocial risks, specifically excessive work demands through work intensification and extensification related to insufficient staff. Respondents perceived weak external regulation and poor change management with limited managerial support on a range of issues including communication, fatigue, roster flexibility and mental health. Similarly, TSSA members reported significant cost-cutting, staff reductions and increased workloads, with trains running with minimum crew. Climate change, particularly flooding, is having an impact on the capacity to deliver services - trying to keep the system running can at times feel overwhelming for workers. The British Transport Police had seen staffing cuts and with a reduction from six to five shifts and a move to 12-hour shifts, this had caused a number of older workers to leave the job because it had become too exhausting for them.

TSSA members reported vacant shifts when people were on leave, again reflecting understaffing. These were covered by extending the working day from eight hours to twelve hours for a worker already on a shift and then getting another worker from the next shift to come in four hours earlier and do a 12-hour shift as well. Sophie, a customer services manager for London Underground, spoke of doing overtime as part of her commitment to a public service:

I tend not to do overtime, but recently I have been doing overtime. The reason I selected to do the overtime was just mainly to keep the stations open. We've had that pressure from everywhere, whereby - we're all picking up extra shifts that we don't necessarily need to pick up or I don't know whether we should - because I'm torn between closing a station or not closing a station. ... That's the reason why I have had to jump in, to do a few shifts to keep our stations open, but I don't readily want to do overtime. If I'm on a rest day they know that you're not going to get me in. If I'm coming in anyway and I have to do extra four hours, I'm happy to come in earlier to support in that sense. (Sophie, TSSA).

Similarly for Jim, a Train Crew Supervisor at ScotRail who comments on workers' dedication to service delivery:

If somebody's on holiday and somebody needs time off, you're basically you're going to have to work 12 hours to allow your colleague to have time off. Or if the railway's broken or if you have members of staff off, as I say, the company then expects you to give up your time off to come in and make sure that their office runs. And we are such a dedicated group that we don't like to know see trains not running, that the majority of the time we'll just go in and we'll do it in order to keep the service going' (Jim, TSSA).

Cover weeks often extend the number of nights worked in a roster and with extended hours this can lengthen weekday night shifts to 12 hours and can also result in workers doing up to ten night shifts in a row. The evidence here suggests that the incentive for overtime is not necessarily just financial but reflects workers' sense of obligation to service delivery and to their colleagues in the context of staff shortages. Yet excessive overtime can exacerbate the fatigue associated with night work, which is particularly risky for maintenance workers in rail whose work is largely nights and weekends and who also do demanding physical work.

Older workers recollected having done excessive overtime when they were younger and were aware of people currently doing 60-hour weeks with overtime. They had generally cut back on overtime as they became older, and Phillip, a Team Leader in Signals and Telecommunications for Network Rail, reported that long hours started to affect their bodies from a relatively young age:

When you get to 40 you feel the effects of nights really hit you. I'd say I started feeling that maybe around 38ish, and I just pulled off and didn't do as many extra shifts. (Phillip, RMT).

These older workers continue to do limited overtime, but their motivation is now more about helping colleagues so they can take sick days or annual leave or to maintain a good relationship with their line managers.

At Transport for Wales, managers eventually recognised that insufficient staffing had become a problem with the system so dependent upon overtime. There is currently a recruitment campaign in some areas. However, in the short and medium term this has exacerbated workloads for staff in relation to covering shifts for new staff while they undergo training. However, the increase in workers has not been accompanied by an increase in managers, as Sam, a Resource Manager at Transport for Wales, reported:

I think we've got 30 per cent more staff than we managed before, without really an increase in us [managers] Then there was training programmes which is having the biggest impact, the amount of training programs we have going on... That tied into obviously everyone's workload and they've not kept up with management employment as they have with just regular staff employment. It's far outweighed it, the amount of staff they took on for us to manage and whether it's manageable. (Sam, TSSA).

However, there can be tensions between the desire for overtime and wanting a better work-life balance. In one case, as a result of some railway workers refusing to do overtime,

management recruited more staff. Four of the five depot teams preferred this (those with the busiest workplaces), but one team want to retain overtime (the quieter workplace). There can be a conflict for workers who are trying to balance financial issues with having more time at home with family and friends, and even more so in the context of the current cost-of-living crisis.

In rail, jobs such as track maintenance require some workers to be on-call and to respond to emergencies (for example, clearing fallen trees). While this is currently voluntary, Network Rail is pushing to make on-call a requirement of the job. One issue is that after call-outs managers pressure workers to then go on and do their rostered normal shifts including night shifts. They may end up working four hours or more on a call-out followed by their normal shift. This is despite the collective agreement that stipulates that there should be a 12-hour rest period after finishing a call out.

In theatres the precarity of work means that workers are reluctant to refuse contracts that are offered and often work on consecutive or in some cases concurrent contracts, leaving them at the risk of excessive work that can then lead to fatigue and burn-out. For example, Hugh, a stage manager had taken only four or five days off a year over recent years (he gets his holidays paid out in case he cannot get more work) and had only one day off between contracts:

I've basically worked back-to-back. Some jobs have overlapped. I've done some work, started rehearsals for the next job in the daytime, and been doing the old show in the evening. I would love to have always said, "oh, I'm finishing now and I'm going to have two weeks off unpaid", which I'd more than happily do, but I feel like I can't turn down the work when it happens (Hugh, Equity).

In theatres workers are required to work six days per week including evenings and weekends, and there is increased demands for weekend work. There is a version of on-call work, called a 'float show' which requires stage managers to be available for a show on their day off, in case someone calls in sick. This means they have to stay sober and cannot go away to visit family or friends, but need to remain in a commutable distance to the venue. However, they only get paid if they are actually required to go into work.

Lone Working

Staff shortages and increased workloads can particularly impact those working solo night shifts. Rob, a younger train controller for Great Western Railways commented on the stress that lone working on night shifts brings:

With the state of the railways in at the moment, it's really difficult because you're the only one on nights, where on day shifts you get two people, we get two controllers - on nights there's only one, so everything's on you to sort out. So, we've had some fatalities recently that it's really difficult to get your head around. We've had some infrastructure issues where you're amending 60-70 trains in one night shift and that's quite a lot of work for one person. So you can regularly go home absolutely exhausted from the mental strain of dealing with those incidents. (Rob, TSSA).

Lone workers in the railways can be left to deal with high volumes of complex work in safety critical areas that includes dealing with fatalities, often with little support. This increases work-related stress and fatigue.

“you can regularly go home absolutely exhausted from the mental strain of dealing with incidents”

In rail, Customer Service Managers can work overnight alone in stations dealing with vulnerable people, facing violence and abuse, potential suicides and attending to medical emergencies with emergency services slower to respond than in the past. For these lone workers at night there is no personal back-up except for calling 999 or a service control number. This makes the workers more vulnerable and being alone on the station can make it harder to mentally process difficult events, with no managerial support available. Consequently, it is more difficult to sleep once the shift has ended, as Cheryl, a Customer Services manager at London Underground, explains:

The station I work at has had multiple stabbings, there's all sorts of things, and normally on a day shift or a late shift if I've had a bad shift my brain can process, has a bit of time to process before going to sleep. On night shifts you sort of you don't process or you're processing and you're sleeping. (Cheryl, RMT).

In theatres, leaving venues late at night and the journey home can be challenging for personal safety. Two of the five Equity members reported having been mugged and one worker described an incident during a moment of audience participation on stage with an aggressive member of the audience, which felt threatening. Since this was a small commercial venue there was no safe space off-stage nor any staff to ask for support. She had to travel home alone on public transport still feeling upset and shaken. This risk is exacerbated for women, LGBT and BME performers, as Angela a comedian described:

If you're a man, the worst that happens in that space is you don't do very well. It's embarrassing. Somebody heckles you. If you're a woman or in another minority group in that space, the worst that happens is possibly a hate crime or assault. (Angela, Equity.)

The lack of availability of public transport at night also creates risk, especially for low paid workers living outside city centres because of the lack of affordable housing. Hugh, a stage manager, described his journey home if he misses his 10pm train:

The one thing that does make me more nervous is if I miss that and I have to get the tube to and then a bus, there's a 15-minute walk from the bus to my flat which is basically through a nature reserve which has no streetlights. It's pitch black ... But I'm stingy and I'd rather get the bus than pay for a taxi, so I would always do the 15-minute, 20-minute bus, and then a 15 minute... I walk quick and I don't look around, and it's always – I've never had any issues, and I've done it maybe 30, 40 times, but it's just very – it's dead silent, there's not a soul around, and I have my phone flashlight out. (Hugh, Equity).

When on tour the risk to personal safety is exacerbated by the unfamiliarity of locations and workers are left to devise their own strategies to keep safe, although this may come with a financial cost that is not covered by the expense allowances, as Catrina a stage manager asserted:

But particularly when I'm on tour, I am quite aware of when I book digs, how far they are from the theatre. There are places I don't feel particularly comfortable walking back to my digs from. Sometimes when you're on tour, you'll arrange with the rest of the company, where are you? Can we share taxis? Things like that, but it's not without its financial cost to suddenly be getting taxis home every night, as well.... It is tricky, particularly on weekends. The tour I was on last year, we were in Ipswich for a week, and that got particularly lively at night. Usually I'll find myself buddying up with someone else, if they're on my route home, or if it's very bad – a couple of years ago, I was on tour in Edinburgh, and it was very, very lively, and I was about a 40 minute walk from my hotel. I just took the brunt of the financial cost of a taxi, because I just thought it wasn't worth being terrified on my way home. (Catrina, Equity).

“it's not without its financial cost to suddenly be getting taxis home every night”

Psychosocial risks are generally linked to work-related stress and mental and physical health. The interviews suggest that night work is often embedded in an organisational work environment with

significant psychosocial risks, specifically excessive work demands through work intensification, the extension of working time through overtime and on-call arrangements, often poor and inflexible management that is not necessarily attentive to the needs of workers, and the potential for harassment and violence where there is lone working and commuting. These risks are underpinned by staff shortages and are likely to exacerbate the negative impacts of night work, in particular, on fatigue.

The impact of night work on workers

Sleep

The most direct impact of night work is the disruption to workers' body clocks leading to disturbed sleep, accumulated sleep debt and excessive fatigue. When respondents were asked about their sleep, even in cases where they said they had enough sleep, it was fragmented. They were generally sleeping for around six hours in total when on night shifts with a frequent pattern of a few hours of sleep when they got home, getting up for a few hours and then napping before they left for work in the early evening. Jack, a rail maintenance worker described these split sleep patterns:

When you went home, you went to sleep, and you went to sleep initially like, fine, you would be out normally for about two hours, and then you're awake. Say you went to sleep at 8am, you'd wake at 10am and you're wide awake and you just end up getting up, I mean 12pm. People are going like that, get up, back to bed before they go out and all that, split sleeps it's called. Loads

of people on night shifts do that. They get up early and then they go back to bed at 6pm, up again at 9pm for your work, and then you go into work.

(Jack, RMT).

Theatre workers reported that despite often finishing work between 10pm and 11pm, they needed to wind down after a performance so might go out with colleagues, or if going home would take some time to eat and relax. Consequently, they would get to bed about 1am and then must get up the next morning between 9am and 10am. They were getting about eight hours of sleep, but the timing is desynchronised from the lives of most people.

Many respondents described disrupted sleep patterns. Matt, an airport screener, felt that the impact is more mental than physical: *'It is hard to keep a routine, it is hard to switch off when you get home from work, you end up staying up and then find it hard to get up again.'* Julie, a warehouse worker, goes to bed about midday and gets up around 8pm, but conceded:

I don't sleep for eight hours. I don't want you to think I do because I don't. I'll be lucky if I get six hours, there's always noise. So that disturbs you. It is hard. It is harder to sleep in summer than in winter. (Julie, Community).

Many described difficulties adjusting to normal sleep patterns when they are not working. Jessica worked one week of nights and then one week off and said that it can take people up to a week to adjust. She has tried to stay up after she has finished her last night shift to get back into a normal sleep pattern, but it is very hard:

It varies, but I would say me personally a good three or four days, other people are back at it after a day and they're feeling absolutely normal and they're back in their sleep pattern. I've tried everything, I've done the stay up on your last day, stay up all day, don't go to bed till eight o'clock, nine o'clock at night. It don't work - people will stay up, stay up all day, power on fumes, stay up - tried it, done it - nah, don't work. (Jessica, Community).

Greg, from Royal Mail, described how people do not want to waste the weekend so instead had four-hour 'power naps' in an attempt to make their body clock go back - he referred to it as 'flipping sleep patterns':

So, you know when you've finished on a Saturday morning, you've got to decide where you're just going to have a couple of hours sleep because you'll be sleeping Saturday night. It's a Monday when you get up at the usual time of eight o'clock say, and then you're coming in here. But if, like, you're doing the whole day thing and then you're in here at the night, you end up that you've been up 24 hours. (Greg, CWU).

Those on permanent nights reflected on the fact that they did not see daylight: Tania commented *'You're like a bat you come to work in the day and go home in the day.'* Jessica reported that colleagues felt daylight and vitamin D-deprived and they described themselves as vampires:

A lot of us refer to ourselves as like vampires, do you know what I mean? Like, we are daylight deprived, there is no doubt about that, vitamin D and

daylight deprived for an entire week. Some people are quite brave during a boiling hot summer and they will sleep outside on a sun lounger to get some daylight, just to literally get some vitamin D to the bones, get a bit of daylight, get some sun, because otherwise, by the time we're getting up, you know, the best part of the day is gone when you think about it. (Jessica, Community).

Most respondents reported sleep deprivation which accumulates the longer the runs of night shifts that workers do. These findings of sleep quality and duration are in alignment with the literature on circadian rhythm and night work which identifies problems with poor quality sleep of short duration (four to six hours, and insomnia (Moreno et al., 2019; Wyse et al., 2017; Yong, Li and Calvert, 2017; Kecklund and Axelsson, 2016; Åkerstedt and Wright, 2009).

“there is no doubt about that [we are] vitamin D and daylight deprived for an entire week. [Colleagues] will sleep outside on a sun lounger... just to literally get some vitamin D to the bones”

Fatigue

Respondents described the fatigue resulting from night work as feeling ‘completely wiped-out’, ‘shattered’, ‘permanent grogginess’, ‘like a zombie’, having ‘brain fog’ to the extent of short-term memory loss. Fatigue hits during and following night shifts. Jessica had initially found it easy to adjust to nights, but conceded it has got more difficult the longer she has done it and that it takes its toll as you get older, she described what staff call ‘hitting the wall’:

But I think the longer I've done it, you find you do get a little bit, as we call it, 'hitting the wall.' Personally, I get to about Wednesday or Thursday and my alarm goes off at like half five and I think, "oh, no, really, I want another half an hour, oh, I'd love another half an hour". So, you do start to feel that fatigue and it is just purely because you're doing shift after shift after shift after shift. But then I pick up like Friday, Saturday, I think, well, it's nearly weekend, I can smell Monday morning, it's nearly there, and it gives you that extra boost and you just push on through to be fair. But I breezed it at first, but I think I'm getting older as well. (Jessica, CWU)

Alex finishes a run of seven nights on a Monday morning then starts again on the following Tuesday at 5pm:

So I've already done two nights and I'm already ... I'm ragged, I'm already ragged. I've only done two, I've still got another five to go. It's pretty brutal - the impact is devastating. (Alex, TSSA).

“It’s pretty brutal - the impact is devastating”

For performers such as singers and dancers, the physical demands of doing eight x 2.5 hours (17 hours) performances a week can intensify fatigue associated with the working time regimes. Feeling exhausted after a performance puts the performer at further safety risks after the performance and while travelling home late at night as a national officer commented:

I think it's about the pressure on the body as well, particularly for our members who are doing highly physical work, if you're in a big if you're in a big musical, but eight performances a week? And you're singing your singing and dancing, for eight performances a week that last two and a half hours each, the pressure on the body is significant and that does things to tiredness which again has an impact on safety when you're making your way home. If you're exhausted and you're not as alert as you would have been had you just been at a desk, then there's a vulnerability there isn't there, which is particularly acute for women, I think. (Janis, Equity Officer).

In the theatre industry fatigue is also related workers not taking annual leave between contracts due the fear of refusing and losing work.

Rail workers also reported that staying awake after 3am to 4am when they 'hit a wall', especially on 12-hour nightshifts, was a particularly difficult. Patrick said that tiredness and nights go together and this is particularly an issue for lorry drivers who are 'driving a weapon', and where following the same routes led to boredom:

“tiredness has an impact on safety when you're making your way home. If you're exhausted you're not as alert ... then there's a vulnerability there isn't there, which is particularly acute for women”

I've done 30 years, I know still about two o'clock in the morning I get a dip where my, and it happens to everyone, their body tries to shut down. (Patrick, CWU).

Breaks during shifts are thus important in helping to manage fatigue. In prisons, unlike day workers, night staff are paid all the way through the shift, so there are no formal breaks, although Jessica said that if the prison is quiet, she can take between 45 minutes to an hour break. At Network Rail maintenance workers do not generally take breaks, since there is no shelter on track and they would have to return to the depot, which is a significant walk and /or driving time. A signaller described managements' response to issues raised by Health and Safety reps about signallers not being able to take rest breaks. Management sent in time and motion assessors who recorded all the mini-breaks and interruptions of one to five minutes across a shift then added these up to argue that in total it represented a 20-minute break which was sufficient. The reality was they could not prepare a meal and eat it or even make and drink a cup of coffee in a two-to-five-minute break.

At Royal Mail there are paid breaks - for OSGs one hour per night (40 minutes and 20 minutes rest break), for drivers there is one hour for a 9.5-hour shift and 45 minutes for a 7.5-hour shift which is monitored by a tachograph. Nigel reported that in his factory, following a change in management, breaks had been reduced from five to three in number, so two 20-minute breaks and one 30-minute break in between. He felt that the five breaks should be reinstated to refresh people, since fatigue meant that people made more mistakes. He suggested that between 3am and 4am is when people are most tired, '*you become a zombie, but wake up a bit when it gets to daylight.*' James commented that fatigue could lead to mistakes:

Unfortunately, people do come in after a shift where they shouldn't be coming in, and mistakes are made, whether it be a gate left open, an area not secured. (James, Community)

“people do come in after a shift where they shouldn't be coming in, and mistakes are made”

Steve also reported that people look tired and that some nap in the cabs of their lorries during breaks. In rail maintenance workers would often get back to the depot a couple of hours before finishing time.

The depots were furnished with very basic and uncomfortable chairs and were often vermin-ridden so it was not possible to rest comfortably in them. Consequently, the drivers would sit in their vans keeping warm with the engines running. This was potentially time for some of them to have a nap in work time as there was often little else to do. However, managers refused this and said they should use the time to tidy up the depot and stopped them from running the van engines to keep warm by installing remote monitoring into the vans.

Respondents described being tired driving home after shifts and this was particularly an issue where they had commutes of up to two hours. This was due to several issues including their redeployment when their local workplaces had closed (as in Royal Mail and rail), or because their shifts had been moved back and they encountered more rush hour traffic. They said they were often on autopilot or nearly falling asleep at the wheel. Nigel said that most people drive to the factory where he works, but some have lengthy commutes and end up extending their working day to 13-14 hours. Many had showers before they leave to wake them up before driving - at one point the employer had attempted to remove this facility. Similarly in rail many respondents had at least one-hour commutes each way. There is a rule in the railways that the time from leaving work to returning home should be no longer than 14 hours, but many workers, especially in London, cannot afford to live close to work or due to the consolidation of signal boxes have had changes to their place of work leading to longer commutes. Those on 12-hour shifts are particularly vulnerable to the effect of fatigue on driving. In the prison service, James raised an issue of PSOs driving home after travelling to bed watches in other parts of the country, where the employer could encourage them to hire a car to save money on taxis:

And my concern is there you're asking someone to complete a night shift of 12 hours and then drive themselves back maybe 40 miles up the road. That has been raised. And majority of the time it is a taxi, but occasionally the hire

car sneaks back in, which I believe will obviously be a money thing they're trying to save themselves some pennies. (James, Community).

In theatres, workers may have to commute some distances; Catrina described a 52-hour week with three 12-hour days of rehearsals from 10am to 10pm and two eight hour days and then a commute home at weekends:

I was doing three days of 10:00 until 10:00, two days of 10:00 until 6:00, and then having my weekend off, spending the Saturday recovering from having that weekend off. That job was in London, and I'm based outside of London, so then I had to add in travelling home outside of London, and then travelling back on the Sunday night. So, that is the – if you're organised, it's doable, but I am conscious, particularly as I get older, of how tired I am at the end of a working week. (Catrina, Equity).

The lack of available public transport encourages workers to drive to and from work and by the end of a shift they just want to get home as soon as possible. Sam a Resource Manager at London Underground was so shaken by a near miss that he stopped driving even though waiting for public transport meant a much longer commute:

Twice I've had problems driving home after a night shift. Once I drove straight in the back of somebody, because I was just so tired. It just didn't register in my brain the fact that it stopped and I just, bang, straight in the back of him. ... Once, which really shook me, really shook me, I hit the central reservation on a dual carriageway at 70 miles an hour on the way home. I think they now call it micro-sleeps, but I just nodded like that and had hit the central reservation. Then, for a period I stopped using a car and started using a motorbike. It's very difficult to fall asleep on a motorbike [laughs]. I now just rely on the train and if I can't get in, I can't get in, it's tough. (Sam, TSSA).

Driver fatigue following nightshifts and associated potential accidents are well recognised in the academic literature and is associated with both prolonged

wakefulness and circadian rhythm misalignment (Lee et al., 2016; Mulhall et al., 2019). A number of respondents reported that one employer solution to making the drive home safer was to suggest that workers have a short nap in their cars in their own time after the end of their shift before driving home. However, this would further extend the time associated with work and further shorten the gap between getting home and having to go to work for the next shift, so most just wanted to get home as quickly as possible.

Following a night shift fatigue would often overwhelm respondents both immediately following a night shift and continuing for several days following on from a run of night shifts. Consequently, there was little energy left for anything else apart from work and doing basic necessities (e.g. childcare). Rohan confirmed that his erratic sleep patterns, sometimes five hours, sometimes ten hours '*affected his mood 100 per cent*' and that he was

“Once I drove straight in the back of somebody, because I was just so tired.”

often too tired to spend time with his children. Gemma who also worked in a Royal Mail sorting office, described the impact of a lack of sleep:

Fatigue - yeah, just you're on a very short fuse, I am a different person when I have a week off, when I've got a week off my husband tells me he's got me back. You become isolated from everything, everyone, you're living in a different time zone, you got no life whatsoever - night shifts are against human nature. (Gemma, CWU).

A railway maintenance worker, John, recalled family and friends commenting on how exhausted he seemed after doing night shifts:

“You become isolated from everything, you’re living in a different time zone”

Friends of mine used to say to me when you used to come around, I used to go around there. They used to make me a dinner before I got married, and they've said often enough, by the time you got to six and seven nights, they said that you looked absolutely dreadful. (John, RMT).

The impact of fatigue intensified with age and length of time on night shifts. While Helen liked nights, she reported that her partner who worked on the same shift now hated them. She outlined the physical and mental toll night shifts took on him:

So, if you would talk to my partner, it'd be totally the opposite. He hates it. He doesn't like nights at all. He's done it for 14 years, I think it is. I think he's just in a routine. He'll just sleep all day, he'll come to work and then he'll sleep all day if he can because it definitely affects him differently to how it affects me. He's just tired all the time, yeah. He suffers from some mental health issues, so it affects that as well. I think he's put weight on as well. He puts weight on. (Helen, CWU).

Nigel, a factory worker, could not afford to retire until he was 66 years of age, but wanted to come off nights before then, stating that while initially he had no problems working nights as he has aged it is more difficult:

I don't have the energy levels, which is expected as well. I don't have the recovery levels. Five months ago I had a knee replacement as well and I was quite fit beforehand. So, I've made a relatively good recovery, but I've since struggled then to get back up to my fitness levels, which obviously has impacted then on my on my tiredness and my efforts as well, so. A friend of mine who'd been on nights for 17 years, and when he packed in, he said that even four or five years later his body clock's still woke him up at 2 o'clock every morning and that sort of stuck with me. Your body clock never gets used to it. It affects you in in lots of ways, your body clock never gets used to it because you're just getting used to it and then you're changing back again. So it does have an effect on my tiredness, especially as I'm getting older. (Nigel, Community).

Tony, a Service Manager for London Underground, agreed that sleep had got harder as he got older:

I'm finding now, in the last three to four years, specifically doing night shifts, I'm finding it a lot, lot harder. A lot harder. My recovery period is a lot longer, but I'm sleeping less, so I do get quite jaded with it all. I'm also struggling with doing the early shifts because that means I'm up at 4:30 in the morning, to go into work. But I do find, I have actually said this to my wife, I struggle to sleep. (Tony, TSSA).

Many studies of the impact of age, sleep and shiftwork indicate that younger workers are more tolerant of shift work, with those between 42 and 52 years having the lowest tolerance (Ritonja et al., 2019). However, this does not mean that those over 52 years are not similarly affected since, at least in Tucker et al.'s (2011) study, there were significantly few workers over the age of 52 as many retired, so comparisons with this older group were not significant. Blok and de Looze's (2011) review found strong evidence that older night workers have more sleep problems than younger workers, with Flo et al. (2012) indicating that there is an increase in sleep difficulties for shift workers once they reach 40-50 years. Research also indicates that aging is related to an increased sensitivity to circadian phase misalignment and an increase propensity in older people to awaken from sleep, as well as issues of getting to sleep during the day and with sleep tending to be less restorative with age (Dijk et al., 1999).

All workers reported suffering from excessive fatigue which was much worse on night shifts compared to daytime or evening shifts. This was the case for both those doing rotating shift patterns and those doing permanent nightshifts. Sleepiness, impaired cognition and performance are widely reported for shift workers in a range of industries, with performance declining further with extended working hours and shorter sleep duration, with the first night shift usually the worst. Cognitive function may either improve or deteriorate depending on a range of other factors (Boivin, Boudreau and Kosmadopoulos, 2022).

The impact of the organisation of night work on sleep and readjustment

The design of rosters in relation to numbers of night shifts in a row, the length of the shifts, whether 8, 10 or 12 hours, and the number of rest days following night shifts all have a significant impact on the degree of circadian rhythm disturbance and sleep deprivation. Where respondents worked rotating shifts, transitioning from night shift to other shifts is particularly demanding. Alex on an inner-city transport network and Jim at ScotRail worked slow rotating rosters, seven nights in a row, finishing in the morning, then starting an afternoon shift the next day. Sam at Transport for Wales had three-night shifts then seven days off then four-night shifts, finishing in the morning and starting back the next day on a middle shift at 1.15pm. Some had more days off before commencing night shifts than they have off following a block of night shifts when they transitioned quickly into early shifts.

In rail, as elsewhere, the day of the morning when the run of night shifts ends is defined as a day off between shifts, but this is contentious since workers finish night shifts in a state of exhaustion and that day is spent recovering and preparing for shift transitions rather being their own free time. TSSA members reported that rail companies count a weekend off as

beginning from when a night shift ends on Saturday at 7am in the morning when workers are exhausted. As with others, to manage shift transitions workers often will get a few hours' sleep when they get home from work, then will try to stay awake as long as they can in the hope of sleeping properly that night in an effort to try to readjust their diurnal rhythms to going back to day shifts, as George, a Station Manager Network Rail explained:

To get out of the punch-drunkenness I try to get maybe two to three hours sleep when I get home [after end of run of nights], because I want to try to kick my body back into a normal sleep pattern, but that normally takes me a good two – at least a good two days, until I start to feel back to normal. (George, TSSA).

Adjustment is even more demanding for those on rosters requiring seven nights in a row with minimal rest days before a new seven-day shift pattern, as Jim, a train crew supervisor, explains:

It takes three or four days to readjust sleep and recover from a run of seven nights, so [you are] fatigued after night shifts. Often I can't get to sleep until 2am ... I finish 7am Tuesday and have to start again 3pm Wednesday, so you have to force yourself to stay awake Tuesday so you can sleep Tuesday night in preparation for working Wednesday. So, you are not getting proper rest on the 'rest day'! Your one day off you are too tired and don't feel like doing anything and the Wednesday you are still in recovery and don't want to do anything. (Jim, TSSA).

When doing longer runs of nights (more than three in a row), the body begins to try to adapt its circadian rhythm to night shifts, which then makes it harder to readjust to another shift change. Hence the difficulties in getting to sleep at night again when moving to early or afternoon shifts. Going from night shifts into early shifts is problematic since the day before commencing earlies requires workers to go to bed very early in the evening to get up between 4:30 and 5:30 am. The workers reported feeling that they were constantly having to manage shifting their circadian rhythms, which is also exhausting. Mike works for the British Transport Police:

I think I had four days off after the last night shift. So, I sleep in on the first one. The second one, you're very, very tired. You get back to normal on the third and fourth. Then you're in very early. So, I've got to try and go to bed early to get up at – so, I get up at 5:30am to start work at 7am. So, it is difficult to flip your body around and keep flipping your body around' (Mike, TSSA).

Most workers, including those doing short runs of three or four-night shifts, report that it takes several days to recover from the sleep deprivation associated with night

“it is difficult to flip your body around and keep flipping your body around”

shifts, and some use their annual leave days to increase the runs of rest days. In general, annual leave is used for recovery; Sophie, a customer service manager for London

Underground, reported that she was permanently tired, and her holiday time with her family is spent recovering from sleep deprivation:

Really with my husband, I keep saying to him, when we go on holiday I just want to be left alone to recuperate. I don't want to leave the holiday villa, or whatever - I just feel tired. I don't know how else to express it more than, I'm just constantly tired. I'm trying to do vitamins' (Sophie, TSSA).

“I don't know how else to express it more than, I'm just constantly tired.”

you're still in night mode', while returning to work after holidays was also difficult 'and that starts messing with people's minds.'

Others reported that it was only when they were on leave that they appreciated the impact of working nights, but that the first days of annual leave were spent readjusting, 'struggling to sleep because

In theatres, stage managers are at particular risk of fatigue as they work longer and more variable hours than performers. In theatres contracts for stage managers have an 11-hour break clause, meaning that workers need to have a minimum of 11 hours from the end of a day to the beginning of work the following day. By the time workers leave at 10:30pm, commute home, have supper and decompress, they may not get to sleep until 2am and can then find a 09:30 start that is required at times such as during the preparation and rehearsal phases of productions, very difficult. They may only get five hours of sleep, which is insufficient and fatiguing. When theatre workers are on tour, they are required to find their own accommodation and since the amount paid is so small, they use an app that advertises cheap accommodation in 'digs'. This is generally a room in an unknown persons' house and the rooms and beds are not necessarily comfortable, which can then affect the quality and quantity of sleep.

Recovery is also facilitated by having weekends off work. In rail the number of weekends not spent working at all varied from between one and four weekends in six weeks, or eight weekends out of 12 weeks, with, in one depot, a report of workers getting one weekend off in 12 weeks. On London Underground there was an agreement for five weekends off out of every seven, achieved through an agreement to work all shifts as 12 hours. A controller for a regional company had six out of 10 weekends off and a station manager for a high-speed rail company four out of six weekends off. However, most had fewer than half their weekends off.

Rosters play a fundamental role in fatigue management for those on rotating shifts, since they regulate the intensity of night work through the numbers of night shifts worked in total, the numbers of night shifts in a row; shift lengths, and the number of days off for recovery following night shifts. These affect circadian rhythm alignment and accumulated sleep deprivation. These were cases where HSE (2016) guidance, which is a minimum, did not seem to be applied including in relation to the use of slow rotating shift patterns.

Diet and exercise

There is a considerable literature on the association between shift work and night work and worker's poor diets and insufficient exercise. These issues were also apparent in the interviews. Verna tells people that there are three things people need when they are working nights: *'they need to eat, sleep and drink water.'* Shift work disturbs the timing of eating which may affect the metabolism. Night shift workers are reported to have a greater calorie intake at night which may increase body fat and weight independently of total daily consumption (Boivin, Boudreau and Kosmadopoulos, 2022). In rail, most workers, especially the older ones, reported excess weight in themselves and amongst their colleagues with some reporting that this had started after commencing night work. The majority reported poor eating habits associated with night shift work, despite having significant self-awareness about diet and health and often made repeated attempts to have a healthy diet. Most ended up eating 'rubbish' food when on nightshifts. Steve conceded that night work meant that *'You eat at silly times then when you are off you get hungry at 2am.'* Nigel agreed that night work has an impact on diet, he is diabetic so it is harder for him to manage on nights, particularly because of the timing of breaks.

In the theatre industry, depending on the production, stage managers may not have time to take the meal breaks they are entitled to under their contracts. Meals tend to be scheduled around the timing of performances, so that workers may cook and eat a main meal in the late afternoon before a performance and then have supper after a performance, while others may cook a main meal when they get home after a show. On tour they may resort to eating takeaways:

Eating can be quite difficult, particularly in a tech week, when the hours are very long and you haven't got the time to make your food in advance. The last thing I want to do before setting off for work at 7:00am is get up and make something healthy. So, you do find yourself in a bit of a trap of takeaway sandwiches, and that kind of thing, which definitely, I can feel after two days of it, it does impact on how I generally feel. I never feel like I've got the most energy from it, whereas when I'm not doing that, and I'm eating healthy, and I'm at home, I definitely feel like I have more energy from that. (Catrina, Equity).

When James is on nights in prisons he eats before work, although nothing heavy, and then survives on water, fruit and nuts during the shift. However, he said others come in with bags of food:

I would definitely say if you were to check, nine out of ten bags would be full of savoury, chocolate cakes, microwave meals ... Very few of them, I believe, prepare their own meals and go for healthy options. On a Saturday night they do a takeaway night. (James, Community.)

Those who could sit down before the night shift and have a cooked meal with their family fared somewhat better. However, others were not hungry after getting up from sleeping a few hours as their body clocks was not synchronised and did not want to go to work on a full stomach. Helen, a mail screener, said she had put weight on since she started on nights,

but, like some others, now did not eat during her shift in order to try and maintain daytime eating patterns and because a heavy meal makes people feel tired:

I think it's because of the times I eat – and I've stopped eating now during my shift, I just have a piece of fruit now. Whereas before, when I first started, I used to bring a packed lunch and have a packed lunch at 3 o'clock in the morning. And then you go to bed, you get up and you sort of having your dinner when you get up or maybe tea. So, your eating's not... ...I won't say it was great. ... I know that some of the people – they suffer from it is it [a lack of] vitamin D, I think it's vitamin D to do with the sunlight. I think it makes them tired and fatigued. (Helen, CWU).

The impact is not just on the workers' bodies but on their social relationships in the family as well, given the importance of shared mealtimes to family life:

So when your partner wants something to eat, and you'd normally have a nice mealtime or you'd [go for something to eat] you're completely not hungry. So, that's something that as humans you bond over a lot of the time. You lose that ability to probably do that as much as you'd like to, or you would do' (Phillip, RMT).

Diets also reflect the amenities provided by the employer and workers' access to paid meal breaks. In prisons, Jessica reported that most people bring packed food, but they had complained as unlike on day shift there are no hot meals available at night. Night workers were then provided with sandwiches, but they were not refrigerated so they were moist and when workers rejected these they were then offered pot noodles and water or a can of fizzy drink rather than a substantial meal. She felt night staff were treated as an afterthought or 'poor relation.' She takes crisps, sandwiches, chocolate, fruit, wraps to bulk up 'you find yourself snacking' and she said it is a struggle to eat healthily unless you are very strict. She has cereal or toast when she gets home but does not eat during the day – she cannot eat at 5.30pm as it makes her tired and bloated before work. Thus, her main meal is at work and she is not getting a proper cooked meal. James confirmed that in his prison day staff have no paid meal breaks, but there is a canteen where they are provided with cooked meals. On nights no food is provided, but staff claim the subsidy that day workers get as part of their wage - so they get paid for 13 hour shifts instead of 12 hours to compensate and workers prefer the extra hour of pay to being provided with a meal.

At one sorting office, the canteen had been an area in which to socialise but it was now closed at night. Respondents commented that, for some, the canteen had provided workers with their only meal of the day. Now, there was no hot food, only vending machines and a microwave. Subsequently, people often sat in their cars to eat. At another sorting office, it was reported that the canteen was open, but it did not serve healthy food.

In rail, maintenance workers on the track at night had no access to food, unless there was a service station or shop near where they were working. Those working in signal boxes, while they might have a microwave and coffee machine, were too busy to be able to take a break at all, so would have cold food that they could nibble between tasks. Not being able to take meal breaks was especially problematic for single person signal boxes with no-one to cover their work and is an issue of contention with the union. Customer service assistants working

in teams on stations that are open all night were told by managers when they can take a meal break, rather than them having any choice, and this might not align with when they were hungry or needed to eat to be able to stay awake. The only food supplied by employers were, in some cases, automatic dispensing machines with chocolate bars and crisps.

A number of respondents resented managerial advice about the importance of healthy eating and the dangers of junk food since this failed to acknowledge the effort needed to organise and prepare food when they were very tired or exhausted. Nor does this recognise the way that eating patterns are shaped by the contingencies of night work, by the demands and limitations of work and the reality that for many their fatigued body craved fast, high energy food to get through the night and to cope with the physical demands of the job, as in the case of maintenance workers:

But in terms of eating generally, I'd say shift work is catastrophic. A lot of us get thoroughly sick of being told by Network Rail that you've got to eat salads and you've got to eat this and you've got to eat healthily, but the realistic thing is, if you'll excuse the language, you eat shit. Because you come in on night shift, and you're looking at the factor that it's a massive physical effort coming between 12pm and 5 in the morning. So, you come into the depot, and you're pouring coffee and cookies down your neck, because you're trying to get some sort of energy into your system. A salad doesn't really cut it. You can't eat anything bulky, because everything on the railway that you need to work on is on the floor. So, if you've eaten a large meal, you can't bend over. But as for anything hot - well, unless you bring food in that you reheat - which means you have to eat early in the evening - then your only option once you've gone out is whatever's open after midnight, and obviously, there's not loads of really healthy options available after midnight in south London!! There's fried chicken or there's burgers if you're lucky. As I say, your hot food isn't an option once you're out of the depot. And eating a cold sandwich at 2am when it's minus two isn't particularly appetising. So, yeah, you'd eat massively unhealthy stuff, and you just see that pattern reflected; everyone else does the same. I don't think I know anyone who ate particularly healthily. (Grant, RMT).

“you're pouring coffee and cookies down your neck, because you're trying to get some sort of energy into your system... there's not loads of really healthy options available after midnight”

lot of it's ready meals, purely because you know you're just too tired. You don't have time to prepare a proper meal. ... I generally I generally eat at

Night shift working also affects diet at home. All the workers reported that fatigue following night shifts is also a significant factor in poor diets, since they are often too tired to organise food and to prepare healthy meals:

It's like now I've got my shopping delivery last night. A

home. I don't tend to eat at work because my job is so reactive. (George, TSSA).

In the theatre, alcohol consumption can increase when doing shows and on tour, partly because it is associated with the theatre culture. Equity members were younger (20-30 years) than most of the participants which means that age related health problems connected to insufficient exercise or poor eating were not as apparent. In other sectors, some knew of workers who would have an alcoholic drink when they first got home from a night shift to try and relax after demanding work and to help them sleep. Grant reported having done this in the past.

It was only about three years ago that I think I stopped drinking when I came home in the morning. Because that, again, started off some years back, because you're quite keyed up after a lot of the night shifts, because there's a lot of pressure to get work done within a narrow time window. This is the unhealthy bit of having a glass of whisky in the morning to help you sleep. I realised some time back that this probably wasn't a good thing. But otherwise, you tended to lie there wide awake and not immediately sleeping. So, yeah, that probably affected quality of sleep and - yeah, had massive health and mental health implications. But I have mostly stopped drinking now, just because of that sort of behaviour. (Grant, RMT).

There is some evidence in the academic literature that alcohol consumption can be used to self-medicate for sleeping problems, or as a response to increased work stress and the negative impacts of shift and night work on family and social life (Richter et al., 2021). At the same time alcohol consumption can lead to poorer quality sleep (Colrain, Nicholas and Baker, 2014).

“This is the unhealthy bit of having a glass of whisky in the morning to help you sleep.”

In relation to shift and night work and exercise, the academic literature identifies a relationship between reduced physical activity and shift work and linking desynchronisation with the availability of leisure facilities and team-mates, conflict with other responsibilities (domestic and family) and fatigue as key factors (Atkinson et al., 2008; Arlinghaus et al., 2019). Rich, a Royal Mail worker reported the importance of exercise for him:

As long as I'm keeping active outside of work, if I don't keep active outside of work, I'll become really sluggish all the time. But as long as I'm going to the gym, or I'm like football, or go, or anything and that I'm normally, it normally stabilises me. But if I'm not, then yeah, can it go down. (Rich, CWU.)

Others said that regular exercise was difficult on with shift work, with some saying they had no energy, as for Phillip, a Team Leader Signals and Communication:

I love going to the gym and I love training, but the shifts just make it hard. You wake up and you think, I'm going to work in a few hours, so, you just don't go. (Phillip, RMT).

Most of the workers reported ongoing and repeated efforts to try to establish and maintain better diets and to get more exercise, but found it difficult because of fatigue and social desynchronisation, as well as the poor provision for meal breaks and good food on site.

The research on circadian rhythm misalignment has identified its impact on hormones related to appetite and to glucose levels. In addition, sleep deprivation is associated with preferences for high fat food. Furthermore, night shift work has been associated with lower levels of energy expenditure (Moreno et al., 2019). These can lead to overeating and reduce the body's capacity to process meals and when combined with insufficient exercise are likely to contribute to the propensity for obesity and metabolic disorders such as diabetes. These metabolic affects and associated impacts make maintaining a good diet and exercise especially important for shift and night workers, yet the organisation of work (meals breaks, availability of food, fatigue associated with poor shift pattern regimes) undermines this.

Physical health

A wide range of physical illness are associated with shift work and night work as discussed in the literature review above, with particularly strong associations with cardiovascular diseases, metabolic disorders such as diabetes, and some forms of cancer. In the railways a number of the respondents reported issues with weight, high blood pressure or heart problems, which in the academic literature is associated with night work. Others described stress-related physical illnesses, for example one worker suffered with boils and thrush, attributed by his doctor to work-related stress and high levels of fatigue. Another worker consulted his doctor about his high levels of fatigue with the doctor attributing this to shiftwork, the demands of a young family and insufficient vitamins. In rail, a worker doing permanent night shifts reported severe Vitamin D deficiency due to insufficient sunlight which pre-disposed her to frequent colds and infections. Some of the women doing night work reported that their periods were heavier or more irregular on night shifts, which is likely related to circadian rhythms effects on hormonal functioning. This is supported in the academic literature with associations between shift work and menstrual disorders, dysmenorrhea and early menopause (Hu et al., 2023). In theatres fear of refusing work and pay can precipitate burn-out and associated illnesses, as for Catrina, a stage manager:

Because I felt, in the summer, that I was becoming close to a burnout. I was just so exhausted the whole time, and lo and behold, I got ill. So, I knew I was getting burnt out at the end of that month, and I took three weeks off to recover. I'm very mindful of that not happening again, because I was so tired for so long, but there will definitely be people who are doing it, because it's just, financially it's so difficult to take any annual leave. I know, personally, I've got July coming up, and I've blocked it out as off, but if I do get an offer of a job for some of those weeks, then I will take it because the financial stress is outweighing having the leave at the moment. (Catrina, Equity).

For some workers the effects of working nights on health were expressed in rather abstract terms, for example, 'they say it takes years off your life.' As with Dina, they appeared to distance themselves from direct impacts:

Well, health wise, I think, you know, you do read reports – where they say that working nights does reduce your lifespan and that, but you're constantly tired on nights as well, yeah' (Dina, CWU).

A national officer for Equity said performers are more likely to rationalise the impact of excessive fatigue as:

"I've just done a really long tour. It was brilliant but very tiring. So, I'm just going to have a bit of time just to decide what I want to do next". You know, it's very, very rare for people to explicitly say "I am burnt-out".

Again, in the Royal Mail, Rich described the collective impact of nightwork, including on mental health, but was vague on the direct long-term impact:

Emotionally and physically, you're all kind of on a precipice most of the shift, because you're in this constant state, a lot of decisions and things that go on in here online, if it happens on other shifts, it doesn't seem as detrimental because you're more likely feeling quite refreshed, but like I say, we collectively just seem to be running on fumes. A lot of the time, even if people don't realise it, we all have these dips... ..It's not supposed to be that good for your mental health really, is it not? No, it hasn't been, it hasn't been the easiest and obviously it does have somewhat effect on your health over a period of time. You always hear people say, like, "you can't work nights forever" and how much it takes off your life, whether it does or not, you know. But I suppose there is research support there. (Rich, CWU).

A Community national officer commented:

People probably wouldn't see things without health monitoring, they may not pick it up, as I say, people think, you know, "I've done it for the last 10 years. I'm fine". Well, you don't know the untold damage that's been done to your health, to your family situation, work-life balance. (National Officer, Community).

In rail, workers described a 'survival mode', a state that can become normalised until they are away from work, such as on annual leave when the contrast makes them highly aware of the negative effects that the night work regime is having on their bodies.

Workers in their 50s were more aware of the negative long-term impact of night work and shift work on their bodies with increased possibility of serious diseases if they continued. This was often expressed as '*my body just can't keep going doing night shifts*', particularly to retirement age, with several recalling former colleagues who had died soon after retiring, as for Jack, a track inspector:

That's why I worry because they do tell you that you're more likely to have heart problems and that, working night shift. The amount of people dying at my age is quite - I don't know if it's just a railway thing, but younger than me, dying. (Jack, RMT).

They were conscious that as they aged their bodies were no longer resilient, as Lloyd, a Senior Infrastructure Controller in rail who was in his 50s explains:

I reckon around about 48, 49, I'm just thinking, it's starting to wear me down a bit. Like I say, I've done 36 years of shifts. I've always worked as a shift worker. I've always done nights and days and I think I'm at the stage now where I'm thinking it's starting to affect me health-wise as well I suppose because obviously I think my health has started to deteriorate a little bit from it because my body isn't getting its rest periods. (Lloyd, TSSA).

For those with specialised skill sets, moving to an alternative industry appeared difficult. Some were exploring ways to move sideways, either through union work, or into other areas of the industry, but the options seemed to them quite limited. Some older workers were considering early retirement.

A CWU rep said he had noticed five to six colleagues with heart issues and he was aware of research linking night work with heart conditions. He recognised the short-term financial benefits, but felt that colleagues were not aware of the potential long-term impacts on health:

As such, I would find it difficult not to recommend night work – at least as a short-term arrangement. I would personally advise against it long-term given the detriment to health' (Matt, CWU).

Mental health

There are potential cause pathways between shift work, night work and mental health through the effects on circadian rhythm misalignment and chrono-biology, sleep deprivation and impacts on family and social life. The academic research on the association between shift work and diagnosable mental illnesses is currently inconclusive (Moreno et al., 2019). Nevertheless there is evidence that night work affects the mood of workers (Lowson et al., 2013; Chellappa, Morris and Scheer, 2020) with proposed biological pathways via circadian rhythm disturbance and via the brain-gut axis (Chellappa, 2020)

Two workers indicated that night work was negatively impacting on their mental health to a significant degree but did not want to discuss this further during the interview. None of the Equity members ascribed night and weekend working regimes as contributing directly to mental health issues (although these did contribute to relationship strains and breakdowns). One worker did describe how the touring regime exacerbated his sense of disconnection from people which negatively impacted upon being able to cope with a serious depression related to a relationship breakdown. Ironically, support came from his manager who invited him to come to work to just to be around people.

Most workers spoke about how nightwork and fatigue caused changes in their emotional status or mood, in particular how they were more 'short-tempered', 'snappy', 'grumpy' and more emotionally reactive when doing night shifts, taking a day or two to recover and return to a more normal way of relating. They reported getting short-tempered with partners, children and sometime work colleagues, and then feeling guilty for reacting in that way, especially where their children were concerned, as Neil, a Team Leader Signals and Telecom describes:

So, my ex-partner and my current partner both agree that I am very grumpy when I'm on nights. There's no shadow of a doubt, I feel it myself, I know I am. I'd say I'm less tolerant, I've got more of a short fuse when I'm working nights. ... Again, because I'm grumpy it can't be nice for them [the children]. It can't be nice for them when I'm very snappy. They've sort of got to tread on eggshells if I'm on nights. They know I'll get annoyed a lot easier. I do mean it's a lot easier. The difference is night and day [laughs]. Sorry for the pun, yeah, but it is. The difference between my personality and how I'm feeling, is massively different. (Neil, RMT).

A few workers described feeling mildly depressed at times, including toward the end of a block of nights, but did not know if this was caused by nightwork. There is equivocal evidence of a link between nightwork and depression (Moreno et al., 2019). Many of the workers reported excessive workloads and associated work-related stress and there are strong links between work-related stress and anxiety and depression in the academic literature as discussed in the literature review. For Grant, a Team Leader in Signals and Telecom:

Depression was the first thing, at the end of a run of nights, you're just feeling really down, and generally feeling a lot more fatigued, perhaps, after a week of nights, than I had done when I first started it, you know? I don't know how much that is just getting older generally, but certainly when you're 25, I didn't find it too much of a problem. (Grant, RMT).

Alex, a worker on an inner-city transport network, copes with poor mood while on night shift by withdrawing from people, and admits that this risks becoming socially isolated with potentially more significant impacts on mental health:

“Depression was the first thing, at the end of a run of nights, you're just feeling really down, and generally feeling a lot more fatigued”

I basically don't talk to anyone when I'm on nights. I'm short tempered, I'm snappy, I have no patience, I have no filter... So, my MO now is to do very, very little, interact with people very little, because I will probably do or say something that I would have to apologise for. It does make it really, really difficult. ... I find now that even – even after I'm rested, my tolerance for people is quite low. (Alex, TSSA).

Alex has to be to be disciplined and active to manage their mental health, but being intentional and disciplined is also exhausting and sometimes does not work.

Relationships

Night work and weekend work desynchronises shift workers' social lives from that of their family and social networks. Furthermore, fatigue can also negatively affect workers' mood and mental health and the quality of their engagement in social relationships. Participants concurred that night shifts had impacts on relationships, to the extent that nightwork was

seen as a significant contributor to relationship break-down. To avoid childcare costs, Gemma works nights and her husband works on the late shift. She described her and her husband as 'passing ships' and that they had to have separate holidays with their children. Greg, also working at Royal Mail, described the tensions between finance and relationships and the lack of support from management:

If you're having problems at home, no, it's not the best and you don't get that support from the management, knowing that potentially you're suffering. Because your wife doesn't want you to do nights and you can't do any other shift because they won't [let you]. Do I need the money? What do you want the relationship to be with the kids? The impact on the wife being at home on her own, sleeping at night all the time. If you've got a problem, like everyone has said, you know, for a period of time you could go on to another shift, but you know, they don't look at it into that degree. I don't believe they do anyway. (Greg, CWU).

Ryan, who worked in Incident Response at London Underground, reflects on the impact of night shifts on his mood and relationships with his children and wife, and his physical and emotional unavailability:

I was an angry dad, because I was always angry, because they were always noisy and I never had any rest and I was always tired and grumpy. So, it causes a domestic strain. Because the wife has never done shift work and can't understand. She just – I think until someone's actually done it, they really don't understand the level of fatigue. They don't understand how tired you get. You get very short, you get very snappy. Your tolerance to buffoonery like that is very, very low. Because I just think, you noisy bastards, shut up [laughs]. ... The way it impacts is she is quite an independent person and she'll go off and do stuff. Because otherwise she's sitting at home waiting for me to come home. Then by the time I get home she's too tired, she goes to bed. So, she'll just get on with life and I'm just a part-timer in the house. I pitch up and I'm, 'ooh, I got a day off today.' She's had no choice. She's had no choice. She just had to get on with it. (Ryan, TSSA).

For several workers fatigue, mood disturbances, and irregular shift patterns contributed to breakdown of their relationships with their partners, as with Tony a Service Manager for London Underground:

I'm on my second wife now. Without a doubt, it probably had an impact on my first marriage. On my second marriage it was – I knew the impact it would have, and I think – I know it sounds horrible, but I could say to my current wife, this is what to expect, I'm a shift-worker. It's – I was able to lay down the foundations straight away. ... [With the first wife] I think there was things that she wanted us to do, we couldn't do together. Things with the kids, and – bits and pieces. I think also, being younger as well, you are – you're also a bit more enthusiastic to get your career going as well. Knowing there were times I had to go into work to do overtime, to stay on, which as I've got older I just go, 'I'm not doing it, I'm going home. (Tony, TSSA).

Tania described the effect of working five nights a week on her social and family life:

And also, you feel like you missed out, I wasn't seeing anyone – I did it for a month and just wasn't seeing friends, family... ...just felt like I was either sleeping or working and the husband wasn't happy. And he said right, you know, you either drop your hours or leave. It's easier said than done now, but' (Tania, CWU).

Those working in the theatre found that their working hours reduced the time that they can actively engage with their partners, and that this could contribute to relationship breakdown, as Catrina conceded, 'I would say it definitely contributed to that breakdown, because I was not ever available on what people would call the normal weekend hours.' When touring, Equity members left partners with the primary responsible for childcare and domestic work and then they had to make huge efforts to get home to spend Sundays at home with families. In other sectors, respondents spoke about how common relationship breakdown seemed:

I've said a few times, I'd say the divorce or separation rate is absolutely through the roof. I've been a part of that myself. So, in the past I probably worked way more than I should have done. I was younger and didn't consider the effects of what it's doing on your family and everything else. ... Definitely I think if I wasn't doing night shifts, I think a lot of the problems personally for me maybe wouldn't have happened. (Phillip, RMT).

Rohan said that the night shift had destroyed his marriage, commenting 'It's our fault for getting used to the money.' As a night shift manager, he earned an extra £100 per week, but ironically became dependent upon this to pay his child support. The impact on relationships is exacerbated where both are doing nightshifts and have young children to care for, as for Maureen in Customer Services for London Underground:

[Time with my husband] it doesn't exist. The last time we went on a date night – don't even know. Then in the evenings when one of us is working nights, it's that hour between the kids going to bed and then having to leave the house [laughs]. ... We've both said it. We love each other, don't get me wrong. But sometimes it feels like the connection is just strained, and we need that time together to have a reset and then carry on, because it kind of turns into a bit of a "I'm tired, the kids have been busy all day" - so that when he's had them on the weekend, I can't help because I've got to sleep for work. Then I get up and I'm like looking forward to seeing him, but he's tired because he's had a full day of it and he's just looking forward to going to bed, and vice versa. (Maureen, RMT).

Neil, a Team Leader in Signals and Telecom, described the impact of his night work on children and how having children around especially on weekends and school holiday time can be problematic for night shifts workers' sleep:

In terms of family relationships, there's also the whole thing of, when you're on nights over the weekend, your other half is taking the kids out for the day so you can actually sleep, so they're not in the house at the same time.

There's no earplugs on earth that can keep out the noise of someone charging up the stairs next to your bedroom. So, yeah, it impacts that, and everyone's keenly aware of the fact you're on nights, and it doesn't exactly improve their childhoods, I don't think. It can't be nice for them when I'm very snappy. They've sort of got to tread on eggshells if I'm on nights. (Neil, RMT).

There is a contradiction between the positive benefits of night shift in relation to childcare, the material benefits it can provide for families and its negative impact on children:

Doing the school runs, to a certain extent, was quite nice, because you did get a regular contact with them. But yeah, there's certainly an element of the fact that you probably sometimes shout at them when you shouldn't, just because you're absolutely exhausted. (Grant, RMT).

Amongst both male and female worker there was significant conflict around parenting and work since night work enabled the practicality of childcare as well as providing financially and materially for families, yet the shift scheduling reduced the amount of quality social time available on weekends and fatigue diminished the quality of relationships with partners and children. As for Maureen this could result in workers with young families feeling guilty, remorseful, and conflicted about work and family:

My eldest, she's noticing. Like I said, she's eight. The oldest three, they get upset when I say that I've got work. But my eldest one, she's like, but why have you got to go? Why can't you just ask if you can have this weekend off or can we do this? Why is it you've got to go to work then? Can't we just go on holiday? Well, not holiday, but like a little weekend away or go stay with family for a night? Things like that. She's got a lot of questions why I keep having to leave when she's home.... a big concern of mine is that I'll look back and regret it, because the kids are only kids for a certain amount of time. I don't want to look back and be like I wasted – not wasted, but I didn't get to enjoy all those weekends. Because I sat down one day and I was like out of 52 weekends in a year, I get seven at home with my kids. (Maureen, RMT).

The difficulties with not being emotionally and physically available enough due to fatigue and shift work irregularity is perhaps heightened for female shift workers, given social norms about women and motherhood, and can leave some feeling disconnected from their families and with primary relationships more developed with the non-shift-working parent, as Sophie a Customer Service Manager in London Underground describes:

It's like the family is getting on without me. That's the reality dawning on me more. ... However, I still try to wriggle myself into whatever is happening at home, but I find that there is a connection there with the girls and their dad. It's like, there's a relationship that I'm kind of outside the circle of because I'm not there most of the time. What I do, I make my connection mainly by phone. I'm not going to be there until they go to bed, and he is there with them and they can relate to it. Oh, we watched this movie, and if I have to

*join the conversation it's like trying to explain the movie to me first [laughs].
Oh dear, it's hard. (Sophie, TSSA).*

Oliver, an actor, observed the incompatibility of theatre work and having children, with women in particular negatively affected by having to postpone their careers or leave the industry to work in more family-friendly sectors. Some couples organised work and childcare by alternating work in the theatre:

Women have left the industry because they want to have children and can't see a way to make it work in this environment, this job. I also know women that do the job with kids and they don't see them, especially if they're touring. They don't see their children. So they don't see their children during the week. One week maybe Dad will bring the kids for a long weekend... And I know a couple of people who have an arrangement with their partners whereby they take turns to work. So if they're both actors and they have children, mum is going to take this six month contract and then the arrangement is, once that contract's done, it's dad's turn to go and get a job and mum's stay at home, so you kinda share that responsibility. (Oliver, Equity).

Those who stay working depend upon their partner to manage childcare and domestic work. Overall, respondents reported that successful relationships were grounded in having a partner who had some understanding of the impact of night work on the worker and their relationships, including accepting that they were often not physically available due to shift patterns, and when even when physically present, were not emotionally available after night shifts.

Social life

Respondents discussed the impact that night shift work had on their social life; for one, 'the spontaneity is gone, you miss out on so much.' Tania noted, 'So when you're sleeping, everyone else is out. It's social life - it does it.' Rohan added: 'There is just no time to socialise because you're asleep or you're getting prepared to come back to work. Yeah, it's been constantly catching up on sleep.' Similarly for Cheryl:

You just strike that week [night shifts] out, you are not going to be socialising, you are not catching up with family or friends. ... the more consecutive nights in a row, the less you sleep. But you have this permanent sense of grogginess. You're not as sharp and you're not able to go about your social life, or to be there for your friends or your family, really. (Cheryl, RMT).

One older RMT Health and Safety Rep with decades working for the railways reported that he coped by treating night shifts as only 'work and sleep' and did not try to arrange anything else to do when on night shifts, so he 'writes off the week.' This was particularly the case when doing 12-hour shifts which meant that there was no time except for 'work/sleep/work.'

A number of those working in one of the mail offices were divorced and single and it was suggested that single or divorced people on nights find it harder to find partners and Angela, a comedian, concurred:

Actually, I would say it really impacts on dating because I'm not in a relationship at the moment, and do want to date, but a lot of my evenings are taken up with gigs, and the ones that aren't, I want to see my friends. So, it's very hard. (Angela, Equity)

In theatre respondents discussed the impact of working nights and touring on their social lives, Catrina reflected,

I do miss out on things, and as time goes on, I find that I am invited to less and less things, because people naturally assume that – and quite rightly - that I won't be able to attend a lot of things.

Access to services

A number of respondents mentioned problems accessing services when on nights, including medical and dental appointments, with ringing to make appointments or attending them disrupting their sleep and with little flexibility offered by managers. Rich explained the issues his partner, who worked on the night shift with him, faced:

I honestly believe people have put off doctors, hospital appointments because it is such it's hard enough to get an appointment anyway. It's such a hard job getting the time out of work and you know, they're all going to be outside, but unfortunately that clashes with when we sleep. And the date that they gave her, she had to spend God knows how long on the phone to God knows how many people, and they had to try and get the appointment changed to a Monday because she didn't want to have it on a day where she was either at work or you know, because most of the time it's going to be in the morning and it's a pain, you know – can I get a couple of hours sleep or go or should I go? Should I just not sleep and sleep later on? (Rich, CWU).

Those dependent on public transport faced particular problems. At one sorting office outside the town, there was limited public transport and workers, particularly those travelling some distance, had to arrive two to three hours before their shifts started to ensure getting to work on time because the last bus was at 10pm.

Similarly, there were limited options for getting home:

So, they're coming in and sitting upstairs for three hours in the canteen, and it's the same for postmen and postwomen. If you finish at 6:00 o'clock, I think the bus is 2-minutes-past six. So, if you're not at the door and flying across that car park, seeing the bus going off down the road, so public

“people have put off doctors, hospital appointments because most of the time it's going to be in the morning and it's a pain, you know – can I get a couple of hours sleep or go or should I go?”

transport is annoying for night workers here, especially at this office' (Rich, CWU)

In rail, respondents reported neglect of worker safety after they finish a late shift. One young female worker reported feeling very unsafe after finishing around midnight on Friday and Saturday nights because she had to walk past groups of inebriated men to get to the car park some distance from the station. Network Rail owns the car park adjacent to the station but refused to make any car spaces available for workers finishing late shifts.

Employer Support

Overall, participants reported very little employer support by employers for those on night shifts. A national officer for Equity stated that there is a common perspective that the safety of workers stops at the stage door. During Covid-19 audience members were prevented from waiting for actors at the stage door, yet, despite personal safety concerns, this is no longer the case. Touring companies may provide some general information about crime statistics in riskier areas or a public transport schedule for workers, however, generally it falls to workers to report safety issues and managerial interventions are minimal, as Catriona described:

There was a lot of substance abuse going on there. It was regularly someone would have to report something. Their advice was to stay in numbers if we could, and they also issued us with an attack alarm type device, which I didn't feel was particularly proactive at the time, because of course we know to stay in numbers, but there are times when you do have to travel to your car on your own. So, yeah, that was their advice. Since then, I just kind of find my own ways of doing things, because that didn't seem particularly helpful. (Catrina, Equity).

Craig suggests there can be a significant difference in the degree of support offered between larger professional organisations and smaller commercial companies:

I worked for the National Theatre... and they are very, very supportive, and it was always a big company so we all supported each other... But some of the more commercial theatre companies that are there just to make money. I mean some of them they just kind of throw you out there, leave you to your own devices' (Craig, Equity).

At Royal Mail some recalled that there used to be an annual night shift health assessment with trained medical staff, including blood pressure and diabetes checks. The company offered an annual conversation between night workers and a specialist, although these were only available in the daytime. The assessment by medical staff had been replaced by a survey, although it was unclear how the information was used and whether results were released. While in some workplaces it was reported that the survey was anonymous, at the airport the rep thought that the survey was not anonymous and there were fears that if health issues were picked up workers could be taken off nights – there were thus low completion rates. Mike confirmed this general fear:

But I've always said to the drivers, if you if you report a problem on your health, you do know this risk, you could be taken off your driving. So, I mean this, I'll just say 'be careful.' (Mike, CWU).

Joseph reported that he had once been advised to change his shift for health reasons but was not prepared to lose his night shift premia.

In the Royal Mail sorting offices, there are mental health or wellbeing ambassadors for all staff and some night shift workers fill this role, also there is a counselling phone line called First Aid. There is an app, Help in Hand, that staff can use to access support and any member of staff can request to see a doctor, physiotherapist or mental health team.

The Community national officer mentioned the obligations on employers to night workers in terms of annual health monitoring and mentioned that in steel plants there have been occupational health services with nurses available to staff. He identified employers' responsibilities:

There's guidance that the company should do this when you're classed as a night worker, but we should be looking at campaigning, as trade unions, that there is a duty of care to the employees, which there is, but let's see some action on that and actually implementing things around health screening etc. I think we have to focus on people's health and get the health monitoring in place, you know the yearly checks, the checks for blood pressure, but also mental health, aspects that people may not want to share, but how we can support that? So it's about having mental health coaching through the companies to identify the issues and offer that support in a structured safe manner. And for a company advertising, if they've got some good terms and conditions surrounding people's health when they advertise jobs for night shifts or shift workers and taking those concerns into the very start of the job, then that to me would be seen as a good thing for the company. And then people buy in, "you know, there's a company looking after my health". (National Officer, Community).

“I think we have to focus on people's health and get the health monitoring in place”

Jessica reported that the prison service provided no advice or support for those working nights, although there are phone apps for all staff signposting to employee assistance:

But nobody actually comes in and says, "right, let's have a look at your night staff, let's check the blood pressure", there's nothing like that. I think it would be good, I think it'll be nice for somebody to come round just one night, spend just a few hours checking everybody, having a little chat with everybody, making some notes and just seeing how people are getting on - I think it could be done and I think it'd be good, have that conversation, say, "look, I'm struggling, it's not for me this". (Jessica, Community).

In the warehouse, Sheila reported that there was no specific advice or support for those on the night shift, but all workers can ask for a health and wellbeing meeting and there is occupational health on-site with referrals to physiotherapists and counsellors, as well as an app with information. Paid time off is given for these referrals. Health and Safety training is done in the day, but time-off is given and she had been on a stress awareness course. Sheila had been allowed to split her shift between two roles in the warehouse because she could not tolerate the demands of picking for a full shift but needed to be more stationary on packing for the other half of her shift. Julie reported that the managers had conducted an anonymous survey asking about how people were coping with night shifts, including sleep, but that she did not know what was done with the outcomes.

“nobody actually comes in and says, ‘right, let’s have a look at your night staff, let’s check the blood pressure’”

In rail, rather than organisational support, respondents reported disparities between worker and management attitudes and perceptions of rail safety, as one worker put it about many of new managers:

*nothing stops the job, ... you do what you're told when and how you're told to do it ... they (managers) don't want people to challenge (on safety issues.)
(John, RMT.)*

In one case, a worker reported that when they revealed their mental health issues to a manager this was subsequently used to rationalise and victimise the worker in relation to other issues that the worker had raised.

Rail workers reported that despite regulatory body advice, fatigue management was very superficial, that it relied on workers initiating individual self-reports followed by interviews with managers where they were asked about excessive fatigue, healthy eating and exercise. Some found these questions patronising and health and safety reps reported that few workers actually initiated fatigue management processes and where they did managers did not always intervene appropriately. One worker reported that his occupational health assessment had indicated that the new medications that he was taking was causing his need to urinate frequently and leading to significant sleep disruption and the assessment recommended that he be on early or late shifts until his body adjusted to the new medication. This was refused by his manager, and he had to continue with night shifts. The refusal was because there were insufficient staff to cover his shifts and the manager claimed that occupational health advice was a recommendation only, not a requirement for managers to accept. Workers are often not well-informed about their rights or lacked confidence to bring fatigue and other issues to the attention of managers or to challenge them. Management’s attitude to workers’ well-being, especially in relation to fatigue in the rail industry, in turn has an impact on workers willingness and capability to report fatigue or mental health issues and hence on its effective management.

Some of the negative consequences of shiftwork and night and weekend work on social life can be ameliorated by roster flexibility and by workers having control over their rosters (Arlinghaus et al., 2019), so that they can manage work/life balance to enable participation in important family and social events. For example, with the opening of Elizabeth Line (a new line where managers may be keener to follow HSE guidelines) rosters were changed

following consultation with workers to two blocks of night shifts and the introduction of 12-hour shifts for Fridays so workers could do 3x12 hour night shifts in a row. This enabled them to have an extra weekend off per roster, moving from two to three weekends off work every seven weeks.

Overall, respondents wanted more understanding from management regarding workers' needs for roster flexibility to enable time with families, but in Royal Mail, with a climate of poor industrial relations, they were faced with inflexibility. Tania reflected on her difficulty in reducing the number of permanent nights she was working:

'It used to be a family place. Yeah, not anymore, not anymore, which is why I think a lot of the long-term people have left. Even I did have to do Monday to Friday to begin with, then I changed my hours, but it was absolutely horrific and so I begged basically and was able to drop the Monday night and if I hadn't dropped that, I would have left completely. Years ago, it wouldn't have been like that, a manager would have seen situation. (Tania, CWU)

In prisons, Jessica said that it was possible for a worker to approach their manager to see if they could move to days but it would not be straightforward, and they may have to wait until a vacancy came up. However, James confirmed that more people wanted to shift to nights than from nights to days.

In rail there were also reports of a lack of managerial support for changes to rosters to accommodate family needs. Jack described trying to request a change to an individual roster, which is within the scope of managers to grant, so that he could provide care to his ageing parents who had health problems. His request was refused as it 'did not fit the business operations':

There is no empathy. I tried myself, they've got this thing called individual rosters. I put forward one and it just got blown out the water, but I'm still fighting that. A lot of it is just convoluted ... There's things on a Saturday night I can't go on, trying to get time off from these managers is a nightmare, do you know what I mean? (Jack, RMT).

Another worker reported that he tried to get his roster changed so that he could spend more time with his family, but the manager refused, again 'due to business needs.' Managers also control the timing of annual leave which many workers who do night work use to facilitate recovery or to attend important family functions. Annual leave is granted only if it can be fitted around business needs. For example, customer service staff on the London Underground can only have one three week-long breaks in the summer. The rest of their leave has to be taken as a maximum of one or two-week blocks and then again only when it fits business needs. Since the railways in many areas are under-staffed, this makes taking leave when needed by workers sometimes quite difficult.

Union demands

While the broad parameters of shift working patterns are set by collective agreements, union reps reported that they negotiate rosters at local level, although changing local

rosters can be difficult and require ongoing negotiation. The capacity of workers to achieve preferred rosters depends to a significant extent on the co-operation of managers which seemed to be variable. For example, Jim, a TSSA rep for ScotRail, had not seen a roster change in 30 years. He was currently trying to improve the roster to enable a better work life balance for the workers, by increasing the number of days off after a block of seven-night shifts from one to two days. However, management were adamant that they still required the blocks of seven-night shifts in a row. There are tensions between workgroups as well. In the above case at ScotRail, while the busiest work groups wanted a roster with a better work-life balance, the work group with less demands wanted to maintain the current levels of overtime available.

Equity is challenging work extensification in theatres where the working week during rehearsals has traditionally been Monday to Friday. However, more recently producers are requiring workers to rehearse on Saturdays. Similarly, Sundays have traditionally been a rest day, however productions may now require workers to do performances on Sundays, with a day off on a Monday. There is no extra payment for one Sunday a month, but only for additional Sunday's when workers receive an extra £40. Equity is fighting these encroachments on workers' personal and family time.

There are tensions for unions where workers want to work 12-hour shifts over short periods of time. Patrick reported that at Parcellforce drivers may work three weeks of 48 hours plus 20 minutes, then get a week off. The latter is popular as people either enjoy the blocks of time off or do overtime in the fourth week to maximise their earnings. These shifts were agreed between the union and management on a trial basis, but have continued as they are popular, although may not survive a National Network Review of shifts as they are awkward to administer. Drivers' hours are protected by the Road Traffic Acts, where drivers can work up to 60 hours a week, but have to average 48 hours over a 26-week reference period. However, Patrick mentioned that such regulations do not cover those in sorting offices who can work a double night shift and then drive home unprotected.

The Community national officer identified the tensions of unions challenging health and safety on night shifts:

We don't want to be accused of taking money out of people's pockets. But by the same token, people's health and welfare has to be taken into account. And, you know, they're driving themselves into the ground. A company shouldn't just sit back and watch that happen. They should be looking at, you know, those safeguards as well. And I think through some stats that have been done on night working especially, I think, around about 2:00 to 4:00 am in the morning, it's one of the highest times for accidents so people are fatigued. (National Officer, Community.)

Union demands may also be compromised by the reluctance of nightshift workers to disclose health conditions in case they lose their night shifts and associated premia in doing so. Thus, while union reps supported individuals in changing shifts, few reported making demands of the employer on the organisation of night work itself. At one sorting office, Verna reported that people could move between shifts temporarily if they had a reason and there was some family-friendly flexibility. In such cases, the CWU played a key role in representing members who wanted to alter their shifts.

Individual union reps might offer advice on surviving night shifts, Patrick said the impact of nights was not really spoken about, but he tried to talk to members in training. Matt, another rep, suggested that since research has shown the risks of night work, these should be communicated to workers when recruited (rather than just asking them if they think they can cope with nights).

The Community national officer also conceded that with limited public transport serving night shift workers, the union had put demands on employers to provide transport:

I've had some meetings with some of the companies on this and obviously people going home after the period of time and driving for half an hour to an hour home. For us, that's a concern because of the likelihood of somebody falling asleep at the wheel. So we have to be mindful of that. We have raised that a number of times to the companies. ... I know when I was working doing some work with Louis Vuitton on changing shift patterns, we got the company to recognise that people need public transport. So, walked the chiefs around the timings of buses etc., which is quite good because the company recognised that that we have to get people home safe after early hours. (National Officer, Community).

Conclusion

While some respondents expressed a preference for nightwork this preference is largely shaped by labour markets, over-supply (in theatre work) and the costs and availability of childcare. For example, the preference for night work can reflect the quality of alternative day work, such as poor working conditions in the care sector for women workers or jobs where understaffing or managerial surveillance leads to high work demands. For those with dependent children working nights can accommodate childcare, reflecting the lack of affordable childcare and its availability for shift workers in the UK.

The main driver for night work is financial, reinforced by the downward pressure on wages and cost of living crisis and forcing workers to rely on night shift premia for economic survival. The premia for nightshift vary widely, and in some cases offer minimal or no compensation (including flat rates). While overall compensation for night shifts in collective agreements is stable at 30 per cent, it was reported that those on newer contracts may be required to work more and longer night shifts and over more weekends.

The research exposed psychosocial risks in the work environment, particularly increased work demands due to insufficient staffing, poor managerial or social support, and risks of harassment or violence for evening and night workers in some job roles. These risks can exacerbate the negative impacts of night and shift work on workers' health. For example, staff shortages led managers to put pressure on workers to do more overtime and increase on-call work, decreasing roster flexibility, and reducing the capacity of workers to take meal breaks, sick leave or annual leave. Those working alone at night, and workers in the theatre industry leaving venues and travelling home late at night are exposed to increased risks of harassment and violence which can lead to work-related stress.

Regardless of the industry and job role, all night shift workers reported fragmented and disturbed sleep of short total duration (5 to 6 hrs), and this was the case for those on permanent night shifts and rotating rosters. These impacts were exacerbated for those working longer blocks of night shifts, with the negative effects being cumulative. Sleep deprivation and associated fatigue intensified with age. This was also the case for most of those on permanent night shifts, where constant fatigue is more likely to be normalised compared to those workers on rotating shifts who have their day shifts as comparators. For permanent night shift workers, how they feel on annual leave becomes the comparator. Excessive fatigue during and following night shifts could continue for several days following the end of a run of night shifts.

These findings are in alignment with the literature on circadian rhythm and night work which identifies problems with poor quality sleep of short duration (four to six hours), and insomnia (Wyse et al., 2017; Kecklund and Axelsson, 2016; Åkerstedt and Wright, 2009; Yong, Li and Calvert, 2017; Moreno et al., 2019). In the academic literature there is strong evidence linking shift and night work to negative health outcomes including cardiovascular, gastro-intestinal and metabolic disorders such as diabetes, with weaker links to cancer, reproductive disorders and mental health. These negative impacts may be gender-specific, with risks varying between men and women. Proposed biological pathways for these associations are related to circadian rhythm disturbance and sleep deprivation as well as social desynchronisation, but the relative contributions of these, as well as other factors, and whether they are direct or indirect mediators remains unclear. The poor diets and insufficient exercise associated with shift and night work are likely to also play a role.

There is some evidence that older workers have less tolerance for shift work (Folkard, 2008). Certainly there is evidence for dose effects from night work (the more night work the greater the risk of a negative outcome) on breast cancer in nurses (Wegrzyn et al., 2017), colorectal cancer (Wang et al., 2015), and heart disease (Torquati et al., 2019) and cardiometabolic health (Sun, M., Feng, W., Wang, F., Li, Z., Tse, G., Vlaanderen, J., Vermeulen, R., and Tse, L.A., 2018; Gao et al., 2020; Wang et al., 2021). A significant number of older workers reported physical health problems including cardiovascular disease and high blood pressure, obesity or being overweight, diabetes, as well as symptoms related to work stress, with several reporting mental health issues. Workers reported mood disturbances associated with working night shifts which they associated with sleep deprivation and fatigue. While causal associations at an individual level are difficult to clarify, these health issues are identified in literature as being higher risk for shift and night workers. Workers varied in their understanding of the health risks of night work, but older workers in particular expressed concern. This evidence points to a need for specific considerations for older workers to review their night work regimes to protect their health in the latter part of their working lives.

Night work demands more recovery time compared to regular day work. The recovery time needed is related to biological processes connected to circadian rhythm and sleep deprivation that do not occur for day workers. Recovery from the fatigue associated with night shifts and re-adjusting the body to changes in sleep patterns may take up to two days and recovery eats into days off, weekends and annual leave. Workers in this research testified that there is insufficient recovery time built into rosters. Annual leave is often spent recovering, which indicates longer term accumulation of sleep deprivation. The findings are

aligned with the literature on recovery from sleep deprivation, which may take one or two nights following one night of total sleep deprivation (Balkin et al., 2008) and longer than seven days to adjust after five days of four hours of sleep (Axelsson et al., 2008).

Circadian misalignment occurs where blocks of night shifts are short, for example blocks of three, four or five nights. Circadian rhythm re-alignment generally takes longer than this, although some related biological processes (e.g. cortisol levels, etc) do not seem to re-align at all. Individual chronotypes are likely to be significant as some people re-align more quickly, while others fail to align at all. Long blocks of night shifts (seven in a row), or slow rotations of shifts, were reported by the workers to be the most exhausting probably reflecting the cumulative effects of sleep deprivation and circadian rhythm disruption. On slow rotation shifts circadian rhythms tends to re-align for many people after a week or so of night shifts, however the shift pattern then changes again so the body is kept in an ongoing state of trying to realign the circadian rhythm with each shift change. In these cases, one rest day is insufficient to enable workers to recover, especially following seven nights or more in a row. The HSE (2006) advises against slow rotations of seven nights, recommending instead fast rotations of a maximum of three nights in a row followed by at least two nights of sleep before a shift pattern change. These should be regarded as a minimum. It is concerning that in a number of workplaces the HSE (2026) guidelines do not appear to be followed in a number of areas.

Since sleep deprivation is cumulative having sufficient recovery time after night shifts is crucial. Yet the worker is not compensated for recovery days and even resting before driving home is in the worker's own time. This puts night workers at considerable disadvantage to day workers in the loss of time for living outside of work, as well as increased risks to health.

Circadian rhythm misalignment and sleep deprivation can affect workers' ability to be awake and alert during the latter part of a night shift, with many workers resorting to eating high carbohydrate and sugary food and drinking caffeine to stay awake. Excessive fatigue during and after night shifts has negative feedback loops on diet and exercise, with social and appetite misalignment also impacting on diet and exercise. What came through these interviews is the conflict for most workers between knowing that fatty high carbohydrate foods, chocolate and crisps is bad for the body in the medium and long term, yet the difficulties in changing behaviour, which may leave some feeling guilty and self-critical. Others engage in a cycle of making repeated efforts to establish and maintain good diet and exercise regimes, but this is undermined by the fatigue and social desynchronisation of night work which can become harder for older workers. This is particularly so for those whose jobs require heavy physical demands and who often also suffer from musculoskeletal problems. What needs to be appreciated is how the structure and organisation of night work and associated fatigue, as well as the broader culture associated with food delivery apps and availability, is shaping these conflicts and apparent 'choice' concerning diet and exercise. Simple admonishments about needing to have healthy diets and to exercise is a form of victim-blaming that ignores the context that is shaping diets and reduces the problem to individual (poor) choices.

The interviews demonstrate that workers doing night work pay a high price in terms of their familial relationships and social life. Shift and night work can strain relationships which in some cases led to relationship breakdown, with many wanting to have more time for family

life, especially those with young families. Some reported difficulties in maintaining social networks. In the theatre industry these risks are exacerbated when workers are on tour for extended periods of time with the spatial separation from family. For these workers there was a perception that a work regime of evening and weekend work six days a week, as well as touring, was incompatible with having children and that this disproportionately affects women.

The findings align with the literature reporting an association between night and weekend work and poor work-life balance. There are negative impacts on relationships, with a higher risk for partners to separate, and for poorer emotional and developmental outcomes for children. These risks are also shaped by family circumstance e.g. number of young children, extent of quality childcare support outside the immediate family, work schedules of both parents, geographical proximity of extended family and social networks, aspects of the organisation of work and the work environment (Arlinghaus et al., 2019)

Psychosocial risks are covered under UK Health and Safety legislation and are required to be assessed and prevented or minimised and are within the remit of management to address. Yet, employers appeared to offer limited support for night workers, which suggests that on-site occupational health has effectively been removed, although one warehouse did provide access at night. Where there were fatigue management protocols these were often inadequate with workers lacking confidence in the processes.

Key recommendations in the Working Time Consensus Statement on the impact of shift work and night work on workers' lives, families and communities (Arlinghaus et al.'s ,2019) include minimising long hours, evening and weekend work and work irregularity; increasing worker control of more flexible work schedules; ensuring access to childcare and before and after school programmes for the children of shift workers. In this research management was largely seen to prioritise business needs over worker well-being. In the context of current industrial relations and with insufficient workers in many areas, management appeared less open to accommodating workers' needs for shift changes, reducing the number of night shifts, allowing for medical appointments, or time-off for domestic emergencies. Where workers had previously organised their lives around particular shift patterns, management-led changes to shift patterns were disruptive and stressful and may be impossible to accommodate, pushing some out of work. Above all, management approaches to roster flexibility can have a significant impact on workers wellbeing by ameliorating some of the negative impacts of night work and shift work on workers and their families (Arlinghaus et al., 2019) – there was limited evidence of such approaches in this research.

Recommendations

1. That employers and unions recognise the risks that night work presents to workers in terms of physical and mental health, relationships and family and social life and ensure that workers also fully understand the long-term risks associated with night work and particularly permanent night shifts.
2. Currently psychosocial risks are a priority area for the UK Health and Safety Executive (HSE). Psychosocial risk assessments should be carried out with unions and management working together to prevent or control the identified risks, as required under Healthy and Safety legislation, with particular attention to the HSE Management Standard. This would include assessing the impact of excessive work demands (both work intensification and overtime) in exacerbating the fatigue associated with night work and to prevent or minimise this at an organisational level. This may require strategic workforce planning.
3. The extension of requirements for night and shift working and week-end working across the year and managerial imposition of changes to established shift patterns should be avoided.
4. There is a need, as a minimum, to follow HSE guidance on shift work to prevent slow rotations of shift patterns and to reduce long runs of night shifts to shorter blocks of night work with sufficient recovery periods following blocks of night work.
5. That the number and timing of recovery days should be reviewed to ensure they are sufficient and well-timed to enable recovery from night shifts. The effects of sleep deprivation and circadian rhythm misalignment are cumulative, recovery time should align with the number of days in blocks of night shifts, should follow after night shifts and be sufficient to ensure recovery before shift changes. This recovery time needed is related to biological processes connected to circadian rhythm and sleep deprivation that do not occur in day workers and is much longer than for day workers. Currently recovery time from the demands of night work is in workers' own time. There is a case to be made for employer contributions to recovery time, such as entitlement to recovery leave days or extra annual leave.
6. The use of 12-hour shift patterns should be treated with caution. While workers often prefer 12-hour shifts as it means working fewer shifts, 12-hour shifts can exacerbate fatigue compared to 8-hour shifts. The HSE recommends avoiding 12-hour shifts especially in safety critical or demanding work with recommended limits of two to three days of 12-hour shifts with no overtime.
7. Roster flexibility is crucial for workers to be able to have some scope to ameliorate the negative impacts of night work on fatigue, health and family and social life. Shifts patterns and rosters must be negotiated with unions with local union reps having a key role in workplaces. This includes options for individual rosters, especially for those with

caring responsibilities and older workers. Employers must ensure the right of workers to transfer from nightwork on a temporary and permanent basis to other shifts and/or to reduce the number of shifts they work.

8. Older workers have reduced tolerance for shift work and experience increased problems with sleep and related conditions as they age. There is a case for workers to have a right to move from night work onto day work from the age of 50, or before in the case of poor health and that regimes of night work be adjusted to accommodate the impact of aging.
9. That employers ensure night workers have access to robust methods of fatigue assessment that take into account individual responses as well as regular confidential health checks and physical and mental health support at the workplace during working hours. The advice from workers' occupational health assessments needs to be prioritised by managers to ensure that workers' health is being supported. Union Health and Safety representatives should be supported so they can educate workers about fatigue and how to navigate fatigue assessment processes.
10. That the value of nightwork premia be reassessed to ensure that it compensates for the physical and mental toll of nightwork and disruption to family and social life. At national level unions should consider pushing for a mandatory higher rate for working nights.
11. Lone working during night shifts should be avoided, or (at a minimum) suitable alternative support provided to ensure the physical and psychological safety of workers.
12. While Health and Safety legislation does not identify employers as responsible for workers commuting to and from work, responsible employers have a duty of care for the safety of workers' travelling home from work late at night or in the early hours of the morning. Where there is no public transport, this may include providing transport or ensuring adequate rest breaks are taken during night shifts. It may also mean providing a 40-minute break for a 20-minute nap plus recovery time to overcome sleep inertia before workers drive home at the end of a night shift. For theatre workers employers are required under Health and Safety legislation to provide safe exits from venues and this needs stronger enforcement.
13. That nightshift workers should have the right to time off work to make and attend medical appointments as well as for domestic responsibilities and emergencies.
14. Workers must be enabled to take the meal breaks that they are due and employers should ensure that healthy and hot food be provided for night workers, along with clean and suitable social spaces and quiet areas.
15. Employers should ensure parity of facilities between day and night workers, for example access to toilets and canteens.

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Appendix – Literature review search criteria and results

This literature review search covers systematic reviews following the Working Time Society's literature reviews and related consensus statements in 2019, as an update on this work.

Database: Web of Science

Date range: 2020 to April 2024

Search terms:

1. Shift work or night work and health (in topic) and review (in title) – 4 relevant articles
2. Shift work or night work and depression or depressive symptoms (in topic) and review (in title) – 5 relevant articles.
3. Shift work or night work and cancer (in topic) and review (in title) - 7 relevant articles.
4. Shift work or night work and reproductive health or disorders or menstruation (in topic) and review (in title) - none
5. Shift work or night work or non-standard working hours and psychosocial risks or hazards (in topic) and review (in title) – none
6. Shift work or night work or non-standard working hours and families or work-life balance or work life conflict or work family conflict (in topic) and review (in title) - none

Only papers that had conducted systematic reviews of the literature were included.