What is the state of sleep and fatigue in UK working populations? We drill down to look, in particular, at transport, construction, policing and services.

3rd Pillar of Health

SLEEP AND FATIGUE IN UK WORKING POPULATIONS

Short sleeping costs the UK economy £11.8bn per annum in presenteeism and absence. This is equivalent to £36,011 per 100 workers.

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ENHANCING EMPLOYEE ENERGY & MANAGING FATIGUE

INTRODUCTION

Across the developed world tiredness as a result of sleep deprivation is becoming so common that the Centres for Disease Control has identified it as a public health epidemic.

Poor sleep has been linked to significant increases in the rates of obesity, diabetes, high blood pressure, heart disease, strokes and cancer as well as minor ill-health (including colds, flu, gastrointestinal issues). These result in direct medical costs as well as significant indirect costs associated with absenteeism and presenteeism.

When we suffer from poor sleep, we suffer numerous physical and cognitive impairments which can lead to poor performance and human error. Sleep deprivation affects blood flow to three areas of the brain which play a crucial role in decision making, attention span and the speed at which we adopt new information.

Numerous studies and surveys have shown a rise in sleeping problems during the pandemic as anxiety levels increase and our normal routines are disrupted. Searches on Google for insomnia also rose to an all-time high during the pandemic.

FINDINGS

HIGHLIGHTS:

- Short sleep duration costs the UK economy £11.8bn per annum solely in absenteeism and presenteeism
- 66% of UK workers sleep less than 7 hours prior to a workday, 35% less than 6 and 15% less than 5 hours
- Average sleep prior to a workday is just 6 hours 20 minutes, well below the suggested minimum level of 7 hours
- 85% of workers are carrying a sleep debt and sleep on average 1 hour 25 minutes less a night than they need
- 57% of workers say fatigue interferes with daily work activities at least a few times a month (30% a few days a week)
- 81% of UK workers do not feel as though they achieve enough sleep
- 50% of participants are at risk of insomnia, 22% at risk of sleep apnoea and 10% restless leg syndrome
- 63% of those who drive as part of their commute drive whilst drowsy at least a few times a month
- 38% of UK workers have had an accident or near miss during their commute due to drowsiness.

THE COST OF SLEEP DEPRIVATION TO UK BUSINESS

KEY STATISTICS:

- A study by RAND Europe estimated the cost of sleep deprivation to the UK economy at £40bn per annum
- This works out at £2,120 per employee per annum, equivalent to 1.9% of GDP
- Absenteeism and presenteeism costs (alone) arising from sleep deprivation is costing the UK £11.8bn per annum
- The cost per 100 workers is £56k in policing, £25k in services, £50k in transportation and £46k in construction.

At the end of 2016 RAND Europe produced a major report: 'Why sleep matters. The cost of insufficient sleep.' RAND point out that sleep deprivation costs the UK economy £40bn per annum, equivalent to 1.9% of GDP. In my LinkedIn article summarising their research I point out that the cost per employee per annum in the UK is £2,120. Their research pointed out that even marginal Improvements in sleep duration would have a significant economic gain.

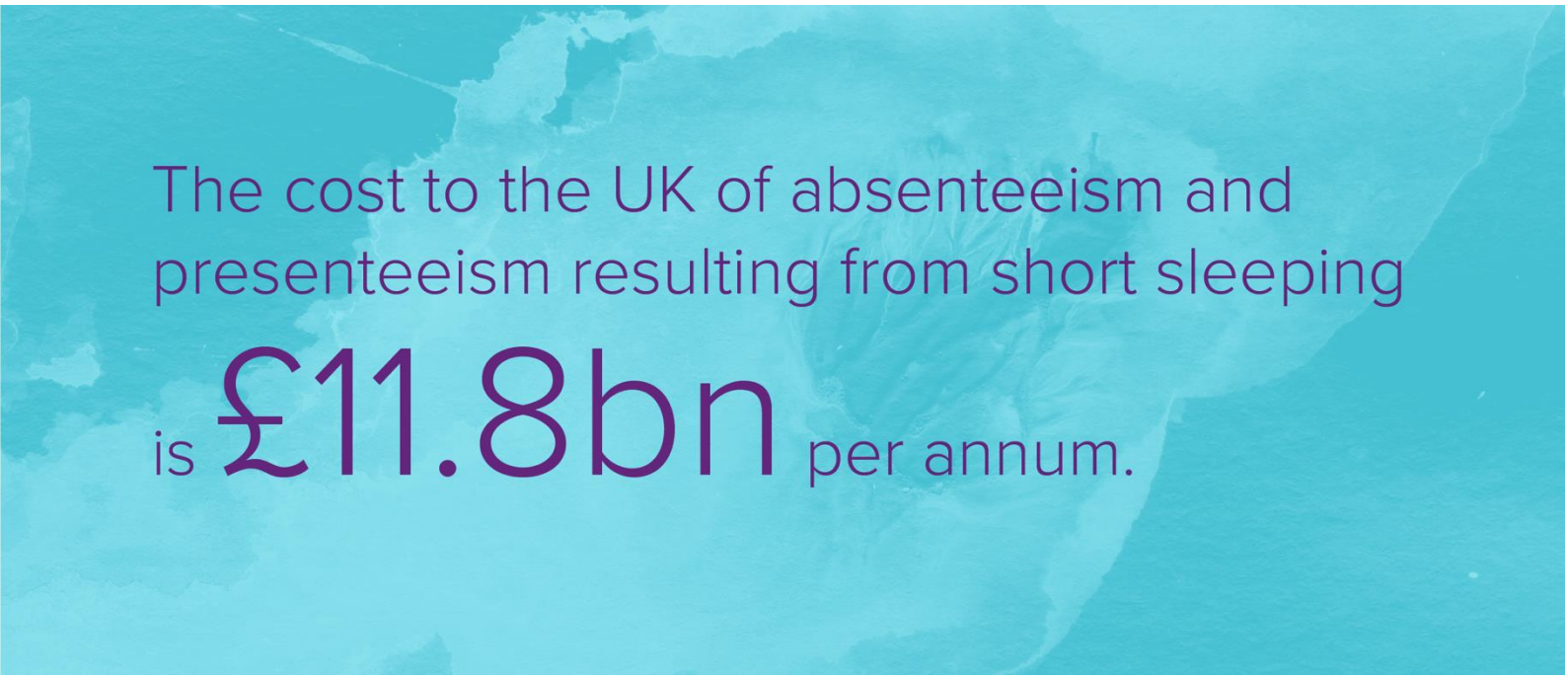
We should bear in mind that this just looks at sleep duration and does not take in to account sleep quality or the costs of accidents and incidents that are caused by or have fatigue as a contributory factor. For instance, workers with certain sleep disorders (such as sleep apnoea) may think they have had 7 to 9 hours of sleep a night, but they will not know they may have woken up hundreds of times and therefore their sleep will be unrefreshing. A study, alluded to in the RAND report, estimated that insomnia is associated with 7.2% of all costly workplace accidents or errors.

RAND Europe also highlighted the costs to industry solely related to absenteeism and presenteeism associated with short sleep duration. Those sleeping less than 6 hours a night cost an extra 2.4%, those sleeping 6 to 7 hours a night cost an extra 1.5%, whilst those sleeping in excess of 9 hours a night also cost an extra 1.5% when compared to those sleeping 7 to 9 hours a night. To reiterate, this is just absenteeism and presenteeism costs arising from short sleeping.

Participant sleep durations prior to work	< 6 hours	6 to 7 hours	7 to 9 hours	> 9 hours
Percentage of participants	**34.9%**	**30.6%**	**32.4%**	**2.1%**
Impairment cost	**2.5%**	**1.5%**	**0.0%**	**1.5%**

Thirty-two (32) percent of our sample population sleep the recommended 7 to 9 hours a night, 31% between 6 and 7 hours, 35% less than 6 hours and 2% longer than 9 hours.

Taking the figure from the Office for National Statistics ("ONS") for average weekly earnings in June 2020 (£528.08) and multiplying that figure by 52 weeks gives an average annual earnings of £27,460 per annum. This means losses due to absenteeism and presenteeism cost £360.11 per worker per annum. With an estimated 32.9 million workers employed in the UK (between April and June 2020) the total cost to the UK comes out at £11.8bn.



The costs were highest in **policing** where absenteeism and presenteeism purely from short sleep duration costs **£55,975 per 100 workers per annum**. Whilst police salaries were nearer the lowest of the four sectors they suffered from the highest proportions of short sleepers.

The costs in **services** were the lowest at **£24,765 per 100 workers per annum**, because whilst they had the second highest salary, they had by far the lowest levels of short sleepers.

Short sleeping costs **transportation** companies **£50,263 per 100 workers per annum** in absenteeism and presenteeism and **construction** companies **£45,837 per 100 workers per annum**.

METHODOLOGY & RESPONDENTS

Third Pillar of Health Limited ("TPoH") has worked with leading sleep research scientists to create our sleep health self-assessment, which is based on validated questions and assessment techniques. Since 2015 we have run our assessment for over 6,500 participants across more than 35 organisations. Participants who undertook the survey were asked a series of questions about their sleep duration, sleep quality, experience of sleepiness, their work schedule, their commute, lifestyle habits and whether they feel as though they achieve enough sleep.

For this analysis we concentrated on 5,758 participants primarily in the transportation (n = 1,312), construction (n = 557), policing (n = 3,413) and services (n = 417) sectors.

Respondents were primarily in the three age brackets between 26 and 55 (n = 5,110). Sixty percent of respondents worked shifts (n = 3,431) with forty percent (n = 2,327) working days. Sixty three percent (n = 3,643) were male whilst thirty seven percent (n = 2,104) were female with a small number of respondents identifying as non-binary or preferring not to say.

Respondents either completed our long or short form assessment, from which we gathered our data. For the most part completion of the anonymous assessment was voluntary.

SLEEP DURATION

KEY STATISTICS

- Average sleep duration is just 6 hours 20 minutes (6:20) a night prior to a workday
- 66% of the UK working population achieve less than 7 hours of sleep prior to a workday (35% < 6 hrs, 15% < 5 hrs)
- On average UK workers obtain 55 minutes more sleep on days off than before a workday
- On average UK workers are sleeping for 1 hour 25 minutes less a night over a work schedule than their 'sleep need'.

Most leading sleep research scientists recommend we aim to achieve between seven and nine hours of quality sleep each night.

To determine sleep duration, we asked participants to complete a schedule over the course of a week or 'typical' shift pattern. We asked participants to tell us their bedtime, wake time, how long it took to fall asleep and how long they were awake for during the night for work days and days off. In consultation with our sleep science partners this was determined to be the most accurate way of collecting this data.

(Decimal percentage of 60 minutes)	Average workday sleep	Average day off sleep	Sleeping < 7 hours on a workday	Average sleep debt
Population average	**6.34**	**7.26**	**66%**	**1.41**
Population shift workers	**6.27**	**7.05**	**69%**	**1.57**
Population day workers	**6.44**	**7.58**	**61%**	**1.12**

Average sleep before a workday is just 6 hours 20 minutes. This is well below the minimum of 7 hours recommended by the sleep science community. In fact, 66% of UK workers are failing to obtain 7 hours of sleep before a workday. Sleep duration at the weekend or on days off is on average 55 minutes longer at 7 hours 26 minutes. On average UK workers are obtaining 1 hour 25 minutes less sleep a night over a week (or shift schedule) than their 'sleep need'. This is termed a 'sleep debt'. 85% of respondents are carrying a sleep debt.

When we obtain insufficient sleep our physical health, mental health, performance, alertness, safety, resilience and immunity are all negatively affected. This will result in accidents, incidents, absenteeism and presenteeism.

Shift and day workers

Those working shifts average just 6 hours 16 minutes before work whilst day workers average 6 hours 26 minutes. 69% of shift workers (61% of day workers) obtain less than 7 hours of sleep prior to a workday. Day workers obtain an extra 1 hour 8 minutes of sleep (7:35) on days off whilst shift workers obtain 47 minutes more (7:03). Shift workers carry a larger sleep debt (1 hour 34 minutes a night) than day workers (1:07).

Gender and age differences

There is very little difference in average sleep duration between male (6:21) and female (6:20) workers and the percentage of respondents obtaining less than 7 hours prior to a workday. Female workers sleep for an average of 9 minutes longer (7:22) on days off than male workers (7:13). Female workers also carry a larger sleep debt (1:29) than male workers (1:22).

Average sleep duration declines with age. Those in the youngest age bracket (0–25) average 6 hours 55 minutes prior to work and 8 hours 13 minutes on days off. Those in the oldest age bracket (included for analysis – 56–65) average 6 hours 2 minutes prior to work and 7 hours on days off. Unsurprisingly the percentage of workers failing to obtain at least 7 hours of sleep prior to work increases with age from 48% (0–25) to 70% (56–65). All age groups are carrying a sleep debt in excess of an hour a day with those between 46 and 55 carrying the greatest sleep debt at 1 hour 34 minutes a night.

Transport, construction, policing and services

Workers in construction generally fare better across most sleep duration metrics, whilst workers in policing compare less well. We should bear in mind that 83% of respondents in policing work shifts (often on variable patterns). This is 47% for construction, 24% for transport and just 1% for services.

Workers in **transportation** average 6 hours 17 minutes a night prior to work. Shift workers in transport fare noticeably poorly versus all other worker groups averaging just 5 hours 44 minutes prior to work. Even on days off shift workers in transport average less than 7 hours of sleep (6:52) and 80% of this worker group are carrying a sleep debt (average 1:35). Those in the two age brackets between 46 and 65 also compared poorly on most sleep duration metrics versus the overall population average.

Workers in **construction** generally compare favourably versus the population average and similar groups in other sectors. That said, the bare statistics do not point to healthy sleep durations. Average sleep prior to work is 6 hours 37 minutes and 54% of construction workers obtain less than 7 hours sleep prior to work. Whilst average sleep debt is the best in the 4 sectors we analyse it is still 58 minutes a night. It is easy to imagine how workers on a construction site that are suffering reduced alertness can be a safety risk, especially when operating heavy machinery or working at height.

Female workers in construction fared worse than their male colleagues across most key metrics, even though significantly fewer female workers worked shifts versus their male counterparts. It is perhaps instructive that a much higher percentage of female workers feel that stress, both personal and work worries, is hindering their ability to obtain sufficient sleep compared to male construction workers.

Respondents working in **policing** were broadly in line with the overall averages when we factor in a higher percentage of workers working shifts. Average sleep prior to work was 6 hours 20 minutes and 69% of workers failed to obtain 7 hours of sleep prior to work. Workers in policing compared noticeably poorly in average sleep debt at 1 hour 43 minutes a night. In fact, all worker groups in policing compared poorly on sleep debt. It was also interesting that day workers in policing compared poorly versus the population day worker average on most sleep duration metrics.

Workers in **services** generally compared favourably, but given just 1% of the participants work shifts this was expected. Workers in services average 6 hours 35 minutes of sleep prior to work. 33% of workers fail to obtain 7 hours of sleep prior to work. Service workers in all categories performed well versus the overall average on the percentage of workers obtaining less than 7 hours sleep prior to work. Where service workers often compared poorly was in levels of sleep debt. Day workers (1:22), those between 0 and 25 (1:56) and workers between 36 and 45 (1:41) compared especially badly.

Section conclusion

The clear indication here is that staff are not obtaining sufficient sleep prior to work. The Office of Road and Rail ("ORR") rule of thumb guidelines say that performance is likely to be impaired if:

- You've had less than 6 hours sleep in the previous 24 hours
- You've had less than 12 hours sleep in the previous 48 hours
- When you have been awake longer than your total sleep in the previous 48 hours (up to a maximum of 16 hours)

SLEEPINESS INTERFERING WITH WORK ACTIVITIES

KEY STATISTICS

- 82% of UK workers experience bouts of sleepiness during work hours at least a few times a month
- 55% experience bouts of sleepiness a few times a week and 21% daily or almost daily
- 57% of UK workers say sleepiness interferes with work activities at least a few times a month
- 30% say sleepiness interferes with work activities at least a few times a week and 7% daily or almost daily.

Well-rested people will indicate that sleepiness rarely or never interferes with their daytime work activities. Individuals who indicate they are affected by fatigue several times a month or more will be experiencing a lack of alertness that may be impacting their effectiveness.

We asked participants two questions on their experience of sleepiness at work. The first question asked how often respondents experienced bouts of sleepiness during work hours and the second question asked how often bouts of sleepiness interfere with work activities.

82% of UK workers experienced bouts of sleepiness during work hours at least a few times a month, 55% a few times a week and 21% on a daily basis. In this section we are particularly interested in knowing to what extent sleepiness interferes with daily work activities.

Sleepiness interfering with work activities	A few times a month +	A few times a week +	Daily or almost daily	Rarely or never
Population average	**57%**	**30%**	**7%**	**43%**
Population shift workers	**66%**	**37%**	**9%**	**34%**
Population day workers	**43%**	**20%**	**5%**	**57%**

For 57% of UK workers sleepiness interferes with work activities at least a few times a month, 30% at least a few times a week and 7% daily.

These results point to a potential hidden problem for UK employers. We should also bear in mind that objective (alertness and cognition) tests have shown we are very poor at understanding how our own performance is impacted by sleep deprivation. We suspect that in many cases workers will have become accustomed to a 'new normal' level of functioning after prolonged periods of sleep deprivation. After all we still need to go to work, attend to dependents and enjoy a family and social life. We tend to press on as best we can.

Shift and day workers

Unsurprisingly shift workers compare poorly versus day workers. 66% of shift workers say sleepiness interferes with work activities at least a few times a month, 37% at least a few times a week and 9% daily. Day workers fare better. 43% say sleepiness interferes with daily work activities at least a few times a month, 20% at least a few times a week and 5% daily.

Gender and age differences

Female workers feel that sleepiness interferes with daily work activities more often than male workers. 60% of female workers say fatigue interferes with daily work activities at least a few times a month (55% for male workers), 31% at least a few times a week (29% male) and 8% daily or almost daily (7% male).

There is very little difference in the first three age groups between (0 and 45) in how frequently fatigue interferes with work activities. On average across those age groups 60% say fatigue interferes with daily work activities at least a few times a month, 31% at least a few times a week and for 8% it is daily or almost daily. We see a slight drop in the 46 to 55 age group (52% monthly, 27% weekly and 7% daily). It is in the final age group where the noticeable drop occurs. 33% of those 56 to 65 say sleepiness interferes with daily work activities at least a few times a month, 17% weekly and 4% daily. This is in contrast to sleep duration data which shows the older age brackets achieving the least sleep. It is a common myth that we need less sleep in our more senior years. This is not the case.

Transport, construction, policing and services

Once again workers in construction generally fare better in terms of how often sleepiness interferes with work activities, whilst workers in policing compare poorly. Again, we should bear in mind that 83% of respondents in policing work shifts.

43% of workers in **transportation** say sleepiness interferes with daily work activities at least a few times a month, 21% a few times a week and 6% daily. Shift workers in transport compare noticeably well against all shift workers (49% at least a few times a month versus 66% across all shift workers). This is in sharp contrast to sleep duration data, which was particularly low for shift workers in transportation. Transportation workers across genders and age brackets also compare favourably versus the population average.

Workers in **construction** generally compare favourably versus the population average and when comparted to similar groups in other sectors. 36% say fatigue interferes with daily work activities at least a few times a month, 21% a few times a week and just 1% daily. This group also has the highest percentage of male respondents and we know that male respondents fared better than female respondents overall on this metric.

Respondents working in **policing** compare unfavourably across every worker segment. 67% of workers in policing say fatigue interferes with daily work activities at least a few times a month (versus 57% for the whole population), 37% a few times a week (vs 30%) and 9% daily (versus 7%). Shift workers and day workers (71% and 51% a few times a month) were comfortably higher than direct comparisons in the
other industries.

Workers in **services** generally compared favourably, but broadly in line with day working population averages. 45% of services workers say bouts of sleepiness interfere with daily work activities a few times a month, 22% weekly and 4% daily. There was a greater disparity between female (49% a few times a month) and male workers (39%) in services than in any other industry.

DO WORKERS FEEL AS THOUGH THEY ACHIEVE ENOUGH SLEEP?

KEY STATISTICS

- 81% of UK workers do **not** feel as though they achieve enough sleep
- Consistently the 3 main reasons given (other than shift schedules) are work worry, personal worry and not enough time
- 45% of workers who do not feel as though they achieve enough sleep cite work worry and 43% personal worries.

We asked participants "Do you feel as though you achieve enough sleep?". This was a simple yes or no answer. For those that answered 'no' we asked them to identify whether 12 common issues were contributory factors. Respondents could tick multiple boxes.

For those who feel as though they achieve enough sleep, we asked two further questions on how they felt 30 minutes after waking and how likely they were to fall asleep in a relaxing setting. This is interesting because in most groups we analyse those who do not feel as though they achieve enough sleep combined with those who do feel they achieve enough sleep BUT who feel very unrefreshed 30 minutes after waking and / or have a high chance of falling asleep in a relaxing setting tend to be very similar to the percentage of the population carrying a sleep debt, which makes logical sense.

In this section we are interested in the percentage of the population who do not feel as though they achieve enough sleep and the extent to which work worries and personal worries form part of the reason. There is a bi-directional link between sleep and stress. When we are stressed, we find it much more difficult to fall asleep, to stay asleep or return to sleep if we wake up. Equally, when we are sleep deprived we become more irritable. Research has proven a strong link between long term sleep deprivation and mental health problems. Patients with insomnia have a two times greater risk of depression.

Active enough sleep/ stress contributory factor	Yes, achieve enough	No, do not achieve enough	Work stress contributes	Personal stress contributes
Population average	**19%**	**81%**	**45%**	**43%**
Population shift workers	**15%**	**85%**	**43%**	**38%**
Population day workers	**25%**	**75%**	**47%**	**51%**

81% of UK workers do not feel as though they achieve enough sleep. 45% of those workers cited work worry and 43% personal worry as a contributing factor. This means potentially 36% (45% of 81%) of the workforce have issues sleeping because of work worries and stresses.

Shift and day workers

Unsurprisingly shift workers compare poorly versus day workers. 85% of shift workers do not feel as though they achieve enough sleep versus 75% of day workers. The most common reason cited by shift workers is unsurprisingly shift patterns. However, shift workers appear less burdened by worries and stress. 43% of shift workers versus 47% of day workers cite work worries and 38% (versus 51% of day workers) cite personal worries as a contributory factor.

Gender and age differences

Female workers were more likely to report that they do not achieve enough sleep (83%) versus male workers (79%). They are also more likely to report worries and stress as a contributory factor. 48% of female (43% of male) workers cite work worry and 48% cite personal worries (40% for male workers) as a contributory factor.

On this metric the youngest (0–25) and oldest (56–65) age groups fare better in terms of not achieving enough sleep (73% and 75% respectively) whilst the middle age brackets from 26 to 55 were broadly in line (between 80 and 83%). Work worries were consistent around 44% for three lowest age brackets before a slight increase to 47% in those 46 to 55 and then a considerable decrease to 39% in the highest age bracket (55–65). The youngest age bracket cited personal worries (49%) more commonly as a contributory factor to not achieving enough sleep than the top four age brackets (between 41 and 44%).

Transport, construction, policing and services

Once again workers in construction generally fare better in terms of not feeling as though they achieve enough sleep, whilst workers in policing compare less well.

80% of workers in **transportation** do not feel as though they achieve enough sleep. Workers in all categories were broadly in line with population averages on achieving enough sleep. Transportation workers seem to suffer from much less work stress than the population average. 32% of transport workers cited work stress as a contributory factor to not achieving enough sleep (versus 45% population average). All categories of worker out-performed population averages on work worries. Transport workers also generally cited lower levels of personal worry (40% versus 43% across the population). Day workers as well as workers in the lowest and highest age brackets also performed noticeably better than population averages.

Workers in **construction** compare favourably versus the population across every metric in this section. 67% of construction workers do not feel as though they achieve enough sleep (versus 81% population average). Just 32% of those who do not feel as though they achieve enough sleep cite work worries (vs 45%) with the same proportion citing personal worries (vs 43%). Day workers in construction (57% do not achieve enough sleep) were amongst the best performing groups in our comparison table. Shift workers in construction reported amongst the lowest levels of stresses contributing to not achieving enough sleep (22% work and 25% personal stress).

Respondents working in **policing** compare slightly unfavourably versus population averages. 84% of workers in policing do not feel as though they achieve enough sleep – the highest of any industry we analyse in this paper. Workers in policing experience relatively high levels of work stress (48%), which is perhaps unsurprising given the nature of their jobs, but relatively low levels of personal worries (40%).

Workers in **services** were broadly in line with day-working population averages (75%). However, workers in services who do not achieve enough sleep are the most likely group to report work worries (50%) and personal worries (56%) as contributory factors. Work worries were noticeably higher than population averages for male workers and those between 36 and 45 and 56 and 65. Services workers had the highest rates of personal worry contributing to insufficient sleep in all categories and when compared to all other industries.

Many organisations in the service sector have employee assistance programmes. We believe it could be beneficial to those suffering with personal worries and stresses for organisations to highlight the support on offer through the organisation to help deal with common personal worries (e.g. relationships, finance etc.). Campaigns should be run on a regular basis and focus on specific topics.

SLEEP DISORDER RISK

KEY STATISTICS

- 22% of UK workers are at risk of sleep apnoea and 2% have been diagnosed
- 10% of UK workers are at risk of restless leg syndrome with under 0.5% of workers diagnosed
- 50% of UK workers are at risk of insomnia and 2% have been diagnosed.

The aim of this section was primarily to understand whether participants had been diagnosed with or were deemed to be at risk of any of three common sleep disorders: obstructive sleep apnoea, restless leg syndrome or insomnia. The risk status was based on validated assessment questions and techniques which were thoroughly reviewed by our sleep research partner. This does not mean that an individual is affected by that sleep disorder, simply that they are in a risk category. It may also be the case that the disorder does not impact their ability to function on a day-to-day basis.

Undiagnosed and untreated sleep disorders can be debilitating. We recently upgraded our back office system to be able to send communications to those at risk of any of these sleep disorders with targeted communication detailing help and support that is available through the individual organisation and the NHS as well as the best diagnosis and treatment pathways (not always the most common treatments).

Sleep apnoea

Across all the populations we have assessed (using our longer form assessment) 22% of workers are at risk of sleep apnoea and 2% have been diagnosed.

According to the US public awareness campaign 'Snoring Isn't Sexy' 9.1% of men and 4% of women have obstructive sleep apnoea yet as few as 5% of those with OSA have been diagnosed. The effects of OSA can be debilitating for the individual. It is extremely difficult for an individual to spot the signs and it is often only recognised as an issue once the partner spots the signs. However, this can only happen if that partner is educated in the symptoms of OSA. Few people are.

Restless leg syndrome ("RLS")

Across all the populations we have assessed 10% of workers are at risk of RLS and 0.5% have been diagnosed.

According to the National Sleep Foundation RLS affects approximately 10% of adults. Researchers believe RLS is commonly unrecognised or misdiagnosed as insomnia or other neurological, muscular or orthopaedic condition.

Insomnia

Across all the populations we have assessed 50% of workers are at risk of insomnia and 2% have been diagnosed.

According to an article on the website GP Online in July 2017 the estimated prevalence of insomnia disorder, accompanied by daytime consequences is 8–12% for the adult population. An estimated 30–50% of the population will experience insomnia symptoms. The article went on to say the prevalence of insomnia was showing a modest increase and that women generally report higher rates of insomnia than men.

DROWSY DRIVING

KEY STATISTICS

- 38% of UK workers have had an accident or near miss travelling to or from work because they were drowsy
- Just under 1% (0.8%) of all workers have been off work because of an accident caused by drowsiness whilst commuting
- The risk of an accident or near miss increases when workers achieve less sleep prior to a workday
- 63% of drivers have been drowsy whilst driving at least a few times a month in the last year during their commute.

In this section we wanted to understand the extent of drowsy driving during UK workers' commutes. We asked whether respondents have had an accident or near miss during their commute, the severity of any accident, whether they were off work as a result of the accident, whether respondents drive as part of their commute, (if so) the frequency of which they drive whilst drowsy as well as commuting methods and durations.

Accidents, near misses and drowsy driving

38% of workers have had an accident or near miss travelling to or from work because they were drowsy.

Thirty eight percent of UK workers have had an accident or a near miss because they were drowsy whilst commuting. In this question we do not ask for a timeframe. Of those who have had an accident or near miss 0.6% have had a serious accident, 3.7% a minor accident and 34% a near miss.

By far the majority (91%) of those who have had an accident or near miss drive as part of their commute (car, motorcycle or scooter). Shift workers (82% versus 60% of participants who work shifts) were more likely to report an incident as were male workers (69% vs 63%). Those sleeping less than 7 hours a night prior to work were also more likely to report an accident or near miss. 72% of those reporting an accident or near miss sleep less than 7 hours prior to work (versus 66% of the population who sleep for less than 7 hours), 43% (vs 35%) less than 6 hours and 19% (vs 15%) less than 5 hours.

Seventy four percent of respondents drive as part of their commute. Average commuting duration for those who drive is 64 minutes a day (in both directions) versus 102 minutes for those who do not drive as part of their commute. 63% of those who drive as part of their commute have been drowsy whilst driving in the past year at least a few times a month, 35% (of the 63%) a few times a month, 23% a few times a week and 5% daily or almost daily.

63% of those who drive as part of their commute have been drowsy whilst driving at least a few times a month in the past year.

Transport, construction, policing and services

Workers in **transport** industries fare well versus other populations. Only 17% (versus 38% of the total population) have had an accident or near miss whilst commuting. The main reason is likely to be the very low numbers who drive as part of their commute (27% vs 74% average). Where transport workers compare poorly is on commute durations, which are significantly higher than any other group. Transport workers who drive and who obtain less than 7 hours of sleep are also noticeably more likely to regularly drive whilst drowsy during their commute.

Construction workers have the second longest commutes and in our sample were the most likely to drive as part of their commute (82%). Construction workers were the second most likely group to have had an accident or near miss because of drowsiness (26%) and they were the second most likely to regularly drive whilst drowsy during their commute (42% at least a few times a month). There was a noticeable increase in those who regularly drive whilst drowsy in those obtaining less than 7 hours of sleep prior to work. We know in construction that many roles require long hours with long commutes either side of work. This is an area we think the construction industry should do more research in to.

Workers in **policing** provide the greatest cause for concern when it comes to drowsy driving. We know from conversations we have had with the industry that deaths whilst commuting is one of, if not the greatest cause of loss of life in UK policing. 48% of workers in policing have had an accident or near miss during their commute because of drowsiness – the highest of any group we assessed. Police workers are also the most likely to report regularly driving whilst drowsy (69% at least a few times a month). There was less of a clear distinction in rates increasing as sleep duration decreased in policing. We should also consider that this group had the highest rate of those who drive during their commute (93%) and the highest proportion of shift workers (83%), many of whom work variable patterns including late and night shifts, which will increase the risk. On the other hand, workers in policing had by far the lowest commuting durations. Drowsy Driving is an issue we have raised in policing previously. We would encourage all Police forces do more to tackle the risks associated with drowsy driving whilst commuting.

Services workers were the least likely to have had an accident or near miss during their commute (13%). 76% of services workers drive as part of their commute, albeit in the UK many drive a short distance to catch a train to one of the major towns and cities. Of those who do drive just 38% regularly drive whilst drowsy.

The recent prosecution of Renown Consultants by the Office of Road and Rail

The successful prosecution of Renown Consultants ("Renown") by the Office of Road and Rail ("ORR") in March 2020 shows that safety regulators are increasingly interested in staff welfare practices and in particular fatigue. It is the first time a regulator has launched a prosecution specifically in respect of workplace fatigue. The case concerned the death of two employees on a public highway after renown failed to apply fatigue management principals. You can read more via this link. Renown was fined £450,000 with £300,000 costs.

LIMITATIONS

We should acknowledge the potential limitations of our data.

For the most part those who participated in our sleep health self-assessment did so on a voluntary basis. This could mean that those completing the assessment were more likely to have an interest in their own sleep, which could be more likely for those who have issues with their sleep. It is interesting that workers in construction generally performed well when compared to similar groups in other industries. By far the majority of respondents in construction were required to complete a paper-based assessment prior to a toolbox talk on the importance of sleep. That said, the results in construction do not paint a particularly favourable picture of sleep health.

The population results could potentially be skewed by a couple of factors. Firstly, 60% of participants work shifts, which is significantly in excess of the national UK average (c. 19% in the UK). Secondly, 59% of participants worked in policing. Workers in policing generally compared unfavourably on many key metrics versus other similar worker groups. 83% of those working in policing worked shifts.

Whilst we use data from just under 6,000 participants, we need to be mindful that the number of organisations included in our data may not be representative of the whole sector, given the small number of organisations versus all organisations in those sectors in the UK.

Response rates also varied across the organisations we worked with. The vast majority of organisations asked their staff to complete our sleep health self-assessment on a voluntary basis. This potentially skews the results based on the profiles of those who completed the assessment. We know in some organisations we assessed there were proportionally more staff in office-based and managerial roles. We have sought to address this with a roll-out of paper-based assessments and simplified input protocols. This means we can hopefully capture a wider group of workers who can complete the assessments as part of team meetings and briefings moving forward.

WHAT DO OUR FINDINGS MEAN FOR EMPLOYERS?

KEY STATISTICS

- Shift workers need more opportunity for sleep, especially at night and need to prioritise sleep
- Female workers would benefit from greater support at work and at home to improve sleep and reduce stress
- Short sleep in transportation shift workers should be monitored for those undertaking safety-critical roles
- Drowsy driving in construction workers sleeping less than 7 hours before work is a concern
- All workers in policing need more sleep (especially younger staff) and support with work-related stress
- Workers in services roles would benefit from support on worries and stresses.

The quantity and quality of sleep in the UK workforce should be a cause for concern for employers. When we are sleep deprived our physical health, our mental health, cognition, alertness, safety, creativity, productivity, resilience and immunity all become negatively impacted. We know many organisations run health and wellbeing programmes for their staff, but unless sleep becomes a core component of wellbeing the return on investment for existing initiatives will be negatively affected.

Shift and day workers

It is understandable that shift workers, especially those working variable patterns (as most of our shift work respondents were) suffer from greater disruption to their sleep, poorer sleep quality and shorter sleep duration. However, it is the extent of the sleep debt in shift workers that is most eye catching. Over the course of a shift schedule, including work days and days off, shift workers on average sleep 1 hour 34 minutes a day less than their 'sleep need'. This will translate in to poor health, performance and safety outcomes. Shift workers need more opportunity to sleep, especially at night and need to prioritise their sleep as a crucial component of health, wellbeing and safety.

Gender and age differences

We also need to consider sleep in the female workforce. Whilst there was very little difference in average sleep duration prior to work when compared to male colleagues (1 minute) a higher

proportion of female workers do not feel as though they achieve enough sleep (83% versus 79% of male workers). Female workers who do not achieve enough sleep were much more likely to highlight work and personal worries and stresses as a contributory factor, with a more pronounced difference against male colleagues in respect of personal stresses. Female workers were also more likely to say that sleepiness interferes with work activities.

Sleep duration declines as age increases. Interestingly, the extent to which sleepiness interferes with work activities also declines. This suggests that workers perhaps become used to lower levels of sleep over time and become accustomed to a 'new normal' level of functioning. As we have alluded to in the paper, we tend to be very poor at judging our performance impairment resulting from sleep deprivation.

Transport, construction, policing and services

In **transportation** key points Included short sleep In shift workers prior to work (5:44), yet this group compared well in how often sleepiness interfered with work activities. The older two age brackets were less likely to achieve 7 hours of sleep before work. Drowsy driving for those that drive as part of their commute was a particular concern for those sleeping less than 7 hours prior to work. Transportation workers were less likely to cite work worries as a contributory factor to not achieving enough sleep and day workers compared favourably on work and personal worries.

Workers in **construction** generally fared well on all metrics. Construction workers were less likely to say that sleepiness interferes with work activities. Female workers in construction compare favourably on worries and stresses impacting sleep. Shift workers were also amongst the least likely to report worries and stresses impacting sleep of all worker groups. Shift workers in construction had the best average sleep duration prior to work (6:35) compared to other shift working groups. We do have concerns about the likelihood of drowsy driving in those sleeping less than 7 hours before a work day in the construction sector. We know there are many roles that require long commutes either side of long working days. We believe construction companies should do more to understand the extent of this particular issue in their workforces.

Workers in **policing** often compared unfavourably on most metrics. That said this group had by far the highest proportion of respondents working shifts. Of particular concern is the extent to which sleepiness interferes with work activities and levels of sleep debt. However, it was not just shift workers as day workers also compared unfavourably on almost every metric. Those in the youngest age bracket (0–25) in policing compared less well versus this age bracket in other industries. Workers In policing suffered less from personal stress but more from work worries and stresses, which is perhaps not a surprise given the nature of their work.

Services workers were generally in line with day worker benchmark data. Some areas of concern were levels of sleep debt versus day worker benchmark. All workers in services compared poorly on levels of personal worries and stresses. Male workers and those in the older age bracket also compared poorly on work worries.

SUGGESTIONS FOR UK EMPLOYERS

UK employers need to take sleep seriously because sleep deprivation is widespread and will be costing organisations. Sleep underpins so many aspects of our wellbeing and performance and should be a core component of employee wellbeing programmes. Below we make some suggestions for UK employers. If any organisation would like to discuss these in more detail or simply gain a better understanding of where to start, then please use the contact details in the section that follows.

Make sleep a priority

Sleep needs to become a core component of employee health, safety and wellbeing programmes. **Mental health** is undoubtably the number one initiative for UK organisations at the moment. Anything organisations can do to support mental health gets our backing. But organisations need to acknowledge the bi-directional link between poor sleep and poor mental health. Those with insomnia are twice as likely to have depression. Adding sleep as a core wellbeing component will help with any mental health initiative. It is no surprise that during this pandemic we have seen sleep and mental health both being negatively affected.

Educate your staff

In some quarters there is a debate about whether employers should 'meddle' in employees lives outside of work. But surely all wellbeing initiatives are aimed at helping staff become happier and healthier. Sleep is crucial to wellbeing. Too often, in our experience, people take an attitude of "It is what it is" to poor sleep. We still push on with our lives as best we can. This really should not be the case. Poor sleep can be rectified and the benefits are wide-ranging. Not only will staff be healthier, happier, safer and more productive but their non-work life will improve. Who wouldn't want more energy in their home, family and social lives with fewer arguments with those closest to them and a brighter more cheerful outlook? Educating staff on sleep will have a positive impact on all aspects of their lives. General knowledge on sleep tends to be poor. Google searches are over-populated with unscientific myths. Give staff the knowledge they need to make informed decisions on a daily basis.

Promote existing staff support options

Many organisations already have services to support staff including employee assistance programmes ("EAP"), occupational health and occupational hygiene. However, these services are often under-utilised. For instance, EAP programmes can offer support to help deal with common personal worries and stresses such as financial planning or relationship counselling. Some offer cognitive behavioural therapy and some even CBT for insomnia. Too often staff are unaware of what is on offer through the EAP service. We recommend more targeted promotion of the services available. Occupational health ("OH") departments often have staff with specialist skills that could help employees with problems that affect their sleep. OH can also direct staff to support options, which may include diagnosis and treatment pathways for those deemed to be at risk of sleep disorders. Some of these support options are available for free through the NHS.

Use software to actively and proactively monitor fatigue and incident risk

Many organisations already use software programmes to identify fatigue risk in shift schedules, which we support. However, a number of the existing programmes have limitations. Many also lack real-time feedback and monitoring, which supervisors, managers and employees can use to see when fatigue risk becomes dangerous. Seeing risk in real time means staff and managers can proactively manage fatigue risk to reduce the likelihood of adverse events. This is an area we are particularly interested in. Please use the contact details below to start a conversation on how we might be able to help.

Tackle driver fatigue

Organisations need to tackle driver fatigue, especially for staff working nights and variable shifts and staff that cover high mileage. In the first instance employers should run an assessment to understand the extent of the problem. Thereafter policies should be drawn up to prevent staff from driving whilst drowsy. Policies may include hotel stays when away from home, offering lifts home with a colleague or providing a taxi where a member of staff says they are too tired to drive safely, understanding if a worker needs to be physically present or could undertake the work remotely or even simply understanding if a colleague in closer proximity could carry out the work, even on an occasional basis. In-car driver fatigue technology is becoming increasingly advanced. These systems are likely to be expensive to roll-out on a wide-scale basis. It is better to prevent drivers reaching the point at which they are at risk of falling asleep at the wheel.

Undertake sleep disorder screening

As we highlight in the sleep disorder section a significant proportion of UK workers are at risk of one or more sleep disorders. We advocate that anyone who is worried that they might be affected by a sleep disorder be screened. This could be done via an online assessment or in conjunction with occupational health. A simple guide to next steps in diagnosis and treatment should then be made available. It could be that annual health assessments be expanded to identify those at risk, with more detailed question sets then used to further refine the risk status. Undiagnosed sleep disorders are debilitating. Diagnosing and treating sleep disorders is often life changing for the individual affected.

Explore targeted interventions

Too often we are asked if there is a magic bullet solution to fatigue. Sadly, there isn't. However, where you identify worker groups with a particular issue with fatigue it is then possible to have a more educated debate on possible reasons and interventions. We are speaking to a number of organisations about controlled rest (napping) and light therapy interventions for worker groups where this would be possible and likely to make a positive difference.

Chronotype profiling

Admittedly this is probably some way off. It is not even used (well not widely anyway) in professional sport. However, a significant number of workers could be classified as morning or evening types. These people would work best on an early or a late shift. If workers worked at times that matched their chronotype on a more regular basis organisations would likely see improvements in productivity, safety, absence and presenteeism. It may also mean those with a neutral chronotype working within a narrower window that was closer to day working and therefore offer a greater chance to sleep during darkness. We need to acknowledge that there are other challenges to implementing a schedule based purely on chronotypes – not least childcare and the other responsibilities outside or work. But the higher the proportion of the workforce working to match their chronotype the better the key HR metrics will be.

CONTACT DETAILS – IF YOU WOULD LIKE TO FIND OUT MORE

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