



Special *FleetWatch* Initiative

Driver fatigue unwrapped

RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE

For many years it has been widely acknowledged that truck driver fatigue is a major factor in the industry with the N3TC citing this as one of the main causes of crashes on its route. However, while the acknowledgement of this as fact is there, we have never had detailed, qualified research conducted on this issue by professionals dealing with truck drivers on the road. Through a FleetWatch initiative, we now have such research, the results of which we publish in this report writes Patrick O'Leary.

In our quest to get a 'scientific handle' on driver fatigue, FleetWatch linked up with sleep 'scientist' professionals from 7HourSleep as well as our industry partners for this project, Libra Insurance Brokers, the N3TC, Engen and the Department of Transport KZN, more specifically, the good people working under Dave Steele, Chief Provincial Inspector, Road Traffic Inspectorate, Ladysmith.

The purpose of the survey was to determine the prevalence of fatigue among truck drivers and to establish what the risks are of fatigue for truck drivers. We decided that the best way to get an accurate handle on this would be to survey truck drivers on the road from a wide selection of companies. It is thus we decided to do the research at the Tugela Plaza working alongside the N3

from around 3.00pm to 1.00am the next morning with the aim of interviewing as many drivers as we could during that time.

As it was, 65 truck drivers were interviewed from 55 different companies. The difference comes from some being employed by the same company and being stopped separately at different times.

As this was the first of its kind in South Africa in terms of concrete research conducted on the road by professional sleep scientists through a question and answer survey to give the true realities of driver fatigue – we approached the total project with a bit of trepidation. What didn't help on the day was the fact that Tropical Cyclone Dineo had hit the Mozambique coast the day before and it was thus we set up 'shop' on a dismal day in the rain.

Our 'shop' was a hastily arranged tent – due to the rain - from a hiring company in Ladysmith set up just past the plaza on the north-bound side of the road. Parking is limited and we could only stop a maximum of three trucks at any one time. Inside the tent, the researchers had tables for the interviews and a food 'stall' was set up from where the drivers were given boerewors rolls and a cool-drink or cup of coffee after their interviews – as well as a 'goody bag' with relevant safety messages and other lekker things inside the bag.

Due to a truck crash which occurred a couple of kilometres north of the plaza, the cops were busy on that scene during the clean-up operation and we were thus on our own when we were eventually set-up and ready to start. Given this, yours truly acted as a cop and pulled over the first batch of trucks. I proved to be a lousy cop. ▶ 11



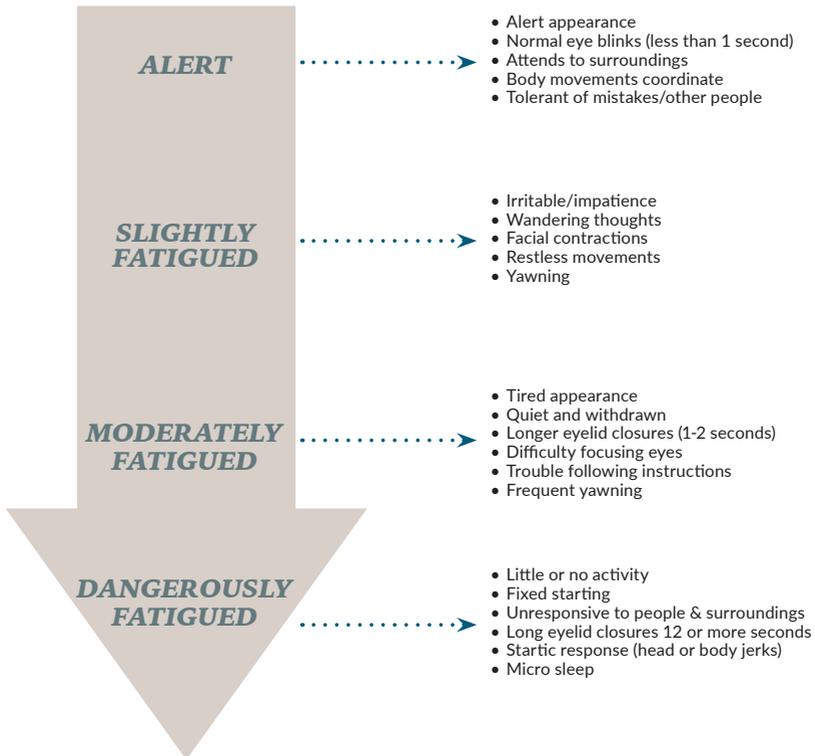
▲ JD Uys, Health Lifestyle Consultant of 7 HourSleep and one of the interviewers on the event – with a driver about to complete a questionnaire!

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SIGNS OF FATIGUE



Causes of Fatigue:

- Too little sleep;
- Poor quality of sleep;
- Circadian rhythm processes; and,
- Work environment, conditions and demands.

The major causes for poor quality of sleep are:

- Sleeping disorders;
- Sleep environment and routines;
- Lifestyle; and,
- Sicknesses and illnesses.



Signs of fatigue when you are driving:

- You can't remember driving the last few kilometres
- You have trouble keeping your head up
- Vehicle drifts across lanes or onto the road verge
- Fewer but large steering corrections ("jerky" driving)
- Speed varies without you noticing

RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE

►9 The first guy I stopped told me that he had to urgently get the bus chassis he was hauling on the trailer to Johannesburg for fitting of the body. I told him to go. The second guy also had an urgent delivery. I told him to go. And so it went for the first five trucks. I wasn't very good at being a cop as my sympathy for the time constraints of the drivers took over my 'duties' as a cop.

It was then it struck me that those five trucks were, in fact, indicative of the nature of our industry – and were a precursor indicator to the necessity of the research project. Truck drivers are always in a rush trying to meet strict dead-lines for pick-ups and deliveries. They don't have time to stop and rest – not even for 10 minutes.

With this realisation, I decided that if we were to get a better handle on this, I would have to adopt a harder approach. I offered the next guy a bribe – a boerewors roll. He co-operated fully and we got our first driver into the tent for the first interview.

By that time, three wonderful and enthusiastic people from Libra Insurance Brokers had arrived and set up a welcomed gazebo at the entrance to the tent to keep us dry. The N3TC's gazebo also went a long way towards helping keep the rain off all of us. Miles Le Roux from the N3TC was also there and while talking of the N3 route, we must thank Krishnan Govender, manager of Tugela Plaza, for his full co-operation in enabling us to stage this event. That road safety stalwart Philip Hull of the Road Safety Foundation had also driven down to participate. What a road safety legend this man is.

Inside the tent, Dr JD Uys, a sleep therapist from 7HoursSleep and Kyle Kruger, a fatigue training specialist from 7HourSleep were kept busy conducting the interviews as the drivers were invited in. Kylie Saunders from FleetWatch – who had been briefed on the questionnaire

– had finished the set-up work and was now also interviewing the drivers while FleetWatch's Benjamin Sibanda manned the refreshment station.

What I found interesting was the changed attitude of the drivers from being initially sceptical when stopped and asked to participate to being total enthusiastic after the interviews with all saying that this was a much needed exercise.

"I welcome this because we are driving too many hours without rest and it has become dangerous for us on the road," is what one of the drivers told me as he exited the tent. "You must get this to the bosses so they can know how we are suffering from long hours without sleep," said another. Similar

sentiments were expressed by others.

What I found very cool was when an HFR driver trainer walked into the tent. He had stopped voluntarily and was accompanied by a 'student' driver who he was coaching

hands-on out on the road.

"I saw the activity and wanted to know if we could learn anything from what you are doing," he said as he walked in. I welcomed both of them and directed them to Kyle Kruger who went through the questions with them.

The driver trainer told me after his discussion that he was most impressed with what we were trying to establish in terms of facts. On the other hand, I was most impressed with the fact that HFR had their driver trainer accompanying one of their newcomers as a mentor and trainer on actual routes being travelled. That's Best Practise stuff - so well done HFR.

It would remiss of me not to make mention of the sterling co-operation we got from the night shift cops ►12

Fatigue is impaired mental and/or physical performance and lowered alertness



▲ The project began earlier in the day... in rainy, cold conditions



▲ From left to right: From Libra Makelaars; Chantelle Labuschagne, recovery consultant, Greg Young, claim handler and Dellerize Spies, an underwriter



▲ Miles le Roux - N3TC Transportation Manager and Philip Hull - Road Safety Foundation - stars of the N3!



▲ From left to right: Kylie Saunders of FleetWatch assists Kyle Kruger, Fatigue Training Specialist from 7 HourSleep conducting the interview process.

RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE



▶ 11 who worked tirelessly in the rain to stop trucks and get the drivers in. When I mentioned to the one that we were going to call it a day – or more accurately, a morning - at 12.30am, he was surprised. “We can go to 2.00am if you want. No problem.” Stunning stuff guys and thanks a ton for helping us make it all happen. You are a credit to the force.

The completed questionnaires were brought back to Johannesburg and analysed by Dr André Van Jaarsveld, whose credentials in terms of sleep science are impeccable. The results are published over the next few pages but the bottom line is that this research project proves that driver fatigue is a definite reality and big problem in our industry.

Let's give just one example - 54% of the respondents said they worked 12-hour shifts and 18% more than 12 hour shifts. That's 72% of the respondents who are working 12 or more hours behind the wheel. “If you combine over-time and long

hours, the ability of the drivers to sleep for 6 – 8 hours becomes a real risk and the implication of this is that high levels of fatigue will be experienced among drivers,” says Dr Van Jaarsveld.

There's lots more and we urge you to study the accompanying infographics and tables conceptualised in working harmony by *FleetWatch* design stars Michelle O'Leary and Kylie Saunders and compiled by our sterling repro lady, Mariëtte Martin. Comment is given by Dr Van Jaarsveld.

FleetWatch will not be stopping here. The results show that there is work to be done and we will soon be announcing the path we intend taking to tackle this problem.

So, apart from the results, what did our sleep scientists think of the project? Let's give the last word to the ever enthusiastic Dr JD Uys, who was the main driver of 7HourSleep's involvement: “This project has, without doubt, been the highlight of my career.” Yeah! What a boykie. Way to go! □

▼ Wet and cold, but still enthusiastic Chantelle Labuschagne (right) and Dellerize Spies (left) of *Libra Insurance* with Patrick O'Leary, *FleetWatch* Editor (centre).



Rewarding drivers

◀ Drivers were rewarded with a boerewors roll and a hot drink... plus a goody bag to go home with. Benjamin Sibanda of *FleetWatch* serves a driver after his interview.

Support

▼ There are many people who contribute to making the N3 a safer road... (l-r) Bennie Hill of *Joey's Towing and Philip Hull of Road Safety Foundation*.



REPORT COMPILED BY
Dr. André van Jaarsveld
BSS AFRICA



Dr André Van Jaarsveld is the CEO of BSS Africa. The core business of BSS is to establish Fit for Work and Fatigue Management Programs in the workplace. He was trained and accredited in Australia to become a Fit for Work and Fatigue Management consultant. He is also the initiator of the new program, Better Sleep Solutions in South Africa to help people with sleeping problems. BSS Africa is the leader in implementing fatigue management workplace programs. The focus of implementing fatigue management programs in currently on the mining industry, construction, transport and manufacturing. Dr Van Jaarsveld is involved in the wellness industry for the last 30 years. He was a founder member of EAP for the Chamber of Mines in South Africa. He was the CEO for the Centre for Human Development (CHD) since 1996 till 2001 when CHD merge with the Careways Group. He was CEO for the Careways Group until April 2006.

A Call to ACTION

First 10 packs are FREE!

A *FleetWatch* Initiative

Give your driver a *FleetWatch* Driver Pack Education ensures safety

OUR AIM

To train, educate and ensure your driver is fully equipped to deal with challenges on the road. A trained driver is a safe driver. Help to make a difference. Make road safety a priority.

PRICE

R25.00 per pack with general cover sheet, R30.00 per pack with your own customized cover sheet.

HOW TO ORDER

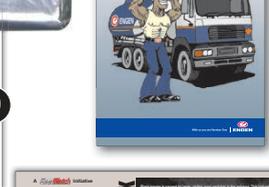
Contact eva@fleetwatch.co.za or call (011) 794 2490/1 to get an order form. Numbers are limited and items subject to availability. Please allow two weeks after ordering for packs to be collated – you will be advised when ready for collection.

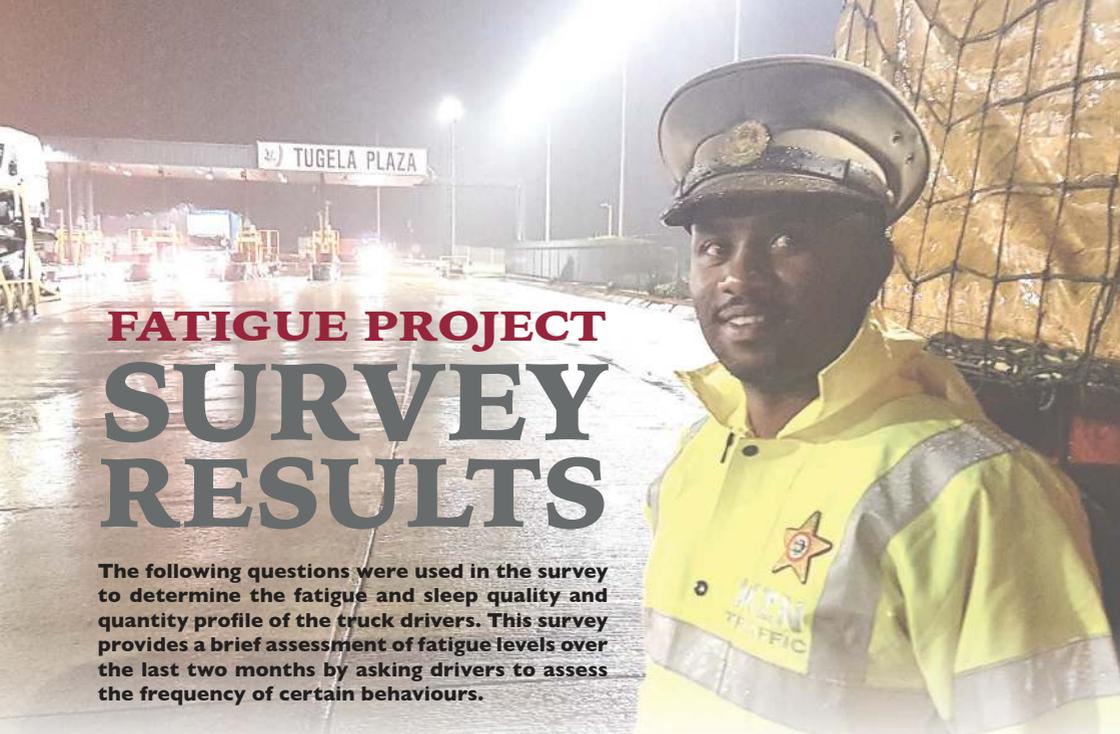
TOGETHER - WE CAN! HELP TO MAKE A DIFFERENCE

*All subject to availability at time of order

Contact eva@fleetwatch.co.za or 011 794 2490/1

Mini First Aid Kits

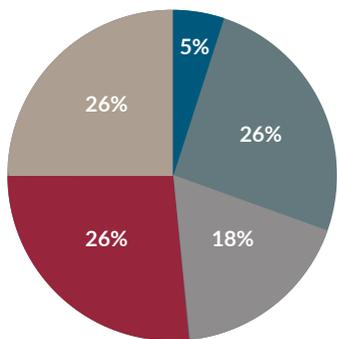




FATIGUE PROJECT SURVEY RESULTS

The following questions were used in the survey to determine the fatigue and sleep quality and quantity profile of the truck drivers. This survey provides a brief assessment of fatigue levels over the last two months by asking drivers to assess the frequency of certain behaviours.

AGE



- <30 (5%)
- 31 - 35 (26%)
- 36 - 40 (18%)
- 41 - 50 (26%)
- 51 - 60 (26%)
- >60 (0%)

- The age demographic indicates a relatively young workforce with **49%** being under forty and only **26%** above 50 years of age. This is of significance as the ability for the body to manage circadian disruption (moving between day/night shifts) becomes more difficult with age as does daytime sleeping. However it is worth noting that younger individuals (especially males under 30) also tend to be more fatigued than average.

This is because:

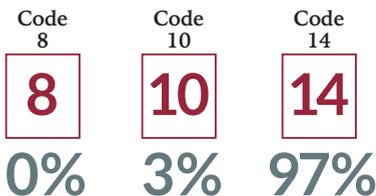
- They tend to have a more active social life (including consuming more alcohol) and this impacts on the quantity and quality of sleep.
- Their circadian cycle tends to be later and makes going to sleep in the early to mid-evening more difficult. This leads to obvious problems when they must get up early to prepare for day shift.

GENDER



- Of all the respondents, 100% were males.

DRIVER'S LICENCES



RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE

WORKPLACE LOCATION



ROSTERED HOURS

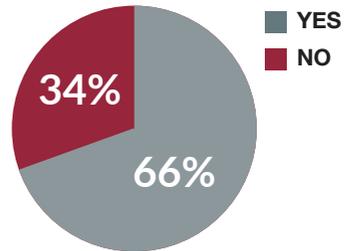
Table 3:



As can be seen, **54%** of the respondents work 12-hour shifts and **18%** more than 12 hour shifts.

OVERTIME

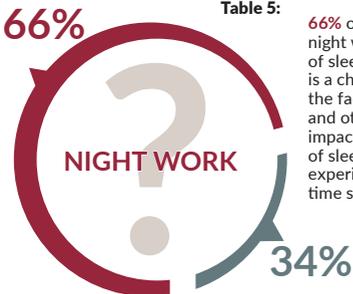
Table 4:



66% of the respondents had indicated that they are working over-time. If you take into consideration that as per table 3, **72%** of drivers are already working 12 or more hours. If you combine the 2 factors, over-time and long hours, the ability of the drivers to sleep for 6 – 8 hours becomes a real risk. The implication of this is that we will experience high levels of fatigue amongst the drivers.

NIGHT WORK

Table 5:



66% of the drivers do night work. The quality of sleep during the day is a challenge based on the fact that light, noise and other commitments impact on the quality of sleep drivers can experience during day time sleep.

Truck drivers need to be aware of the changes to their sleep and the need to employ different strategies to cope with fatigue as they age.

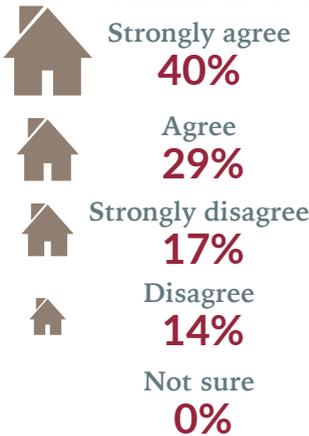
RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE

	Number	Percent
Code 8	0	0%
Code 10	2	3%
Code 14	62	97%
Total	64	100%

If you take into consideration, 12 hour shifts plus over time plus the fact that **29%** of drivers travel more than 60 minutes per day from home to work, the combination of these factors impacts on high fatigue levels.

	Number	Percent
1 - 20 minutes	24	37%
21 - 35 minutes	14	2%
36 - 45 minutes	5	8%
46 - 60 minutes	3	5%
More than 60 minutes	19	29%
Total	65	100%

SLEEPING ACCOMMODATION



31% of drivers' accommodation is not good for sleeping. This aspect needs urgent attention to support drivers regarding education on sleeping conditions. Good sleeping habits are essential to promote adequate and high quality sleep.

Basic rules include:

- Ensuring at least 8 hours per day is devoted to preparation for and actual sleep.
- Keeping sleeping times constant each night.
- Preparing for sleep (e.g. relaxing in the hour before sleep).
- Avoiding things that may disturb sleep (e.g. caffeine, alcohol, nicotine, heavy meals, etc. in the last 3-4 hours before sleep).
- Preventing late afternoon, early evening naps (e.g. in front of the TV).
- Developing a "sleep routine".
- The results of the survey indicate that only **31%** of the respondents could significantly improve their sleeping habits. It is very positive that **69%** of individuals are positive that their sleep environment is user friendly for sleep quality and quantity.

	Number	Percent
Strongly Agree	25	40%
Agree	18	29%
Not Sure	0	0%
Disagree	9	14%
Strongly Disagree	11	17%
Total	63	100%

A good sleeping environment is essential to proper sleep. *Key features include:*

- Control of light, noise and temperature;
- Comfortable sleeping furniture/bedding;
- Ability to prevent interruptions
- For shift workers, understanding of their sleeping needs from others living in the house.

HOURS SPENT SLEEPING IN BED

	Day Shift		Night Shift		Days Off	
	Number	Percent	Number	Percent	Number	Percent
<6 hours	22	43%	32	67%	2	4%
6 - 8 hours	26	51%	14	29%	19	33%
>8 hours	3	6%	2	4%	36	63%
Total	51	100%	48	100%	57	100%

43% of the drivers spend less than 6 hours in bed during their day shift and **67%** spend less than 6 hours when they are working night shift. During their days off they catch up on sleep debt. **63%** of the drivers spend more than 8 hours in bed on their off days.

RESEARCH PROJECT

EFFECTS OF DRIVER FATIGUE

Table 10: HOW MANY HOURS DO YOU SLEEP?	Day Shift		Night Shift		Days Off	
	Number	Percent	Number	Percent	Number	Percent
<6 hours	20	43%	32	71%	3	6%
6 - 8 hours	25	54%	10	22%	20	40%
>8 hours	1	2%	3	7%	27	54%
Total	46	100%	45	100%	50	100%

Table 11: ARE YOU A DRIVER?	Number	Percent
Never	63	98%
1 - 2 times per year	1	2%
1 - 2 times per month	0	0%
1 - 2 times per week	0	0%
Total	64	100%

A positive indicator is that drivers are not using sleeping medication to sleep.

Table 13: SLEEP IN LAST 48 HRS	Number	Percent
14 or more hours	31	52%
12 - <14 hours	20	33%
Less than 12 hours	9	15%
Total	60	100%

Table 15: SLEEP HEALTH CONCERN	Number	Percent
Very concerned	6	10%
Somewhat concerned	16	26%
Little concerned	5	8%
Not at all concerned	35	56%
Total	62	100%

Interesting fact

The average number of hours of sleep has steadily decreased over the last two hundred years largely due to widespread use of electricity and artificial light.

Table 12: SLEEP IN LAST 24 HOURS	Number	Percent
7 or more hours	34	56%
5 - <7 hours	20	33%
Less than 5 hours	7	11%
Total	61	100%

Table 14: HOURS AWAKE AFTER SHIFT	Number	Percent
<8 hours	16	26%
8 - 12 hours	5	8%
13 - 16 hours	11	18%
>16 hours	29	48%
Total	61	100%



RESEARCH PROJECT EFFECTS OF DRIVER FATIGUE

Table 16: APPROACHING SUPERVISOR	Number	Percent
Yes	48	74%
No	17	26%
Total	65	100%

74% of the drivers had indicated that they will talk to their supervisor when they are fatigued. This is a positive indicator regarding relationship between supervisors and truck driver. This opportunity must be used for supervisors to effectively manage fatigue of their employees. The company they work for need clear policies and procedures regarding the effective management of fatigue.

Table 17: ACCIDENT/NEAR MISS AT WORK	Number	Percent
Yes	3	5%
No	62	95%
Total	65	100%

Table 18: NEAR MISS WHILE DRIVING IN LAST 12 MONTHS	Number	Percent
Yes	11	17%
No	54	83%
Total	65	100%

17% of the drivers had indicated that they had near misses in the last 12 months which was related to fatigue.

Table 19: DROWSY DRIVING	Number	Percent
Yes	44	68%
No	21	32%
Total	65	100%

68% of the drivers had indicated that they experience drowsy driving.

Table 20: TAKEN OFF WORK DUE TO FATIGUE	Number	Percent
Yes	21	33%
No	43	67%
Total	64	100%

33% of the drivers was absent from work because they were too tired or fatigued.

Table 21: SUFFER FROM ANY OF THE FOLLOWING										
Score	Overweight		High BP		Heart Disease		Diabetes 2		Sleepy during day	
	No	%	No	%	No	%	No	%	No	%
Yes	9	14%	5	8%	2	3%	4	6%	18	28%
No	56	86%	59	92%	63	97%	61	94%	47	72%
Total	65	100%	64	100%	65	100%	65	100%	65	100%

The overall health of the drivers was good with a low tendency of being overweight, high blood pressure, heart disease and diabetic 2 conditions. 28% had indicated that they are sleepy during the day which correlates with table 19 of drowsy driving.

● SILENT KILLERS ●



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Table 22: SLEEPING DISORDERS

Score	Insomnia		Sleep Apnoea		Gastro. Reflux	
	No	%	No	%	No	%
0	19	29%	31	48%	37	57%
1	27	42%	20	31%	10	15%
2	12	18%	6	9%	9	14%
3	4	6%	7	11%	5	8%
4	2	3%	1	2%	4	6%
5	1	2%	0	0%	0	0%
Total	65	100%	65	100%	65	100%

A diagnosis for sleeping disorders requires a sleep study conducted by sleep specialists. However the presence of a significant number of symptoms of a sleeping disorder is often a reliable indicator and these can have a major impact on an individual's capacity to cope with work. Respondents were asked to complete a checklist listing symptoms of 3 serious sleeping disorders including Insomnia, Obstructive Sleep Apnoea and Gastro-oesophageal Reflux.

As can be seen from the results in the table, over **14%** of respondents reported having serious signs of sleeping disorders.

The most common sleeping problem was insomnia with between 11% of respondents showing high scores. Insomnia is potentially the most frequent cause of individuals being unfit for work on site and illustrates

the importance of educating all employees about the importance of sleep and ways to improve both night and day time sleep. This latter point may seem obvious but many chronically fatigued individuals come to regard their condition as normal and often do not seek help.

At least **3%** of individuals showed serious symptoms of obstructive sleep apnoea, reporting 3 or more of the listed symptoms. At this level, individuals probably require medical assessment and intervention as OSA has significant health and safety consequences if left undiagnosed and untreated. This result is similar to most other locations BSS has conducted these fatigue assessment.

14% reported symptoms of gastro-oesophageal reflux. This is a medical condition in which acid refluxes out of the stomach while the individual is sleeping, burning the oesophagus and causing severe disruption to sleep.



14% of respondents showed serious signs of sleep disorders.

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