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# Napping strategies to cope with rotating shift work in nursing



University of  
South Australia

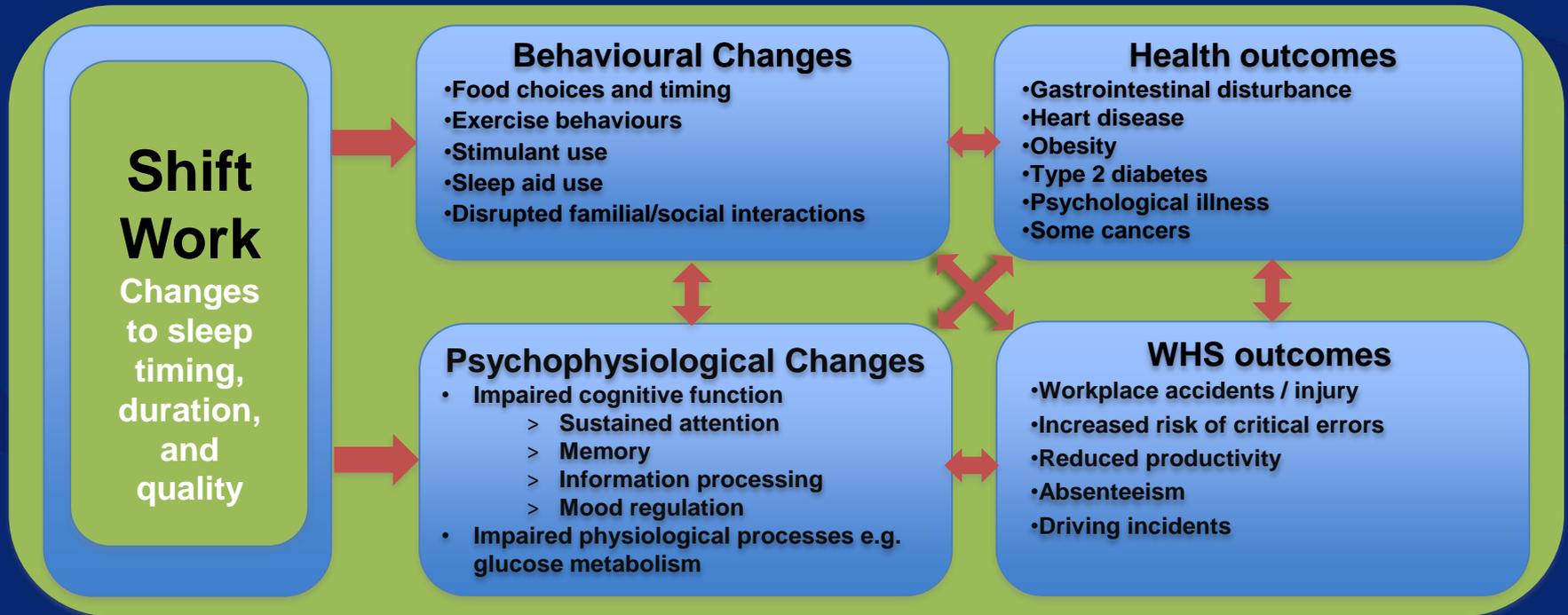
Centre for  
**Sleep Research**

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# Background





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## *Overall project aims*

Australian nurses typically work morning, afternoon, night rotations

- *Explore differences in coping and behavioural strategies*
- *Identify strategies that shift workers use to cope with shift work, pulling together evidence for which are **helpful**, which are **ineffective** and which are **harmful**.*





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# *Exploring napping strategies*

## **Aims:**

- Identify behavioural strategies at the individual and team levels that workers use to manage the effects of sleep loss and fatigue → **napping strategies**
- Consider the efficacy of strategies & how individualised recommendations could be presented to shift workers





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## *Methods*

- $N=134$  shift-working nurses and midwives from two South Australian hospitals
- Data collection conducted Oct 2015-March 2016
- Mixed-method design





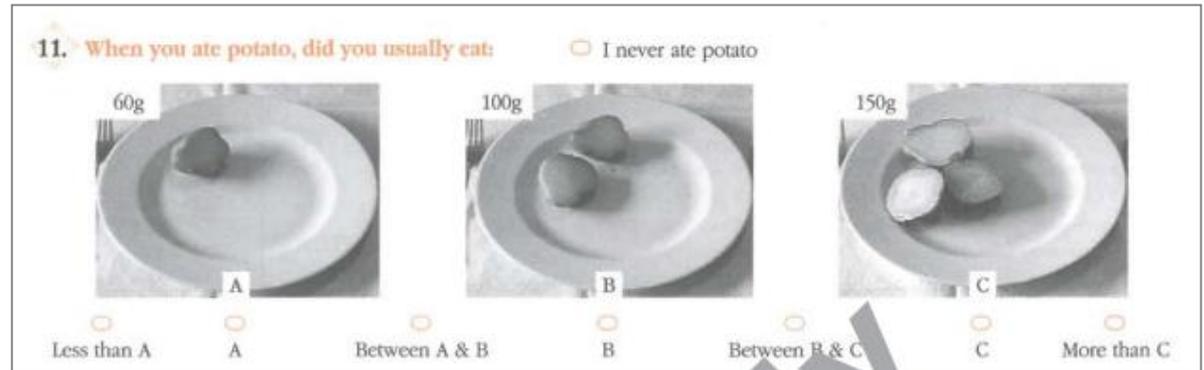
**Standard Shiftwork Index (SSI),  $n=130$**   
(21-67y; 115F, 15M)



**Interviews,**  
 $n=22$



**Saliva Samples,**  
 $n=45$



**Food Frequency Questionnaire (FFQ),  $n=50$**

Survey  
Interview

## Sleep

Napping during night shift

Prophylactic napping (pre-night shift)

Sleeping in on days off

Sleep aid use

Modifying sleep environment

Survey  
Interview

## Workplace

Colleague support

Double checking work

Using memory aids

Keeping busy

Schedule Flexibility

Survey  
Interview

## Psychosocial

Cognitive Reappraisal

Avoidance

Expressing Emotions

Talking to family members

Avoiding social interaction

Pets for comfort

Survey  
Interview  
FFQ

## Driving

Winding down windows for cool air

Playing loud music

Chewing on ice chips / drinking water

Drinking caffeinated beverages

Pulling over to rest

Driving cautiously

Survey  
Interview  
FFQ

## Diet

Promoting alertness (coffee, tea, cola, chocolate)

Changing timing of eating

Avoiding/reducing food

Food as a reward

Food as a sociocultural factor

Interview

## Exercise

Avoiding exercise / strenuous activities before night shift

Maintaining good level of physical fitness

Survey

Interview

## *Sleep*

Napping during  
night shift

Prophylactic  
napping (pre-  
night shift)

Sleeping in on  
days off

Sleep aid use

Modifying sleep  
environment

# *Evidence of efficacy*

## *Sleep*

Napping during  
night shift

Prophylactic  
napping (pre-  
night shift)

### During the night shift:

-A 30min nap opportunity at 03:30h did not improve performance or mood, but did improve subjective sleepiness (Centofanti, Hilditch, Dorrian & Banks, 2016)

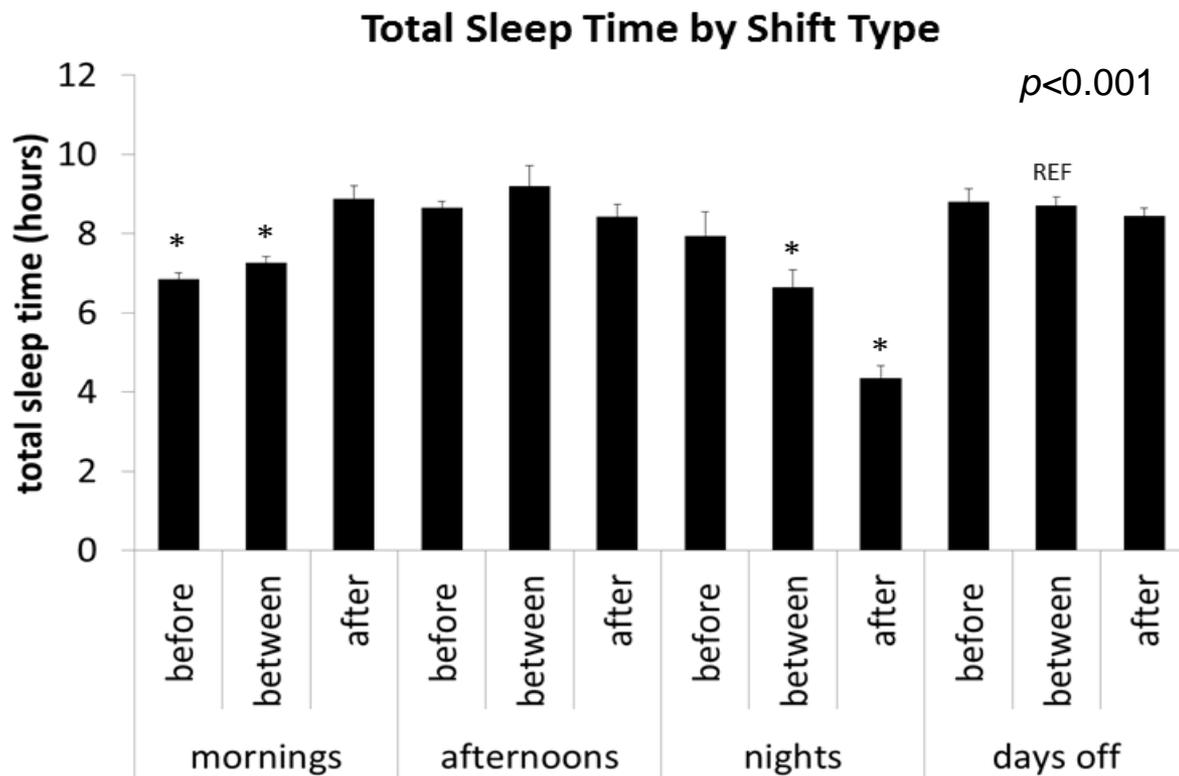
-Sleep inertia evident following a 30min nap opportunity at 03:30h (Hilditch, Centofanti, Dorrian & Banks, 2016)

➤ *Most evidence based on well-rested individuals or afternoon nap studies. Would shift workers benefit more from these naps?*

### Pre-night shift:

-Prophylactic naps in the afternoon provide performance benefits (Brooks & Lack, 2006; Takahashi & Arito, 2000)

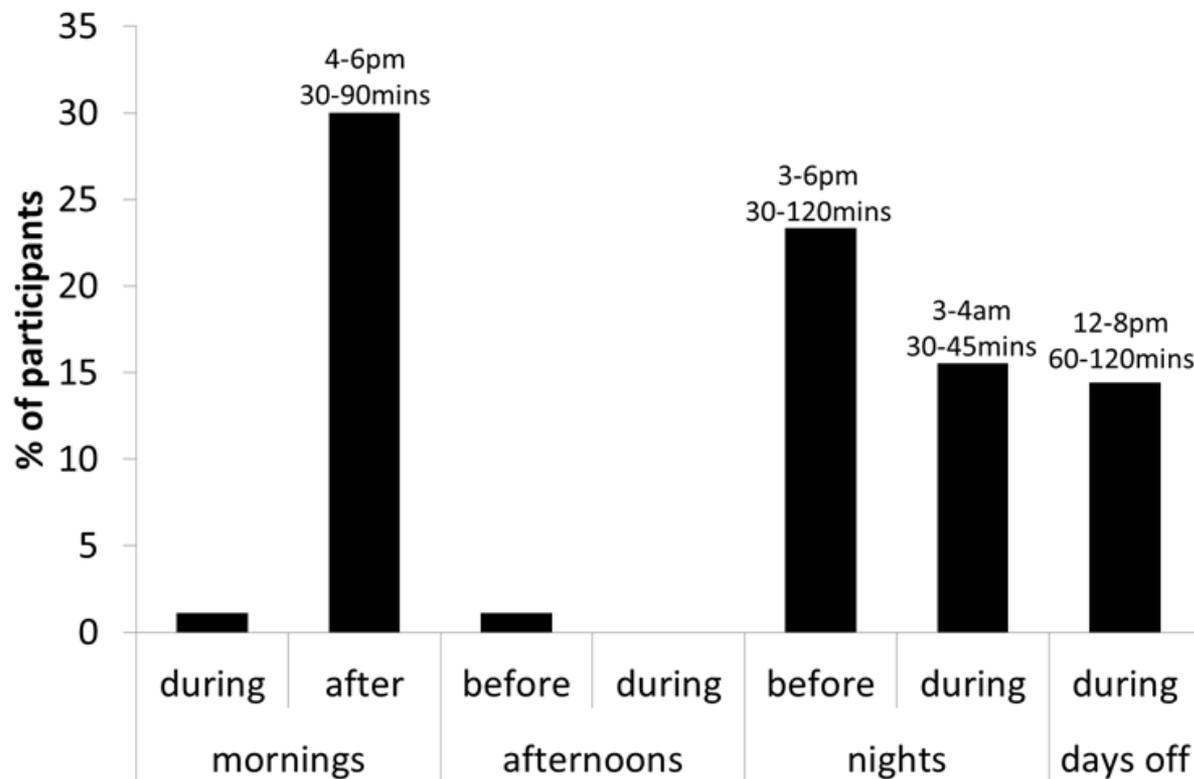
Sleep is reduced before & between morning shifts and between & after nights. Days off used for catching up on sleep.



*“Shocking, it’s not even like a sleep, it’s a kind of purgatory”*

# Proportion of nappers

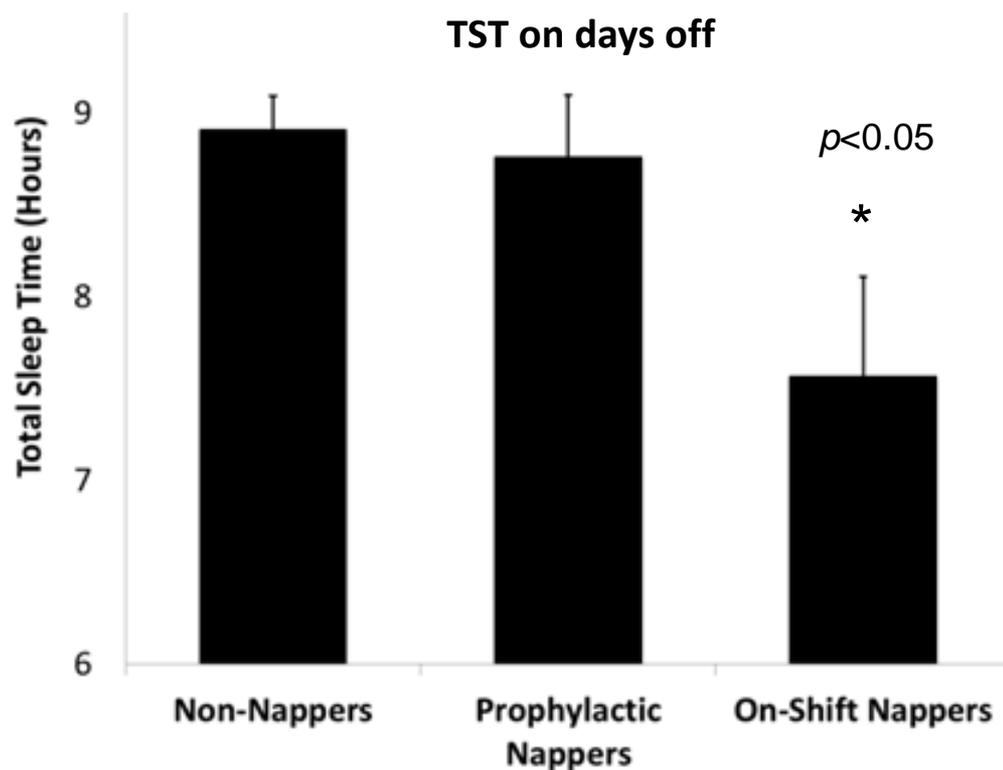
- Majority of nurses nap, and 16% report napping during the break on night shift



*“About 4:30  
I’ve hit a  
brick wall so  
I’ll take my  
half hour  
break and  
I’ll...fall  
asleep”*

# Nappers vs. non-nappers

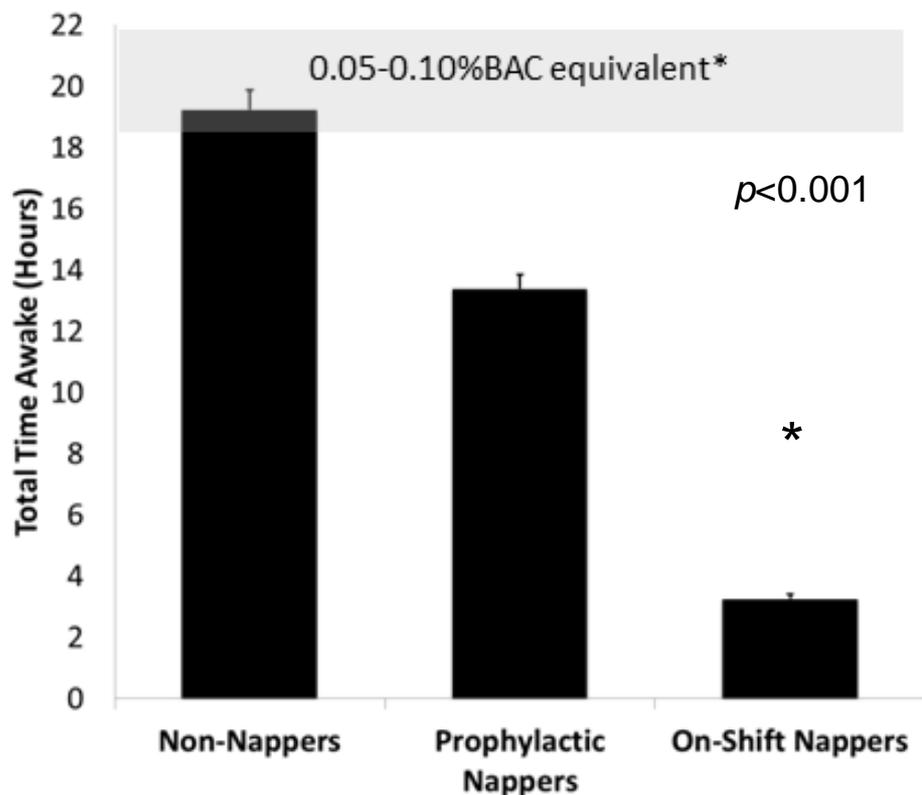
- On-shift napping may be a reactive strategy for those who are unable to obtain sufficient sleep at home



**Do you take  
naps on a  
night shift?  
“...only  
because I’m  
not coping.”**

# Potential benefits of napping on-shift

- Napping restarts the time awake counter, which may be important for night shifts (especially the first)



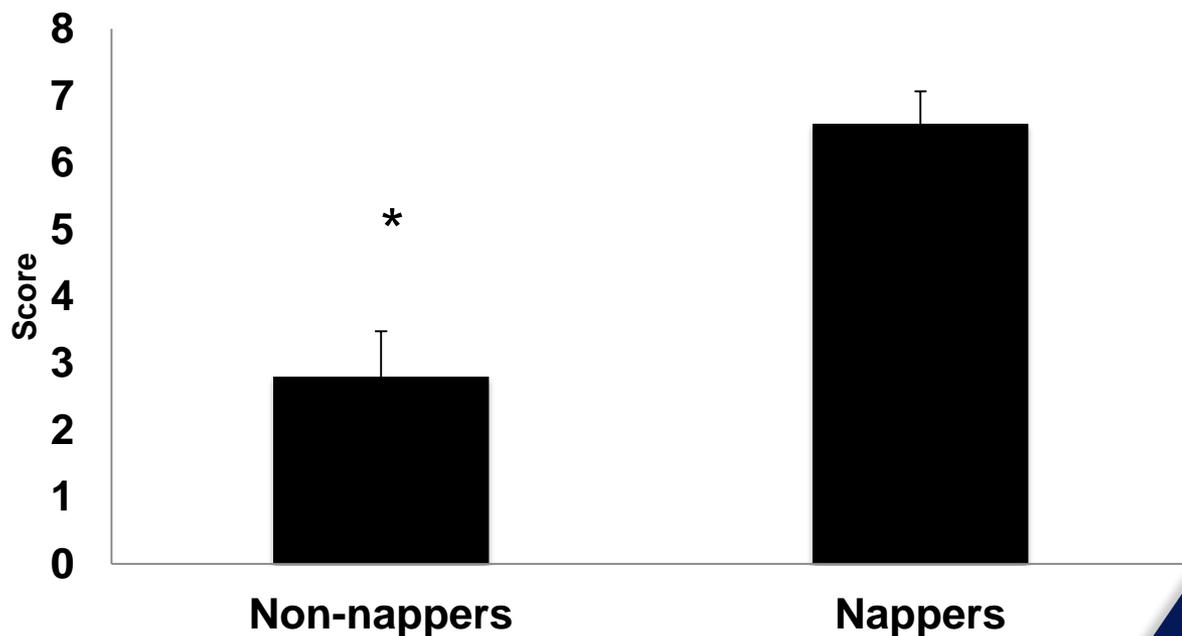
*“I’ve been driving home, I’ve gone oh my God, I’m so tired, I should pull over and sleep.”*

*“Sometimes I wouldn’t remember getting home, I wouldn’t know which way I’d driven home”*

# Barriers to napping on-shift

- Those who reported napping had significantly higher scores compared to non-nappers on sleep flexibility ( $p < 0.001$ )

Are you the sort of person who finds it very easy to sleep at unusual times or in unusual places?



*“noise, bells all the codes you hear because they get broadcast very loudly at night it’s a wonder everybody doesn’t wake up when they come over. They’re very, very loud.”*

# Barriers to prophylactic napping

- There were many households not conducive to sleep

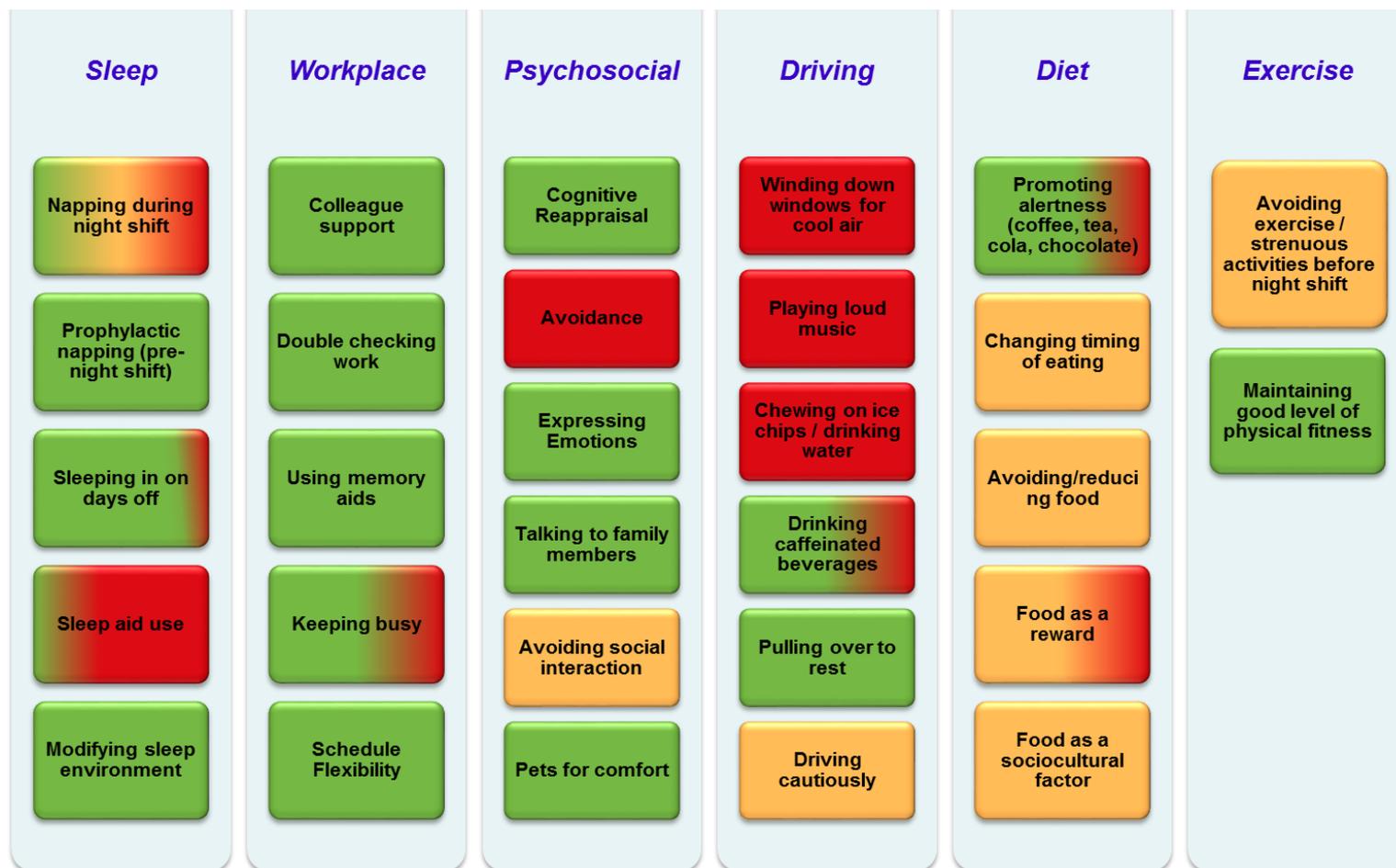
*“I live right next to a school, so...I hate sports days. There’s one of the teachers who likes the megaphone...I’ll get woken up, I don’t know, every time the starter gun goes.”*

- Participants reported avoiding prophylactic naps due to concerns about subsequent sleep

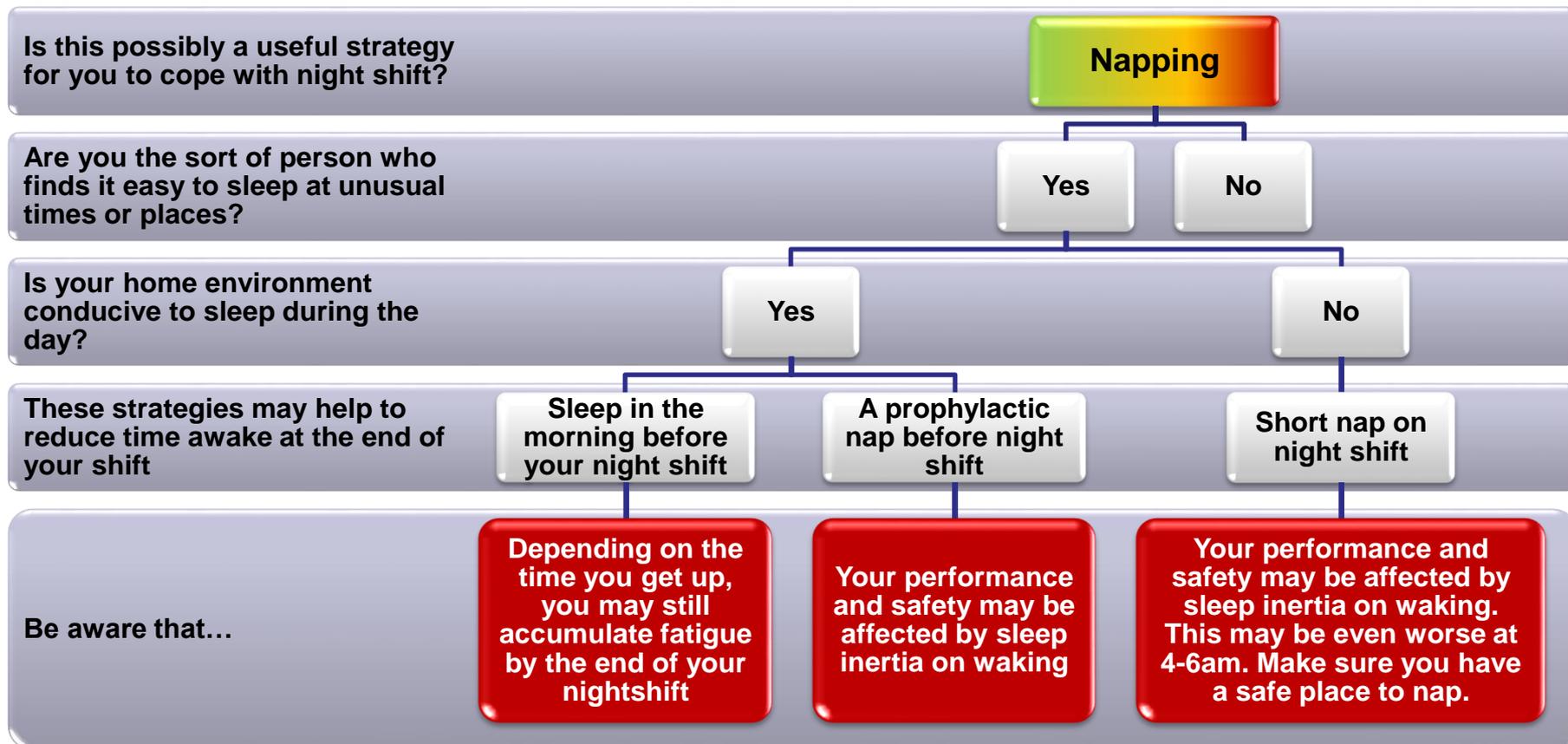
*“I’d just sleep in in the morning and get up and have my normal day and work through the pain. Then I found that I slept properly because if I slept through the day...in preparation for nights then you’d come home the next morning and you wouldn’t be ready for sleep again. So it was easier just to try and sleep in to 11.00am and then get up and go, and that was fine.”*

# How can we present recommendations to help individuals decide if this strategy might work for them?

- Majority of nurses in this cohort napped
- Several barriers identified (individual/workplace)



# How can we present recommendations to help individuals decide if this strategy might work for them?





# Summary

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Napping identified as a common strategy used by SA nurses & midwives

Napping may not work for everyone – further research needed to inform individualised recommendations

- >Objective measures of sleep / performance in field settings
- >Considering combinations of strategies e.g. caffeine naps

Laboratory study investigating the effects of caffeine following a short nap during simulated night shift on performance & subsequent sleep.



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