

The Role of Personal Agency in Managing Fatigue

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Present paper is an extension of last year's presentation that focused on the role of the individual in managing fatigue.

- *Summarise previous findings*
- *Describe recent results from our investigations*
- *Concluding comments*



Starting position – “shared responsibilities”

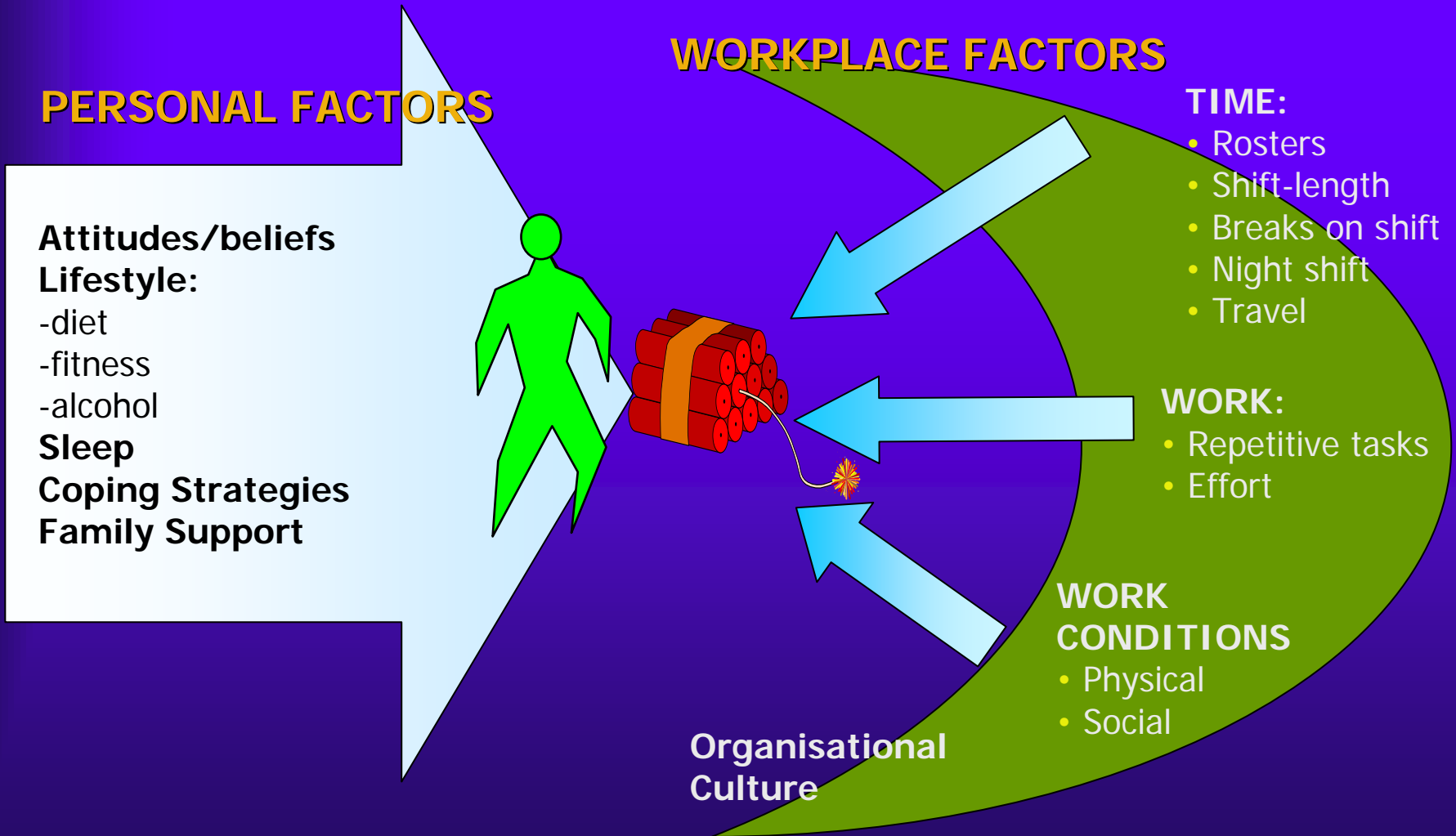


Table 1

Rank ordered factors contributing to fatigue – U/G operation, quickly rotating roster .

Contributing Factors	Mean	
Poor quality sleep	3.04	High risk factors
Not enough hours of sleep	2.99	
Working night shifts	2.80	
Length of shifts	2.70	
Repetitive nature of work	2.50	
<hr/>		
Number of hours/week	2.48	Significant risk factors
Roster I work	2.41	
Worry/stress I have about personal/family issues	2.35	
Transitions between day and night shift	2.32	
Physical exertion in performing work	2.20	
Length of breaks	2.15	
Length of time worked before a break	2.14	
Working in stressful and/or dangerous conditions	2.12	
Not enough rest on days off	2.08	
Weather or environmental conditions I work in	2.04	
Noise or dust in working environment	2.02	
<hr/>		
Noise in village while im trying to sleep	1.83	Low risk factors
Worrying about work issues in my time off	1.70	
Difficulties with my supervisor	1.57	
Being on call and/or relief	1.56	
Difficulties with other people at work	1.55	
Other work commitments	1.53	

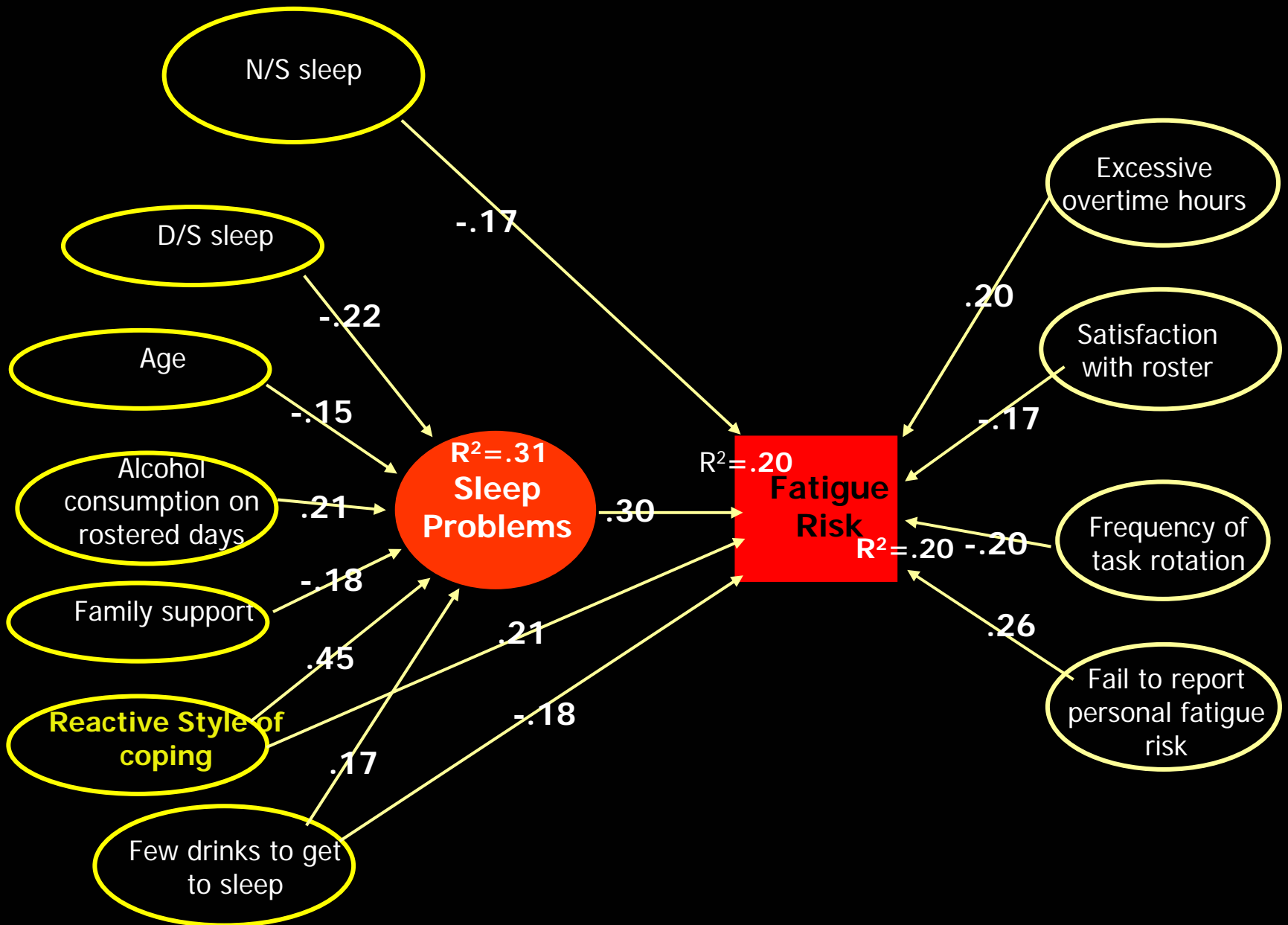


Table 2**Rank ordered factors contributing to fatigue – O/C operation, 7/7 roster.**

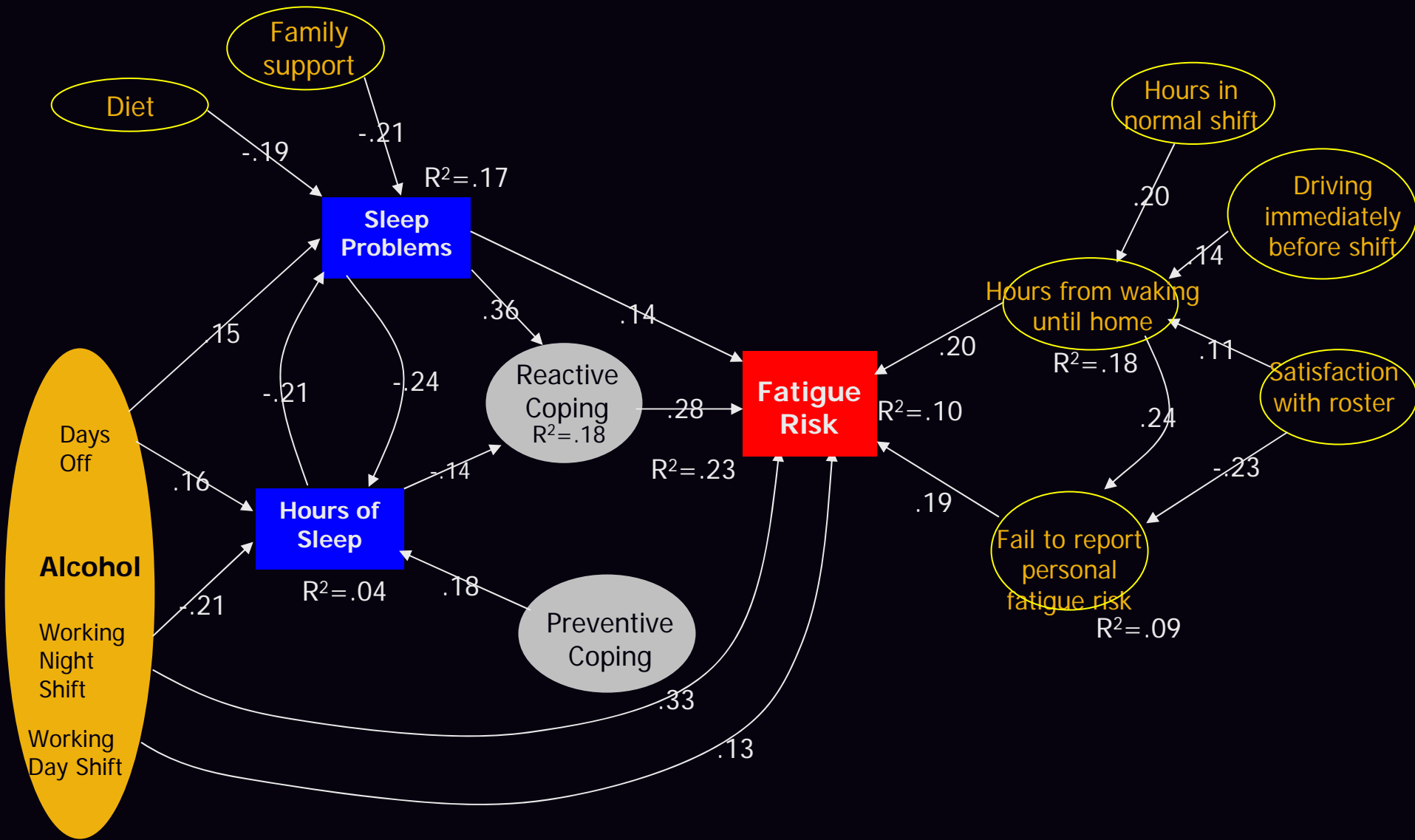
Contributing Factors	Mean	
Poor quality sleep	2.60	High risk factors
Not enough hours of sleep	2.41	
Repetitive nature of work	2.24	
Working night shifts	2.21	Significant risk factors
Worry/stress I have about personal/family issues	2.06	
Number of hours/week	1.99	
Length of shifts	1.94	
Noise or dust in working environment	1.85	
Length of time worked before a break	1.79	
Weather or environmental conditions I work in	1.79	
Physical exertion in performing work	1.78	Low risk factors
Worry about family issues when away from home	1.76	
Not enough rest on weekends	1.75	
Length of breaks	1.72	
Working in stressful and/or dangerous conditions	1.68	
Roster I work	1.68	
Being away form home for long periods of time	1.65	
Travel to and from site	1.60	
Other work commitments	1.41	
Difficulties with other people at work	1.41	
Noise in village while im trying to sleep	1.40	
Worrying about work issues in my time off	1.39	
Difficulties with my supervisor	1.29	
Being on call and/or relief	1.26	



Predictive Model of Fatigue Risk - O/C Coal (6/3 roster)



Predictive Model of Fatigue Risk - O/C Coal (7/7 roster)



Previously identified coping styles – linked to variations in fatigue risk.

Preventive Strategies:

Lifestyle management

- planning/managing sleep time
- limiting alcohol
- diet/ exercise

Managing time-off

- resting on days off

Managing the job

- planning time and tasks
- task rotation
- setting objectives/sharing responsibilities

Reactive Strategies: Coping

- stimulation seeking – trying to stay awake
- eg. coffee drinking, splashing water on face, walking around etc)
- cat naps in crib time

No Strategy for managing fatigue

Data from 368 coal miners, 2001



Psychological explanation of coping styles

- Previous studies had revealed differences between the coping styles on non fatigue-related measures.
- Suggests an **underlying and internal organisation of the individual** that is bigger than work specific issues.
- Most common explanations for variations in fatigue-risk revolve around themes of personal responsibility, maturity and individual differences;
- Ultimately – it's an empirical question!!



Psychological explanation of coping styles...

***Personal agency** has been defined as a sense of self-determination, where the individual is the origin of their actions and thoughts in actively influencing their situation.*

*An individual with a strong sense of personal agency has a sense of **ownership** of their actions and direction. **Control is internal**. They pursue their goals for their own reasons and tend to **persevere** in the face of adversity.*

*In contrast, an individual with little sense of agency tends to see themselves as pawns or victims of unknown or **external influences** and is likely to see himself or herself as **helpless** and unable to influence the external world. Ultimately, control over their situation is located outside of themselves.*



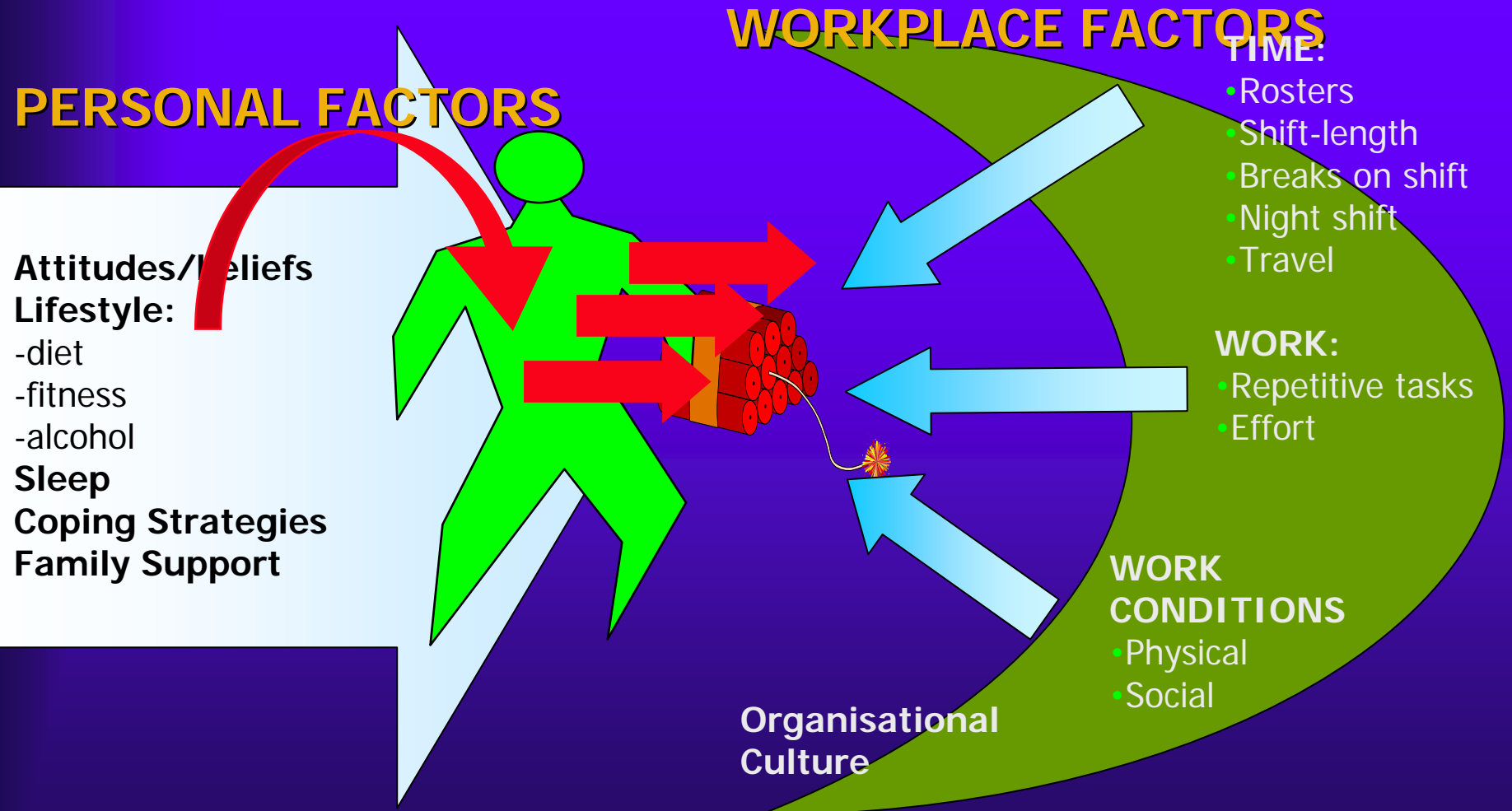
Application

Critical ingredients of personal agency when applied to safety and safe behaviour:

- Seeing **self as agent and in a position of agency**, ie. seeing self as able to influence the world of work as opposed to feeling helpless in relation to, or a victim of the world or work.
- Making the **connection between personal thoughts and actions and their consequences** in terms of safety outcomes.
- Taking **ownership and responsibility for safety outcomes** and avoiding the “blaming other” routine, ie. assigning responsibility to the external world. Assuming responsibility for own actions and consequences – ie. safety has been **internalised**.



The position of personal agency



Hypotheses

Preventive coping associated with a strong sense of personal agency. Reactive coping & No strategy styles linked with poorly developed sense of agency.

Because personal agency is seen as an inner organisation of "self and other" - variations in personal agency linked to work and non work related outcomes.



Present Study

Participants:

- ◆ *201 miners at a Central Queensland coal mining operation.*

Measures:

- ◆ *Fatigue survey + a measure of personal agency.*

Procedure:

- ◆ *Miners completed survey anonymously in the context of an investigation of fatigue risk across the operation.*



The Measure of Personal Agency & Safety

Three factors emerged. Scale can be scored for three subscales or single measure of personal agency.

Loss of Agency

I can't do anything to change procedures at my place of work

I have little influence on how things are done at work, even though it effects my safety

What I think about safe work practice doesn't have any influence where I work

People get injured at work because management don't care about safety

Internal Control

If I'm safe at work its because I make sure of it

Each person is responsible for their own safety

Staying safe at work has almost nothing to do with luck, its about how I think and act

Any injury I've had was because I was not being careful enough

Fate

It doesn't matter how careful I am, if I am going to get hurt I will

It is sheer chance when someone gets hurt at work

I think most injuries at work are because of bad luck

Lately, its only been good fortune that has kept me from being hurt at work



Step 1. Identifying groups defined by personal agency.

An analysis of the data used the three personal agency subscales as clustering variables - identified two major groups of people.

Group 1: High Personal Agency (N=117)

- Low on loss of agency
- High on internal control
- Low on fate

Group 2: Low Personal Agency (N=68)

- High on loss of agency
- Low on internal control
- High on fate



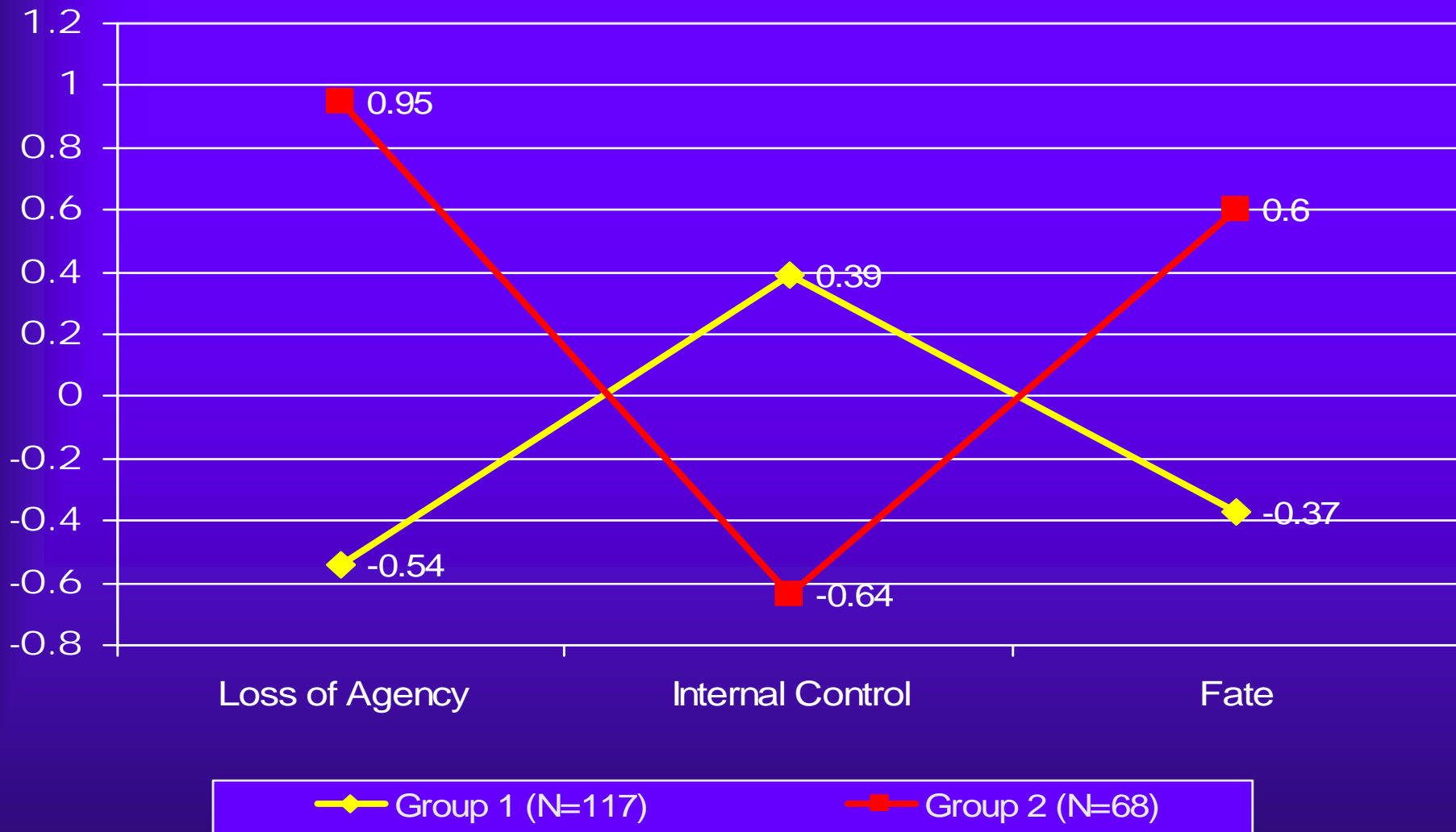


Figure 1. Mean standard scores on personal responsibility scales by clusters.



Step 2.

Personal agency and styles of coping with fatigue.



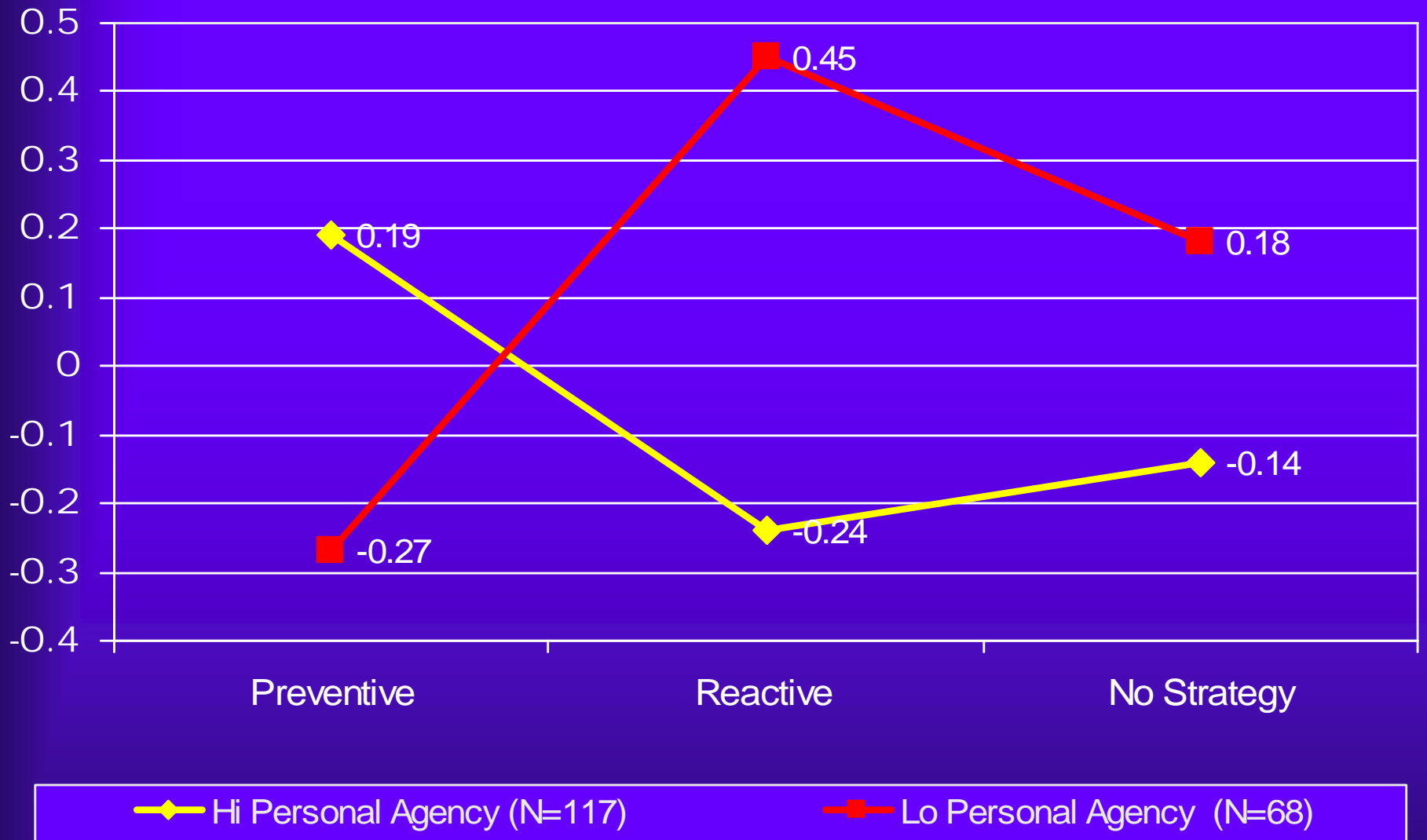


Figure 2. Mean standard scores on coping style, by clusters.



Personal agency and styles of coping with fatigue...

- The people in the high agency group were more likely to adopt preventive strategies for coping with fatigue, whereas the low agency group were more likely to adopt reactive strategies to manage fatigue risk, or to report they had no strategy for managing fatigue.



Step 3: Wider differences between groups.

**Personal agency, fatigue risk and
symptoms of fatigue.**



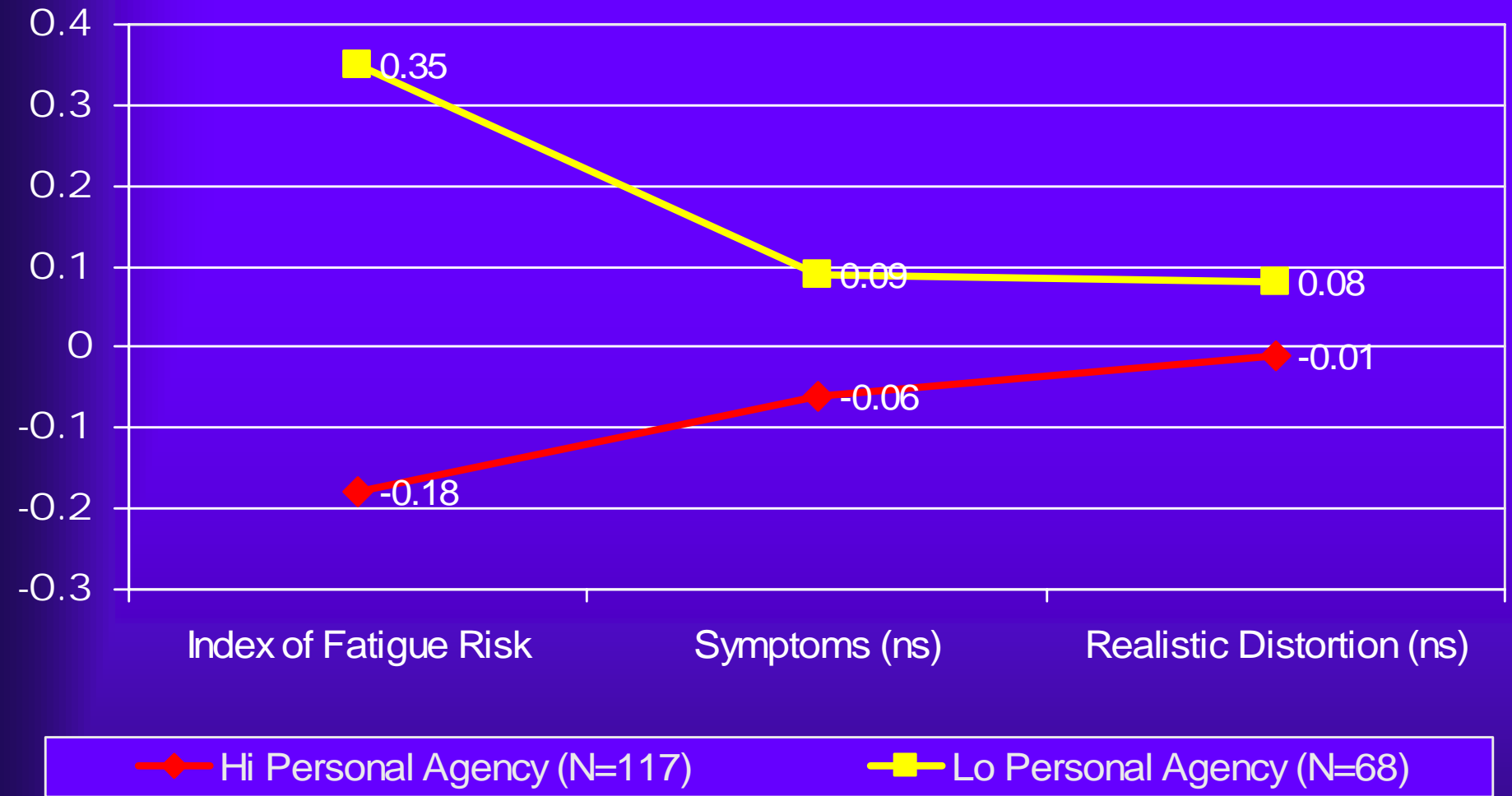


Figure 3. Mean standard scores on Index of Fatigue Risk, symptoms of fatigue and distortion, by clusters.



Personal agency, fatigue styles and symptoms of fatigue...

- The people in the high agency group were less likely to report experiencing high risk events as a result of fatigue, although they were just as likely to experience the symptoms of fatigue. There was no significant difference between the high and low agency groups on the measure of distortion.



Personal agency and alcohol consumption (when working day shift, night shift and on days off).



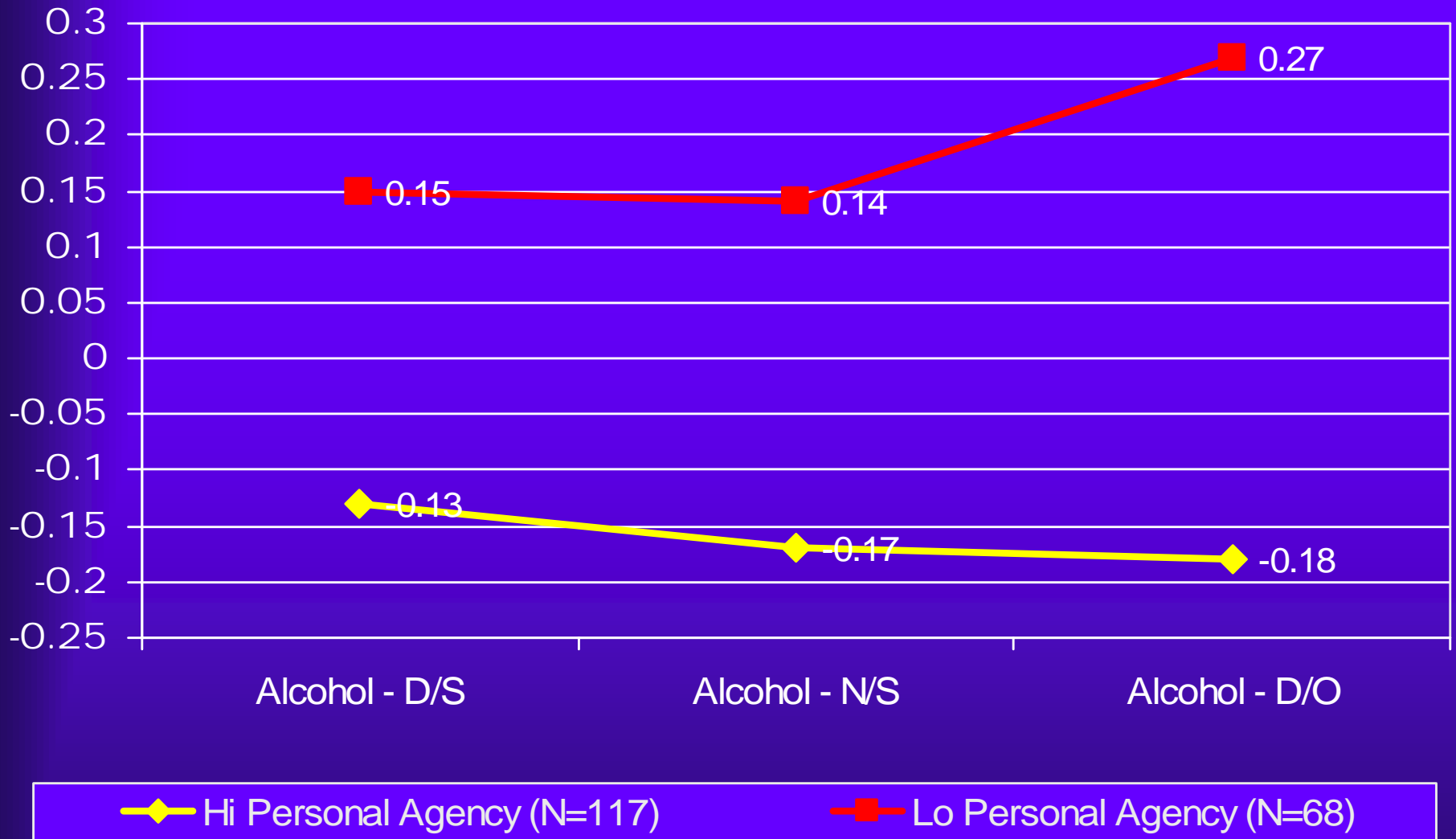


Figure 4. Mean standard scores on self reports of alcohol consumption, by clusters.



Personal agency and alcohol consumption...

- The people in the high agency group reported significantly less alcohol consumption when working day-shift, night shift and on days off.
- The difference between the groups was greatest when there was less external influence and less immediate consequences.



Personal agency and sleep for shift workers.



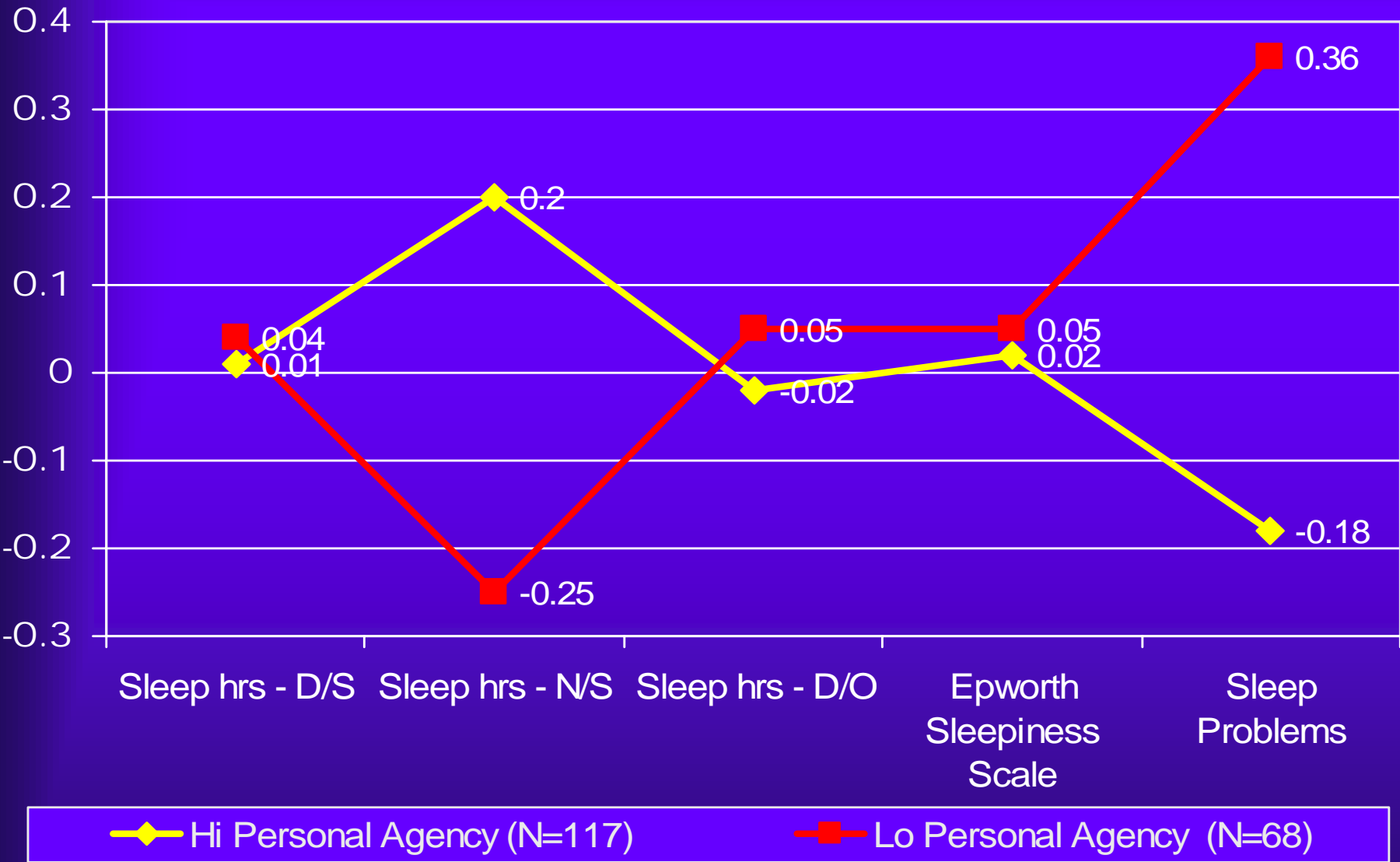


Figure 5. Mean standard scores on sleep measures, by clusters.



Personal agency and sleep for shift workers...

- The people in the high agency group reported more hours of daytime sleep when working night shift and less sleep problems.
- There were no significant differences between the groups in reported hours of night time sleep when working day shift or hours of sleep when on days off. Similarly, there were no significant differences between the groups on the Epworth Sleepiness Scale – sensitive to sleep disorders as medical conditions.
- The sleep differences between the groups were greatest on the measures that mattered the most for effective fatigue management.



Personal agency and hours of work.



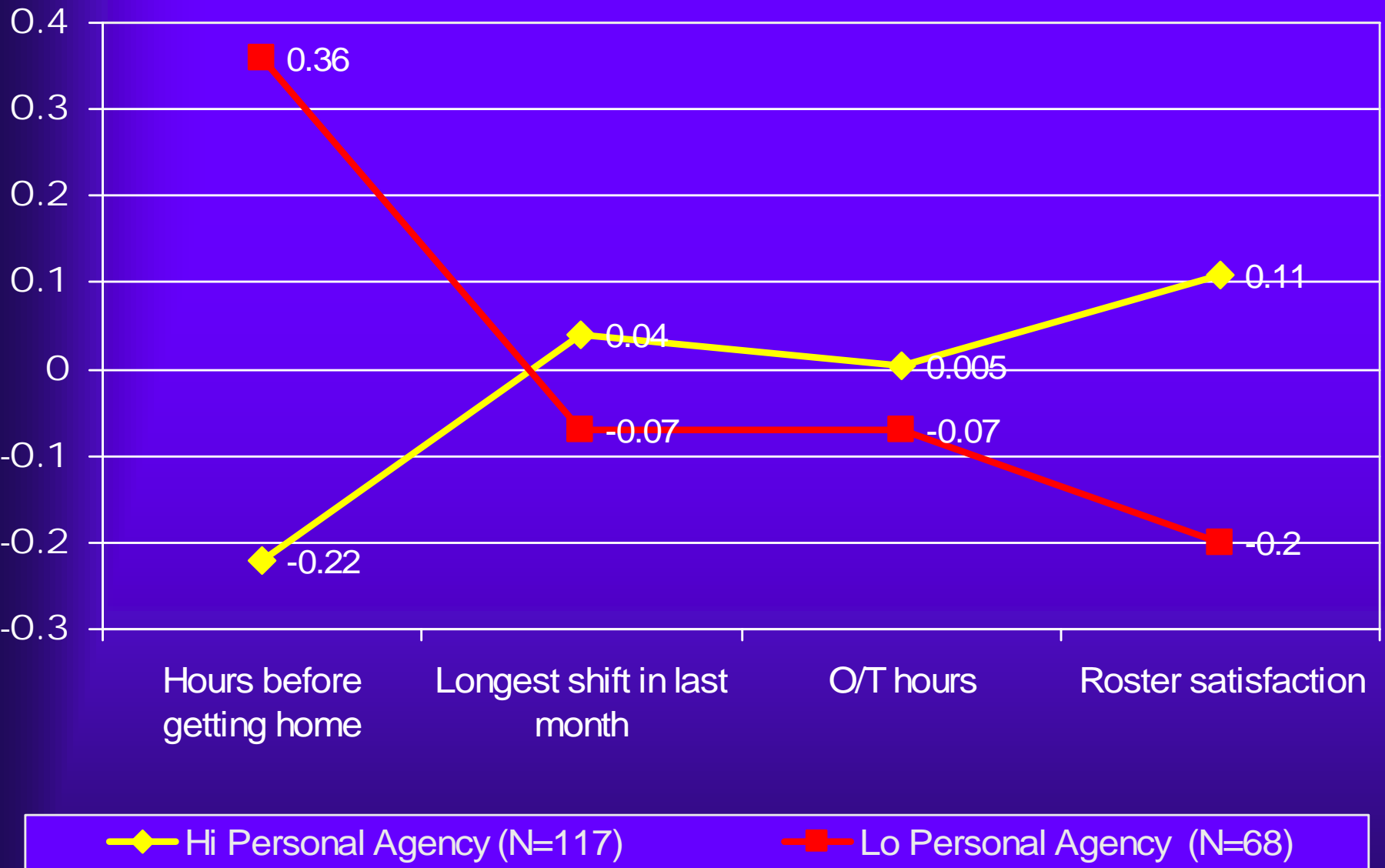


Figure 6. Mean standard scores on hours of work measures, by clusters.



Personal agency and sleep for shift workers...

- The people in the high agency group reported more satisfaction with the current roster system and less hours from waking until getting home after shift. There were no significant differences between the groups in reported overtime hours or longest shift worked in previous month.



**Personal agency, age, experience with
shiftwork and family relationships.**



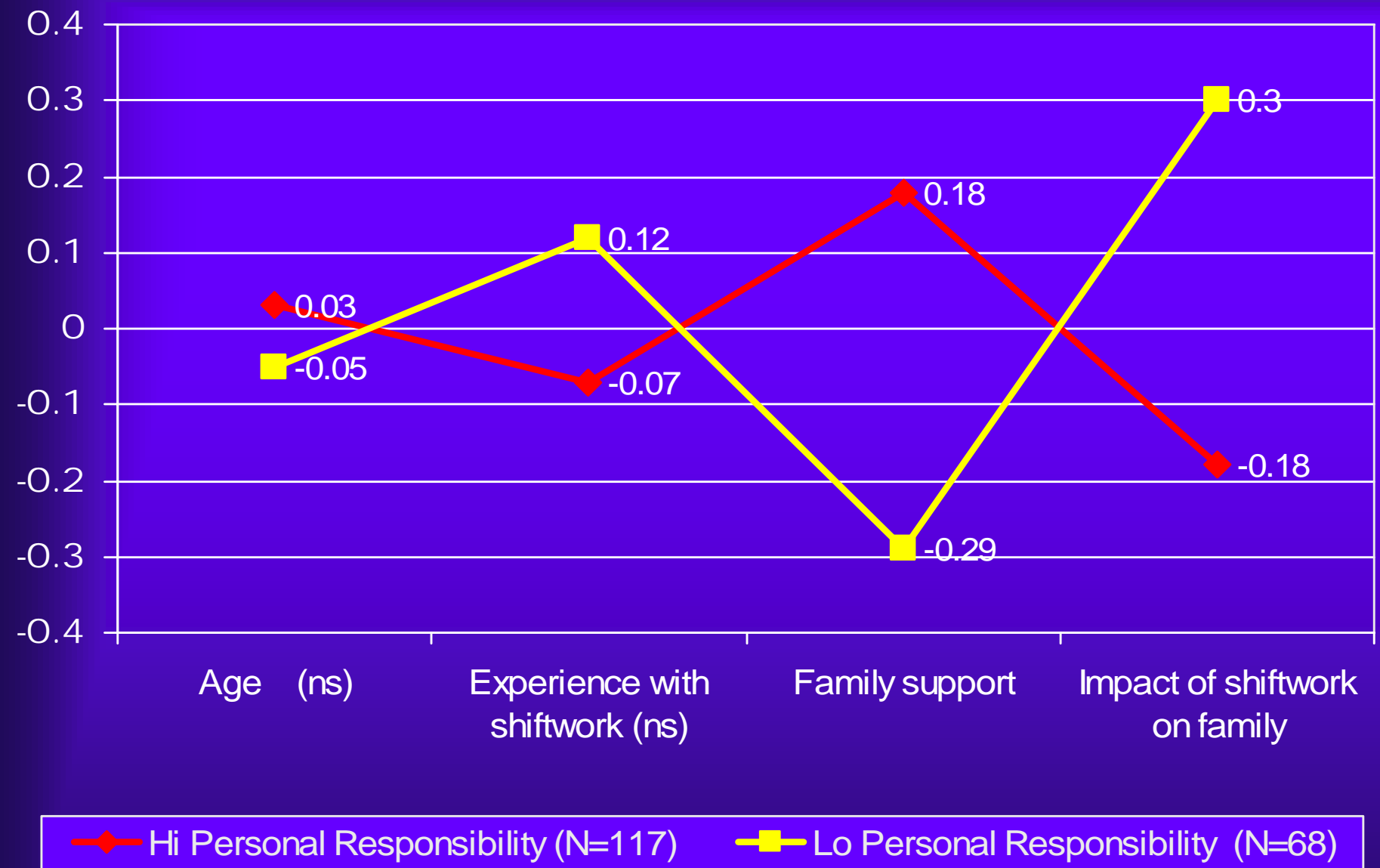


Figure 7. Mean standard scores on age, experience with shiftwork and family measures, by clusters.

Personal agency, age, experience with shiftwork and family relationships...

- There were no significant differences between the high and low agency groups on the measures of age or experience with shiftwork.
- The people in the high agency group reported more support from their family and were less likely to see shiftwork as having an impact on their family relationships.



Personal agency, shiftwork and how miners minimise the impact of shiftwork on their family relationships.



Follow-up open-ended question:

If you think your shiftwork has an impact on your family, what do you do to minimise that impact?

High agency group: 40.2% recorded a response to the item.

Low agency group: 51.5% recorded a response to the item.



Question:

If you think your shiftwork has an impact on your family, what do you do to minimise that impact?

- Differences in proportion of groups responding
- Differences in strategies of minimising impact of shiftwork



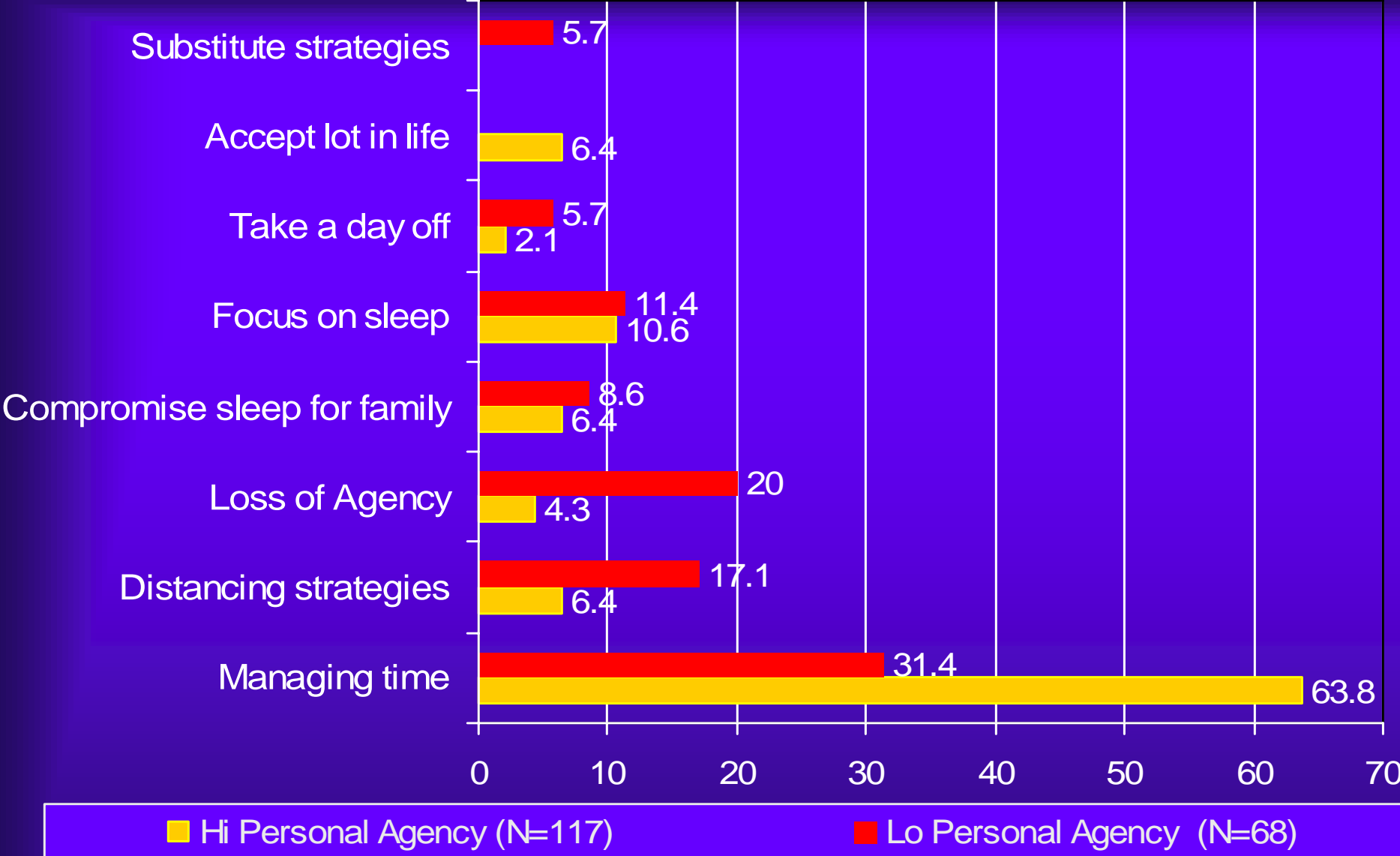


Figure 8. Proportion of each agency group reporting various strategies of minimising the impact of shiftwork on family life.



Personal agency, shiftwork and how miners minimise the impact of shiftwork on their family relationships...

- The high agency group were more likely to actively manage their time to ensure as much time with their families as possible, and less likely to distance from their families or to feel helpless about minimising the impact of shiftwork on their family life.



Summary of Results

High personal agency group defined by more deliberate measures of coping and better work and social outcomes.

Low personal agency group defined by reactive measures of coping and poorer work and social outcomes.

No differences between the groups on measures of:

- Distortion
- Age
- Experience with shiftwork
- Symptoms of fatigue
- Hours of sleep on day shift or days off
- Hours of work including hours of overtime



Interpretation

Interpretation 1.

Coal miners with a greater sense of agency over their personal safety at work experience less fatigue-related risk at work because they cope more deliberately and effectively with fatigue, and this way of coping is evident in other aspects of their life.

This view positions a person's sense of agency as a primary organising characteristic of the individual that is inevitably expressed in a range of contexts.



Interpretation ...

Interpretation 2.

In a demanding environment miners lose their sense of agency/control over their personal safety at work and are therefore more prone to experience fatigue related risk. And, because of the unresponsive nature of their world of work they feel less able to influence their environment and more likely to feel powerless in a world where external forces determine their fate.

However:

- low personal agency group were a minority of the sample;
- both groups faced same environmental demands;
- doesn't explain why the low personal agency group might poorly manage their family relationships;
- participates in a view where control is located outside of the individual.



Implications

- Important to maintain the **“shared responsibilities”** perspective;
- More important issue:
What can be done to encourage others to assume a greater sense of agency over their own safety? - ie, internalisation?

Need for caution – internalisation and external control?

Previous research suggests importance of:

- Social context;
- Salient learning experiences and events - *(if personal agency is an inner organisation of self and others)*



Implications...

- What experiences/events allow a person to feel able to influence safety procedures at his/her place of work?
- What experiences/events assist a person to make the connections between his thoughts and actions and the probabilities of his being injured at work?
- What experiences/events encourage a person to believe that luck and chance has very little to do with the likelihood of injury?
- What experiences/events encourage a person to take a more active responsibility for his own safety?



Conclusion

A person's sense of agency seems to be a primary organisation of self in relation to other that is expressed in variations in coping with fatigue, but also how the individual copes with other demands. **Internalisation** is the key process.

Achievements:

- Greater depth in our understanding of the role of the individual in coping with fatigue and the salient differences between people.
- Provides some clues about how we can encourage people to take a greater sense of ownership over their safety.



