

Appendix 6

a) Impact of the rosters on sleep

Quantity of sleep

Hours sleep in 24 hour period when on dayshift

% within Roster		Hours sleep in 24 hour period when on dayshift			
		5 or less hours	6 or 7 hours	8 or more hours	Total
Roster	Rotating D/N even-time roster (42 hr)	38.9%	48.4%	12.7%	100.0%
	Rotating (56 hr)	30.7%	59.3%	10.0%	100.0%
	Other Rotating (50+ hr)	35.7%	59.5%	4.8%	100.0%
	Day shift (40-60+ hr)	14.6%	70.8%	14.6%	100.0%
Total		30.7%	58.6%	10.7%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: Significant difference between the rosters $X^2(6) = 20.031$ $p = .003$ n = 449

Hours sleep in 24 hour period when on nightshift

% within Roster		Hours sleep in 24 hour period when on nightshift			
		5 or less hours	6 or 7 hours	8 or more hours	Total
Roster	Rotating D/N even-time roster (42 hr)	46.8%	39.5%	13.7%	100.0%
	Rotating (56 hr)	41.2%	51.4%	7.4%	100.0%
	Other Rotating (50+ hr)	43.9%	47.6%	8.5%	100.0%
	Day shift (40-60+ hr)	43.1%	45.1%	11.8%	100.0%
Total		43.7%	46.2%	10.1%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: No significant difference between the rosters n = 405

Hours sleep in 24 hour period on days off

% within Roster		Hours sleep in 24 hour period on days off			
		5 or less hours	6 to 8 hours	9 or more hours	Total
Roster	Rotating D/N even-time roster (42 hr)	6.6%	82.8%	10.7%	100.0%
	Rotating (56 hr)	6.8%	70.5%	22.6%	100.0%
	Other Rotating (50+ hr)	7.4%	79.0%	13.6%	100.0%
	Day shift (40-60+ hr)	5.9%	80.9%	13.2%	100.0%
Total		6.7%	77.5%	15.8%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: Some cell counts were too small for significance testing to be appropriate n = 417

Partner response to assessment of energy level on days off

Energy Level on Days Off

% within ROSTER Roster

		Poor	Normal	Good/Excellent	Total
ROSTER	Rotating D/N eventime roster (42 hr)	13.4%	34.1%	52.4%	100.0%
Roster	Rotating (56 hr)	35.7%	36.7%	27.6%	100.0%
	Other Rotating (50+ hr)	17.4%	56.5%	26.1%	100.0%
	Dayshift (40-60 hr)	12.2%	49.0%	38.8%	100.0%
Total		22.2%	40.1%	37.7%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270.

Notes: Significant difference between the rosters $X^2(6) = 25.081$ $p = .000$ n = 252

QUALITY OF SLEEP

Roster * Usual pattern of sleep on day shift

% within Roster

		Usual pattern of sleep on day shift		
		Refreshed	Not Refreshed	Total
Roster	Rotating D/N even-time roster (42 hr)	53.2%	46.8%	100.0%
	Rotating (56 hr)	44.8%	55.2%	100.0%
	Other Rotating (50+ hr)	49.4%	50.6%	100.0%
	Day shift (40-60+ hr)	65.2%	34.8%	100.0%
Total		52.0%	48.0%	100.0%

Population: Sample of Processing Workers in Tasmanian Mines n = 464

Notes: Significant difference in roster and dayshift pattern of sleep $X^2(3) = 9.672$ $p = .022$ n = 452

Roster * Usual pattern of sleep on night shift

% within Roster

		Usual pattern of sleep on night shift		
		Refreshed	Not Refreshed	Total
Roster	Rotating D/N even-time roster (42 hr)	55.6%	44.4%	100.0%
	Rotating (56 hr)	43.1%	56.9%	100.0%
	Other Rotating (50+ hr)	47.6%	52.4%	100.0%
Total		48.5%	51.5%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: Only rotating rosters included in analysis – permanent dayshift removed n = 365

Notes: No significant differences n = 361

Roster * Usual pattern of sleep on days off

% within Roster		Usual pattern of sleep on days off		
		Refreshed	Not Refreshed	Total
Roster	Rotating D/N even-time roster (42 hr)	85.7%	14.3%	100.0%
	Rotating (56 hr)	85.7%	14.3%	100.0%
	Other Rotating (50+ hr)	84.3%	15.7%	100.0%
	Day shift (40-60+ hr)	84.7%	15.3%	100.0%
Total		85.3%	14.7%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: No significant differences n = 447

Roster * Sleep Type Dayshift

% within Roster		Sleep Type Dayshift		
		Impaired Sleep - Dayshift 5 hours or less and unrefreshed	Non Impaired Sleep - Dayshift 6 hrs+ sleep and refreshed	Total
Roster	Rotating D/N even-time roster (42 hr)	38.8%	61.2%	100.0%
	Rotating (56 hr)	35.1%	64.9%	100.0%
	Other Rotating (50+ hr)	38.0%	62.0%	100.0%
	Day shift (40-60+ hr)	14.5%	85.5%	100.0%
Total		32.1%	67.9%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: Only respondents with dayshift impaired sleep (5 hours or less unrefreshed sleep) or unimpaired sleep (6 hours or more refreshed sleep) were included in analysis n = 279.

Notes: Significant Difference between the rosters $X^2(3) = 11.664$ $p = .009$ $n = 274$.

Roster * Sleep Type Nightshift

% within Roster		Sleep Type Nightshift		
		Impaired Sleep - Nightshift 5 hours or less and unrefreshed	Non Impaired Sleep - Nightshift 6 hrs+ sleep and refreshed	Total
Roster	Rotating D/N even-time roster (42 hr)	43.0%	57.0%	100.0%
	Rotating (56 hr)	48.4%	51.6%	100.0%
	Other Rotating (50+ hr)	47.1%	52.9%	100.0%
Total		46.2%	53.8%	100.0%

Population: Sample of Processing Workers in Tasmanian Mines on rotating rosters n = 365.

Notes: Only respondents with nightshift impaired sleep (5 hours or less unrefreshed sleep) or unimpaired sleep (6 hours or more refreshed sleep) were included in analysis n = 264.

Partner assessment of sleep quality

Usual pattern of sleep on day shift

% within ROSTER Roster		Usual pattern of sleep on day shift		
		Refreshed	Not Refreshed	Total
ROSTER Roster	Rotating D/N eventime roster (42 hr)	46.3%	53.8%	100.0%
	Rotating (56 hr)	44.7%	55.3%	100.0%
	Other Rotating (50+ hr)	45.8%	54.2%	100.0%
	Dayshift (40-60 hr)	55.1%	44.9%	100.0%
Total		47.4%	52.6%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270

Notes: No significant association n = 247.

Usual pattern of sleep on night shift

% within ROSTER Roster		Usual pattern of sleep on night shift		
		Refreshed	Not Refreshed	Total
ROSTER Roster	Rotating D/N eventime roster (42 hr)	35.9%	64.1%	100.0%
	Rotating (56 hr)	36.2%	63.8%	100.0%
	Other Rotating (50+ hr)	40.9%	59.1%	100.0%
Total		36.6%	63.4%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270

Notes: Only respondents with partner's working rotating rosters were included in the analysis n = 207

Notes: No significant association n = 194.

Usual pattern of sleep on days off

% within ROSTER Roster		Usual pattern of sleep on days off		
		Refreshed	Not Refreshed	Total
ROSTER Roster	Rotating D/N eventime roster (42 hr)	80.5%	19.5%	100.0%
	Rotating (56 hr)	68.4%	31.6%	100.0%
	Other Rotating (50+ hr)	84.0%	16.0%	100.0%
	Dayshift (40-60 hr)	75.0%	25.0%	100.0%
Total		75.1%	24.9%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270

Notes: No significant association n = 253.

Recovery time required after shift

% within ROSTER Roster

	Recovery time needed after dayshift work block to return to normal energy levels				Total
	12 hours or less	24 hours	36 hours or more	Does not regain energy levels	
Rotating D/N eventime roster (42 hr)	50.0%	36.3%	12.5%	1.3%	100.0%
Rotating (56 hr)	42.1%	25.3%	22.1%	10.5%	100.0%
Other Rotating (50+ hr)	41.7%	37.5%	16.7%	4.2%	100.0%
Dayshift (40-60 hr)	48.7%	30.8%	17.9%	2.6%	100.0%
Total	45.8%	31.1%	17.6%	5.5%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270

Notes: Significance testing not appropriate as some cell sizes too small. n = 238

% within ROSTER Roster

	Recovery time needed after nightshift work block to return to normal energy levels				Total
	12 hours or less	24 hours	36 hours or more	Does not regain energy levels	
Rotating D/N eventime roster (42 hr)	13.8%	50.0%	33.8%	2.5%	100.0%
Rotating (56 hr)	19.6%	32.0%	35.1%	13.4%	100.0%
Other Rotating (50+ hr)	13.0%	39.1%	43.5%	4.3%	100.0%
Total	16.5%	40.0%	35.5%	8.0%	100.0%

Population: Sample of partners of workers in Tasmanian mines n = 270

Notes: Only respondents with partner's working rotating rosters were included in the analysis n = 207

Notes: Significance testing not appropriate as some cell sizes too small. n = 194

Main Cause of Sleep Problem

Main cause of sleep problem

% within Q6.1_1 Roster

	Diagnosed sleep disorder	Undiagnosed sleep disorder	Hard to sleep on night shift	Work related stress	Personal stress	Other	Total
Rotating D/N even-time roster (42 hr)		15.4%	46.2%	16.5%	5.5%	16.5%	100.0%
Rotating (56 hr)	.8%	5.9%	50.8%	25.4%	1.7%	15.3%	100.0%
Other Rotating (50+ hr)		16.4%	50.9%	18.2%		14.5%	100.0%
Day shift (40-60+ hr)	5.9%	2.0%	37.3%	23.5%	7.8%	23.5%	100.0%
Total	1.3%	9.8%	47.3%	21.3%	3.5%	16.8%	100.0%

Population: Effective sample size of processing workers in Tasmanian mines n = 464.

Notes: Significance testing not appropriate as some cell sizes too small. n = 315