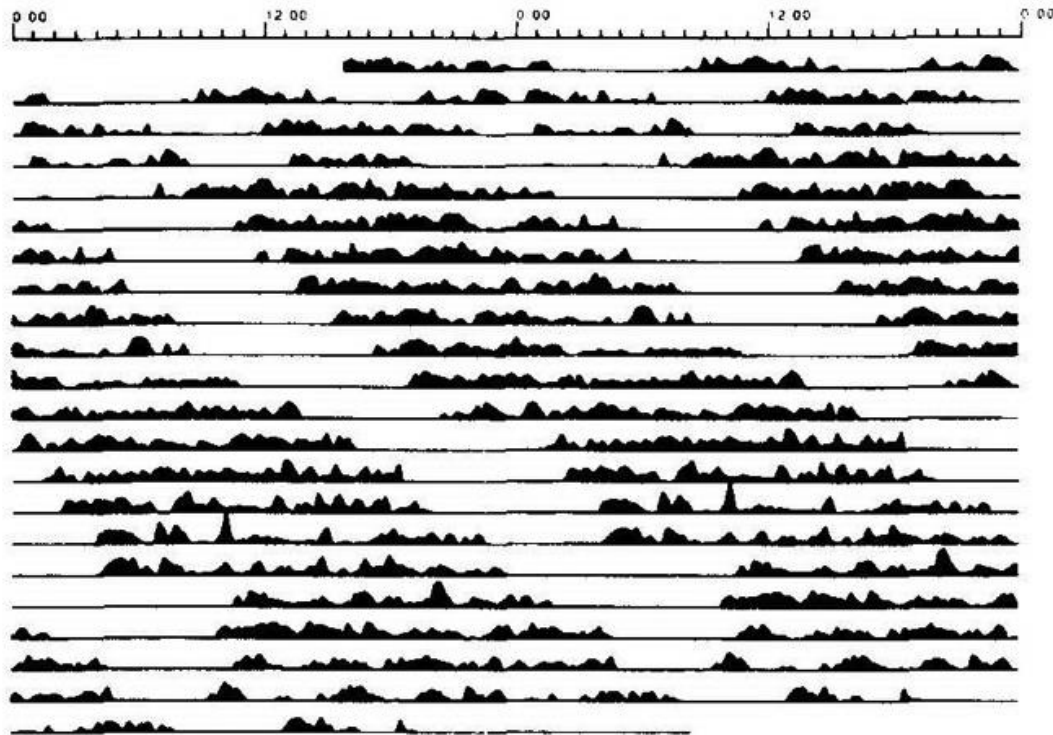


# **Daylight Exposure in Relation to Sleep, Wakefulness and Health**

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# Diurnal rhythm N24

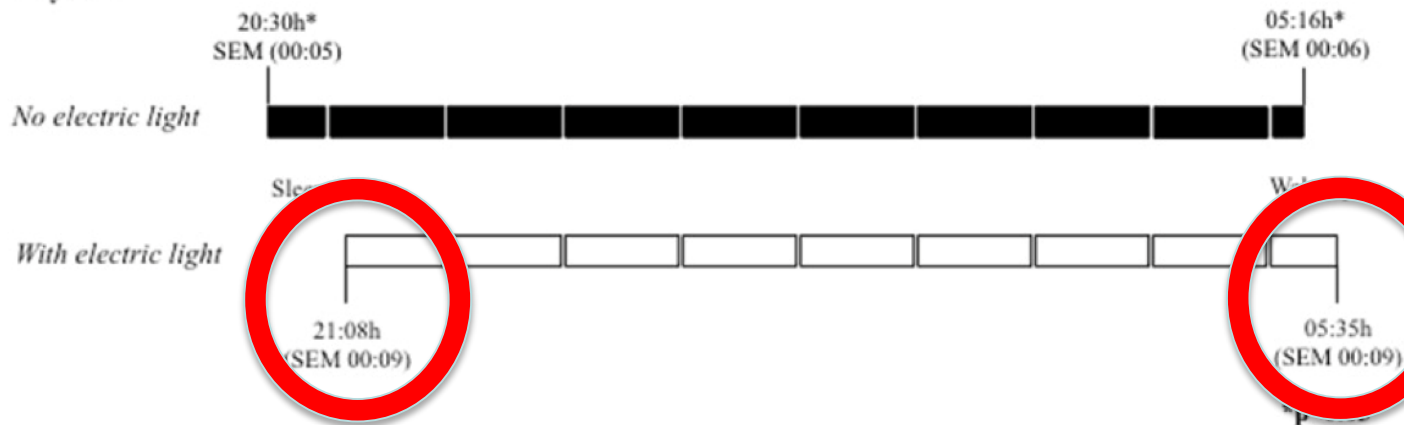


# Comparing Amazon workers with electricity (n=97)/no electricity (n=243)

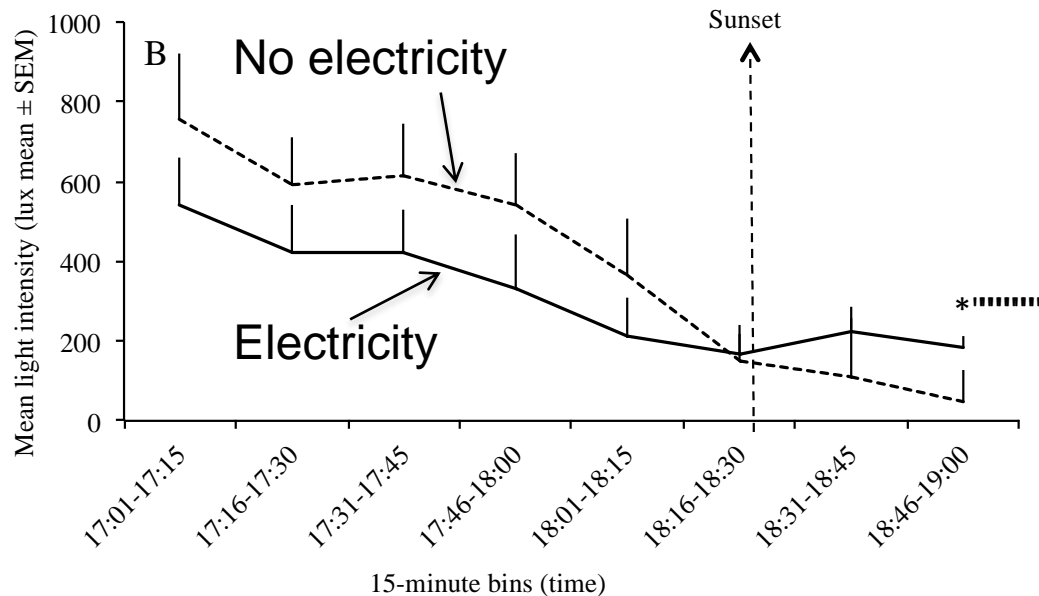
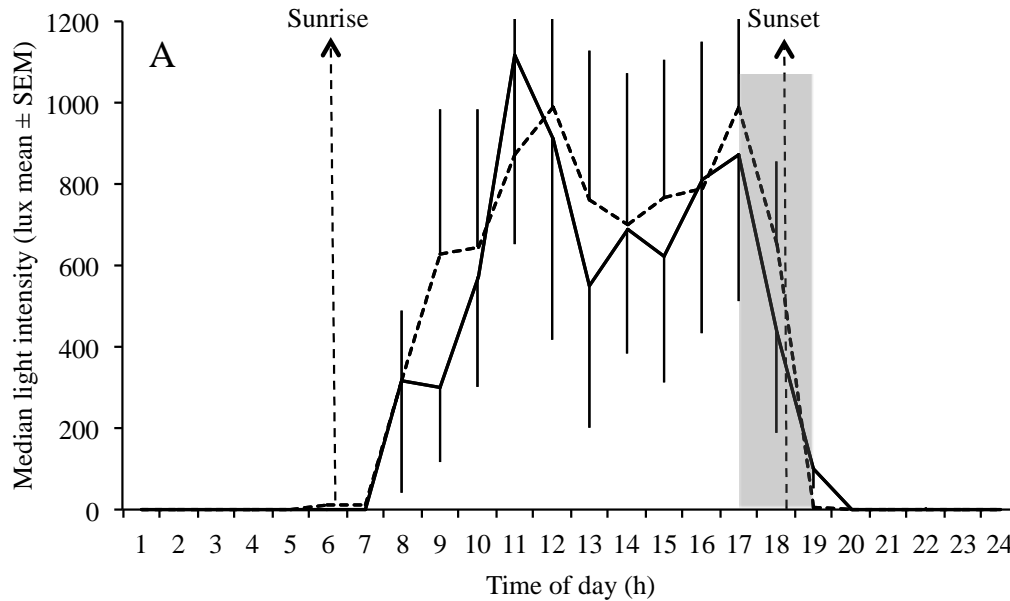
## Work days



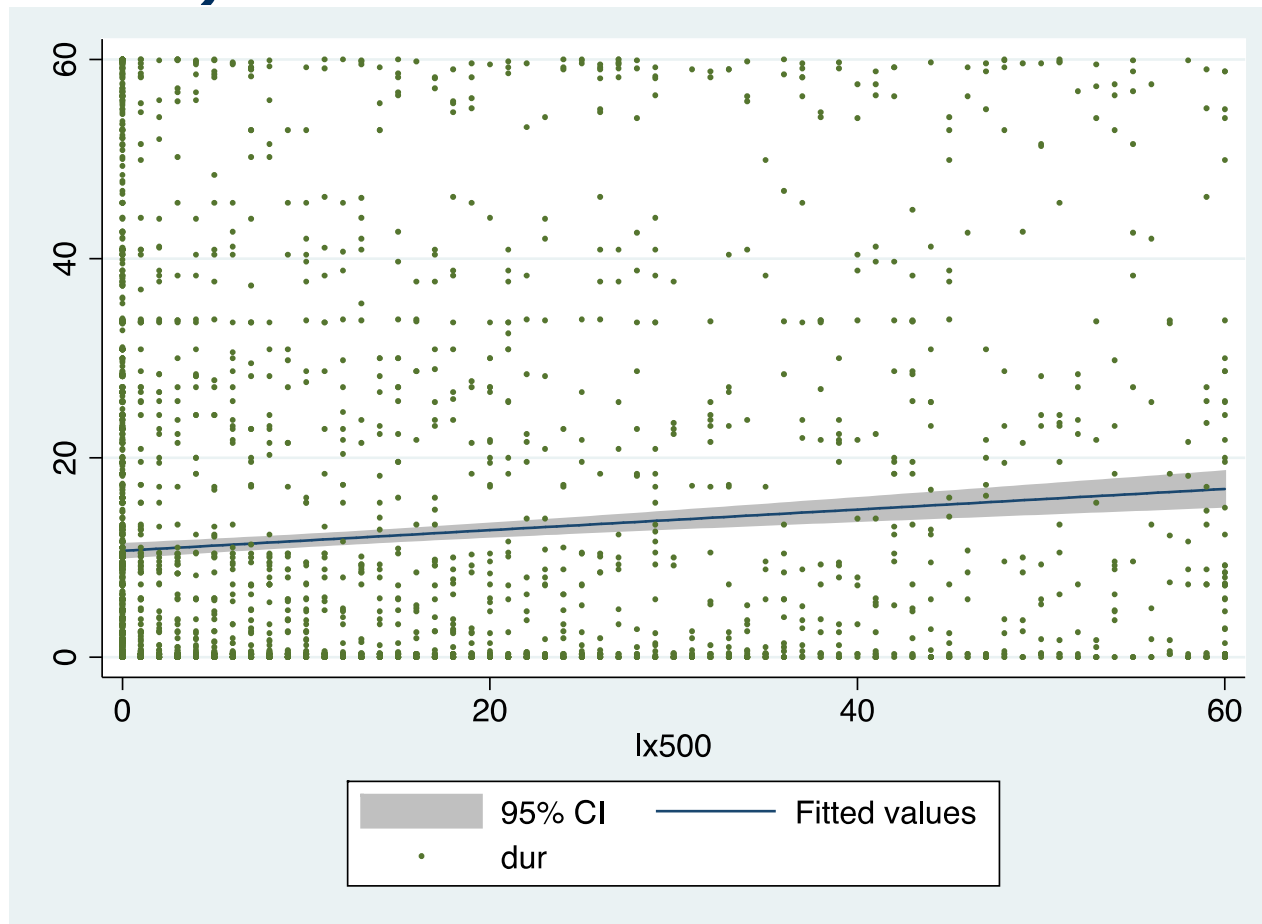
## Days-off



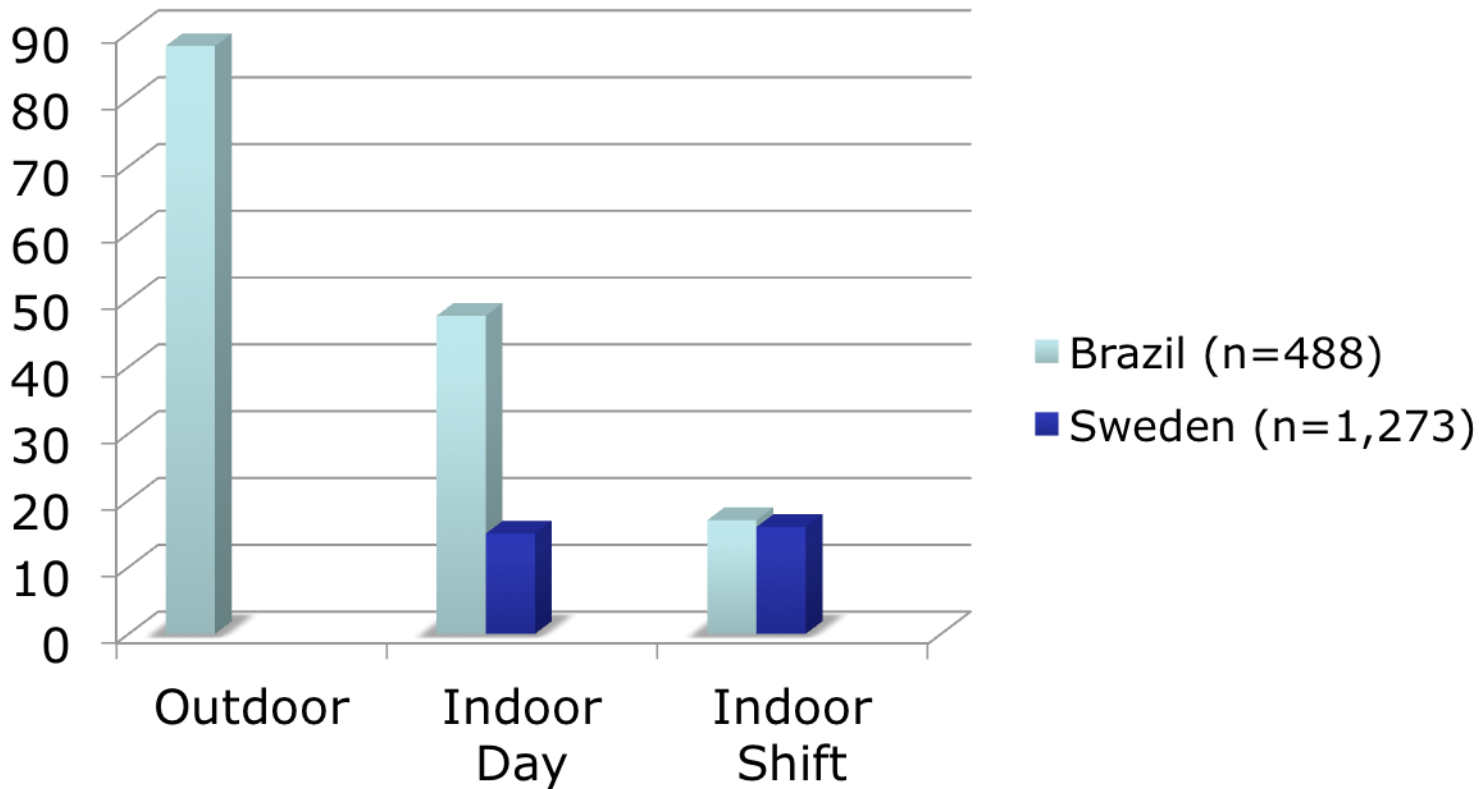
# Amazon workers, n=25



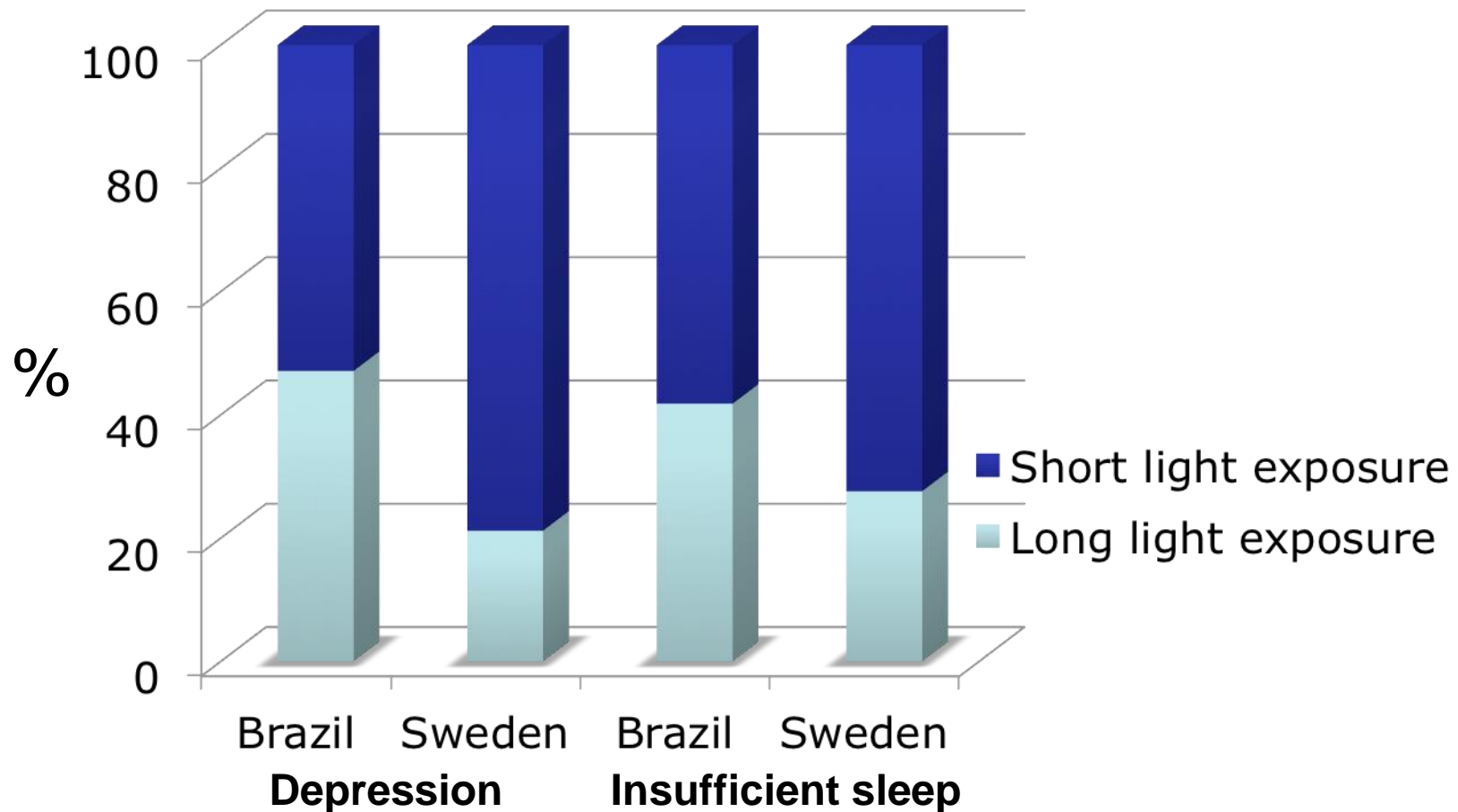
# Sunshine duration (min/h) & Daylight exposure (>500lx min/h) (summer)



# Latitude & daylight exposure (h/month in winter)

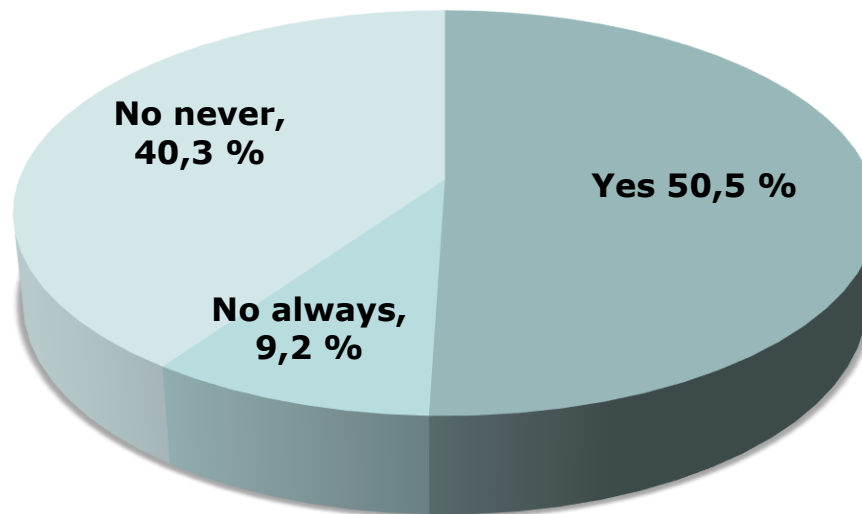


# Depression and insufficient sleep



# More problems with lowered mood, fatigue and/or lack of energy in autumn/winter than other seasons? n=15359

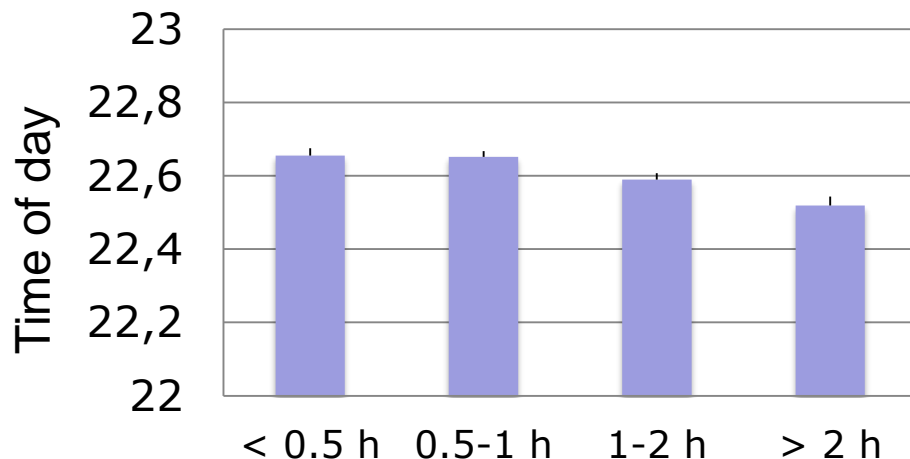
## SLOSH 2014



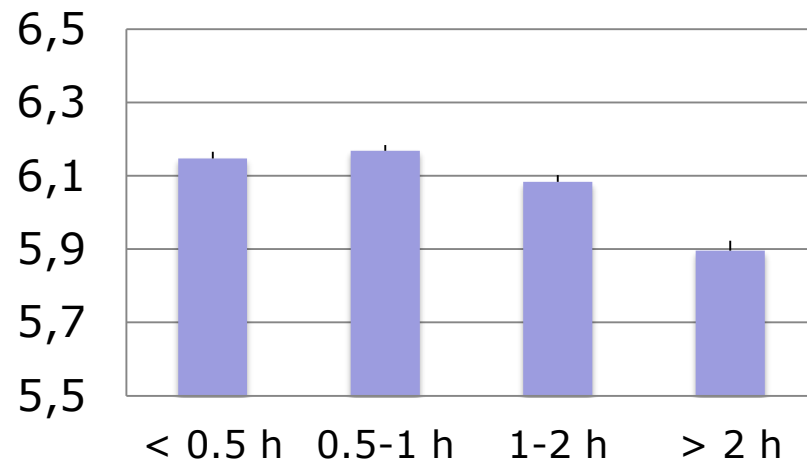


# Sleep habits SLOSH 2014

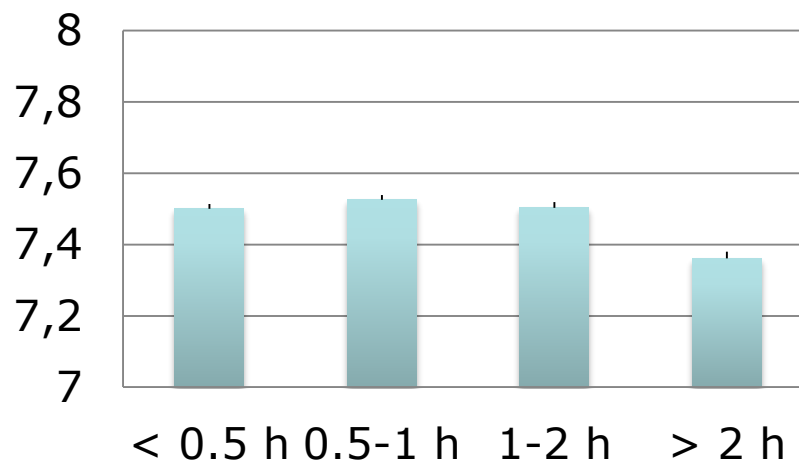
## Bedtime Workdays



## Rising Workdays

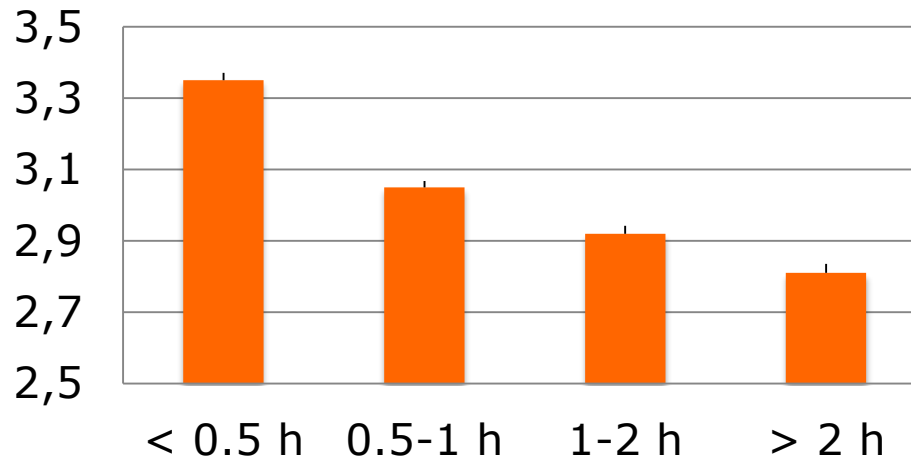


## Sleep length Workdays

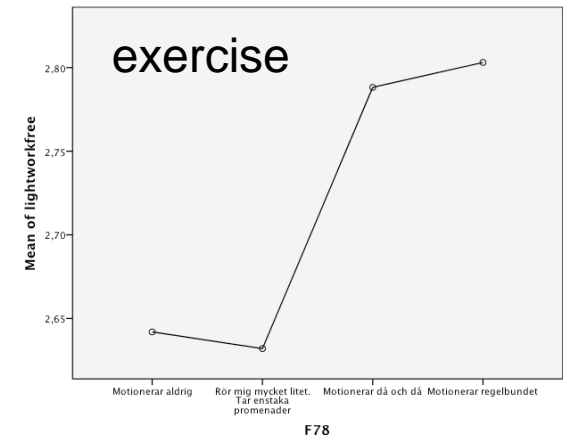
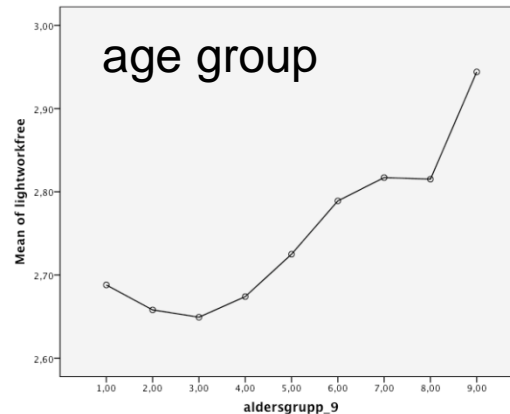
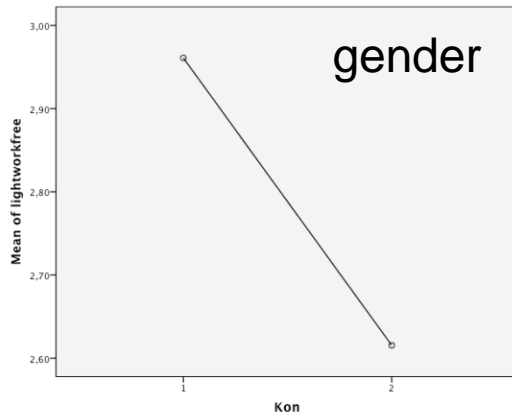


# Sleep problems SLOSH 2014, n=15,949

## Non-Refreshed Sleep



# Predicting lowered mood (cross sectional)



## Variables in Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Enter	Daylight exposure	-0,400	0,030	179,149	1	0	0,671	0,633	0,711
	Gender	-0,445	0,037	146,602	1	0	0,641	0,596	0,689
	Young_Old	-0,304	0,037	69,373	1	0	0,738	0,687	0,792
	Exercise_Low-Hi	-0,271	0,047	33,525	1	0	0,763	0,696	0,836
	Constant	3,168	0,139	517,013	1	0	23,77		

For every extra ½ h of daylight exposure risks are reduced by 33%.

# Conclusions

- Modern society induces circadian stress.
  - Lack of natural daylight exposure affects health (example depression, insufficient sleep).
  - Seasonal effects are common in the North.
  - A non-exercising young female with little daylight exposure is particularly at risk.
- 
- Extending natural daylight exposure seems to be an effective countermeasure to ill health.

# Acknowledgements

- The Swedish Team:  
Stockholm University; Torbjörn Åkerstedt, Johanna Garefelt, Matilda Kärnstam, Hugo Westerlund, Constance Leineweber
- The Brazilian Team:  
University of Sao Paulo; Claudia Moreno, Elaine Marqueze, Suleima Vasconcelos
- The British Team:  
University of Surrey; Debra Skene, Benita Middleton