



Longitudinal Daylight Exposure Reduces Moderate Depressive Symptoms

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Introduction

Daylight exposure is essential for circadian rhythms regulation, mood and sleep. We investigated the Swedish Longitudinal Occupational Survey of Health (SLOSH) that every second year provides questionnaire data on daylight exposure, sleep and tentative predictors of depression.

Methods

SLOSH included workers studied 2012 (N=7324) and 2014 (N=15359). Cross-sectional analyses were performed on SLOSH2014. Longitudinal regression analysis included subjects from both studies (N=4470) identifying predictors in 2012 to non-clinical level depression in 2014.

Results

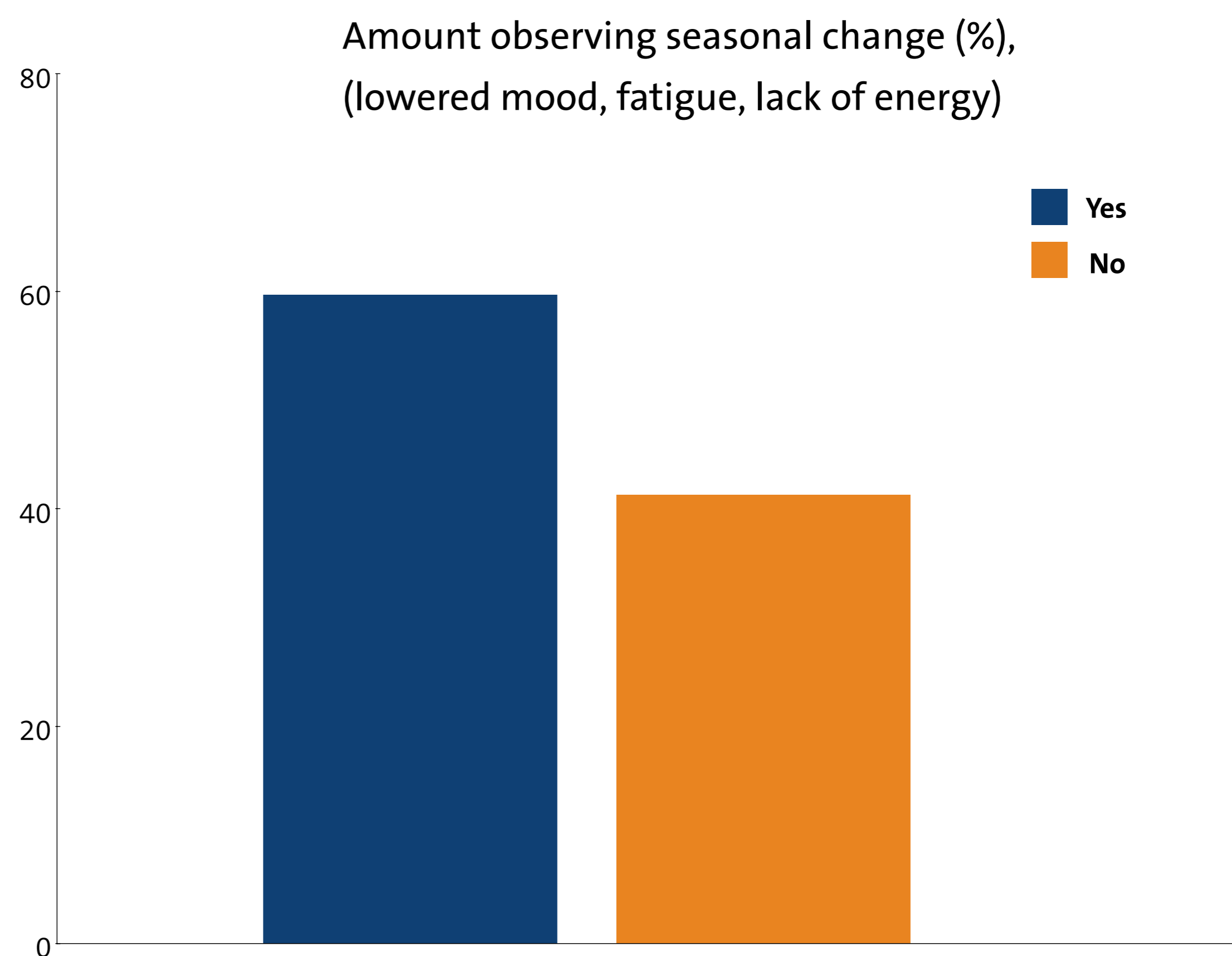
Outdoor daylight exposure on workdays was ≤ 1 h in 62% (18% on days-off), being longer in males and at older age. A lowered mood, fatigue and lack of energy in autumn/winter amounted to 59% and 22% reported marked/severe problems.

A multivariate analysis showed that increased sleep problems ($p < 0.001$) were related to low work light exposure. The relationship was pronounced for difficulties initiating sleep, repeated awakenings, not being restored. Light exposure was associated with early sleep onset and early sleep offset ($p < 0.001$) and high self-rated health. A regression analysis demonstrated that an increase of $\frac{1}{2}$ hour of natural daily exposure reduces lowered mood in winter by 33%.

In the longitudinal analysis depression score 2014 was predicted by low daylight exposure ($p = 0.001$) in 2012 controlling for age, gender and depression score 2012 but only when removing subjects with clinically defined depression score ($\geq 23 = 3.7\%$ of sample).

Conclusion

Data indicates that lowered exposure to natural daylight among in-door workers negatively affects sleep, possible daytime functioning, and could be involved in the development of moderate non-clinical depressive states.



Daylight exposure	0.5 h	0.5 - 1 h	1 - 2 h	>2 h	ANOVA
Problem:					
Initiating sleep	2.52	2.43	2.40	2.29	0.001
Repeated awakenings	2.29	2.12	2.06	1.90	0.001
Non-restorative sleep	3.35	3.05	2.92	2.81	0.001
Timing:					
Bedtime	22.66	22.65	22.58	22.53	0.001
Rising	6.15	6.17	6.08	5.90	0.001
Health:					
Depression score	12.1	11.3	10.9	10.4	0.001

