



Does disturbed sleep mediate the relationship between work stress measured by work demands and social support and depression? Longitudinal mediation analyses based on the Swedish Longitudinal Occupational Survey of Health (SLOSH)

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Background

There is a close connection between stress and sleep and previous studies generally support a prospective link between job demands and sleep problems, in particular. However, the role of sleep problems in the pathway from work stress to long term development of depression is not clearly elucidated.

Objectives

To investigate whether sleep disturbances is a mediator in the longitudinal relationship between work stress (demands and social support) and depressive symptoms.

Methods

2017 working participants of the SLOSH (2006, 2008, 2010 & 2012). Exposure: demands (4 items) and social support (6 items); Mediator: sleep disturbances (4 items); Outcome:

depressive symptoms assessed by a brief subscale (6 items) from the Hopkins Symptom Checklist. We fitted autoregressive longitudinal mediation models using structural equation modeling in R. Significance of mediated effects were tested by Monte Carlo Simulation.

Results

Both demands and support scores were generally associated with depressive symptoms in subsequent waves (Figure 1a & 1b). Also a higher level of symptoms of disturbed sleep tended to be linked to higher depressive symptoms later, but a statistically significant longitudinal relationship between work stress and sleep disturbances was only seen for demand scores (Figure 3a & 3b). For support on the other hand, no prospective effect on disturbed sleep scores were indicated, while reverse

paths were statistically significant. The longitudinal autoregressive models supported a weak mediating role of sleep disturbances in the relationship between demands and depressive symptoms over the 8 year period, but not for social support (Table 3a).

Conclusions

Our findings indicated that higher demands at work might cause an increase in depressive symptoms in part by increasing sleep disturbances. The analyses, however, supported only a weak longitudinal association between demands and sleep disturbances and the mediated effects was relatively small compared to the total effect of work demands on depressive symptoms and the size of the mediated effect should be interpreted cautiously as other factors might also influenced.

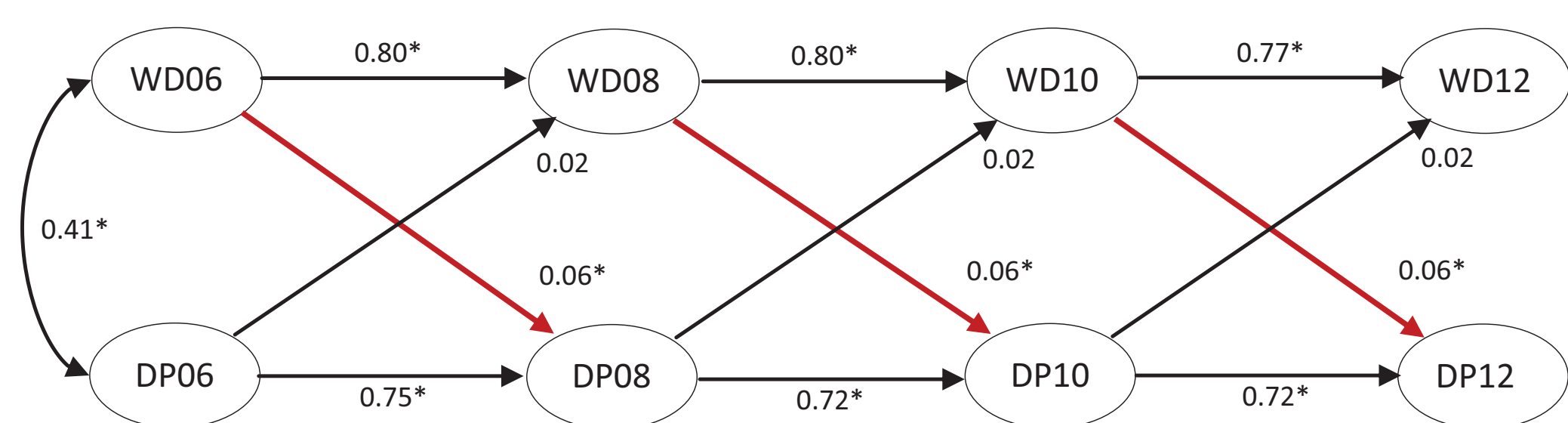


Figure 1a: Standardized structural coefficients for the bivariate model of work demands and depression

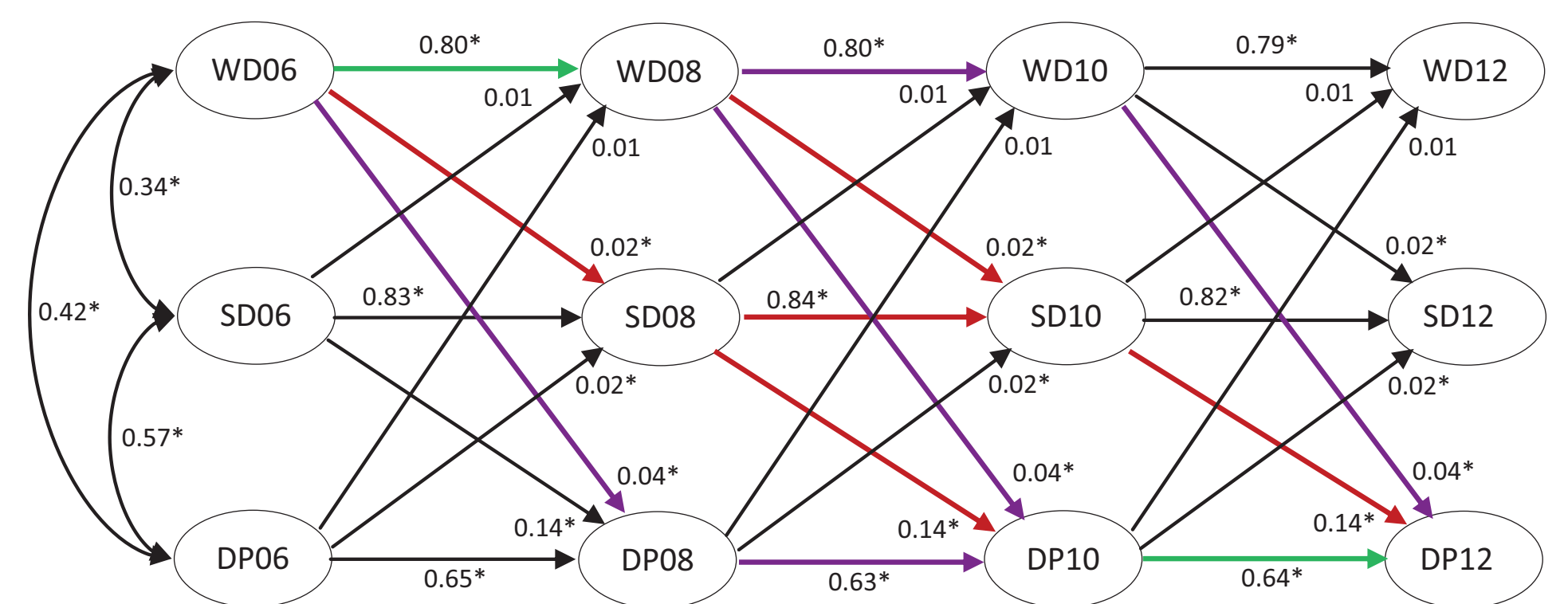


Figure 3a: Standardized structural coefficients for the mediation model of work demands, sleep disturbances, and depression. Note: WD: work demands; SD: sleep disturbances; DP: depression; — indirect; — direct; — both Direct & Indirect

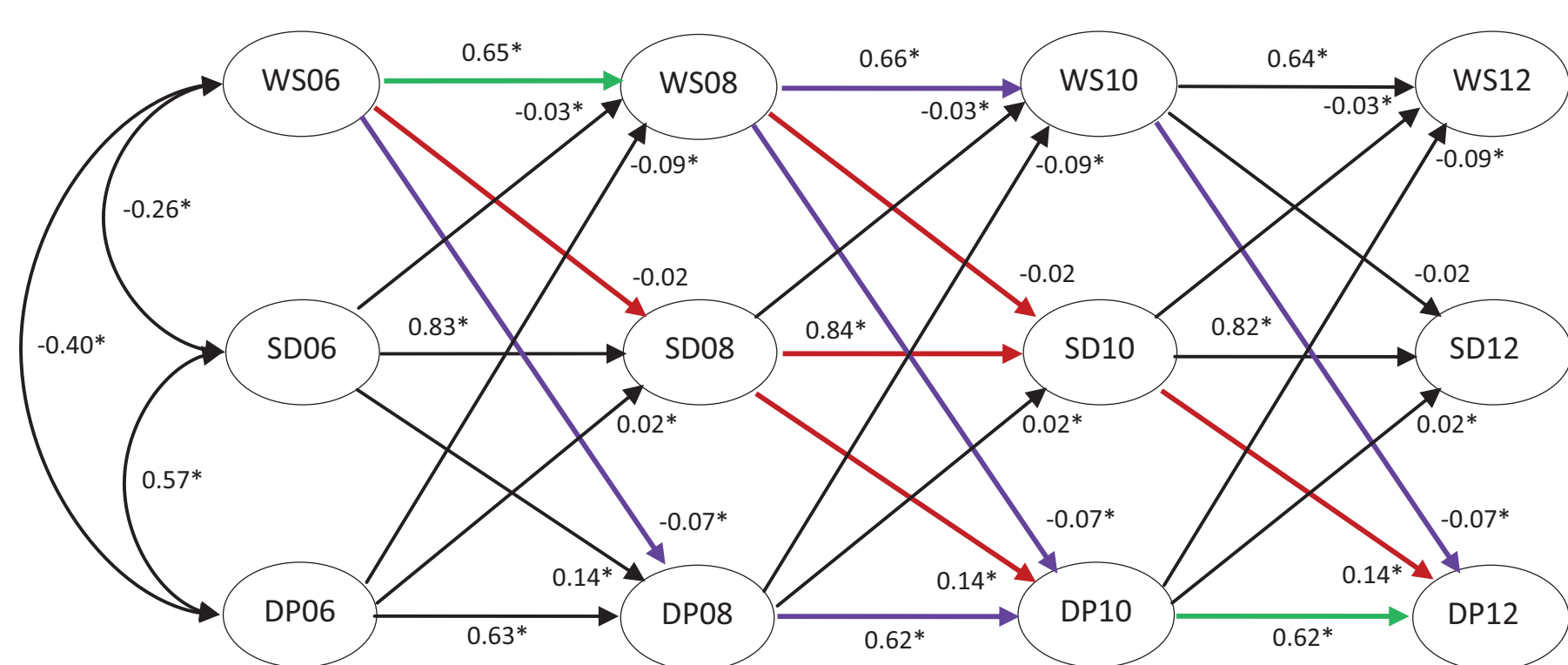


Figure 3b: Standardized structural coefficients for the mediation model of workplace support, sleep disturbances, and depression. Note: WS: workplace support; SD: sleep disturbances; DP: depression; — indirect; — direct; — both Direct & Indirect

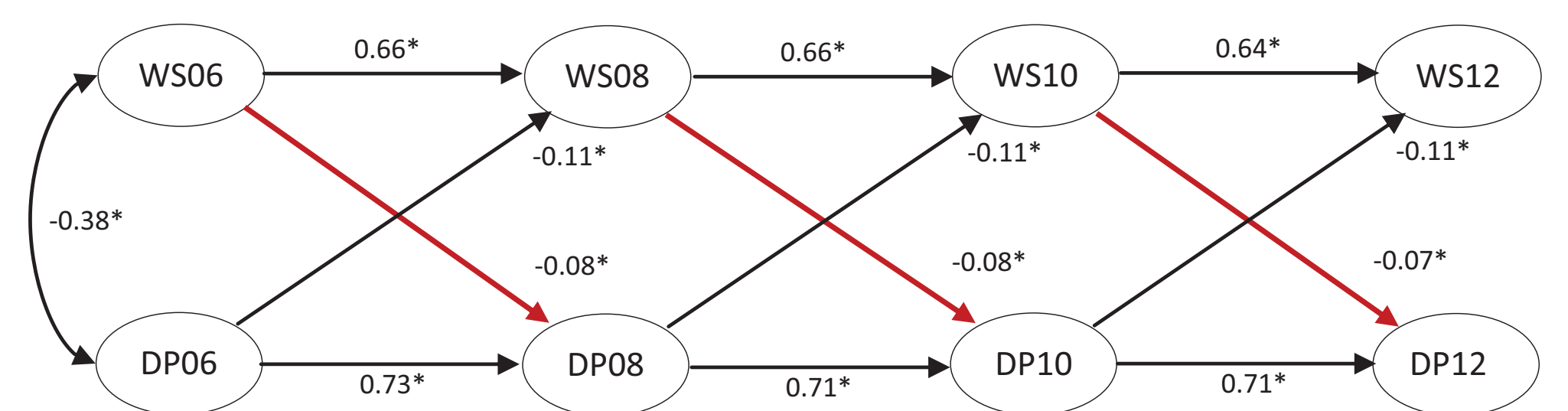


Figure 1b: Standardized structural coefficients for the bivariate model of workplace support and depression

Table 3a. Total and Overall Indirect Effects of Work Demands and Workplace Support on Depression.

Exposure	Total effect		Overall indirect effect	
	Standardized estimate	Unstandardized estimate (95% CI)	Standardized estimate	Unstandardized estimate (95% CI)
Work-Demands	0.072*	0.114(0.068, 0.160)	0.008*	0.013(0.005, 0.020)
Workplace-Support	-0.096*	-0.103(-0.125, -0.081)	-0.005	-0.006(-0.014, 0.002)

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