



## Sleep quality as a mediator in the relationship between doctors' work time control and patient safety

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### Objective

To test the hypothesis that poorer work time control among physicians is associated with greater sleep disturbances and that the resulting fatigue may pose a threat to their job performance.

### Methods

Questionnaire survey of a representative sample of all doctors in Sweden (N = 1534). Response rate 53.1%.

### Measures

#### Work Time Control:

- (1) Can you influence how and when your working hours are scheduled?
- (2) Do you have some form of flexitime, which means you can adapt your working hours to suit your own needs? (Three response options: "yes", "yes, to some extent", "no").

#### Perceived Risk:

- (1) Do you feel the risk of making mistakes in your work as a mental stress? (Five response options from "no, never" to "yes, constantly").
- (2) How often do you have a workload that you feel increases the risk of malpractice? (Four response options from "less than once a month" to "daily").

#### Sleep Quality

Single score based on ratings of:

- Difficulty falling asleep;
  - Repeated awakenings with difficulty falling back to sleep;
  - Too early (final) awakening; &
  - Interrupted / restless sleep.
- (Five response options from "never" to "always / 5 times or more per week").

### Results

Significant associations between Work Time Control and Perceived Risk, partially mediated by Sleep Quality in each case (see Table 1). However, while the role of Sleep Quality as a mediator was statistically significant, its contribution was relatively small in absolute terms. Adjusting for age, sex, medical specialty and job grade produced similar results (see hand-out).

### Conclusion

Work time control allows doctors to optimise the fit between the demands of their work schedule, and their own personal needs and circumstances. In doing so, it facilitates sleep and recovery between duty periods, thereby enhancing job performance and promoting patient safety.

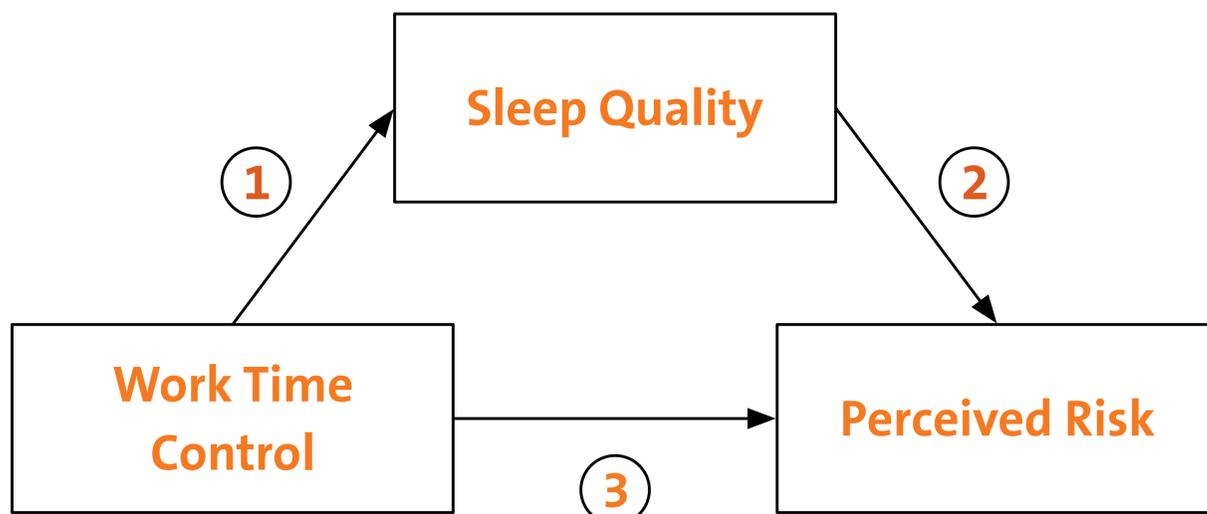


Figure 1. Sleep Quality as a mediator of the relationship between Work Time Control and Perceived risk.

Work Time Control	Perceived Risk	Work Time Control → Sleep Quality	Sleep Quality → Perceived Risk	Work Time Control → Perceived Risk (controlling for Sleep Quality)	Sobel test of mediation
		1	2	3	
Influence working hours	Risk as stress	.13 ***	.24 ***	.18 *** (.14 ***)	***
	Workload risks malpractice	.13 ***	.24 ***	.22 *** (.19 ***)	***
Flexitime	Risk as stress	.11 ***	.26 ***	.10 *** (.07 ***)	***
	Workload risks malpractice	.11 ***	.25 ***	.15 *** (.12 ***)	***

Table 1. Standardized regression coefficients for the relationships illustrated in Figure 1. \*\* = p < .01; \*\*\* = p < .001

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