

## INTRODUCTION

1. Night shift work contributes to sleep deprivation and circadian disruption, and some studies suggest that nurses working night shifts have an increased risk for cancer mortality and cardiovascular disease .
2. Shift work has been associated with low sleep quality among nurses.
3. The sleep quality of nurses who work irregular shifts has not been investigated.
4. Sleep is vital in the body's recovery process, as it facilitates many restorative functions.
5. Sleep quality has received little attention in research as a possible determinant or correlate of the need for recovery.

### Objective:

The purpose of this study was to investigate the sleep quality of nurses working irregular shifts, including night shifts, and to determine whether sleep quality is associated with the need for recovery.

## METHODS

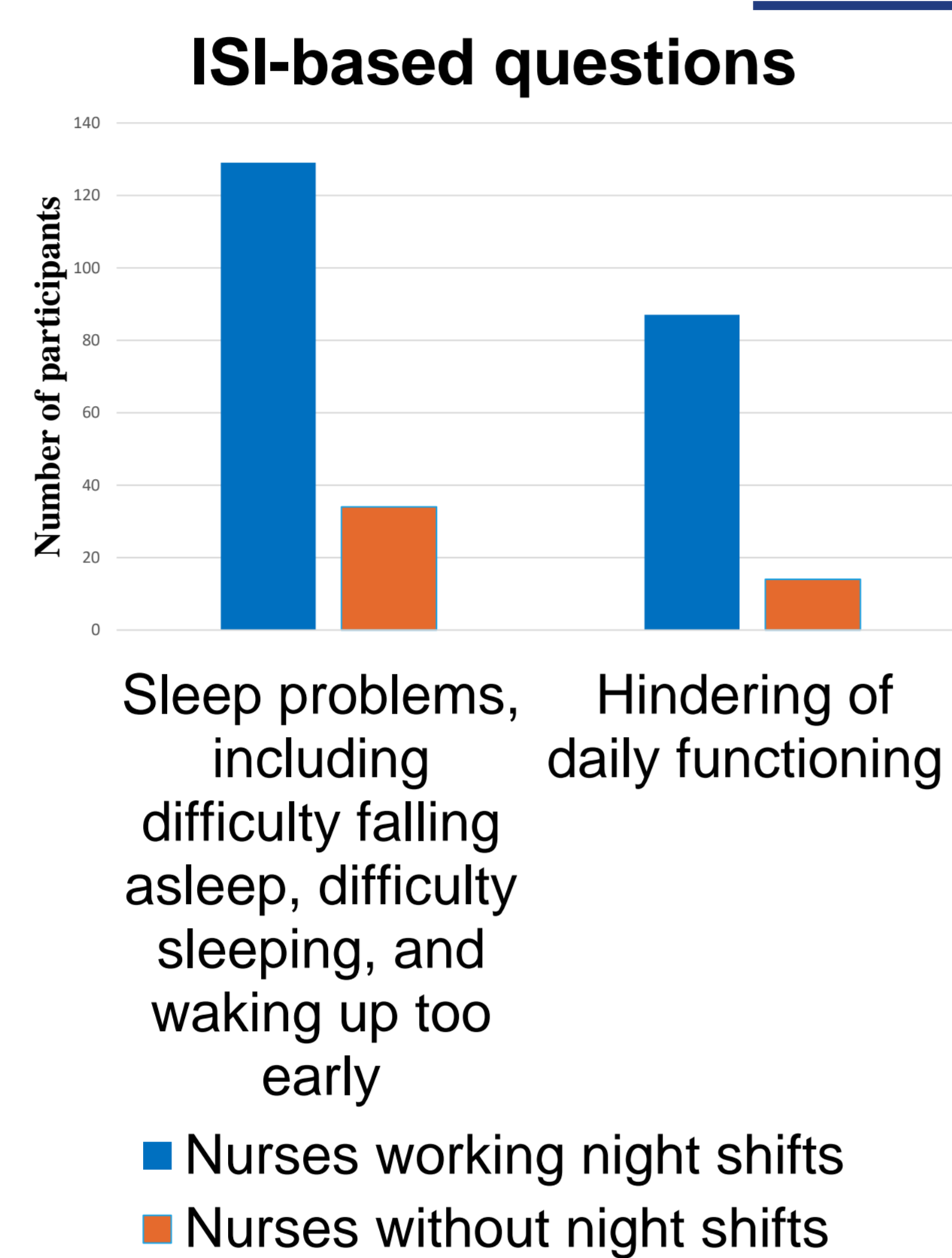
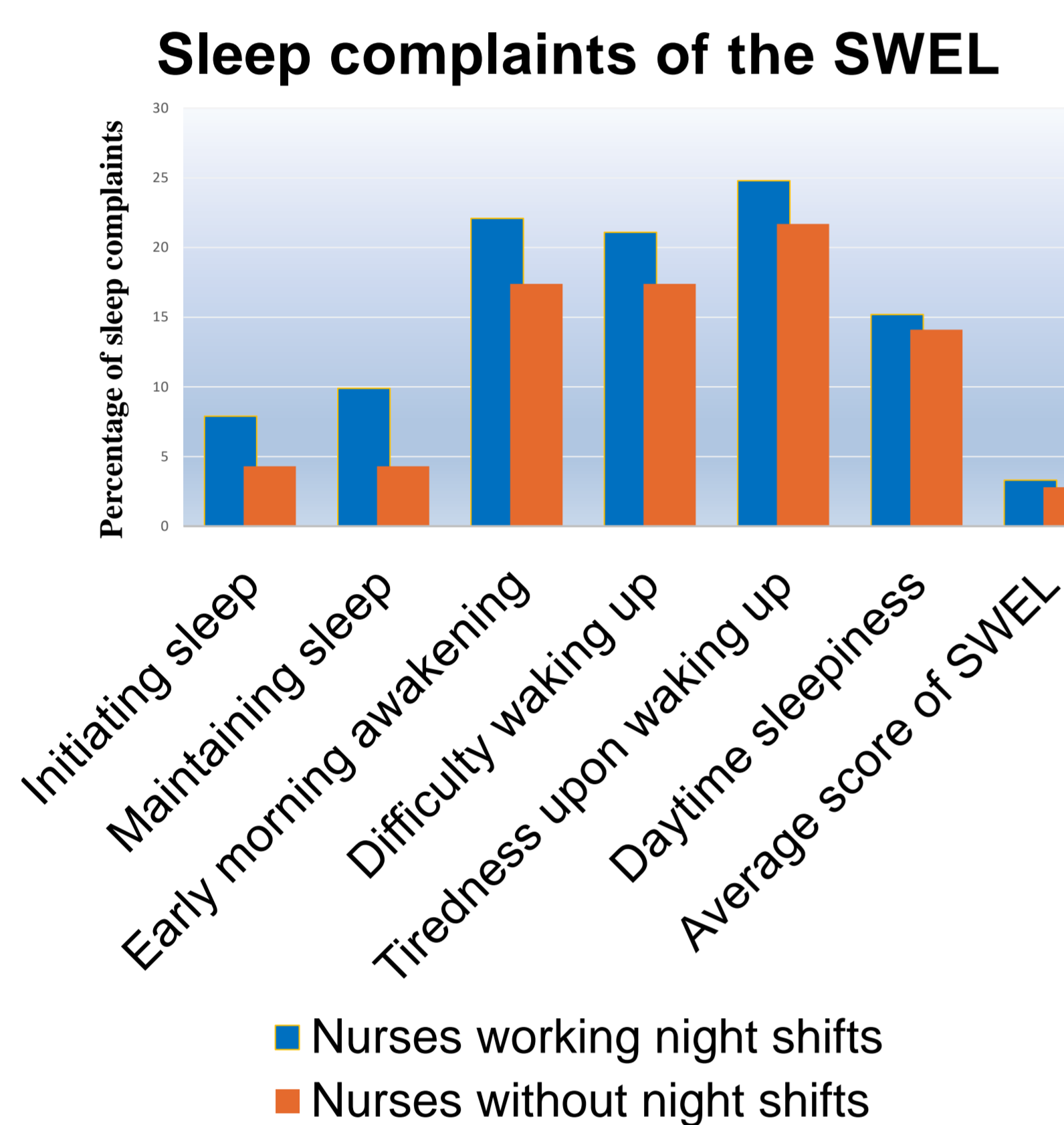
**Design:** A cross-sectional study.

**Setting:** Maastricht University Medical Center (MUMC+).

**Study methods:** Data were collected using an online questionnaire that included sociodemographic characteristics, health, lifestyle behaviors, the Sleep-Wake Experience List (SWEL), sleep problems, sleep duration, and the Need for Recovery scale.

**Data analysis:** Was performed using descriptive statistics, chi-square tests, *t*-tests, logistic regression, and multiple linear regressions

## RESULTS



### Multiple linear regression results of sleep quality with the need for recovery

Variables	Model 1		Model 2	
	$\beta$	<i>p</i> -value	$\beta$	<i>p</i> -value
Sleep quality (composite SWEL score)	.595	.001	.554	.001
Working night shifts during last six months (No/Yes)	-.106	.012	-.076	.082
Sleep duration	.081	.055	.041	.364

Model 2: adjusted for age (continuous), gender, living situation, general health, being treated for sleep problems, daily smoking, frequency of exercise per week, and average number of working hours per week (continuous).

- Sleep quality was significantly associated with the need for recovery and remained so after controlling for confounding variables ( $\beta = .554$ ,  $p = .001$ ).

- Nurses who worked irregular shifts, including night shifts, had significantly poorer sleep quality ( $M = 3.3$ ) than those who did not work night shifts ( $M = 2.8$ ).
- Nurses who worked irregular shifts, including night shifts, demonstrated more difficulties in daily functioning than nurses who did not work night shifts ( $p = .009$ ).

## DISCUSSION

- This is the first study that assessed the association between working irregular shifts and sleep quality among nurses, and the association between sleep quality and the need for recovery after work.
- The study findings align with few studies that assessed the sleep quality of night shift nurses, these previous studies did not clearly state whether the included nurses worked irregular or regular night shifts.
- This study found that sleep quality is associated with the need for recovery, demonstrating that nurses working irregular shifts with lower sleep quality had a higher need for recovery after work.
- This association suggests that sleep quality can be viewed as a “moderator” in the effort-recovery model, which may moderate the effects of working irregular shifts on the need for recovery after work.

## CONCLUSION

Nurses who work irregular shifts have poor sleep quality, particularly if they work night shifts. Sleep quality is strongly associated with nurses' need for recovery after work. It is suggested that low sleep quality for shift nurses may lead to high need for recovery, which may affect the future health status. Therefore, it is important to assess in future research whether sleep quality in nurses working irregular shifts can be improved by either optimizing shift schedule or by using certain sleep hygiene strategies.

## REFERENCES

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## CONTACT