

**Związek systemu pracy i stresu zawodowego z wybranymi aspektami zdrowia  
psychicznego lekarzy i pielęgniarek**  
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Rozprawa na stopień doktora w dziedzinie nauk medycznych i nauk o zdrowiu w dyscyplinie  
nauki medyczne

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**Streszczenie w języku angielskim (*abstract*)**

Shift work is a common system of work organisation in the healthcare sector, that is necessary to provide around the clock care to patients. However, it is associated with high occupational stress and it works against the endogenous rhythm of sleep and wakefulness. This way it is not only linked to the deterioration of sleep quality, but also increases the risk of mental and somatic health disorders.

The series of three articles included in this doctoral dissertation focuses on describing the relationship of the work system and occupational stress with selected aspects of mental health – sleep quality, symptoms of depression and anxiety, and the level of burnout among doctors and nurses. The series is based on cross-sectional methodology using online scales and questionnaires. The data were collected before the onset of the COVID-19 pandemic.

The aim of the article entitled ‘Sleep among primary care physicians – association with overtime, night duties and strategies to counteract poor sleep quality’ was an assessment of the relationship of the number of working hours and night shifts with sleep duration and quality, sleep latency, and the frequency of excessive daytime sleepiness among 807 primary care physicians divided into four groups depending on whether they worked overtime or night duties. Additionally, methods of coping with sleep problems were investigated. It was assumed that physicians working more than 48 hours per week and physicians on night duty would report shorter sleep duration and poorer sleep quality than physicians who did not work overtime or at night. Results showed that the average sleep duration of physicians working more than 48 hours but not on night shifts was shorter on weekdays and days off than of physicians not working overtime and not on night shifts. The sleep quality of physicians who worked overtime but did not work night shifts was rated by them as less satisfactory than that reported by other groups of doctors. There was no significant relationship between work schedule and sleep latency or the frequency of excessive daytime sleepiness. Physicians who reported their sleep quality as unsatisfactory, also reported that they did not usually take any action to improve it or used sleeping pills.

The aim of the article entitled ‘Night work as a stressor: the role of sleep reactivity to stress in the relationship between night work and insomnia’ was investigating whether sleep reactivity to stress moderates the relationship between night duties and insomnia. It was assumed that night work was a stressor by desynchronizing the endogenous circadian rhythm and work-forced sleep times. As such, it would lead to sleep disturbance, and the association between sleep disturbance and night duties would be stronger the higher the sleep reactivity to stress was. The study was conducted in a group of 188 physicians. Sleep reactivity to stress was measured using the Ford Insomnia Response to Stress Scale. Insomnia symptoms and the degree to which they affect a person's functioning were measured using the Insomnia Severity Scale. A moderation analysis was performed to check whether the relationship between the number of nights worked per month and insomnia symptoms depends on the level of sleep reactivity to stress. Sleep reactivity to stress was a statistically significant moderator of the effect of the number of nights worked in the previous month on insomnia symptoms. With an increase in the number of night shifts worked per month, insomnia symptom scores did not increase equally for the entire study group. With high sleep reactivity to stress, any number of night shifts per month was associated with insomnia symptoms.

The aim of the article entitled ‘Insomnia partially mediates the relationship of occupational stress with mental health among shift working nurses and midwives in Polish hospitals’ was to assess whether and to what extent insomnia symptoms are a mediator of the relationship between occupational stress and mental health on three dimensions – depression, anxiety and occupational burnout, among 117 nurses and midwives. Occupational stress was measured using the effort–reward imbalance model. The Insomnia Severity Scale was used to assess insomnia symptoms. In order to assess the presence and severity of depressive and anxiety symptoms, the Patient Health Questionnaire-9 and the Generalized Anxiety Questionnaire-7 were used. Occupational burnout was assessed using the Oldenburg Inventory of Occupational Burnout, which consists of two scales - disengagement and exhaustion. A mediation analysis was performed to see whether insomnia symptoms mediated the relationship between occupational stress and symptoms of depression, anxiety, and burnout. Occupational stress has been found to affect symptoms of depression, anxiety, and burnout, partly by increasing insomnia.

The results of the series of publications included in this doctoral dissertation indicate that the symptoms of insomnia should be included in the screening tests of health care employees. Medical staff suffering from poor sleep quality may experience depression, anxiety and burnout

symptoms. Such employees should be identified in the early phase of sleep problems and appropriate therapeutic interventions should be provided to them.