

## Associations of quality of sleep with lifestyle factors and profile of studies among Lithuanian students

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**Key words:** students; Pittsburgh Sleep Quality Index; sleep quality; lifestyle.

**Summary.** The objective of the study was to analyze associations among quality of sleep, profile of the studies, and lifestyle factors among the students of three different study profiles (medicine, economics, and law).

**Material and methods.** A total of 405 randomly selected students from the first and fourth years of studies from 4 different universities in Lithuania answered the standardized questionnaires consisting of two parts: 1) the Pittsburgh Sleep Quality Index (PSQI) for subjective evaluation of sleep quality; 2) the questionnaire about sleep and lifestyle habits and impact of poor sleep on the quality of life developed by the researchers.

**Results.** More than half (59.4%) of the students scored higher than 5 on the PSQI, which allowed suspecting sleep disorders. A significant difference in the frequency of poor sleepers was found regarding the profile of studies ( $P < 0.05$ ) showing the highest frequency of sleep disturbances among medical students. There was a significant correlation between quality of sleep and subjective evaluation of quality of life ( $P < 0.01$ ). Medical students experienced the highest impact of poor sleep on the quality of life ( $P = 0.008$ ). Students studying before going to sleep, spending more time studying, and having less leisure time had worse quality of sleep ( $P < 0.01$ ). A significant difference was found among three profiles of studies regarding the anxiety about studies ( $P < 0.0005$ ) and subjective estimation of success in studies ( $\chi^2 = 27.9$ ,  $P < 0.0005$ ), showing the highest anxiety and worst satisfaction among students of medicine.

**Conclusions.** The incidence of sleep problems is high among students in Lithuania, reaching 59.4%. Medical students have worse quality of sleep and worse impact of poor sleep on the quality of life compared to students of law and economics. A significant difference was found between medical students and their peers in other profiles of studies regarding their attitudes and habits related to studies: medical students spent more time for studying, were more anxious about studies and less satisfied with the results, studied more often before going to sleep.

### Introduction

A number of studies have showed a high prevalence of bad quality of sleep among university students varying from 19.17% to 57.5% and being especially high among medical students (1–3). Poor sleep has a significant negative influence on physical and mental health (4), performance at the studies, and quality of life of students (5–7) what requires attention of doctors and pedagogues.

Quality of sleep among Lithuanian students has not been extensively studied. In a study by Proškuvienė and colleagues, first-year students of Vilnius Pedagogical University were interviewed using the Pittsburgh Sleep Quality Index (PSQI), and the results showed that 58.1% of 606 students examined had sleep problems (8).

The PSQI (9) is one of the most common instruments used to evaluate subjective sleep quality

and adapted for the use in Lithuania (10). The PSQI can be easily applied in different age groups including students and showed a satisfactory correlation with other clinical measures of sleep disturbances (11, 12). Gellis and colleagues performed an Internet-based investigation with 220 Americans (mean age, 41.6 years) and 92 of them were poor sleepers (PSQI >5) (13). While analyzing the associations between sleep disturbance and mental health status among Japanese junior high school students, Kaneita et al. used the PSQI and 12-item General Health Questionnaire for evaluation of mental health status. The incidence of sleep disturbance during the 2 years leading to the follow-up study was 33.3%, and new onset of sleep disturbances was significantly associated with new onset of poor mental health status and lasting poor mental health status (7). In the sample of 400 Hong Kong university students,

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57.5% were poor sleepers according to the PSQI results, and their sleep quality was associated with sex, year of study, sleep hygiene practice, and perceived adequate sleep in the past month (2). In the study of Chinese medical students (14), the prevalence of poor-quality sleep was 19.17% and did not differ significantly between genders but correlated with the year of study, worry of sleep, irregular work/rest, worry on examination, stress, relationship with classmates, self-evaluated health condition, environments of the dormitory, and going late to bed.

Other instruments such as the Epworth Sleepiness Scale (ESS) and the Horne & Ostberg Morningness/Eveningness Questionnaire (MEQ) were used besides the PSQI for evaluation of students sleep. In the comparative studies of the PSQI and the ESS (12, 15), these two scales correlated weakly with each other but segregated from each other on principal components analysis. The PSQI was more closely related to psychological symptom ratings and sleep diary measures than the ESS though none of these scales was related to objective sleep measures and cannot be used as screening measures for polysomnographic sleep abnormalities. After evaluating the stability over the past year in early middle-aged adults, the PSQI and ESS were found to be stable measures of sleep quality and sleepiness. Hirata et al. analyzed the influence of morningness-eveningness on depression in a medical school using the MEQ. It was found that eveningness was associated with depressive symptoms, and this association remained significant after adjusting for the presence of familial depression and physical activity (16).

Studies investigating the associations between sleep disturbances and lifestyle factors are important looking for the causes and ways to improve quality of sleep. Investigating the associations among quality of sleep, quality of life and lifestyle habits, Carney et al. (1) found that good sleepers engaged more regularly in activities with active social engagement. Increased working hours and working on weekends were the reasons of decreased quality of sleep, strain with family and peers, depression and anxiety among young students in hospitality and tourism (17). Medical studies were found to be associated with higher levels of stress symptoms. Niemi et al. explored stress symptoms among undergraduate medical students at five points (fatigue, sleeping problems, anxiety, irritability, and depression) during the six-year medical training program. There was a consistent increase of stress reports throughout the medical program in both genders (18). According to the self-reported Sleep and Daytime Habits Questionnaire, sleep quality of Estonian medical students ( $n=413$ , aged 19–33 years) was associated with academic progress, leisure activity, and living conditions but was not associated with students' daily or nightly workload (3).

Studies on clinical psychology have showed that medical students experience a high level of stress because of intensive schedule, huge amount of theoretical material to be learned, pressure of responsibilities and authorities, alcohol consumption, lack of social ties and activities (18–20). Furthermore, problems with sleep are prominent among practicing physicians (11). It raises a question if medical profession or difficulties during study years have a long-lasting negative impact on quality of sleep of medical students and doctors. Even though several studies have evaluated sleep and sleep-related problems in medical students (3, 5, 14, 21), none has compared sleep quality among different study profiles and has analyzed an impact of study profile on quality of sleep and life. Therefore, the objective of our study was to analyze relations between the sleep quality, profile of the studies, and lifestyle factors among students of three different study profiles (medicine, economics, and law).

### Material and methods

**Sample.** Sample of the study consisted of 405 first- and fourth-year students (there were 73.3% of females and 26.7% of males) from 4 different universities (5 different faculties) in Lithuania: Faculty of Medicine of Kaunas University of Medicine (KMU MF), Faculty of Medicine and Faculty of Law of Vilnius University (VU MF and VU LF), Faculty of Economy and Management of Kaunas University of Technology (KTU EMF), Faculty of Public Management of Mykolas Riomeris University (MRU VF), and Kaunas Faculty of Humanities of Vilnius University (VU KFH). The universities are situated in the two largest cities of Lithuania – Vilnius and Kaunas. Students from three different study profiles – medicine (2 faculties, 150 students), law (2 faculties, 120 students), business and economics (2 faculties, 135 students) – were studied to assess the correlations between study profile and quality of sleep and life. Respondents were randomly selected from odd groups of the first- and fourth-year studies (i.e. first, third, fifth, etc.). The mean age of first-year students and fourth-year students was 19.1 years (SD, 0.83; range, 18 to 20) and 21.8 years (SD, 1.14; range, 21 to 25), respectively. There was no significant variance in distribution regarding gender and year of studies among the universities and profiles of the studies.

**Procedure.** It was a cross-sectional study, carried out in the middle of the fall semester (relatively calm period of the studies). Questionnaires were handed out before lecture, and it took about 10–15 minutes to complete them. All participants answered the standardized questionnaires made of two parts: 1) the Pittsburgh Sleep Quality Index for subjective evaluation of sleep quality; 2) the questionnaire about sleep and lifestyle habits developed by the researchers.

**Measures.** *Sleep quality.* The PSQI was used to evaluate subjective quality of sleep (9). This instrument has a good internal consistency (Cronbach's alpha for this study was 0.83) and is adapted for the use in Lithuania (10). The questionnaire relates to respondent's usual sleep habits during the past month only; therefore, answers should indicate the most accurate reply for the majority of days and nights in the past month. The PSQI consists of 19 questions: 4 ordinal response questions asking to write exact time in hours and/or minutes (e.g. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?), 12 questions with four response categories (e.g. During the past month, how often have you had trouble sleeping because you cannot get to sleep within 30 minutes: not during the past month, less than once a week, once or twice a week, three or more times a week), 2 questions with four response categories (e.g. During the past month, how would you rate your overall sleep quality: very good, fairly good, fairly bad, very bad), and 1 five response question with five parts answered according to the observations of respondent's bed partner or person sharing a room.

Responses to all 19 questions were summed up into 7 components of sleep index: subjective sleep quality (1st component), sleep latency (2nd component), sleep duration (3rd component), habitual sleep efficiency (4th component), sleep disturbances (5th component), use of sleeping medication (6th component), and daytime dysfunction (7th component). Every component can be rated from 0 to 3 points, where 3 points always indicate serious problems in the evaluated component. The sums of all 7 components were summed up again producing the PSQI, which reflects the degree of sleep disturbances in general. It can range from 0 to 21. If the PSQI value is higher than 5, it represents a person with severe disturbances in 2 components of sleep or moderate disturbances in 3 or more components. In our study, the PSQI value of  $>5$  was considered as "poor quality of sleep" and persons with such scores as "poor sleepers," while PSQI of  $\leq 5$  was considered as "good quality of sleep" and persons with such scores "good sleepers."

*Lifestyle habits.* Lifestyle habits and their impact on sleep were evaluated by the structured questionnaire developed by the researchers. It consisted of 10 Likert scale-type questions as follows: a) respondent's usual activities during the past month (time distribution between studies, work, social activities, leisure time, and other activities); b) self-estimation of success in studies, work, social activities, leisure time, and other activities; c) self-estimation of physical health; d) self-estimation of emotional status; e) self-estimation of quality of sexual life; f) somatic

morbidity and use of medications, mental morbidity and use of psychotropic medications; g) usual activities before going to bed; h) main reasons causing tiredness, and i) main reasons causing anxiety.

The Self-Evaluation Index (SEI) was determined summing up the scores of the answers to the questions regarding self-estimation, which ranged from 0 to 21 with the higher value representing worse self-evaluation. The Anxiety Index (AI) was calculated summing up the scores of the answers to the questions regarding causes of anxiety, which ranged from 0 to 12 with the higher value representing the lower incidence of anxiety.

*Impact of sleep on the quality of life.* Four multiple-choice questions were used to evaluate the impact of disturbances of sleep on four main areas of activities and health, which are usually related to the quality of life of a person (22). Respondents were asked to estimate the quality of work and studies (e.g. ability to do mental and physical work), emotional status (e.g. changes of mood), physical health (e.g. nausea, somnolence, and headache), quality of sexual life (e.g. changes of sexual activity and attraction) after a night of poor sleep.

The Sleep Impact on the Quality of Life Index (SILQI) was derived from all these questions with the values ranging from 0 to 15. The higher value of SILQI represents the increase in physical and emotional symptoms caused by poor sleep or the stronger negative impact on the quality of life.

*Statistical analysis.* Descriptive statistics was represented by percentage for qualitative variables and mean, standard deviation, maximum and minimum values for quantitative variables. Chi-square ( $\chi^2$ ) criterion was used to estimate the difference in the distribution of the qualitative variables. Pearson correlation  $\alpha$  coefficient was used to analyze correlations between quantitative variables. Student's  $t$  test was used to compare means between two quantitative variables, and Fisher's and Bonferroni criteria were used to compare means among three quantitative variables. Statistical significance was set at  $P < 0.05$ . Statistical package SPSS 15.0 was used for coding and analyzing the data.

## Results

*General characteristics of sleep.* During the past month, the average time of going to bed for the students in this study was 00:35 AM  $\pm$  1 h 58 min (range from 8 PM to 3 AM) and average time of awakening was 7:43 AM  $\pm$  1 h 32 min (range from 4:30 AM to 1 PM). Average length of time to fall asleep was 20.9 $\pm$ 17.2 min (range from 0 to 120 min), and the average length of actual sleep per night was 7.2 $\pm$ 1.4 h (range from 3.5 to 12 h). Distribution of these time variables among three study profiles is shown in Table 1. Significant differences

Table 1. General Pittsburgh Sleep Quality Index, seven Pittsburgh Sleep Quality Index components, and average time of awakening among three study profiles

	Medicine studies (n=138)	Law studies (n=116)	Business and economics studies (n=133)	Difference among 3 study profiles
1st component (subjective sleep quality) ( <i>students evaluating their sleep as bad or very bad</i> )	27 (19.6%)	30 25.9%	27 20.3%	$\chi^2=8.2^*$ $P=0.4$
2nd component (average time to fall asleep)	19±16 min (from 1 to 120 min)	23±18 min (from 0 to 120 min)	20±16 min (from 0 to 120 min)	$F=0.7^{**}$ $P=0.8$
3rd component (average length of actual sleep per night)	391±71 min (from 240 to 720 min)	428±69 min (from 210 to 600 min)	472±87 min (from 300 to 720 min)	<b><math>F=4.9</math></b> <b><math>P&lt;0.0005</math></b>
4th component (habitual sleep efficiency) ( <i>students with sleep efficiency less than 65%</i> )	4 2.9%	2 1.7%	3 2.2%	$F=0.1$ $P=0.9$
5th component (sleep disturbances) ( <i>students having a lot of sleep disturbances</i> )	11 8.0%	18 15.5%	14 10.5%	$\chi^2=5.7$ $P=0.5$
6th component (use of sleeping medication) ( <i>students using sleeping medication</i> )	12 8.7%	4 3.5%	8 6.0%	$\chi^2=3.3$ $P=0.8$
7th component (daytime dysfunction) ( <i>students having serious problems because of bad sleep</i> )	13 9.4%	8 6.9%	12 9.0%	<b><math>\chi^2=13.9</math></b> <b><math>P=0.03</math></b>
General PSQI	6.56	6.26	5.65	<b><math>F=4.8</math></b> <b><math>P=0.009</math></b>
Average time of awakening	6:58 AM ± 67 min (from 4:30 AM to noon)	7:34 AM ± 70 min (from 5:30 AM to 1 PM)	8:41 AM ± 94 min (from 5:40 AM to 1:30 PM)	<b><math>F=4.4</math></b> <b><math>P&lt;0.0005</math></b>

\*Chi-square ( $\chi^2$ ) criterion to estimate the difference in the distribution of the qualitative variables;

\*\*Fisher's ( $F$ ) criterion to compare means among three quantitative variables.

were found comparing the students of different profiles regarding the average length of actual sleep per night, average time of awakening, and daytime dysfunction. Medical students woke up earlier, had shorter average length of sleep, and greater daytime dysfunction than their peers from other profiles of studies.

No significant differences or correlations with sleep or quality-of-life characteristics were found regarding gender and the year of studies except greater daytime dysfunction among women as compared to men ( $t=-2.6$ ,  $P=0.009$ , independent sample  $t$  test) and shorter average length of actual sleep per night among the fourth-year students as compared to the first-year students ( $t=-2.2$ ,  $P=0.003$ , independent sample  $t$  test).

Medications for sleep were used by 5.9% of the respondents with no significant differences among genders, year or profile of studies.

**Pittsburgh Sleep Quality Index.** The PSQI (the sum of 7 components of sleep quality) was calculated for 387 (95.6%) participants. The PSQI values varied from 1 to 17 with a mean value of  $6.2\pm 2.5$ . Female respondents scored higher on the PSQI than males (6.3 vs. 5.7, respectively;  $t=-1.9$ ,  $P=0.048$ , independent sample  $t$  test). No significant differ-

ence was found in the PSQI scores regarding the years of studies or city of studying. Although there was no significant difference among universities, VU MF students had the highest mean PSQI score ( $7.3\pm 2.9$ ) and VU KFH students the lowest mean PSQI score ( $5.6\pm 2.3$ ) in absolute numbers. A statistically significant difference in the mean PSQI score was found among three profiles of studies ( $F=4.8$ ,  $P=0.009$ ). The highest mean PSQI score showing the greatest disturbances of sleep was found among the students of medicine ( $m_1=6.56$ ), lower mean score was among the law students ( $m_2=6.26$ ), and the lowest mean score among the economics students ( $m_3=5.65$ ). After multiple comparisons with Bonferroni criterion, a significant difference was found between medical and economics students ( $P<0.01$ ).

More than half ( $n=230$ , 59.4%) of the students scored higher than 5 on the PSQI, which allowed suspecting sleep disorders. The frequency of sleep disorders was higher among females than males (61.5% and 53.5%, respectively), but this difference was not statistically significant ( $\chi^2=2.02$ ,  $P=0.1$ ). There were no significant differences regarding the year of studies and university. Significant difference in the frequency of poor sleepers was found regard-

Table 2. Time distribution between different daily activities among three profiles of studies

	Medical studies	Law studies	Economics studies	Difference among three study profiles
Time for studies	8 h 16 min ± 2 h 27 min	8 h 13 min ± 2 h 58 min	5 h 23 min ± 2 h 14 min	<b>F=4.9</b> <b>P&lt;0.0005</b>
Time for work	3 h 43 min ± 3 h 23 min	2 h 56 min ± 2 h 15 min	5 h 4 min ± 3 h 6 min	<b>F=2.6</b> <b>P=0.001</b>
Time for social activities	2 h 0 min ± 1 h 5 min	2 h 13 min ± 1 h 21 min	2 h 11 min ± 1 h 27 min	<b>F=0.6</b> <b>P=0.3</b>
Leisure time	3 h 10 min ± 1 h 44 min	3 h 8 min ± 1 h 37 min	4 h 37 min ± 2 h 18 min	<b>F=2.8</b> <b>P&lt;0.0005</b>

ing the profile of studies ( $\chi^2=6.5$ ,  $P<0.05$ ) showing the highest incidence of sleep disturbances among medical students and significantly lower frequencies among law and economics students (40%, 30.4%, and 29.6%, respectively).

*Impact of lifestyle habits and health problems on the quality of sleep.* Time (exact number of hours during the day) spent for studies, work, social activities and leisure time significantly varied among three profiles of the studies (Table 2). Students of medicine and law spent more time studying and less time working or having leisure time than their peers studying economics.

The SEI values varied from 0 to 15 with a mean value of  $6.7\pm 2.6$ . There was no significant difference in the SEI regarding gender or profile of studies. A statistically significant difference among three profiles of studies was found just regarding subjective estimation of success in the studies ( $\chi^2=27.9$ ,  $P<0.0005$ ), showing the worst satisfaction with the results among the students of medicine. Self-estimation of physical health, emotional status, and quality of sexual life did not vary significantly regarding the profile of studies.

The AI values varied from 0 to 12 with a mean value of  $3.9\pm 2.4$ . There was no significant difference in the AI regarding gender or profile of studies. Studies (55.1%), relations with a partner (16.6%) and family members (10.6%) were the most frequent reasons for anxiety mentioned by respondents. A statistically significant difference was found among three profiles of studies regarding the anxiety about the studies ( $\chi^2=30$ ,  $P<0.0005$ ), showing that students of medicine were most anxious about their studies.

*Impact of poor sleep on the quality of life.* The most frequent complaints about a negative influence of poor night sleep on academic and work performance included inability to concentrate (68.6%) and problems performing mental work (68.1%). Mood changes (57.5%) and bad mood (35.8%) were the most frequent complaints about consequences of poor night sleep on emotional status. Somnolence

(86.7%) and general asthenia (47.2%) were the consequences of poor night sleep on physical health and decreased sexual attraction and activity were consequences on the quality of sexual life (44.9% and 27.2%, respectively). All these symptoms were more prevalent among female respondents than in males but the difference was not statistically significant.

The SILQI values varied from 0 to 13 with a mean value of  $6.2\pm 2.5$ . There was a statistically significant difference in the SILQI among three study profiles ( $F=4.9$ ,  $P=0.008$ ) with higher means among medical students. After multiple comparisons with the Bonferroni criterion, a significant difference was found comparing medical and economics students ( $P=0.01$ ), and medical and law students ( $P=0.04$ ).

*Correlations between quality of sleep, lifestyle habits, and subjective evaluation of quality of life.* Correlations between quality of sleep measured with the PSQI, lifestyle habits (time planning, everyday activities before going to bed), and subjective evaluation of quality of life were analyzed. There were no significant correlations between the amount of time given for work, social activities, leisure time and quality of sleep. A significant correlation was found between the PSQI and activities before going to bed showing that the students studying before going to sleep had worse quality of sleep (Pearson correlation,  $\alpha=0.18$ ;  $P<0.01$ ). Similarly, a significant correlation was found between the PSQI and amount of time spent for studying ( $\alpha=0.14$ ,  $P<0.01$ ), showing that the students spending more time for studying had worse quality of sleep.

There were statistically significant associations between quality of sleep and subjective evaluation of quality of life: poor sleepers were more pessimistic about their achievements in the university ( $P<0.01$ ), about their work ( $P<0.01$ ), about their leisure time ( $P<0.01$ ), physical health ( $P<0.01$ ), emotional health ( $P<0.01$ ), quality of sexual life ( $P<0.01$ ). These findings were supported by a significant correlation between the SEI and PSQI values of  $>5$  ( $\alpha=-0.27$ ,  $P<0.01$ ). Poor sleepers (PSQI  $>5$ )

tended to score higher on the AI than good sleepers ( $\chi^2=0.48$ ,  $P<0.01$ ). Bad quality of sleep correlated with the SILQI ( $\alpha=-0.27$ ,  $P<0.01$ ), showing that an increase in the number of sleep disorders was correlated with worse quality of life.

### Discussion

Quality of sleep is interrelated with both emotional and physical health – somatic and mental diseases decrease quality of sleep and vice versa poor sleep worsens emotional and physical condition (5–7, 23). Because of that, sleep can be considered an important indicator of health of a person and his/her ability to cope successfully with everyday stress. Impact of these factors on emotional and physical health of medical students has not been properly examined in Lithuania. In this study, medical students were compared with two other “prestigious” and highly demanding profiles of studies – law and economics – intending to evaluate the impact of lifestyle factors excluding difficulties of studies.

Results of the study showed that sleep problems were rather prevalent among students: 59.4% of all students scored higher than 5 on the PSQI that allowed suspecting them as having significant problems with sleep. Students of medicine had the highest incidence of the problems with sleep. These results are consistent with the findings in other countries (2, 5, 14). Greater disturbances of sleep among medical students were found in general evaluation of sleep quality measured by the PSQI and in the main characteristics of sleep: time of awakening, length of sleep, and daytime dysfunction caused by poor sleep. Probably that was the main reason why poor sleep had the highest negative impact on the quality of life for the students of medicine. A negative impact of poor sleep was observed on the quality of studies, emotional and physical health showing the same risks related to poor sleep as noted in other studies (6, 24). It shows the risks for health and professional performance associated with sleep problems, which are common among medical students and require interventions to decrease these risks and their negative consequences.

The main factor discriminating medical students from their peers in other universities was their attitude to studies. Students of medicine were spending more time studying ( $F=4.9$ ,  $P<0.0005$ ), were more often anxious about their studies ( $\chi^2=30.3$ ,  $P<0.0005$ ), less satisfied with their results at studies ( $\chi^2=27.9$ ,  $P<0.0005$ ), were studying more often before going to sleep ( $\chi^2=73.2$ ,  $P<0.0005$ ). This “submerge into studies” was not successfully counterbalanced with the leisure time as among students of economics.

It seems not probable that worse subjective evaluation of sleep quality could be explained by

generally more pessimistic attitudes of medical students as their self-estimation in other aspects did not differ significantly from their peers. There were no significant differences in medical students also in respect to anxiety levels because of other problems than studies (interpersonal relationships, work, finances), or incidence of physical or mental disorders. Further studies would be important to clarify if these differences are influenced by the nature of studies, the amount of material to be studied, students-teachers relationships or other factors.

Our study did not find a significant decrease in subjective evaluation of quality of sleep and health between younger and older medical students, which was reported in some other studies (3, 14, 18). It could be due to the fact that we did not include students of the last two years of studies. Assessment of the cumulating negative effect during the course of studies and the role of gender would require larger sample with inclusion of the students of all 6 years of studies.

Comparisons among the profiles of studies revealed that the students of economics had the best quality of sleep. Students of law evaluated quality of their sleep better than students of medicine but it was worse than among the students of economics. In most aspects, differences between the students of medicine and law were smaller than between students of law and economics. An important and significant difference was found regarding the time spent for daily activities. Students of law were not different from medical students, and students of economics spent significantly more time for leisure activities and work than their peers. Probably more balanced priorities in life allowed students of economics to remain less anxious and more satisfied with the results of their studies.

### Conclusions

Incidence of sleep problems is high among Lithuanian students, reaching 59.4%. Medical students had worse quality of sleep and worse impact of poor sleep on quality of life compared with students of law and economics. A significant difference was found between medical students and their peers in other profiles of studies regarding their attitudes and habits related to the studies; medical students spent more time studying, were more anxious about studies and less satisfied with the results, studied more often before going to sleep. It allows hypothesizing that attitudes and habits related to studies may have a negative impact on sleep quality and health in medical students. These findings suggest that medical students have to receive more knowledge about sleep hygiene, effective skills of coping with stress and sleep improvement, psychological support to improve satisfaction with their results of studies.

## Miego kokybės sąsajos su studijų profiliu ir gyvenimo būdo veiksniais tarp Lietuvos studentų

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**Raktažodžiai:** studentai, Pitsburgo miego kokybės indeksas, miego kokybė, gyvenimo būdas.

**Santrauka.** *Tyrimo tikslas.* Įvertinti sąsajas tarp subjektyvaus miego kokybės įvertinimo, studijų profilio ir gyvenimo būdo veiksnių tarp trijų skirtingų studijų profilių (medicinos, teisės, ekonomikos) studentų.

*Tyrimo metodai.* 405 pirmojo ir ketvirtojo kurso studentai iš keturių skirtingų Lietuvos universitetų užpildė standartizuotą klausimyną, kurį sudarė dvi dalys: 1) subjektyvus miego įvertinimas pagal Pitsburgo miego kokybės indeksą (PMKI); 2) tyrėjų sudarytas klausimynas blogo miego poveikio gyvenimo kokybei ir gyvenimo būdo veiksniais bei miego įpročiams vertinti.

*Rezultatai.* Visoje tirtoje grupėje PMKI rodiklis >5 (rodo galimus sunkius miego sutrikimus) nustatytas 59,4 proc. studentų. Rastas reikšmingas miego sutrikimų dažnio skirtumas tarp trijų studijų profilių ( $p < 0,05$ ), medicinos studentai turėjo daugiausia miego sutrikimų. Nustatytas statistiškai patikimas ryšys tarp miego kokybės ir subjektyvaus gyvenimo kokybės vertinimo ( $p < 0,01$ ). Medicinos studentams nustatytas didžiausias blogo miego poveikis gyvenimo kokybei ( $p = 0,008$ ). Blogiausiai miegojo studentai, kurie mokėsi prieš užmigdami, skyrė daugiausia laiko mokslams, o mažiausiai laiko laisvalaikiui ( $p < 0,01$ ). Palyginus trijų profilių studentus, gauta, kad medicinos studentai daugiau nerimavo dėl studijų ir buvo mažiau patenkinti jų rezultatais ( $p < 0,0005$ ) nei kitų specialybių studentai. Be to, medicinos studentai skyrė reikšmingai daugiau laiko studijoms ir dažniau mokėsi prieš miegą ( $p < 0,05$ ).

*Išvados.* Miego sutrikimai yra dažni tarp Lietuvos studentų ir siekia 59,4 proc. Medicinos studentų miego kokybė prastesnė ir blogo miego poveikis gyvenimo kokybei didesnis nei teisės ir ekonomikos studentų. Reikšmingai skyrėsi medicinos studentų ir jų bendraamžių požiūris į studijas bei su jomis susiję įpročiai: studijoms jie skyrė daugiau laiko, daugiau nerimavo dėl jų, buvo mažiau patenkinti rezultatais, dažniau mokėsi prieš užmigdami.

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