

## Studenti sestrištva u Sloveniji – spavaju li dovoljno? Nursing students in Slovenia - do they sleep enough?

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### Sažetak

**Uvod:** Spavanje je važan dio našeg svakodnevnog života i vrlo je važno za naše zdravlje. Nedostatak sna u modernom svijetu velik je problem. Mnogi studenti sestrištva diljem svijeta imaju problema sa spavanjem pa nas je zanimala situacija u Sloveniji.

**Metode:** U istraživanju smo upotrebljavali namjensku metodu uzorkovanja. Podaci su prikupljeni pomoću internetskog upitnika. Anketirali smo studente preddiplomskih studija sestrištva. Upotrijebili smo Microsoft Excel i Microsoft Word za analizu i grafički prikaz podataka.

**Rezultati:** Studenti smatraju da im je za odmor potrebno 7 – 8 sati sna tijekom noći. Iako 67 % studenata dovoljno spava vikendom / slobodnim danima, situacija je drugačija tijekom tjedna. Ukupno njih 72 % spava manje od preporučene broja sati. Tijekom vikenda / slobodnih dana studenti zaspe kasnije nego tijekom tjedna i kasnije se probude. Smanjeni broj sati sna predstavlja problem tijekom ispitnih rokova. Većini studenata (34 %) potrebno je do 10 minuta da bi zaspali. Gotovo polovica studenata (48,5 %) ima problema s utonućem u san nekoliko puta mjesečno. Studenti smatraju da na kvalitetu sna najviše utječe stres. Većina studenata (53,4 %) često se osjeća umorno. Više od polovice studenata (55 %) povremeno odluči spavati tijekom dana. Povremene probleme s koncentracijom prijavljuje 55 % studenata. Ukupno 92 % studenata slaže se da kvaliteta i količina sna utječu na raspoloženje tijekom dana. Čak 96 % studenata ima mobilni uređaj u spavaćoj sobi, od kojih ga 88 % upotrebljava prije spavanja. Većina studenata spava na boku (44 %). Većina također navodi zadovoljstvo svojim krevetom (85 %).

**Zaključak:** Važno je da studenti budu svjesni važnosti sna za njihovo zdravlje i akademski uspjeh. Tek tada će moći promijeniti svoje navike spavanja. Studenti sestrištva budući su radnici smjenskog rada pa je posebno važno da znaju poboljšati svoje navike spavanja.

**Ključne riječi:** navike spavanja, studenti sestrištva, promicanje zdravog sna

**Kratak naslov:** Navike spavanja studenata

### Abstract

**Introduction:** Sleeping is an important part of our daily lives and is very important for our health. Lack of sleep in the modern world is a big problem. Many nursing students around the world have trouble sleeping, so we were interested in how the situation regarding sleeping among nursing students is in Slovenia.

**Methods:** In the research, we used dedicated sampling. Data were obtained using an online questionnaire. We surveyed undergraduate nursing students. We used Microsoft Excel and Microsoft Word to analyze and graphically display the data.

**Results:** Students think that they need 7-8 hours of sleep per night to rest. Although 67% of students get enough sleep on the weekends, the situation is different during the week as 72% sleep less than is recommended. During weekends, students fall asleep later than during the week and wake up later. Reduced hours of sleep are also a problem during the exam period. Most students (34%) need up to 10 minutes to fall asleep. Almost half of the students (48.5%) have trouble falling asleep several times a month. Students are thinking that their quality of sleep is most affected by stress. Most students (53.4%) feel tired often. More than half of students (55%) occasionally choose to sleep during the day. Occasional problems with concentration are reported by 55% of students. 92% of students agree that the quality and quantity of sleep affect their mood during the day. A total of 96% of students have a mobile device in the bedroom, which 88% of students use before going to bed. Most students sleep on their side (44%), and most also state satisfaction with their bed (85%).

**Conclusion:** Students must be aware of the importance of sleep on their health and study success. Only then will they be able to change their sleeping habits. Nursing students are future shift workers, so they must know how to improve their sleeping habits.

**Keywords:** sleeping habits, nursing students, promotion of healthy sleep

**Running head:** Sleeping habits of students

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### Uvod

Spavanje je reverzibilno stanje ponašanja koje karakterizira nereagiranje na okoliš. Spavanje prati ležanje, odmor i zatvorene oči [1]. Dobar san bitan je element za zdravlje i dobrobit pojedinca [2]. Predstavlja važan aspekt održavanja uravnoteženog načina života i zdravog fizičkog, mental-

### Introduction

Sleep is a reversible behavioral condition characterized by unresponsiveness to the environment. Sleep is accompanied by lying down, resting, and closing eyes [1]. Good sleep is an essential element of an individual's health and well-being [2]. It is an important aspect of maintaining a

nog, emocionalnog i duhovnog zdravlja [3]. Ono je esencijalno za kognitivne procese, fiziološke procese, tjelesni razvoj, regulaciju emocija i utječe na kvalitetu života pojedinca [2]. Mlađi odrasli u dobi od 18 do 25 godina trebali bi spavati između 7 i 9 sati noću [2, 4].

Studenti se pri upisu na fakultet suočavaju s brojnim izazovima koji mogu dovesti do problema sa spavanjem, promjenom rasporeda spavanja, postavljanjem rokova (zadaci, ispiti i drugo), većom slobodom i odgovornošću te životom s drugima (studentski domovi) [5]. Osim akademskih aktivnosti i učenja, studenti se također suočavaju s potrebom rada i održavanja društvenog života [6]. Imaju nepravilan način spavanja, odlaze kasno na počinak [7], a njihova je količina sna nedovoljna [8]. Studenti svoj loš san pripisuju tjeskobi, stresu te sukobljenim društvenim i poslovnim zahtjevima. Stres povezan s istodobnim reguliranjem više zahtjeva glavni je razlog koji studenti navode za nedostatan san [8, 9].

Zdrav san poboljšava dnevnu pažnju, vrijeme reakcije i raspoloženje [2]. Neadekvatan san ima štetne učinke na zdravlje studenata i negativno utječe na njihov akademski uspjeh [8]. Nedostatak sna kod studenata može dovesti do socijalne napetosti i emocionalne nestabilnosti [7, 8]. Povezan je s nizom zdravstvenih problema kao što su: dijabetes, bolesti srca, moždani udar, visoki krvni tlak, bolesti bubrega i poremećaji raspoloženja [4]. Kratko vrijeme spavanja povezano je s povećanim umorom, smanjenim psihomotornim performansama, nesrećama, lošim tjelesnim i mentalnim zdravljem te niskim akademskim uspjehom [2].

Studenti sestriinstva, kao i medicinske sestre i medicinski tehničari, odgovorni su za zdravlje i dobrobit pacijenata. Već tijekom školovanja susreću se sa smjenskim radom koji će biti dio njihova života u daljnjoj medicinskoj karijeri i koji je najveća prepreka urednom ciklusu spavanja [10, 11]. Nezdrave navike koje se razvijaju s godinama studija kasnije mogu dovesti do kroničnih bolesti, što opet može negativno utjecati na njihovu radnu sposobnost, a posljedično i na sigurnost pacijenata [6]. Studenti sestriinstva imaju problema sa spavanjem zbog obrazaca obrazovnog okruženja, poput kliničke prakse s promjenjivim rasporedom [12]. Nadalje, studenti sestriinstva budućnost su sestriinske profesije, a njihovo će zdravlje i dobrobit u budućnosti imati važnu ulogu u kvaliteti sestriinstva [13].

## Metode

Upotrijebili smo kvantitativnu istraživačku metodologiju s filozofijom pozitivizma. Istraživanje je provedeno među studentima sestriinstva na jednom od fakulteta u Sloveniji. Podaci su dobiveni pomoću internetskog upitnika koji su djelomično saželi Hsu i sur. [14], Merenheimo [15] i Wall [16], a ostatak je sastavljen nakon pregleda literature. Anketni se upitnik sastoji od 26 pitanja. Tijekom izrade ankete došlo je do pogreške pri jednom pitanju te smo ga isključili iz daljnje analize. U tom smo pitanju pitali studente odvrataju li ih svjetlost i zvuk od utonuća u san. Poveznica do webstranice ankete objavljena je na društvenoj mreži Facebook u poznatim grupama studenata sestriinstva. Istraživanje je provedeno od 6. 9. 2020. do 20. 9. 2020. Zbog epidemio-

balanced lifestyle and healthy physical, mental, emotional, and spiritual health [3]. Sleep helps with cognitive processes, physiological processes, physical development, and emotion regulation. It affects an individual's quality of life [2]. Younger adults between the age of 18 and 25 should sleep between 7 and 9 hours a night [2, 4].

Upon entering college, students face many challenges that can lead to sleep problems, including changing schedules, setting deadlines (assignments, exams, etc.), increased freedom and responsibility, and living with others (student dormitories) [5]. In addition to school activities and learning, students also face the need to work and maintain social life [6]. Students have an irregular sleep pattern, they go to bed late [7], and their amount of sleep is insufficient [8]. Students attribute their poor sleep to anxiety, stress, and conflicting social and work demands. The stress associated with regulating multiple demands simultaneously is the main reason students cite for inadequate sleep [8, 9].

Healthy sleep improves daily attention, reaction time, and mood [2]. Inadequate sleep has detrimental effects on students' health and negatively impacts their study performance [8]. Lack of sleep in students can lead to social tension and emotional instability [7, 8]. Lack of sleep is associated with some health problems such as diabetes, heart disease, stroke, high blood pressure, kidney disease, and mood disorders [4]. Short sleep time is associated with increased fatigue, decreased psychomotor performance, accidents, poor physical and mental health, and low academic performance [2].

Nursing students, just like nurses, are responsible for patients' health and well-being. During school, they encounter shift work, a big part of their future medical careers and one of the biggest obstacles to an orderly sleep cycle [10, 11]. Unhealthy habits that form over the years of study can later lead to chronic illness, which in turn, can negatively affect their ability to work and, consequently, the safety of patients [6]. Nursing students have difficulty sleeping due to patterns of the educational environment, such as variable time clinical practice [12]. Nursing students are the future of the nursing profession, whose health and well-being will play an important role in the quality of nursing in the future [13].

## Methods

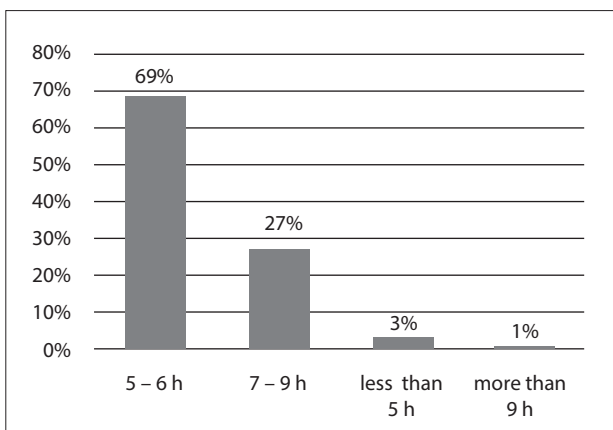
In our research, we used a quantitative research methodology. The research was conducted among nursing students at one of the nursing faculties in Slovenia. The data were obtained using an online questionnaire, which was partly summarized by Hsu et al. [14], Merenheimo [15], and Wall [16], and the rest were compiled after reviewing the literature on our topic. The survey questionnaire consists of 26 questions. We excluded one question from further consideration. The link to the survey website was published on the social network Facebook, in groups of nursing students. The survey was conducted from 6/9/2020 to 20/9/2020. We asked students to rate their condition one year ago due to the epidemiological situation. Dedicated sampling was used. Participation in the survey was anonymous and vol-

loške situacije, studenti su anketirani za akademsku godinu 2018./2019. Upotrijebljeno je namjensko uzorkovanje. Sudjelovanje u istraživanju bilo je anonimno i dobrovoljno. Tijekom istraživanja poštovali smo načela Etičkog kodeksa u sestrinstvu Slovenije [17] te načela Helsinške deklaracije [18]. Prikupljeni podaci analizirani su i grafički prikazani pomoću programa Microsoft Excel i Microsoft Word.

## Rezultati

U rezultate smo uključili odgovore iz ukupno 103 ankete, što znači da je 88 % anketa u potpunosti ispunjeno. U istraživanju je sudjelovalo 85 % studentica i 15 % studenata. Dob ispitanika bila je između 19 godina i 44 godine. Treću godinu preddiplomskog studija pohađalo je 70,9 %, drugu godinu 15,5 %, a prvu godinu 13,6 % ispitanika. Ukupno 73 % ispitanika pohađalo je redovni studij, a 27 % izvanredni studij sestrinstva. Njih 70 % bilo je zaposleno ili je radilo preko student-servisa. Ukupno 30% ispitanika nije bilo zaposleno.

Nadalje, 69 % studenata spava 5 – 6 sati noću tijekom tjedna, 27 % spava 7 – 9 sati, 3 % spava manje od 5 sati, a 1 % spava više od 9 sati noću, (slika 1.).



**SLIKA/FIGURE 1.** Prosječan broj sati spavanja tijekom tjedna / The average number of hours of sleep during the week.

Tijekom vikenda / slobodnih dana, 67 % ispitanika spava 7 – 9 sati. Ukupno 18 % studenata spava više od 9 sati, 13 % spava 5 – 6 sati, a 2 % njih spava manje od 5 sati (slika 2.).

Tijekom tjedna, 50 % studenata odlazi na spavanje između 22:01 i 23:00 h, 28 % između 23:01 i ponoći, 17 % između 21:01 i 22:00 h i 5 % nakon 00:01. Nitko ne ide na spavanje prije 21:00. Tijekom vikenda / slobodnih dana, ukupno 42 % ispitanika odlazi na spavanje između 23:01 i ponoći, a 28 % između 22:01 i 23:00. Ukupno 26 % njih ide na spavanje nakon 00:01, a 4 % između 21:01 i 22:00 sata. Nitko ne ide u krevet prije 21:00.

Što se tiče jutarnjeg ustajanja, otkrili smo da se 63 % studenata tijekom tjedna probudi prije šest sati ujutro. Nadalje, 24 % njih budi se između 6:01 i 7:00 sati, a 8 % između 7:01 i 8:00 sati. Samo 3% studenata budi se između 8:01 i 9:00 te 2 % nakon 9:00. Vikendom / slobodnim danima, ukupno 36 % studenata budi se između 8:01 i 9:00, 29 % nakon 9:00, a

untary. In the research, we took into account the principles of The Code of Ethics in Nursing and Care of Slovenia [17] and the principles of the Declaration of Helsinki [18]. The collected data were analyzed and graphically displayed using Microsoft Excel and Microsoft Word.

## Results

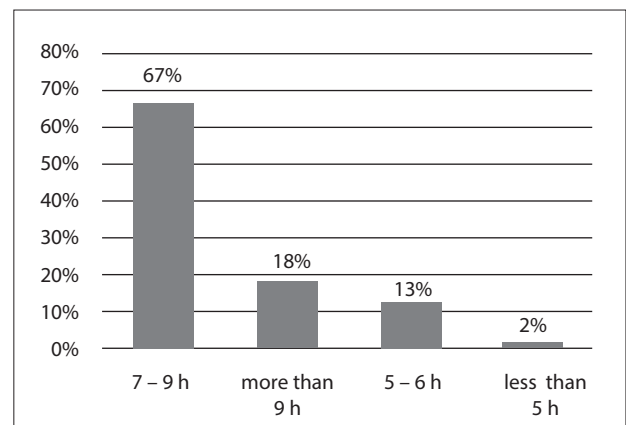
A total of 103 surveys were included in the processing, which means that 88% of the surveys were fully completed. 85% of female students and 15% of male students participated in the research. The age of the participants ranged between 19 and 44 years. 70.9% attended the 3rd year of undergraduate studies, 15.5% attended the 2nd year, and 13.6% the 1st year. 73% attended full-time study and 27% part-time study nursing. During the study, 70% of them already work in health care or do student work, and 30% did not work.

Results show that 69% of students sleep 5-6 hours a night during the week, 27% sleep 7-9 hours, 3% less than 5 hours, and 1% more than 9 hours a night (Figure 1.).

During weekends/days off, 67% of the students sleep 7-9 hours. 18% of students sleep more than 9 hours, 13% of them sleep 5-6 hours, and 2% of the students sleep less than 5 hours (Figure 2.).

During the week, 50% of students go to sleep between 10 p.m. and 11 p.m., 28% between 11 p.m. and midnight, 17% between 9 p.m. and 10 p.m., and 5% after 00.01 a.m. No one goes to bed before 9 p.m. During weekends/days off, 42% go to bed between 11:01 pm and midnight, and 28% between 10:01 pm and 11:00 pm. 26% of them go to bed after 00.01 a.m., and 4% between 9 p.m. and 10 p.m. No one goes to bed before 9 p.m.

Regarding getting up in the morning, we found that 63% of students wake up before six in the morning during the week. 24% of them wake up between 6.01 a.m. and 7.00 a.m., and 8% between 7.01 a.m. and 8.00 a.m. 3% wake up between 8.01 a.m. and 9 a.m., and 2% after 9 a.m. On weekends/days off, 36% wake up between 8.01 a.m. and 9 a.m., 29% after 9 a.m., and 22% between 7 a.m. and 9 p.m. 11% get up before seven and 2% before six in the morning.



**SLIKA/FIGURE 2.** Prosječan broj sati spavanja tijekom vikenda / Number of hours of sleep during the weekend.

22 % između 7:00 i 21:00. Njih 11 % ustaje prije sedam sati, a 2 % prije šest sati ujutro.

Na pitanje koliko im je potrebno da zaspe, otkrili smo da 34 % studenata treba manje od 10 minuta da zaspi. Ukupno 31 % treba 10 do 19 minuta, a 23 % njih treba 20 do 30 minuta. 12 % studenata zaspi za više od 30 minuta. Ukupno 48,5 % studenata ima problema s utonućem u san nekoliko puta mjesečno, 29,1 % gotovo nikada nema problema, a 13,6 % studenata ne prijavljuje probleme. Gotovo svaki dan 4,9 % studenata teško zaspi, a 3,9 % studenata sestrinstva svaki dan ima poteškoća s utonućem u san.

Studenti navode da je njihova kvaliteta sna najviše pogođena sljedećim faktorima (navedeno od najčešćeg odgovora do najmanje uobičajenog):

- stres (63 %);
- buđenje bez razloga (43 %);
- buka / zvukovi iz okoline (43 %);
- temperatura okoline (39 %);
- buđenje zbog fizioloških potreba (25 %);
- imam poteškoće s utonućem u san (20 %);
- noćne more (17 %);
- kihanje / kašljanje / druge bolesti (9 %);
- životinje (9 %);
- partner / djeca (6 %);
- 3 % nije se opredijelilo za bilo koji od ponuđenih odgovora, no naveli su svjetlo, buđenje za kliničku praksu ili ništa od navedenog kao odgovor.

Svi su studenti umorni. Naime, 53,4 % studenata često se osjeća umorno, 25,2 % rijetko je umorno, 18,5 % osjeća se umorno vrlo često, a 2,9 % uvijek je umorno.

Ukupno 10 % studenata spava danju, 55 % studenata spava samo povremeno tijekom dana, a 35 % njih ne spava danju.

Čak 71 % ispitanika smatra da im je potrebno 7 – 8 sati sna kako bi se osjećali odmornima. Ukupno 21 % treba 9 – 10 sati, a 6 % studenata treba 5 – 6 sati. Samo 2 % ispitanika treba više od 10 sati sna. Nadalje, ispitanici smatraju da 4 sata ili manje sna po noći nije dovoljno za odmor.

Manji broj ispitanika, njih 3 %, ima problema s koncentracijom, njih 55 % na fakultetu ili poslu povremeno se teško koncentriraju, a 42 % nema problema s koncentracijom.

Većina studenata, njih 92 % vjeruje da kvaliteta i količina sna utječu na njihovo raspoloženje tijekom dana, dok 8 % njih smatra da san ne utječe na njihovo raspoloženje.

Ukupno 64 % studenata spava manje nego obično tijekom ispitnih rokova, a 36 % njih spava jednako dugo.

Studenti ne spominju uporabu hipnotika/sedativa.

Tehnologija prisutna u spavaćoj sobi studenata:

- mobilni telefon (96 %);
- računalo (65 %);
- televizija (41 %);
- radio (5 %);
- 3 % nema ništa od navedenog u spavaćoj sobi.

When asked how long they need to fall asleep, we found that 34% of students need less than 10 minutes to fall asleep, 31% of them need 10 to 19 minutes, and 23% need 20 to 30 minutes. 12% of students fall asleep in more than 30 minutes. 48.5% of students have trouble falling asleep several times a month, and 29.1% rarely have problems. 13.6% of students do not report problems. Almost every day, 4.9% of students fall asleep with difficulty, and 3.9% of nursing students have difficulty falling asleep every day.

Students state (listed from the most common answer to the least common)

- that their quality of sleep is most affected by:
- stress (63%),
- waking up for no reason (43%),
- noise/sounds from the surroundings (43%),
- ambient temperature (39%),
- awakening due to physiological needs (25%),
- I have difficulty falling asleep (20%)
- nightmares (17%),
- sneezing / coughing / other illnesses (9%),
- animals (9%),
- partner / children (6%).
- 3% did not decide for any of the answers given above and added light and early awakening to go to the clinical practice.

All students are tired. 53.4% of students often feel tired, 25.2% are rarely tired, 18.5% feel tired very often, and 2.9% are always tired. 10% of students sleep during the day, 55% of students sleep only occasionally during the day, and 35% of them do not sleep during the day.

A total 71% of surveyed students believe they need 7-8 hours of sleep to feel rested. 21% need 9-10 hours and 6% 5-6 hours. 2% need more than 10 hours. 4 hours or less of sleep a night, however, is not enough for students to rest.

3% of respondents have problems with concentration, 55% of them at school or it is difficult to concentrate only occasionally at work, and 42% have no problems with concentration.

92% of students believe that the quality and quantity of sleep affect their mood during the day, while 8% of them believe that sleep does not affect their mood.

64% of students sleep less than usual during the exam period, and 36% sleep the same length of time during the exam period. The use of sleeping pills is not mentioned by surveyed students.

Technology present in the students' bedroom:

- telephone (96%),
- computer (65%),
- television (41%),
- radio (5%),
- 3% do not have any of the above in the bedroom.



Aktivnosti koje studenti izvode prije spavanja:

- korištenje mobilnog telefona (88 %);
- gledanje televizije (39 %);
- izvršavanje studijskih obaveza (35 %);
- provođenje vremena s obitelji i prijateljima (31 %);
- korištenje računala (17 %);
- jelo / piće (17 %);
- obavljanje kućanskih poslova (16 %);
- čitanje (12 %);
- tjelovježba (8 %).

Što se tiče položaja za spavanje, otkrili smo da 44 % ispitanika spava na boku, 29 % na trbuhu, 20 % ih mijenja položaj, a 7 % ispitanika spava na leđima. Ukupno 85% studenata zadovoljno je svojim krevetom, a njih 15 % nije zadovoljno.

## Rasprava

Studenti odlaze vikendom / slobodnim danima kasnije na počinak, a također ustaju kasnije u usporedbi s radnim danima [19]. Nedovoljna količina sna kod studenata problem je uglavnom tijekom tjedna [20] jer tada spavaju u prosjeku jedan sat kraće negoli tijekom vikenda [21]. Došli smo do sličnih zaključaka. Tijekom tjedna, većina studenata (63 %) probudi se prije 6:00 sati, a vikendom / slobodnim danima 87 % njih spava barem 1 sat više. Tijekom tjedna, 72 % ispitanika spava manje od preporučenih sati (7 – 9 sati), a vikendom / slobodnim danima 33 % ispitanika.

Rezultati ovog istraživanja pokazuju da 71 % studenata studija sestrinstva treba 7 – 8 sati sna po noći kako bi se osjećali odmornima. Do sličnih rezultata došli su i drugi istraživači [6, 16]. Chiang, i sur. [19], međutim, otkrivaju da studentima treba još pola sata više da se osjećaju odmornima.

Ukupno 88 % studenata treba manje od 30 minuta da zaspi. Slične rezultate donose Vail-Smith i sur. [22] u Lawson, i sur. [23], a neki smatraju da je postotak studenata kojima je potrebno više od pola sata da zaspe još veći [24].

Istraživači su otkrili da većina studenata spava u poslijepodnevnom satima [15, 25, 26]. Razlog tomu može biti to što studenti moraju dovršiti svoje studijske obaveze i učiti za ispite. Međutim, kako bi se nosili s tim obavezama, danju odlaze na spavanje i tako „pune baterije“ [26]. Više od polovice studenata (58 %) spava barem jednom tjedno tijekom dana. Došli smo do sličnih zaključaka jer se 55 % studenata barem povremeno odluča za poslijepodnevno drijemanje.

Promjene raspoloženja česte su kod ljudi koji premalo spavaju [4]. Nedostatak sna može dovesti do umora i zbunjenosti, kao i smanjene razine živosti [27]. Osoba koja pati od nedostatka sna teže se koncentrira i ostaje budna [28], što dokazuje istraživanje Vargas i sur. [29] te se smatra da nedostatak sna narušava pozornost kod mlađih odraslih osoba. Studenti u našem istraživanju također se slažu da san utječe na raspoloženje pojedinca. Budući da smo otkrili da studenti u našem istraživanju ne spavaju dovoljno, to može biti razlog slabije koncentracije s kojom se povremeno suočava 55 % ispitanika.

Activities that students perform before going to bed:

- telephone use (88%),
- watching television (39%),
- performing study obligations (35%),
- spending time with family and friends (31%),
- computer use (17%),
- eating / drinking (17%),
- doing household chores (16%),
- reading (12%),
- exercise (8%).

Regarding the sleeping position, we found that 44% of them sleep on their side, 29% on their stomach, 20% of them change positions and 7% of them sleep on their backs. 85% of students are satisfied with their beds, and 15% are not satisfied.

## Discussion

Students go to sleep on weekends/days off later and also get up later compared to weekdays [19]. Insufficient amount of sleep in students is a problem mainly during the week [20], as they sleep on average one hour longer during the weekend [21]. We came to similar conclusions. During the week, most students (63%) wake up before 6.00 a.m., and on weekends/days off, 87% sleep at least 1 hour longer. During the week, 72% sleep less than the recommended hours (7-9 hours), on weekends/days off, only 33% sleep less than is recommended.

71% of students in our study need 7-8 hours of sleep per night to feel rested. Other researchers found similar findings [6, 16]. Chiang et al. [19], however, find that students need another half hour more to feel rested.

88% of students need less than 30 minutes to fall asleep. Similar findings are made by Vail-Smith, et al. [22] and Lawson et al. [23], and some find that the percentage of students who need more than half an hour to fall asleep is even higher [24].

Researchers have found that most students use afternoon sleep [15, 25, 26]. The reason for this may be that students have to complete their study obligations and study for exams. However, to cope with this, they sleep during the day and thus recharge their batteries [26]. More than half of students (58%) sleep at least once a week during the day. We come to similar conclusions, as 55% of students at least occasionally report an afternoon nap.

Mood swings are common in people who sleep too little [4]. Lack of sleep can lead to fatigue and confusion, as well as decreased levels of liveliness [27]. A person suffering from sleep deprivation has difficulties concentrating and staying alert [28]. A study by Vargas et al. [29] found that lack of sleep impairs attention among younger adults. Students in our research also agree that sleep affects an individual's mood. Because we found that students sleep too little in our study, this may be the cause of concentration problems, for which 55% of respondents occasionally suffer.

Umjereni i teški umor često su prisutni među studentima sestrinstva [30]. Ferreira i De Martino [31] otkrili su da 70 % studenata osjeća umor tri puta tjedno, što je usporedivo s našim rezultatima, gdje nalazimo da 71 % studenata umor doživljava često ili vrlo često.

Studenti mijenjaju raspored spavanja tijekom ispitnog razdoblja [32], pa je spavanje studenata u to vrijeme lošije [33]. Studenti su također izvijestili o smanjenom ukupnom vremenu spavanja, smanjenoj kvaliteti sna, povećanju dnevne pospanosti, a također liježu kasnije nego inače [32]. Tijekom priprema za ispit, 59 % studenata prijavilo je lošiju kvalitetu sna [33], dok je u noći prije ispita čak 83 % studenata spavalo manje nego inače [34]. Isac i Abraham [25] došli su do gotovo identičnih rezultata.

Stres je povezan s lošijom kvalitetom sna [20]. Akademski stres može dovesti do niže kvalitete sna i kraćeg sna, što povratno može negativno utjecati na akademski uspjeh [35]. Stres može dovesti i do simptoma kao što su napetost, buđenje noću, nemogućnost opuštanja, što će vjerojatno pogoršati performanse tijekom dana i ometati miran san. Nakon ispitnih rokova navedeno se poboljšava [36]. U našem istraživanju, 64 % studenata spavalo je manje nego inače tijekom ispitnog roka, što se vjerojatno može uvelike pripisati stresu tijekom ispitnih rokova. U ovom smo istraživanju također dokazali da stres utječe na kvalitetu sna jer 63 % studenata navodi da je stres ono što najviše remeti njihovu kvalitetu sna. Prema redoslijedu učestalosti, studenti navode sljedeće: buka / zvukovi iz okoline, buđenje bez uzroka, temperatura, buđenje zbog fizioloških potreba, poteškoće s utonućem u san i noćne more. Finski studenti također navode stres kao najveći faktor koji remeti san, dok ističu i kašalj / gripu / druge bolesti, buđenje bez razloga, buđenje zbog fizioloških potreba, zvukove iz okoline i temperaturu okoline [15]. Na kvalitetu sna utječe i madrac na kojem se spava [37]. Tom je stavkom većina studenata u našem istraživanju zadovoljna.

Prisutnost moderne tehnologije u spavaćoj sobi povezana je s kasnijim vremenom spavanja, a time i kraćim vremenom spavanja [38]. Lee i sur. [39] otkrili su da mlađi ljudi često upotrebljavaju mobilni telefon prije spavanja. U ovom smo istraživanju također otkrili da je upotreba telefona uobičajena među mladim odraslim osobama prije spavanja. Čak 88 % studenata upotrebljava mobilni uređaj prije odlaska na spavanje, a čak 96 % njih ima ga kraj sebe i tijekom noći.

Istraživanja pokazuju da na spavanje utječu cigarete [40] i kofein zbog kojih je teže zaspati, češće je buđenje noću i odlazak na toalet [41]. Provenzano i sur. [40] otkrili su da studenti koji puše cigarete imaju nižu kvalitetu sna u odnosu na nepušače. Među talijanskim studentima sestrinstva 32,89 % njih su pušači [40], što je gotovo identično našem istraživanju od kojih 32 % puši cigarete. Nadalje, u našem istraživanju gotovo dvije trećine ispitanika konzumira kavu. Da je kava vrlo popularna među studentima, otkrili su i Penafort i sur. (2016) koji su istaknuli da 72,3 % studenata pije kavu.

Zanimao nas je i položaj u kojemu studenti spavaju. Utvrdili smo da većina njih spava na boku, što je u skladu s rezultata Skarpsno i sur. [43].

Moderate and severe fatigue is often present among nursing students [30]. Ferreira & De Martino [31] found that 70% of students experience fatigue three times a week, which is comparable to our results. We found that 71% of students experience fatigue often or very often.

Students change their sleep schedule during the exam period [32], so students' sleep is poor at that time [33]. Students also reported reduced total sleep time, decreased sleep quality, increased daytime sleepiness, and also went to bed later than usual [32]. During exam preparation, 59% of students reported poorer sleep quality [33], while on the night before the exam, as many as 83% of students slept less than usual [34]. Isac & Abraham [25] also came up with almost the same results.

Stress is associated with poorer sleep quality [20]. Academic stress can lead to lower sleep quality and shorter sleep, which, in turn, can negatively affect study performance [35]. Stress can lead to symptoms such as tension, waking up at night, and inability to relax, which probably impairs performance during the day and interferes with a peaceful night's sleep. After the exam period, this improves [36]. In our study, 64% of students slept less than usual during the exam period, which can probably be largely attributed to stress during the exam period. We also proved in our research that stress affects the quality of sleep, as 63% of students state that stress is the one that most disturbs their quality of sleep. According to the students, the quality of sleep is also affected by (listed in order): noise/sounds from the environment, waking up without a cause, temperature, waking up due to physiological needs, difficulty falling asleep, and nightmares. Graduate students also cite stress as the biggest factor that disturbs sleep, while they also cite cough/flu/other diseases, waking up for no reason, waking up due to physiological needs, sounds from the environment, ambient temperature [15]. The quality of sleep is also affected by the mattress [37]. Most students in our study are satisfied with their mattress.

The presence of modern technology in the bedroom is associated with later sleep time and, therefore, shorter sleep time [38]. Lee et al. [39] found that younger people frequently use their phones at bedtime. We also found in our study that phone use is common among young adults before bedtime. A total of 88% of students use a mobile device before going to bed, and 96% of them have it in the bedroom all night.

Research proves that sleep is also affected by cigarettes [40] and caffeine, which makes it harder for us to fall asleep; we wake up more at night and go to the toilet [41]. Provenzano et al. [40] found that students who smoke have a lower quality of sleep compared to non-smokers. Among Italian nursing students, 32.89% are smokers [40]. That is almost the same in our study – 32% of respondents smoke. As we found in our study, almost two-thirds of them consume coffee. Penafort et al. [42] confirmed that coffee is very popular among students. They found that 72.3% of students drink coffee.

We were also interested in what position the students sleep in. We found that most of them sleep on their side, which coincides with the findings of Skarpsno et al. [43].

## Zaključak

Prema rezultatima istraživanja možemo zaključiti da studenti sestrištva na jednom od fakulteta u Sloveniji nemaju dobre navike spavanja. Iako dovoljno spavaju vikendom / slobodnim danima, situacija je drugačija tijekom radnih dana kada spavaju premalo. Možemo reći da su ovi rezultati bili očekivani, no smatramo da bi studenti to trebali promijeniti. Promjene u navikama spavanja studenata sestrištva neophodne su kako bi bili koncentriraniji, manje umorni, raspoložniji te time lakše stjecali nova znanja. Kao budući zaposlenici koji će raditi u smjenama, važno je da studenti sestrištva tijekom studija nauče što sve utječe na njihov san te kako poboljšati svoje navike spavanja. Smatramo da zdrave navike spavanja treba promicati među cijelom populacijom, a ne samo među studentima.

## Nema sukoba interesa

## Conclusion

According to the research, we can conclude that nursing students at one of the faculties in Slovenia do not have good sleeping habits. Although they get enough sleep on weekends/days off, the situation is different during weekdays as they sleep too little. These results were expected and we believe that students should change their sleeping habits. Changes in the sleeping habits of nursing students are necessary because this would make students more concentrated, less tired, in a better mood, and easier to acquire new knowledge. As future shift workers, nursing students must learn what can affect their sleep and how to improve it. We believe that healthy sleeping habits should be promoted among the entire population, not just among students.

## Authors declare no conflict of interest

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