

QUALITY OF SLEEP IN COLLEGE STUDENTS

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Abstract: *Sleep of an organism is a state that has yet to be fully described. It is true though that somatic manifestations of sleep may reflect the degree of psychological well-being and, conversely, the quality of sleep greatly influences the perceived quality of life. The supportive data was collected using a questionnaire for Pittsburgh Sleep Quality Index (PSQI). The surveyed group consisted of 106 college respondents (40 men and 66 women), all of combined study students. It was found that even when not all somatic and physiological requirements of sleep are met, the level of perceived quality of sleep is not necessarily lower. The subjective quality of sleep in college students is relatively high and well suited to handle everyday activities.*

Key words: *sleep, quality of sleep, sleep in college students*

Sleep is one of the essential components in the overall mosaic of health, and it profoundly affects the subjective sense of physical and mental well-being. It is one of the things that exemplify the direct link between the physical and the psychological state, which are mutually inseparable. Descartes' notion of man as *res extensa* and *res cogitans* was surpassed a long time ago. The concept of man shaped by interacting biological, psychological and social forces is being validated from all possible perspectives in a variety of research projects. Sleep represents the most prevalent form of rest the importance of which is often overlooked. It is the most natural source of restoration and regeneration of physical and mental powers.

We spend about one-third of our life sleeping, which represents roughly 25 years. These and other reasons make it unnecessary to be reminded how significant the concept of total sleep quality will be for students and teachers within the school system. Consequently, sleep quality in collegiate students became the subject of interest for our small study oriented primarily toward the students taking courses in pedagogy, presumably to embark on a teaching career. Although specific sleeping habits may not be permanent, we assume that the underlying characteristics of sleep hygiene remain unchanged.

Sleep is a periodically recurring condition characterized by reduced reactivity to external stimuli, suppressed mobility, and modified – actually reduced -- cognitive ability. Sleep may be defined in behavioral terms (state of tranquility with limited perception, significantly limited interaction with the surroundings, mental activity of the brain being different than when awake), polysomnographically (the individual stages of sleep), and neurophysiologically (description of specific neurological processes) (Šonka in: Nevší-

malová, Šonka, 1997). Wakefulness, non-REM sleep, and REM sleep are the three basic functional states of an organism. The need for a certain length of sleep is individual and different in different people. A. Prusinski differentiates between the so-called long and short sleepers. The short sleepers need less than 5.5 hours of sleep a day without being distracted or hampered in their daily activities by fatigue due to lack of sleep. The long sleepers need to slumber in some cases more than 9 hours to perform their daily activities competently. This distinction has its analogy in a qualitative approach that divides the entire population into those that sleep well and those that sleep poorly (Prusinski, 1993).

There have been many empirical studies that examined the course and the manner of sleeping in great detail. The studies of neurological processes by electro-encephalography (EEG) and the detection of regular sleep patterns by polysomnography (PSG) were particularly useful in deciphering the laws of sleep almost completely. However, not entirely resolved is the question of what is the cause and reason for sleeping. There are several theories. In his book *Spánek a bdění (Sleep and Wakefulness)*, T. Radil recognizes two basic approaches to research into the importance of sleep. The passive theory portrays sleep as a lack of vigilance.

Radil states: *“Sleep was interpreted as a functional deafferentation of the reticular activation system and defined as a state caused by the absence of wakefulness.”* (Radil, 1978, p. 23). However, this theory was soon set aside because it could not satisfactorily explain some neurological phenomena, such as the ability to induce sleep by peripheral irritation or by direct stimulation of the brain. Another argument against the passive theory was the fact that sleep does not come only in consequence of fatigue, but it is a regular circadian rhythm. K. Šonka stated: *“At the end of the 20th century, it has been demonstrated that most activities within an organism have their rhythmicity, which is influenced by external and internal environment.”* (Pretl, Šonka in: Šonka et al., 2004, p. 28). One of the centers controlling the regularity of biological processes in an organism is to be found in the hypothalamus. The organism tends to synchronize the internal processes with external conditions (such as alternation of light and dark), and react to feedback.

The passive theory was eventually replaced by an active theory of sleep, which encompasses several different schools of thought attempting to rationalize the importance of sleep. The idea that sleep is an activity of its own (although, paradoxically, it is often characterized by referring to the diminution of activity in the organism) brought about several significant facts pertaining mainly to the detection of neurological activity of the brain, but also to the cyclic nature of sleep.

According to Nevšimalová, the following concepts are among the active theories of sleep: The first theory speaks about the importance of sleep in terms of renewal and restoration of energy. It points out the changes in vegetative functions and the suppression of metabolism during sleep, along with slowed cardiac activity, lower body temperature, and slower breathing. The second theory claims that sleep regenerates the organism's tissue and the central nervous system. The third theory looks at sleep in relation to memory, and mnestic or anamnestic processes, when the sleeping brain evaluates the information received, keeps the important memory tracks and erases the unimportant or trivial ones. The last group of theories about the importance of sleep are the so-called ontogenetic theories that highlight the effect of sleep on the growth and development of

a child or maturation of the brain and the central nervous system (Šonka in: Nevšímalová, Šonka, 1997).

The nature of sleep, even though its progression and stages can be well and consistently described, is, to a large extent, individual. The quality of sleep is always perceived as a subjective experience of that quality. It is also important to keep in mind the variety of potential factors that impact and form the process of sleeping. It is not only the individual's mental and physical state; the environment and the sleep hygiene also play an important, if not the most important, role. An adjustment in these two factors is often accompanied by a radical change in the manner of sleeping.

Since the ancient times, sleep has been viewed as an integral part of human life and health. People were aware of the beneficial effect of sleep and hypnotherapy was among the first psychotherapeutic procedures used. On the other hand, the curing of sleep disorders is one of the most effective natural treatments. Some of these methods are still applicable to problems of initiating or sustaining sleep, and may be even preferable to pharmacology. However, these practices cannot substitute for a medical treatment.

Our brief study draws on the research of sleep quality in college students. The data were collected using the Pittsburgh Sleep Quality Index (PSQI) questionnaire. This questionnaire was devised by a research team of Sleep Medicine Institute at the University of Pittsburgh. A relevant article was published by a group of authors in 1988 (Buysse, Reynolds, Monk, Berman, Kupfer, 1988).

The questionnaire gathers data on the proband's normal sleeping habits. It consists of 10 questions plus additional 10 sub-questions for self-assessment, with four possible answers differing in the frequency of a given situation during the past two weeks. The last item is not directed toward the respondent but to a person close to him or her who might be able to report on his or her sleeping habits.

The PSQI thus contains 19 self-assessing questions and 5 questions to be answered by a partner or a roommate. Only the self-assessing questions were processed though. The questionnaire is considered to be a clinical and diagnostic tool for mapping the quality of sleep. While the answers to questions for partners or roommates are valuable in clinical practice, they do not hold much significance for research.

That is why the last portion with comments on the subject by a close person was left out in data collection, and only the self-descriptive questions were evaluated further. The questionnaire examines the physiological process of sleeping and its somatic manifestations, as well as sleep hygiene and the quality of wakefulness as related to the quality of sleep.

Each of the 19 self-assessing questions was assigned the value of 0 to 3, where 0 meant "no problems in the area evaluated by this item" and 3 meant "major problems in the area evaluated by this item". The answers were evaluated in terms of seven factors: sleep quality, latency of falling asleep, sleep duration, sleep effectiveness, sleep interruptions, intake of sleep medications, and fatigue during the day. A completed questionnaire, with all items counted, yielded between 0 and 21 points with the lower number signifying a better quality of sleep.

The respondents in this research were students of combined study programs at Masaryk University in Brno, Faculty of Education. We elected to work with this type

of students on the assumption that they would include different age categories. By doing so we tried to eliminate the burden which, in regular full-time students, could be associated with the so-called student lifestyle that certainly impacts sleep quality to a considerable degree, and not always in direct connection with the studies. At the same time, we recognized the difficulties that may affect sleep quality in students of combined study programs.

These problems are difficult to avoid in any readily available group of respondents. However, the relationship between sleep quality and collegiate studies remains unchanged. The monitored group consisted of 106 respondents (40 men and 66 women). Their age ranged from 20 to 50 years, with the largest segment being 20 to 35 years old (65 %). The forms were filled voluntarily and anonymously. The average score obtained from the processed PSQI questionnaires for all respondents (N = 106) was M=6.08, SD=3.114.

The following paragraphs highlight briefly some interesting results of this research. Table 1 displays the responses indicating the time to fall asleep. Falling asleep happens to be the part of sleeping that is most often seen as problematic in sleeping disorders. A prolonged sleep latency is the most generally recognized aspect of an objectively low quality of sleep, and the most common reason for taking sleep-inducing medications.

Table 1. Responses to the question about the time to fall asleep.

	Number of Respondents	Percentage
10 minutes and less	53	50.0 %
Between 10 and 30 minutes	42	39.7 %
Between 30 and 60 minutes	8	7.5 %
More than 60 minutes	3	2.8 %
Total	106	100.0 %

The first inquiry throws an interesting light on the question how many hours are actually spent sleeping during the night (see Table 2). The time to fall asleep or to deal with interruptions can reduce the total sleeping time, which does not necessarily equal the time spent in bed.

Table 2. Responses to question about the number of hours spent sleeping during the night.

	Number of Respondents	Percentage
Less than 5 hours	4	3.7 %
5-7 hours	77	72.7 %
8-10 hours	24	22.7 %
More than 10 hours	1	0.9 %
Total	106	100.0 %

Comparing the results listed in Table 1 and Table 2, we find that the time to fall asleep is less than 10 minutes for 50 % of the monitored group, which does not significantly reduce the total duration of sleep. At the same time, nearly 73 % of the respondents claim their total sleep time to be between 5 and 7 hours. On the basis of these data, it could be asserted, per A. Prusinski's theory, that most respondents fall into the category of short sleepers (Prusinski, 1993).

The main focus of our survey was the issue of respondents' subjective quality of sleep. The responses to this inquiry, pictured in Graph 1, are interpreted in accordance with the general understanding of the term "quality". Any quality evaluation is subjective, which is precisely why it is such an important criterion.

With respect to sleep, we can therefore state that not fulfilling all somatic and physiological requirements of sleep does not necessarily reduce its perceived quality. The same results may be seen in the graph presented below, which shows that almost 50 % of the respondents consider the quality of their sleep to be reasonably good, and 80 % to be good overall. No more than 20 % of respondents rate the quality of their sleep as unsatisfactory.



Fig 1. Responses to the question about the subjective quality of sleep.

The positive findings regarding the quality of sleep in the monitored students can explain the low usage of sleeping medications. 87.8 % of respondents do not take any sleeping drugs. In light of this fact, Table 3 that follows may be surprising, since it shows that a rather high proportion of respondents have a feeling of sleep deficiency during the day. More than 50 % of all respondents admit having problems keeping awake on at least one or more occasions in the last week in the course of normal day-time activities, such as driving, taking meals, or socializing.

Table 3. Responses tracking the frequency of problems with keeping awake during the day.

	Number of Respondents	Percentage
Not even once during the last two weeks	46	43.4 %
1 time in a week	28	26.4 %
2 times in a week	22	20.8 %
3 and more times in a week	10	9.4 %
Total	106	100.0 %

Nevertheless, the responses to the next PSQI question about having enough energy to handle the normal daytime activities indicate that 46.2 % of respondents claim they can perform these activities with minimal problems and 21.7 % respondents with no problems at all. It appears that the subjective quality of sleep, which the results show to have a relatively high degree of positive correlation with the sense of sufficient energy to tackle the daily activities, is more meaningful than the objective physiological qualities of sleep.

This small-scale study supported by a brief and preliminary survey can be concluded by saying that the subjective quality of sleep in college students is being assessed as fairly positive, and it relates favorably to the management of day-to-day activities. Sleep reacts with extreme sensitivity to changes in both physical and psychic conditions.

Other influential factors could include weather, movement, diet, environmental conditions, noise, lifestyle, etc. With respect to health, sleep may be an indicator of mental stress, a secondary symptom in a number of diseases, or even the cause of an illness. In the realm of human health, sleep is therefore a phenomenon which is indispensable and interesting from all viewpoints of health philosophy modeled on a comprehensive biological-psychological-social approach to man.

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KVALITA SPÁNKU U VYSOKOŠKOLSKÝCH STUDENTŮ

Abstrakt: Spánek je stav organismu, který není dodnes zcela bezezbytku popsán. Skutečností však je, že ve svých somatických projevech může odrážet úroveň psychické pohody a naopak, kvalita spánku se významně podílí a prožívání kvality života. Pro sběr dat jsme použili dotazník Pittsburgh Sleep Quality Index (PSQI). Výzkumný soubor tvořilo celkem 106 respondentů (40 mužů a 66 žen), studentů vysokoškolského kombinovaného studia. Ukázalo se, že i když nejsou naplněny všechny somatické a fyziologické nároky spánku, nemusí ještě nutně být snížena úroveň prožívané kvality spánku. Subjektivní kvalita spánků u vysokoškolských studentů je hodnocena poměrně kladně a vykazuje pozitivní vztah ke zvládnání každodenních aktivit.

Klíčová slova: spánek, kvalita spánku, spánek u vysokoškolských studentů