

A STUDY ABOUT STUDENTS' SLEEPING HABITS

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Sleep is a complex process that we all experience every day. Without proper sleep we cannot function properly and the risk of several different health problems increases. The lack of sleep effects on our social- and work life. Learning becomes challenging and we become forgetful. Thousands of students around the globe are at risk of sleep deprivation which contributes to lower academic outcomes and furthermore to problems at work place. Therefore, I wanted to study students' sleeping habits and quality.

The purpose of this thesis was to provide information about overall sleep quality and habits among the students of Lapland University of Applied Sciences and the aim was to learn more about students' sleeping habits. This thesis was conducted by using a triangulation method which means using several different data collection methods to gain better and more accurate results. In this thesis the triangulation method included qualitative and quantitative methods. The data was collected from theme interviews to seven students and from the Internet questionnaire which was sent to every student of Lapland University of Applied Sciences.

The results show that in general students grade their sleeping habits good or average, however many admit sleeping worse than before. Stress seems to be the single most effecting factor on the sleep quality and duration. Other influencing factors were early school- and work hours, lack of exercising and certain bed time habits and rituals, to name a few. The students brought up the importance of the sleep because when they felt tired or had slept badly, they weren't able to perform well at school or at work. They felt that concentrating and learning was nearly impossible. According to the students the importance of sleep cannot be overestimated. This thesis is beneficial for nursing care because sleep is a part of normal health and it's often forgotten when thought about overall health.

Key words: sleep, sleep quality, sleep deprivation

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1. INTRODUCTION

We spend one third of our lives sleeping. Sleep is an essential part of human life. Without sleep the mind and body cannot function. When we don't get enough sleep we feel tired, easily irritated, hungry and not well. The right amount of sleep, yet again, makes us feel energetic and ready for daily challenges. During sleep the body heals itself, consolidates learning and memories and restores its chemical balance (Pietrangelo & Watson 2017).

Every one of us has experienced a bad night of sleep. Maybe we haven't got enough sleep because we went to bed too late or maybe we kept waking up in the middle of the night. Despite the reason the result was the same. We felt tired and not like ourselves the next day. For most people this happens only occasionally but for some people it's everyday life. According to American Sleep Association over 35% of adults in the United States are sleep deprived (American Sleep Association). Sleep deprivation can be intentional, it can be a result from a hectic work- or social life or even be a sign of a sleep disorder or other medical problem (Davis 2016).

The purpose of this thesis is to provide information about overall sleep quality and habits among the students of Lapland University of Applied Sciences and the aim to learn more about students' sleeping habits. These can be achieved by answering the following research questions: what are the common sleep habits among the students and what factors increase the risk of sleep deprivation among students.

The reason for the topic is purely a personal interest. We spend a huge part of our lives asleep, yet again sleep and dreams are still not fully understood. This thesis will be providing useful information about students' sleep quality, the average amount of sleep and about possible sleep related problems, just to name a few.

Sleep and dreams have always fascinated people. People know sleeping can be problematic or even cause problems but many people don't know why. Sleep should be a pleasant, fulfilling experience and not a burden or a thing to be worried of.

2. SLEEP AND ITS FUNCTIONS

2.1 A purpose of the sleep

Sleep is a part of normal daily life. It's a necessity that we cannot survive without. It is said that one can survive only so long without sleep before dying. That only proves how important sleep is. When we go to sleep our bodies don't shut down or go on a pause mode. They stay active and recover physically and mentally. During sleep the body's energy resources fill up, the wounds and illnesses heal and the body protects itself against illnesses. Our brains are very active when we are asleep. Even though we are not conscious our brain goes through everything that has happened during the day; it restores memories and deletes memories. It supports our learning and gets rid of unnecessary thoughts. The brain never pauses, it's always working (Pihl & Aronen 2015, 19).

The body has two biological mechanisms that regulate whether we are asleep or awake. One doesn't simply just get tired or fall asleep but it requires some biological processes. Sleep homeostasis, or simply sleep pressure, regulates how tired we feel. After sleeping well and waking up or in the mornings in generally, the sleep pressure is low which means that one doesn't feel tired. Through the day the pressure increases and we feel more tired so by the evening we feel so tired that we are ready for bed. This sleep pressure resets every night we are asleep and starts off again in the morning right when we wake up (Simon Kyle, 2018).

The other biological mechanism regulating our sleep schedules are the circadian rhythms or more commonly known as the body's natural clock. This natural clock is located in the brain, in the hypothalamus, and it consists of 20,000 neurons which create the suprachiasmatic nucleus (SCN). SCN functions are highly based on the light or darkness. It regulates the sleep-wake-cycle by producing a hormone called melatonin which makes us sleepy. When it's light outside the production of melatonin is very low and we stay alert. In the dark, however, SCN tells the brain to produce more of it and one gets tired. By this way the circadian rhythms participate in regulating the sleep-wake-system. (National Institute of General Medical Sciences, 2017.)

The amount of sleep a person needs can vary a lot. Many factors affect the amount of sleep a person needs. These factors include, for example, age, gender, overall health condition and a personal life. The age is a big factor in an individual need of sleep. Newborns and children less than 12 months old sleep a lot, in average 15-18 hours a day, when again seniors (age over 65) sleep only 6-7 hours a day. A person's individual development has a big effect on the amount of sleep the person needs. During one's development (e.g. childhood and puberty) the body requires more sleep in order to be able to physically develop. (Rintahaka 2016.)

American National Sleep Foundation (NSF) has published updated sleep recommendations in 2015. These recommendations based on a vast systematic sleep literature review give guidance what's the recommended amount of sleep for a person based on his age. The following table (see figure 1) presents the new, updated sleep duration recommendations (National Sleep Foundation 2015).

Age	Recommended	May be appropriate	Not recommended
Newborns <i>0-3 months</i>	14 to 17 hours	11 to 13 hours 18 to 19 hours	Less than 11 hours More than 19 hours
Infants <i>4-11 months</i>	12 to 15 hours	10 to 11 hours 16 to 18 hours	Less than 10 hours More than 18 hours
Toddlers <i>1-2 years</i>	11 to 14 hours	9 to 10 hours 15 to 16 hours	Less than 9 hours More than 16 hours
Preschoolers <i>3-5 years</i>	10 to 13 hours	8 to 9 hours 14 hours	Less than 8 hours More than 14 hours
School-aged Children <i>6-13 years</i>	9 to 11 hours	7 to 8 hours 12 hours	Less than 7 hours More than 12 hours
Teenagers <i>14-17 years</i>	8 to 10 hours	7 hours 11 hours	Less than 7 hours More than 11 hours
Young Adults <i>18-25 years</i>	7 to 9 hours	6 hours 10 to 11 hours	Less than 6 hours More than 11 hours
Adults <i>26-64 years</i>	7 to 9 hours	6 hours 10 hours	Less than 6 hours More than 10 hours
Older Adults <i>≥ 65 years</i>	7 to 8 hours	5 to 6 hours 9 hours	Less than 5 hours More than 9 hours

Figure 1. The sleep duration recommendations (National Sleep Foundation 2015)

2.2 Physiology of sleep

Sleep consists of two different kinds of sleeps; non-rapid eye movement (NREM) and rapid eye movement (REM) sleep. These two types of sleeps alter through the night in cycles which last approximately of 70-120 minutes. The first cycle is usually 70-90 minutes and the following one(s) longer than that. The cycle always starts with NREM sleep and ends in REM. Most of the sleep during the night is NREM sleep and REM sleep only conducts a small amount of overall sleep per night. (Colten & Altevogt 2006, 35.)

These cycles can be presented in a graphic table called a hypnogram (see Figure 2). These tables include all stages of sleep and the time/ length of the sleep as well. By presenting the different sleep patterns as a hypnogram it's easier to understand a person's sleep cycle. Each person has their own individual hypnogram and these can be utilized in detecting some sleep disorders, for example (Tuck 2017).

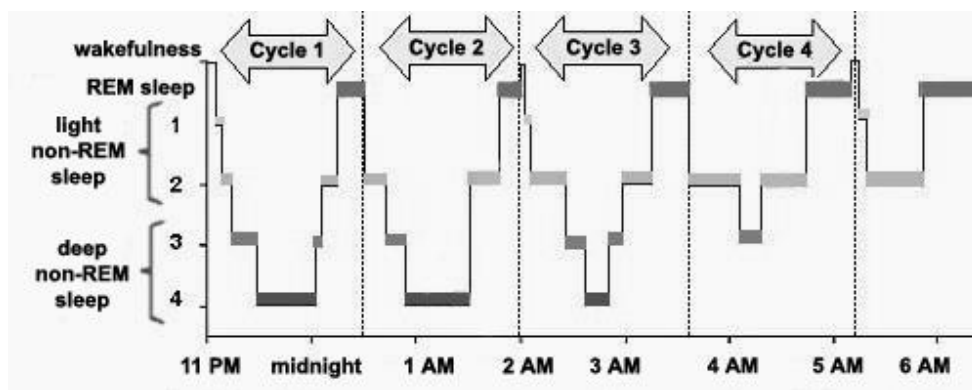


Figure 2. A typical sleep cycle pattern – a hypnogram (Oana Velicu 2015)

The different kinds and stages of sleep are created based on body's EEG (electroencephalographic) recordings and its changes that measure the electrical activity of cerebral cortex. There are four different brain waves: beta, alpha, theta and delta (see figure 3 below). In different stages of sleep a different brain wave is dominant. For example, when a person is wide awake the brain waves are mostly beta waves but when relaxing a little bit, they are mainly alpha waves. According to these changes in brain waves the sleep can be divided into previously mentioned REM and NREM sleep and NREM sleep even further into four different stages:

- Stage 1
- Stage 2
- Stage 3 (and according to some researches: Stage 4) (Franken & O'Donnell 2010; K.Susmakova 2004.)

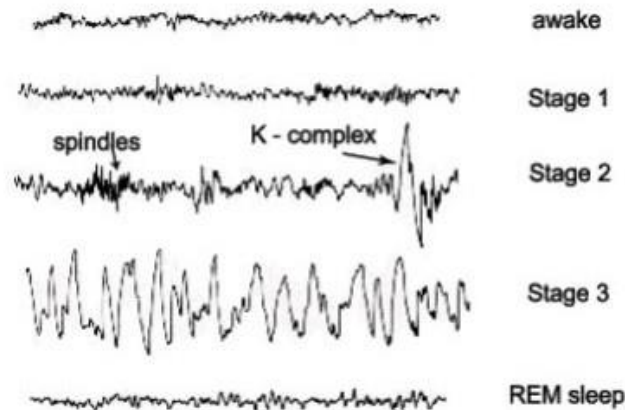


Figure 3. Wave pattern of sleep stages (K. Susmakova)

In stage 1 the sleep is very shallow and easily disturbed. During this stage people don't often even realize that they are sleeping. They simply feel drowsy. Sleep cycle usually starts with stage 1 NREM (excluding newborns and people with neurological conditions) and lasts from 1 to 7 minutes. Approximately 2-5 % of total sleep per night consists of stage 1 NREM sleep. This is the stage where a person may experience some involuntary kicks or twitching of the limbs. This is thought to result from the body's difficulty in adjusting to the completely relaxing stage from being awake and alert (Colten & Altevogt 2006, 35; Quit yer snoring 2014).

Stage 2 comes chronologically after the 1st stage. During this stage the sleep is deeper, although not the deepest yet to come. This stage of sleep lasts approximately 10-25 minutes during the first cycle and increases in later cycles. About 45-55 % of overall sleep per night is stage 2 NREM sleep (Colten & Altevogt 2006, 35-36).

Stage 3 is regarded as a deep sleep stage. During this stage the sleep is very deep and the person sleeping isn't easily woken up. This stage of sleep lasts from 20 to 40 minutes and it concludes 13-23% of overall sleep. During stage 3 NREM the depth of the sleep depends on the length of the time without sleep, person's age and

stimulation of the brain (e.g. studying) during the day. The longer one has stayed awake and the more he has stimulated his brain, the deeper the sleep is in stage 3 (Colten & Altevogt 2006, 35; Jordan 2018).

Approximately 20% of our overall sleep is rapid eye movement (REM) sleep. This is the part of the sleep where a person dreams and thinks a lot. During REM sleep person's eyes are usually rolling around and moving a lot behind the closed eyelids and that's where the name rapid eye movement sleep comes from. This is thought to be because of intensive dreaming. If people are woken up during the REM sleep they often remember their dreams unlike if woken up from NREM sleep. Unlike in NREM sleep, during REM sleep there's a complete muscle paralysis which is preventing us from acting out our dreams by blocking the neuronal connection between our muscles and the brain. (Härmä & Sallinen 2004, 29; Harvard Medical School 2007; Velicu Oana 2015.)

3. SLEEP PROBLEMS

Sleeping doesn't always go as smoothly as hoped. Sometimes we feel more tired after waking up than before going to bed. There are many factors influencing our sleep and sleep quality. The room temperature may not be ideal, a person may be suffering from common cold, a partner, children or pets could be disturbing the sleep, the environment can be too noisy... Sometimes the reason behind a bad night of sleep is an actual medical condition, a sleep disorder. Sleep disorders can affect one's health in many ways. In some cases, a sleep disorder leads to sleep deprivation and furthermore to several different health problems.

3.1 Sleep deprivation

Sleep deprivation, or lack of sleep, is a very common stage where a person doesn't get enough sleep. Nearly everybody experiences sleep deprivation at some point of their life. In Finland according to the recent Väsykysely study conducted by Prisma Studio and University of Helsinki 66% of applicants felt themselves tired nearly every morning and only 4 % of applicants felt energized when waking up. Finnish Institute of Occupational Health has also come up with the similar results in earlier conducted studies. In 1997 approximately 1/3 of people aged 24-65 acclaimed that they would need at least an hour more sleep each night. In 2000 it was studied that every 10th Finnish person was unsatisfied with their sleep. (Nurmilaakso 2017; Härmä & Sallinen 2004.) The more the world develops, the society and life get more demanding, the less we sleep.

According to Väsykysely there are some differences on how some certain age groups, sexes etc. experience sleep deprivation. According to the study results in average women are more sleep deprived than men. In women 66% felt themselves tired whereas with men the portion was only 53% (Nurmilaakso 2017). There are also differences behind the reasons which cause sleep deprivation among women and men. According to Härmä & Sallinen (2004,12) women tend to stress more about family life, children and work life than men. In middle age hormonal changes are also affecting women's sleep. With men the reasons behind sleep deprivation are more

linked to the work life. Women tend to stress about daily life generally more than men and these things can haunt them in their dreams.

Age has also a big impact when it comes to sleep deprivation. People of different ages need different amount of sleep per night. Children and teens/adolescents require more sleep than middle aged people and seniors the least. Typically, when a person gets older the demand for sleep decreases. However, this isn't the case when shifting from childhood to the teen years and adolescence. Adolescents require as much sleep as preteens when it comes to the sleep duration hours. The average amount of sleep adolescent needs is approximately 9 hours per night. The reality is often different. Adolescents often stay up late and when they wake up early in the morning the shortage of sleep contributes to the sleep deprivation and daytime sleepiness. Demanding education programs, work, social life, media etc. are studied factors that contribute to the sleep deprivation in adolescents. (Härmä & Sallinen 2004,12; Colten & Altevogt 2006, 57.)

The symptoms of sleep deprivation are very common and very well acknowledged. The most common symptoms include yawning, depressed mood, irritability, lack of motivation and difficulty in learning new things, carbohydrate cravings and fatigue. In a long run these symptoms put the person in risk for several health conditions such as hypertension, diabetes, heart diseases, obesity and stroke (Davis 2018; Colten & Altevogt 2006.)

3.1.1 School and sleep deprivation

Teens and adolescents often face difficulties at school if sleep deprived. School can be demanding and sometimes one needs to stay up late for doing homework or other assignments. They stay up late finishing mandatory assignments and wake up early to go to school. The average amount of sleep they may get during the week can be as little as 4-5 hours per night. They feel tired during the lessons and nothing seems to be staying in mind. They just want to go home and take a nap which leads later to the late-night studying. This is not so uncommon cycle among the students. School is now more demanding than ever before and it contributes to the sleep deprivation.

The problem is not only in poor performance at school but also outside of school; on the roads (drowsy driving), at home, with friends etc. (School related) sleep deprivation contributes to several mental and physical health problems (Richter 2015).

Some schools in several countries have shifted the school starting time into later. This way school aged children, teens and adolescents have a chance to sleep later. In the 1990s in Minnesota, US a local high school shifted their start time by 1 hour 10 minutes as an experiment to find out whether that would have an impact on teens' sleep deprivation and learning capabilities. The researchers found out that the students were less sleep deprived, they felt more energized and learned more during the day (Richter 2015).

Later on several other schools around the US followed the example and the results have been significant. The academic outcomes and the overall grade point average has increased and the usage of alcohol and tobacco products and drugs among teens has decreased by 8-14 % when teens were able to sleep eight to nine hours per night (Wahlstrom 2016).

Similar results were concluded in a study "The Pediatric Daytime Sleepiness Scale (PDSS): Sleep habits and School outcomes in Middle School Children" conducted by Drake, Nickel, Burduvali, Roth, Jefferson and Badia (2003). Poor grades at school are linked to sleepiness and sleep deprivation. When a child doesn't get to sleep eight to nine hours per night alertness and school performance become significantly impaired. According to the study those students who didn't succeed at school, those who had low school enjoyment and many absences slept less and had high levels of daytime sleepiness compared to those who succeeded at school.

In many surveys and studies it has been concluded that those students who succeed at school sleep significantly longer and go to bed earlier than those who succeed at school poorly. Even a small difference can matter. According to one study 17-33 minutes more of total sleep and 10-50 minutes earlier bedtime was common among highly succeeding students (A's & B's) compared to the poorly succeeding students (\leq C) (Wolfson & Carskadon 2003).

It is very common, especially for adolescents, to try to make up the missed sleeping hours during weekend. Academically it's not recommended because studies show that those students who change their sleeping schedule over the weekend succeed academically worse than those whose sleeping changes are not significant (Wolfson & Carskadon 2003).

3.1.2 Nursing and sleep deprivation

Nurses are at high risk for sleep deprivation due to irregular shift work and hectic work life. Due to sleep deprivation they are more likely to risk a patient's health and safety but also their own. It is studied that there is a strong link between making an error and the slept amount of time 24 hours prior the error occurrence. Those nurses who slept 6 hours or less during the last 24-hours were at 3.4% risk of making an error at work (Rogers 2008, 510-511).

Sleep deprivation and fatigue contribute to reduced reaction time, decreased vigilance and observation skills and impaired decision-making skills. In nursing work this can mean a lethal medical error (e.g. wrong medication or wrong dosage), difficulty in taking patient's overall condition into consideration (e.g. preventing pressure ulcers) or forgetting the aseptic way of working, to name a few. Sleep deprivation also increases the risk of needle injuries among health care staff. In the United States it is studied that those who work long hours (over 20 hours) suffer 61% more needle injuries after the 20th work hour. (Alewett 2013, 5-6; Lockley etc. 2007, 7.)

According to one study almost 70% of shift working nurses are sleep deprived and therefore at high risk of conducting a patient safety error. Those who work night shifts and rotating shifts (e.g. from an evening shift to a morning shift) are at higher risk of sleep deprivation than those nurses who have never worked in shifts. When sleep deprived the risk of patient error increases (Kaliyaperumal, Elango, Alagesan & Santhanakrishanan 2017, 1-3).

3.2 Sleep disorders

Different kinds of sleep disorders are very common. In the United States approximately 23% and in Finland 20% of population suffers from one or more sleep disorder. The most common sleep disorders are insomnia, restless legs syndrome, sleep apnea and narcolepsy. In addition, there are abnormal sleep behavior disorders (parasomnias) which include, for example, nightmares, sleep walking and sleep talking. (Gaultney 2010,94; Oivauni uniklinikka 2018; Phillips 2015; National Sleep Foundation.) In the following chapters only a few of mentioned will be discussed.

3.2.1 Insomnia

Insomnia is a health condition in which a person is unable to sleep properly. It's the most commonly reported sleep problem. In the 3rd edition of International Classification of Sleep Disorders (ICSD-3) insomnia is defined as a "trouble of initiating or maintaining sleep which is associated with daytime consequences and which is not attributable to environmental circumstances or inadequate opportunity to sleep." Difficulty in falling asleep and remaining asleep and waking up too early are common symptoms of insomnia. A person may have one or more of the symptoms or they might change depending on the night. (Colten & Altevogt 2006, 75; Sateia, Buysse, Krystal, Neubauer & Heald 2017, 309; Pihl & Aronen 2015, 25.)

Insomnia can be either a short-term or chronic condition. In short-term insomnia the person has trouble sleeping at least 3 times a week. In chronic insomnia the frequency per week is the same and the condition has lasted at least three months. Short term insomnia is relatively common because 30-50% people suffer from it at some point of their life, whereas only 5-10% suffer from chronic insomnia. (Sateia etc. 2017, 309.)

There are several factors that may increase the risk of insomnia such as stress and overactive brain, big life changes such as new job, romance or moving and health problems. Health problems may cause pain (and stress) that keeps the person from

sleeping well. Personality and genetics can also increase the risk for insomnia (Pihl & Aronen 2015, 26-27).

3.2.2 Sleep apnea

Sleep apnea is a disorder in which a person's breathing repeatedly stops and starts again while sleeping. The breathing pauses last at least 10 seconds at the time. There are two kinds of sleep apneas. The first and the more common one is obstructive sleep apnea (OSA) which is caused by blockage of upper airways during the sleep. Blockage of the airways causes oxygen deprivation which alerts the brain and furthermore wakes up the person. The other type of sleep apnea is known as central sleep apnea (CSA) which is a result of a signaling problem in the brain. (Pihl & Aronen 2015, 256-257.)

Sleep apnea is relatively common. In Finland it's estimated that approximately 150,000 people suffer from sleep apnea. It is more common among elderly but it can affect people of all ages. The common symptoms of sleep apnea are daytime sleepiness due to constant waking during the night, loud snoring, morning headache and dry mouth when waking up in the morning. Obesity is greatly associated with sleep apnea. With obese people thickened tissue or excessive fat can restrict the airway, make breathing more difficult and contribute to the sleep apnea. If sleep apnea is left untreated it can cause hypertension, cardiovascular diseases, diabetes or even stroke. (Pihl & Aronen 2015, 256; Davis 2018.)

4. LIFESTYLE CHOICES AFFECTING SLEEP

4.1 Tobacco and snus

Cigarettes and snus are associated with several sleep disorders and problems such as shortened sleep duration, snoring, daytime sleepiness and difficulty in falling asleep. People who smoke or use smokeless tobacco products such as snus have twice the odds of insufficient sleep. (Sabanayagam & Shankar 2010, 9.)

It is studied that tobacco products may influence one's sleep in four different ways. First, nicotine, the addicting chemical compound in tobacco, stimulates the release of neurotransmitters such as dopamine and serotonin which participate in regulating the sleep-wake cycles. Nicotine increases sleep latency and therefore leads to sleep disturbances. Secondly, hence the body's nicotine level lowers while asleep a person may wake up for withdrawal symptoms and cravings in the middle of the night. Thirdly, smoking cigarettes can cause several health problems, such as respiratory impairment, which contributes to breathing problems and disturbed sleep. Lastly, it is studied that those who have been exposed to high amounts of second-hand smoking have a high risk of sleep problems. (Dugas etc. 2017, 155.)

4.2 Alcohol

Alcohol effects sleep in both positive and negative ways. For non-alcoholics a small portion of alcohol (1g/kg) right before going to bed reduces sleep onset latency, consolidates sleep and increases stage 3 NREM- sleep. For alcoholics, on the other hand, the lack of alcohol causes changes in sleep architecture and insomnia which includes difficulties in falling asleep, reduced amount of sleep and decreased sleep efficiency. (Thakkar, Sharma & Sahota 2014, 302.)

Alcohol disturbs circadian rhythms by suppressing the production of melatonin, a hormone regulating a sleep-wake cycle and by boosting body's adenosine level. Alcohol diminishes the ability of the inner clock to respond to the light which contributes to the melatonin production. A moderate dose of alcohol within 60 minutes before going to bed can reduce the melatonin production by 20%. Increased adenosine level increases sleepiness and blocks the chemicals that stimulate

wakefulness. This results as tiredness during the day and contributes to abnormal sleep-wake cycle. (Breus 2017.)

Alcohol also affects the sleep physiology. During the first half of the sleep period alcohol doesn't affect sleep negatively. The body adjusts to the presence of alcohol and maintains a relatively normal sleep pattern. The amount of light- and REM-sleep in the first half of the sleep period is reduced but stage 3 (deep) sleep is increased. By the second half of the sleep period alcohol has been eliminated from the body in a process called alcohol metabolism which leads to increased wake-, stage 1 and REM- sleep periods. Due to these structural changes the person is easily awakened and the sleep isn't refilling. This shifting from deep sleep into light sleep is explained by rebound effect which can be described as sleep variables changing into opposite direction because of the alcohol consumption and returning to the normal level as the alcohol has been eliminated from the body. (Roehrs & Roth 2018.)

Alcohol increases the risk of different kinds of sleep disorders such as sleep apnea and excessive snoring. It reduces genioglossal muscle tone which predisposes a person to the upper airway collapse. High alcohol consumption also increases the daily calorie intake which may result in obesity and furthermore to sleep apnea. (Simou, Britton & Leonardi-Bee 2018, 44.)

4.3 Caffeine products

Caffeine is the most commonly used psychoactive substance in the world, coffee, soda and energy drinks being the most popular caffeine beverages. Caffeine improves the behavioral and cognitive performance, even when sleep deprived. On the other hand, it can also cause sleep related problems; problems falling asleep, increased nocturnal awakenings, reduced total amount of sleep and daytime sleepiness. The physiology of sleep can also be affected by caffeine. Caffeine increases sleep latency, decreases stage 2 and 4 NREM-sleep and decreases sleep duration. The latter were found by conducting a polysomnography (a specialized sleep study). (Chaudhary, Grandner, Jackson & Chakravorty 2016, 1193-1194.)

A high consumption of caffeinated beverages in a day is associated with reduced sleep duration and quality, according to several different studies. Among the US middle school students those who consumed higher amounts of caffeine had shorter nocturnal sleep duration. In France women who had more than 8 cups of coffee per day had significantly decreased sleep duration and in a study conducted in military those who consumed more than 3 caffeine beverages in a day slept as little or less than three hours per night. (Pollak & Bright 2002; Sanchez-Ortuno etc. 2005, 250; Chaudhary etc. 2016, 1194.)

Caffeine impacts body's melatonin levels and therefore interferes with the sleep-wake cycle. A daily consumption of ≥ 5 cups of coffee or 200mg caffeine capsule interfere with the melatonin secretion decreasing it by over 30% at night. Caffeine also influences the sleep latency and efficiency by reducing them and changes the physiology of sleep in its different stages. According to the studies women tend to experience the effects of caffeine more than men (35%/27%). (Clark & Landolt 2016, 73.)

4.4. Physical activity

There are several different theories on how physical activity, such as exercise, effect sleep. According to one theory, physical activity effects body's sleep-wake cycle by regulating the production of melatonin. The effect, however, is controverse because in different situations the melatonin production can be either increased, decreased or there may be no effect at all. For example, exercising late at night delays the melatonin onset which may cause problems falling asleep. On the other hand, studies show that plasma melatonin levels increase shortly after exercising which contributes to sleepiness. (Escames etc. 2011, 3-4.)

Exercise promotes sleep by regulating body temperature. During and after exercise body's temperature rises which causes exercise-mediated hyperthermia. A slight increase in body temperature (1.5-2.5 C) has been proven to shorten sleep latency and to enhance deep sleep stages. These improvements are explained by alterations circadian rhythm of core body temperature. (Atkinson & Davenne 2006, 230-231.)

Regular exercise is linked to the prevention of sleep problems and disturbances. An exercise lasting at least an hour is sleep promoting and effective at reducing the daytime sleepiness. The effectiveness is based on alterations in sleep parameters (e.g. duration and frequency) and efficiency. Regular exercise promotes deep sleep and overall sleep duration. Exercise is also proved to reduce the number of nightmare occasions. (Sherill, Kotchou & Quan 1998, 1896-1897.)

4.5 Sharing a bed

Whether one sleeps alone or shares a bed with a partner, child and/or pet can affect one's sleep quality and sleep hygiene. Among children bed sharing is studied to increase sleep anxiety and daytime sleepiness. Similar results are found when parents share their bed with a child. Co-sleeping with the child puts the parents into the risk for sleep deprivation and increased stress which furthermore can cause marital conflicts. (Liu, Liu & Wang 2003, 843; Roberts 2014.)

Sharing a bed with a partner can be bad for sleep if one suffers from a sleep problem. Snoring, restless leg syndrome and sleep talking, to name a few, can disturb the other's sleep and decrease the sleep quality and duration. The sleepless person may also wake up the other sleeper which leads to both suffering from disturbed sleep. On the positive side, sharing a bed with a partner creates a sense of safety and companionship which are regarded beneficial (Manber 2007, 935-936).

A great number of people either share their bed or bedroom with a pet. Most often with cats or dogs. Sharing a bed with a pet is beneficial social wise (e.g. bonding between the owner and the pet) but it increases the risk of health hazards and decreases the sleep quality. Co-sleeping with a pet increases the time to fall asleep and the daytime tiredness. (Thompson & Smith 2014, 116-117.)

4.6 Napping

Napping during the day is beneficial. It reduces the drive to sleep, helps improving cognitive performance, decreases reaction time and improves attention and vigilance. It is said that those who sleep well at night take regular naps during the

day. Napping is important especially for those who work at night time and in shifts. Taking a long 1-2 h nap before going to work at night improves the performance and vitality significantly (Hartzler 2013, 312; Härmä & Sallinen 2004, 81).

An ideal nap lasts 10-30 minutes, is taken between 1-5pm when it doesn't interfere with nighttime sleep and consists of light, stage 1&2 sleep. If the nap lasts longer than recommended, the recovery takes a longer time and a person may feel drowsy for quite a long time. (Partinen & Huovinen 2011, 150-151.)

4.7 Stress

The most common reason behind an acute insomnia is stress. Sleep deprivation and insomnia are common when stressed. When stressed the sleep structure changes so that deep sleep is decreased and light sleep increased. Stress also causes waking up during the night and problems falling asleep. Usually sleep problems ease after the stress problem vanishes. However, it is also possible that the sleep problems still remain after the stress factor has vanished. This is called psychophysiological insomnia. The person is then, for example, afraid of insomnia and cannot sleep because of that. (Härmä & Sallinen 2004, 70-71.)

Cortisol is a stress hormone. It influences on how well the person is able to fall asleep. When stressed the blood cortisol levels rise which makes it harder to fall asleep. A person feels alert and not sleepy. This contributes to problems not only falling asleep but staying asleep as well. Increased cortisol levels may also have an influence on increased blood pressure levels and heart rhythm which furthermore can disturb sleep (Paunio & Porkka-Heiskanen 2008, 696-697).

According to Partinen and Huovinen (2011, 126-127) work related stress causes acute or chronic insomnia symptoms for every 5th person. Work is seen as too demanding and there isn't enough social support. These factors cause sleepless nights and insufficient amount of sleep. Overall, among the working and non-working population approximately one third of adults experience stress related occasional insomnia each year.

4 THE PURPOSE AND AIM OF THE THESIS

The purpose of this thesis is to provide information about overall sleep quality and habits among the students of Lapland University of Applied Sciences. This includes finding out, for example, what's the average amount of sleep students get per night, what's the average sleep quality, what are the most common things disturbing sleep and how common the sleep deprivation among the students is. By analyzing the data from the questionnaire and the interviews risk factors for sleep deprivation are also noted in the thesis.

The old proverb says that the sleep is the best medicine. Lack of sleep can result as a health problem and yet again sleep can cure some conditions. Therefore, the aim of the thesis is to learn more about students' sleeping habits. The information provided in this thesis can be utilized for further studies and it helps to have better knowledge about the current sleep habits.

In this thesis answers for the following questions will be provided:

- What are the common sleep habits among students?
- What factors increase the risk of sleep deprivation among students?

6. IMPLEMENTATION

This thesis was conducted by using both qualitative and quantitative methods which is also known as triangulation method or as a mixed method. This method was chosen because the idea was to analyze and research collected data from different perspectives. This method provides deeper understanding of researched questions.

6.1.1 Research methods

The first research question in this thesis was researched by using a qualitative research method. Qualitative research is a form of research which focuses on how humans experience some certain issue or phenomena. It tends to understand, describe and interpret the behavior, feelings and experiences of a human kind. It generalizes the specifics and forms theory based on the data. The theoretical framework is not predetermined but the researcher needs to know what he's researching to collect data from the researched phenomena. (Holloway & Galvin 2017, 3-4.)

The data in a qualitative research is collected in natural, real settings. The most common data collection methods are interview, a questionnaire, observation and knowledge based on different documents and documentations. These are used either as alternative, side by side or combined in different ways based on the research questions. (Holloway & Galvin 2017, 3; Tuomi & Sarajärvi 2011, 71.)

The second research method used in this thesis is a quantitative method which is used to explain how things are connected or different from each other. The purpose is to build, explain, renew, dissemble or clarify the previous theories and theoretical concepts. In a quantitative research the numerical data is collected from various sources and analyzed using statistics. The researcher presents the results in numbers and explains the essential statistics using words objectively (Vilkka 2007, 25,14).

In a quantitative research the researcher must familiarize himself with the previous studies and theory about the researched phenomena before collecting data. The

researcher forms a hypothesis, an idea which hasn't been tested yet, based on the previous studies and theory. The hypothesis is then proved either right or wrong, based on the collected and analyzed data (Heikkilä 2005, 22).

The most common data collection methods in a quantitative research are a post-, internet- and form questionnaire and systematic observation. The recommended number of minimum participants (N=100) guarantees that the researcher can form perceptions of the viewpoint and explain the researched questions statistically (Vilkkä 2007, 27, 17).

Triangulation method is defined as using multiple theories, materials or data collection methods in a research paper. It strengthens the research by increasing credibility and validity. It allows the researcher to analyze the researched phenomena from several different points of view (Saaranen-Kauppinen & Puusniekka 2006). This thesis was conducted by using methodological triangulation because using only a qualitative or a quantitative method wouldn't have provided as detailed information about students' sleep habits and quality (Guion, Diehl & McDonald 2002, 2-3).

6.2 Data collection

An interview is easy and flexible data collection method in a qualitative research. When a researcher wants to know what people think of a certain phenomenon it is easier to ask straight from a participant. The most important thing is to gain as much information about the researched phenomenon as possible. Hence, the researcher can, if needed, repeat the question, clarify the phrasing or revise the misconceptions which are not possible to do in different forms of data collecting methods (Tuomi & Sarajärvi 2011, 72-73).

Theme interviews are half structured, meaning that the interview is done following some beforehand chosen themes and questions related to them. The questions can be either partly open ended or completely open ended or both. The questions asked have to provide answers to themes which have been created before the interview. The researcher aims to open the researched phenomenon as profound as possible

and therefore it is not obligatory to interview so many. (Tuomi & Sarajärvi 2011, 75-77.)

The research data for the first research question “What are common sleep habits among students” was collected from theme interviews to 7 students of Lapland University of Applied Sciences (LUAS) in February 2018. This data collection method was chosen because the base of the interviews was previous data and researches. The themes for the interviews were *falling asleep & sleeping* and *the influence of sleep*. These interviews were held individually and during each interview a participant answered to the same 13 main questions, some including several questions related to the main one. Each interview was recorded and written out during the thesis process. Interviews were carried out either in Finnish or English, depending on the participant’s language preference. See appendix 1 for the questions.

All students interviewed study in Kemi in nursing-, social services- or engineering programs. The interviewed students varied from the 1st to 4th bachelor study year. Master degree students were not interviewed for this thesis. Also, students from Rovaniemi or Tornio were not interviewed because of the long-distance problems.

The data for the second research question was collected via online questionnaire which was sent to every student of LUAS. A questionnaire is one of the quantitative research methods and it’s used when there are many participants located far away from each other. The questionnaire can be available either via mail or online. When using a questionnaire the researcher is interested in people’s attitudes, opinions, behavior and experiences (Vilkka 2007, 28).

When participating in a questionnaire, every single person answers the same questions, in a same order and in a same way. The questionnaire should be well structured, clear enough and it should attain a participant’s attention. A good questionnaire is pre-tested and every question is closely considered whether it should be used or not. Too long of a questionnaire may affect people’s answering rate. (Vilkka 2007,28; Heikkilä 2005, 48-49.) The questionnaire for this thesis was pre-tested by five students from different schools. By pre-testing the questionnaire, I was

able to clarify some questions and found out whether all the questions were needed and whether they served the purpose of this thesis or not.

For this thesis the questionnaire was created using Google Forms application and then sent to the students of LUAS via email on January 17th, 2018. The questionnaire included 19 multiple choice questions of which 18 were mandatory. The questionnaire was created in both Finnish and English versions in order to get more precise data. In total of 1029 students answered the questionnaire between January 17th and February 17th, 2018. 967 of them were Finnish students and 62 were international students. See appendix 2 and 3 for the questionnaire questions.

6.3 Data analysis

When analyzing the data collected for the first research question the analysis focuses on the experiences and opinions of the interviewed about falling asleep & sleeping and the influence of sleep. After collecting and writing the data, it is being analyzed. In a qualitative research an inductive content analysis can be used to describe and explain the data collected. Inductive analysis means that the individual observations are used to create general assumptions/notices. This form of analysis can be used in every qualitative research and it makes it possible to analyze the data systematically and objectively. (Saaranen-Kauppinen & Puusniekka 2006; Tuomi & Sarajärvi 2011, 91, 103.)

A content analysis is based on a speculation where the researcher proceeds from empirical research material towards more conceptual vision of researched phenomena. Empirical research is the same as observative research. The research material is collected by observation. The collected data is the baseline and starting point for the research. (Tuomi & Sarajärvi 2011, 112; Jyväskylän Yliopisto 2015.)

The first step of the content analysis is to write out the collected data. By this way the researcher becomes familiar with the collected data and starts somewhat analyzing it (Kylmä & Juvakka 2007, 65). In this thesis this meant writing out the interviews word by word. After writing out the interviews the data was ready to be analyzed.

This type of analysis can be divided into three main phases: reduction, clustering and abstraction of the collected data. In the reduction phase the data to be analyzed is written out and modified so that all unnecessary things are ruled out. The data can be simplified or even chopped in pieces. After that the simplified data is scanned through and simplified for similarities and differences based on the original expressions. This is called clustering. The last phase, abstraction, is described as separation of the essential data and creation of theoretical concepts. (Tuomi & Sarajärvi 2011, 108-111.)

I decided to start analyzing the collected data by the chosen themes: falling asleep & sleeping and the influence of sleep. I followed the three main steps of the data analyzing that are mentioned above and in the end decided to separate the results into six main points. I started writing out the interviews a week after I had interviewed everyone. At that time I was still able to remember each interview session pretty well. The collected data was analyzed in late February 2018 and the results written in March 2018.

The second research question and the data collected for it was analyzed slightly differently. In a quantitative research the process can be divided into four main phases: collecting, handling, analyzing and interpretation of the data. Before analyzing the collected data it must be handled. This means that the collected data is checked for mistakes. The researcher goes through the collected answers and deletes those forms that have been filled out incorrectly. After that the remaining data is entered and saved to the computer using a form which makes it possible to analyze the data using statistical programs. If using an online questionnaire the data can be often transferred directly to the statistic program which saves time (Vilkkä 2007, 106,112). Because I collected the data using the Google Forms program the data couldn't be transferred straight to the analyzing program and instead I had to transfer it manually.

When analyzing a huge amount of answers it is possible to only select some of them. This is done using sampling. In a systematic random sampling the first unit is chosen either selectively or randomly out of the first 10 units. The remaining ones are then chosen so that the distance between each chosen one is the same, for example every

10th after the first chosen unit (e.g. 4,14,24....). (Vilkka 2007, 53-57). Because I had collected data from two different questionnaires, an English and a Finnish one, I decided to choose all of the English ones and the same amount of Finnish ones. 62 people had answered the questionnaire written in English but only 55 were filled out correctly. From the Finnish one I also chose 55 so the total amount of participants included for this research question was 110. From the Finnish ones I first chose number 1 and then took every 17th answer.

In a quantitative research the analyzing method is chosen based on the researched phenomena. The analyzing method is predicted when planning a research but the final analyzing method is often chosen after trying out different analyzing methods. If the purpose of the research is to gain information about distribution of one variable location number, e.g. mean and mode, is used. If the purpose is, however, to gain information about how things differ from each other statistical dispersion, e.g. medium observation and range, is used. If the researcher aims to analyze a correlation of two variables he uses cross tabulation and/or correlation coefficient (Vilkka 2007, 119). Data analyzing happens using some specific statistic program on a computer. I used SPSS Statistics program which was available on school's computers.

Even though the data was fully collected by the end of February 2018 I didn't analyze it until May 2018. This, however, didn't affect the reliability of my research. For analyzing I used several different analyzing methods in order to get better answers. For some simple questions I only wanted to know the mean and for other questions I used cross tabulation. I tried out different kinds of analyzing methods for each question and chose the one I thought was the best.

In a quantitative research the results are presented numerically or using graphics which are then explained by words. The graphics alone are not sufficient but they need words to increase the understanding and vice versa. The most common graphics used for presenting the data are bar-, pie- and line charts and tables. The graphic chosen depends on the researcher and his wishes on how to present the results (Vanderbilt University 2010).

7. RESULTS AND CONCLUSION

In this part the results of the research questions are presented. Findings and results for both research questions were similar and linked to each other. These results are first presented individually in their own chapters and finally discussed and concluded in a conclusion part.

The results for the qualitative research question “what are the common sleep habits among the students” are presented in chapter 7.1 and the results for the quantitative research question “what factors increase the risk of sleep deprivation among students” in chapter 7.2.

7.1 The common sleep habits among the students

Based on the interviews I decided to divide the results into six main points; napping, bed time rituals, daily life and sleep, good sleeper vs. bad sleeper, sleep history and tiredness. See the appendix 4 (in appendices) for the qualitative content analysis model used in this thesis. Figure 4 presents the main findings of the first, qualitative, research question.

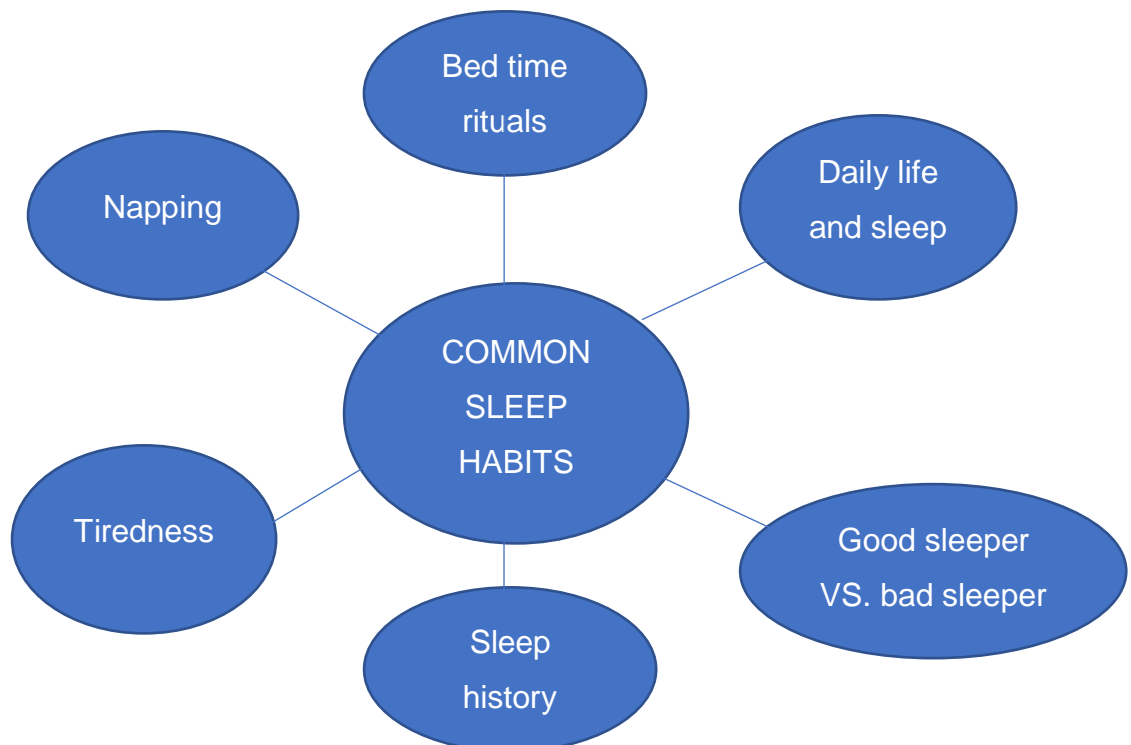


Figure 4. Common sleep habits among the students

7.1.1 Daily life and sleep

All participants felt like their sleep habits were connected to the daily life. During weekdays school and work restricted the amount of sleep significantly and over the weekend and free days they tried to catch up with their sleep. The amount of sleep during the week varied from 5-8 hours whereas during the weekend the average was about 9-10 hours. The time participants usually went to bed varied a lot. Whereas some went to bed around 9 pm others stayed up past midnight during the week and during weekends even longer. Similar thing was noticeable with the waking times. Most participants woke up around 6-7am during week but at weekends some woke up already around 8am and others slept until 10-11am. There was not really a standard time or duration regarding sleeping. Most participants felt like they had pretty regular sleep schedules for week days and weekends but some mentioned that they didn't have a regular sleeping schedule at all. The following quotations from interviews are in their original form or translated from Finnish to English.

"I don't have this proper sleep schedule. It is really changing because of working or practicing in three shifts."

"Mun unirytmii on tosi säännöllinen niin arkena kuin vapaalla. Menen nukkumaan 21-22 välillä ja herään 7-8 aikaan." (My sleep schedule is very regular during week and weekends. I go to bed around 9-10pm and wake up at 7-8am.)

All participants mentioned that stress influences their sleep significantly. During stressful times the sleep is not refreshing, the amount of sleep is reduced and sleep is shallow according to the interviews. School, work and personal conflicts were mentioned to be the most influencing factors. The amount and quality of sleep had a huge impact on school work. Every interviewed person mentioned that if they haven't slept enough concentrating and learning at school becomes very challenging, nearly impossible. Lack of sleep didn't only affect the psychological behavior but also caused physiological problems such as headache and eye sensitiveness.

"Jos on nukkunut huonosti niin ei jaksa keskittyä tunneilla ollenkaan." (If I have slept badly I can't concentrate at school at all.)

"I can't concentrate at school if I've slept badly. Physically I can't concentrate that well either because my eyes are so tired."

"En jaksa keskittyä ollenkaan, mikään ei jää päähän eikä edes kiinnosta kuunnella jos väsyttää ja on nukkunut huonosti." (I can't concentrate on anything, nothing stays on my mind and I'm not even interested in listening if I'm tired and slept badly.)

7.1.2 Good sleeper Vs. bad sleeper

Based on the interviews participants were either good sleepers or bad sleepers. There weren't in-between sleepers. Those who slept well had semi regular sleep schedules, they slept more than those who regarded themselves as bad sleepers and they didn't have any problems falling asleep. Those who were considered as bad sleepers slept shorter duration, had problems falling asleep, irregular sleep schedule and their sleep was easily disturbed.

"Olen aina ollut tosi hyvä uninen ja saan kyllä heti unen kun menen pötköttämään. Ikinä ei oo ollut mitään ongelmia." (I've always slept really well and I fall asleep immediately when I go to bed. I've never had any problems.)

"I used to be a good sleeper but not anymore. If I wake up in the middle of the night I have problems falling asleep and the sleep is not solid. I can't really sleep well anymore."

7.1.3 Bed time rituals

All interviewed mentioned having some bed time rituals. Everyone mentioned eating a light snack before going to bed, brushing their teeth, going to the toilet and possibly taking a shower. Wearing a certain kind of clothing in bed was also regarded as a bed time ritual/habit. In addition to those, electronical devices were regarded as common bed time rituals.

Nearly all interviewed mentioned spending time on their cell phone right before going to bed. According to the interviewed checking the social media right before going to bed helps them to fall asleep and relax. Most mentioned checking the social media but playing different games on their phone before going to bed was also very common. Other electrical devices such as tv, tablet and laptop/computer were also brought up as bed time rituals.

“Aika paljon räplään puhelinta just ennen nukkumaan menoa. On helpompi nukahtaa kun tietää, että on varmasti nähnyt kaikki viimeisimmät uutiset ja päivitykset.” (I spend quite a lot of time on my phone right before going to bed. It’s easier to fall asleep knowing that I’ve seen all the recent news and updates.)

Those who didn’t mention cell phone or other electrical device as their bedtime ritual tend to relax and avoid electrical devices before going to bed. They mentioned that the light from a phone/other electrical device makes it harder to fall asleep and the tv-shows or movies interfere with sleep by coming to the dreams and by making them anxious.

“Yritän olla käyttämättä mitään elektronisia välineitä mistä tulee valoja, koska ne vaikeuttaa nukahtamista.” (I try to avoid all electrical devices that shine light because they make it harder to fall asleep.)

“I try to do something relaxing and avoid my phone, for instance, because when I’m calm I can catch sleep easier.”

7.1.4 Napping

According to the interviewed napping during the day was either beneficial or harmful. Most interviewed mentioned that they don’t nap during the days because it interferes with their nighttime sleep. The interviewed were afraid that if they slept during the day they wouldn’t be able to sleep at night. Some also mentioned that napping makes them feel more tired.

The ones who nap during the day take naps regularly, at least a few times a week. They said that napping 30 mins- 1,5h a day helps them to restore their energy levels and they feel more active for the rest of the day. They were not afraid of losing their nighttime sleep and napping didn't have any effect on that.

"If I take naps during the day I won't be able to sleep at night. That's why I nap maybe 2-3 times a year."

"Yleensä nukun reilu tunnin päikkärit lähes päivittäin. Muuten en jaksais tehdä illasta mitään mutta päikkäreiden jälkeen tulee uutta virtaa." (I usually nap over an hour almost daily. Otherwise I wouldn't have energy to do anything in the evening but after napping I feel more energized.)

7.1.5 Tiredness

Every interviewed student mentioned feeling tired almost all the time, especially during the week. During weekends they could catch up with sleep and they felt themselves a little less tired, however, still tired. Early school time, irregular work hours and stress were the most contributing factors to the bad night of sleep and therefore to the tiredness.

"I guess 95% of the time I feel tired."

"Arkisin koulussa ja töissä oon tosi väsynyt, viikonloppuna en niinkään paljon." (During the week at school and work I feel really tired, during the weekend not so much.)

7.1.6 Sleep history

Interviewed felt like their sleep habits and/or quality had changed over the years. However, there wasn't really one common factor but many different changes were mentioned. Many students mentioned that they sleep less now than 10 years ago, for example. Stress and daily life has more impact on the sleep schedule and quality. Some students had also changed from early birds to night owls or vice versa. This

meaning that earlier they used to wake up and go to bed early and now they stay up late and sleep late or the opposite. In general, everyone said that the older they get the worse they sleep.

“Pienempänä olin aamuvirkku ja heräsin aina seitsemän aikaan. Nykyään voisin valvoa tai nukkua vaikka kuinka pitkään.” (When I was younger I was really a morning person and I always woke up around 7am. Now I could stay up or sleep as long as possible.)

“Stress is more effecting my sleep than 10 years ago and I sleep much less now.”

7.2 Risk factors for sleep deprivation among the students

The results for the second, quantitative, research question “what factors increase the risk of sleep deprivation among students” are presented in the following tables and bars. These graphics and tables are created based on the answers of 110 students who answered the Internet questionnaire. The students were chosen randomly out of all participants of the questionnaire using a random sample method. More bars and tables are presented in the appendices.

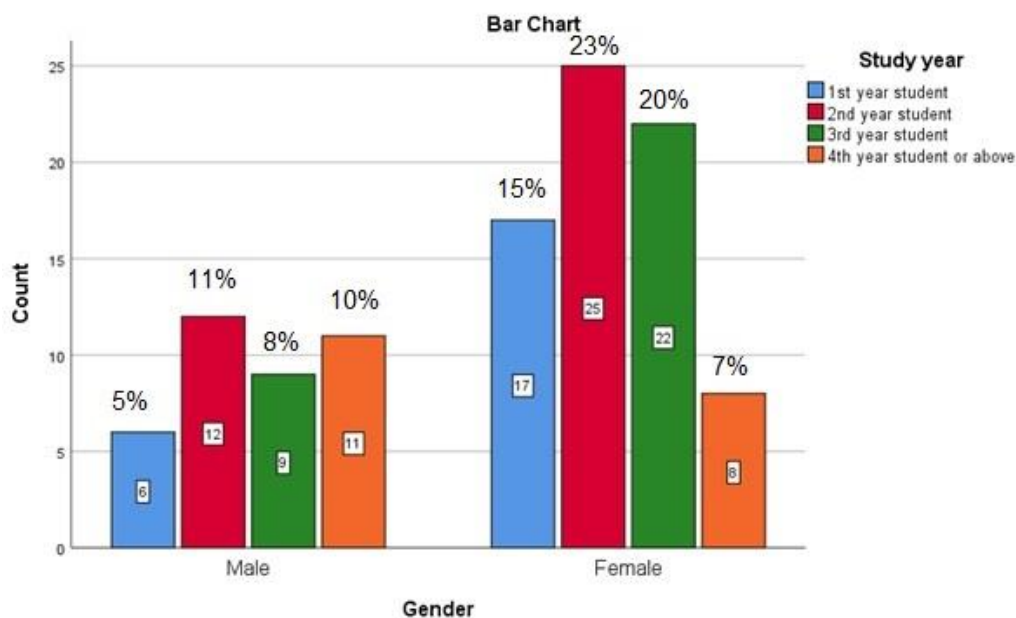


Figure 5. Gender & study year

From figure 5 bar chart we can see that female students participated more in the questionnaire than male students. With female the number of participants was $n=72$ (65%) and with male $n=38$ (35%). When looking at the different study years we notice that with both genders the second-year students were the most active at answering the questionnaire. With male the least active participants were the first-year students ($n=6$) and with female the fourth-year students or those who have studied even longer ($n=8$).

		Age	
		Frequency	Percent
Valid	18-25	63	57,3
	26-33	25	22,7
	34-41	14	12,7
	42-49	4	3,6
	over 49	4	3,6
	Total	110	100,0

Table 1. Age

18-25 years old students present the highest number of participants in the questionnaire. Out of 110 students $n=63$ are 18-25 years old which equals to 57,3% of all participants. The least active participants come from age groups 42-49 years and over 49 years old students. In both age groups only $n=4$ students participated which equals to 3,6%. (See table 1.)

How many hours do you sleep in average during the night during the week?

		Frequency	Percent
Valid	Less than 5h	9	8,2
	5-8h	90	81,8
	9-11h	11	10,0
	Total	110	100,0

Table 2. The average sleep duration during the week

From table 2 we see that majority of students n=90 (82%) sleep 5-8 hours per night during the week. Those who sleep less than 5 hours (n=9) present only 8% of all participants and those who sleep 9-11 hours (n=11) 10%. None of the students answered that they sleep over 11 hours per night and that's why it's not visible in the chart. Please note that this chart only represents the overall sleep duration during the week and not during weekends or free days.

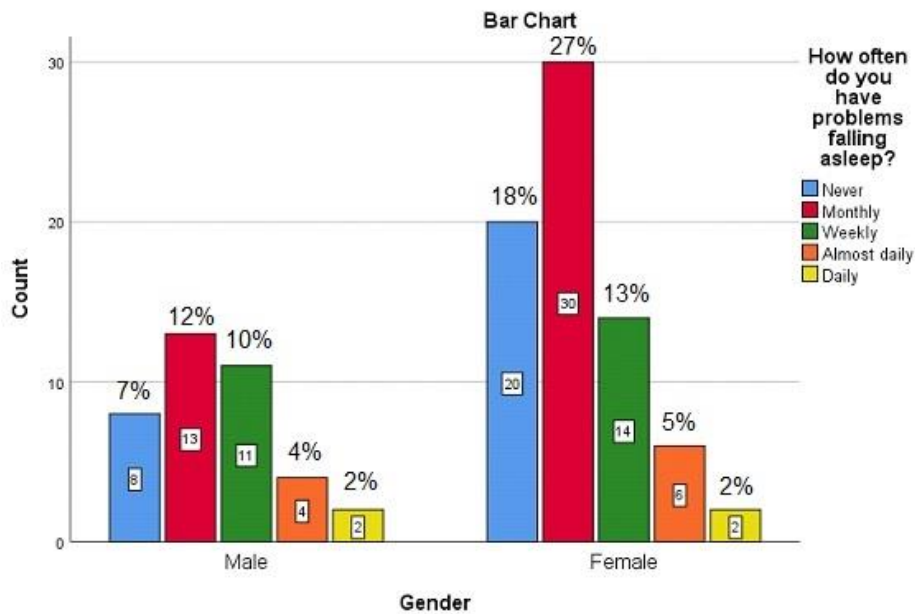


Figure 6. Frequency of problems falling asleep & gender

When asked about the frequency of problems falling asleep (see figure 6) we can see that most students claim to have problems falling asleep. With both genders most students say that they have problems falling asleep monthly. With female this means n=30 (27%) and with male n=13 (12%). Whereas majority of students say that they have problems falling asleep varying from monthly to daily, some students also claim never having problems falling asleep. With male n=8 (7%) and female n=20 (18%) says they never have problems falling asleep.

		How would you grade your overall sleep habits and quality?					Total
		Very good	Good	Average	Poor	Very poor	
Do you sleep alone or share a bed with someone?	Alone	4	22	24	5	2	57
	Sharing	5	24	17	7	0	53
Total		9	46	41	12	2	110

Table 3. Sharing a bed & overall sleep habits and quality

When asked about sharing a bed (see table 3) the answers divide very equally between sleeping alone and sharing a bed. N=57 (52%) students sleep alone and n=53 (48%) share a bed. There are not any significant differences in sleep quality between those students who share the bed and those who don't. Most students recall their overall sleep habits and quality good no matter if they sleep alone or not.

Do you nap during the day? * How would you grade your overall sleep habits and quality? Crosstabulation

How would you grade your overall sleep habits and quality?

		Very good	Good	Average	Poor	Very poor	Total
Do you nap during the day?	Yes	2	5	3	4	1	15
	No	1	18	13	3	0	35
	Sometimes	6	23	25	5	1	60
Total		9	46	41	12	2	110

Table 4. Napping & overall sleep habits and quality

See table 4. Majority of students, n=75 (68%), say they are napping either regularly or sometimes occasionally. N=35 (32%) students say they are not napping at all. When comparing those who nap regularly and those who don't nap at all it seems like those students who don't nap sleep generally better. From those who don't nap n=18 say they would grade their overall sleep habits and quality good whereas among those who nap regularly the amount is only n=5. When compared all together, those who nap sometimes seem to be having the best sleep quality and habits.

Do you use alcohol?

		Never	Rarely	A few times a month	Weekly	Total	
Problems	Snoring	Count	3	13	13	2	31
	Sleep talking	Count	4	7	10	2	23
	Sleep walking	Count	0	1	1	1	3
	Sleep medication	Count	0	1	1	0	2
	Sleep apnea	Count	0	1	1	0	2
Total		Count	7	18	22	3	50

Percentages and totals are based on respondents.

Table 5. Sleep problems & alcohol consumption

The students were asked whether they have any sleep related problems such as snoring or sleep walking. They were asked to mark all that apply. When comparing alcohol consumption and sleep problems we notice that those who drink rarely or a few times a month have more sleep related problems than those who never drink or drink weekly-daily. Snoring (n=31) and sleep talking (n=23) were the most common sleep related problems and especially among those who drink rarely (snoring n=13 and sleep talking n=7) or a few times a month (snoring n=13 and sleep talking n=10). Based on the results occasional alcohol usage seems to increase the risk of sleep related problems. Those who never drink or drink weekly seem to have less sleep related problems than those who use alcohol only occasionally. (See table 5.)

Sleep problems*Smoke Crosstabulation

			Do you smoke?		Total
			Yes	No	
Problems	Snoring	Count	6	25	31
	Sleep talking	Count	4	19	23
	Sleep walking	Count	0	3	3
	Sleep medication	Count	0	2	2
	Sleep apnea	Count	0	2	2
Total	Count		8	42	50

Percentages and totals are based on respondents.

Table 6. Sleep problems & smoking

Majority of those who have some kinds of sleep problems are non-smokers, n=42 (84%). Snoring n=31 (62%) and sleep talking n=23 (46%) are the two most common sleep related problems. From those who snore n=25 (81%) are non-smokers and n=6 (19%) are smokers. Similarly, n=19 (83%) non-smokers and n=4 (17%) smokers experience sleep talking. Therefore, it can be said that smoking doesn't increase sleep related problems, at least not in this study. In fact, according to the results non-smokers have more sleep related problems than smokers. (See table 6.)

Do you exercise regularly? * How would you grade your overall sleep habits and quality? Crosstabulation

How would you grade your overall sleep habits and quality?

		Very good	Good	Average	Poor	Very poor	Total
Do you exercise regularly?	Yes	6	36	18	5	1	66
	No	3	10	23	7	1	44
Total		9	46	41	12	2	110

Table 7. Exercising & overall sleep habits and quality

Based on this table (see table 7) we can say that those students who exercise regularly sleep generally better than those who don't. N=66 (60%) students exercise regularly and from them n=42 (64%) grade their overall sleep habits either very good or good. Those students who don't exercise regularly, n=44 (40%), grade their overall sleep habits mostly average, n=23 (55%) and only n=13 (30%) grade their sleep habits and quality very good or good. The lack of exercising therefore seems to be contributing to the sleep related problems.

Do you use caffeine products? If yes, how many portions in a day? 1 portion= e.g. 1 cup of coffee * How would you grade your overall sleep habits and quality? Crosstabulation

How would you grade your overall sleep habits and quality?

		Very good	Good	Average	Poor	Very poor	Total
Do you use caffeine products? If yes, how many portions in a day?	I don't use	7	14	13	4	1	39
	1-2 portions	1	16	11	3	0	31
	3-4 portions	1	8	14	4	0	27
	5-6 portions	0	3	2	1	0	6
	Over 6 portions	0	5	1	0	1	7
Total		9	46	41	12	2	110

Table 8. Caffeine consumption & overall sleep habits and quality

See table 8. Majority of students, n=39 (35%), don't consume any caffeine products, based on the questionnaire. These students grade their overall sleep habits and quality mostly good n=14 (36%) or average n=13 (33%) but there are significantly more students who grade their sleep habits very good, n=7 (18%), compared to the students consuming caffeine (n=2 [3%]). The non-caffeine consumers and over 6 portions consuming students had similar answer rate for very poor sleep habits and

quality. In general, we can see that those who don't consume caffeine products grade their sleep habits and quality better than those who do. The higher the caffeine consumption, the lower the sleep quality and habits.

**Which things effect most on your sleep quality? Choose 3*Gender
Crosstabulation**

		Gender		Total	
		Male	Female		
Effecting	Waking up without a reason	Count	13	34	47
	Waking up because of the urge to go to the bahtroom	Count	10	27	37
	Difficulty in falling asleep	Count	9	15	24
	Cough/flu/other illness	Count	22	32	54
	Too hot/cold	Count	11	19	30
	Environmental noises	Count	16	17	33
	Pets	Count	1	7	8
	Partner/ children	Count	5	9	14
	Nightmares	Count	5	8	13
	Stress	Count	22	48	70
Total	Count	38	72	110	

Percentages and totals are based on respondents.

Table 9. Which things effect most on the sleep quality & gender

The students were asked to choose three most influencing factors on their sleep quality. The top three most influencing factors were stress (n=70), cough/flu/other illness (n=54) and waking up without a reason (n=47). The least influencing factors were pets (n=8), nightmares (n=13) and partner/children (n=14). Stress was the most influencing factor for both female and male, males sharing the first place, however, with cough/flu/other illness. If we had looked only one genre at the time, cough/flu/other illnesses (n=22) would've shared the 1st place and environmental noises would've been the 3rd most influencing factor for male (n=16/38). With female the top three most influencing factors would've still been there but the order would've been slightly different; stress (n=48), waking up without a reason (n=34) and cough/flu/other illness (n=32). (See table 9).

7.3 Conclusion

The purpose of this thesis research was to provide information about overall sleep quality among the students in Lapland University of Applied Sciences (LUAS). This was done by interviewing seven students from LUAS and sending out an Internet questionnaire to every student of LUAS. The collected data was sufficient and there was enough of it so I could come up with the answers to the research questions. The research questions for this thesis were: What are the common sleep habits among the students? What factors increase the risk of sleep deprivation among the students?

During the interviews students brought up the influence of school and work on their sleeping habits. Due to demanding school work and early work and school hours the students don't get enough sleep during the week. During the week the slept hours may remain very low and during the weekends and free days students try to catch up with their sleep which contributes to irregular sleeping times. This doesn't come up as a surprise because the early school starting hours and shift work are known to cause lack of motivation, health problems and these things have been discussed a lot.

Many students also mentioned a cell phone as a part of their bed time rituals. The society is becoming more and more dependent on electronic devices and we want to be aware of what's going on around us. A cell phone as a part of bed time rituals may not be wise, however, because the sense of time easily gets distracted and one may stay up later than planned. The light from a cell phone may also disturb sleep and make the students more alert and not tired. TV and other electronic devices have a similar effect. Watching TV before going to bed can make the students more alert and the TV-shows etc. may come to one's dreams. According to the students those who don't use their cell phone or other electronic devices before going to bed sleep generally better and have more regular sleeping schedules. All in all, there are some similarities in common sleeping habits among the students. Some more beneficial than the others.

Whereas irregular and detrimental sleeping habits contribute to sleep deprivation so do some other things found out by the Internet questionnaire. In the questionnaire the most commonly thought sleep disturbing factors were asked about and their influence on sleep researched. Alcohol and caffeine consumption, smoking, snus and exercising, to name a few, were included. Because the questionnaire included 19 questions, some being multiple choice, there are not visible figures (charts, tables etc.) presenting every single question in this thesis. This is because there would have been too many figures and the possibility of the number of different figures is way beyond this thesis. The ones I thought were important were included in this thesis. Some additional bars and tables are available in appendices. All data has naturally still been analyzed.

In the questionnaire the students were asked to choose the three most influencing factors on their sleep and the most influencing one was stress. The similar result was noticeable during the interviews. Stress contributes to sleep problems and furthermore to sleep deprivation. It was the single most influencing factor. Not even alcohol, caffeine or exercising were as influencing as stress. When analyzing the data some predictable factors influencing the sleep and contributing to sleep deprivation turned out not to be influencing on sleep, at least based on this study. Two examples of that were high alcohol consumption (weekly consumption) and smoking and their influence on sleep problems. Some factors were also predictable such as exercising effecting sleep positively. There were also differences between the genres. When asked about problems falling asleep, for example, female had slightly less problems with that than male. The most important factors increasing the sleep deprivation based on the interviews and questionnaire were early school and work hours, stress, cough/flu/other illnesses, high caffeine consumption, lack of exercise and occasional alcohol usage.

In a nutshell, sleep is a complicated procedure and many things can affect it. Other things negatively and others positively. We the students are in a constant risk of harming our sleep and contributing to the sleep deprivation. Some of these risk factors are completely up to us and some are not.

There is need for further studies about students' sleeping habits and quality. Further studies could, for example, research how to decrease the sleep deprivation and how to promote healthy sleep habits. This research focuses only on finding out the overall sleep habits and factors increasing the risk of sleep deprivation, not on how to solve the problems. This research can be utilized in further studies and the interview and questionnaire bases can be used for that.

8. ETHICALNESS, RELIABILITY AND VALIDITY

Ethicalness is the starting and ending point of a good research. When thinking about ethics we often think of right and wrong. In a research ethics can be thought as promoting the aims of a research meaning that the researcher tends to avoid error and uses valid knowledge and truth in his research. For example, copying someone's text would be ethically wrong (Resnik 2015).

According to Tutkimuseettinen Neuvottelukunta TENK (2012, 6) a scientific research can only be acceptable and reliable if the research has been conducted based on the requirements of good scientific convention. These include honesty, caution and precision when conducting a research, ethically good data collecting- and analyzing methods and the fact that a research is written and published according to the given requirements.

This thesis was conducted by following written instructions. Several different books and databases were used to assure that the research is conducted by following the instructions and requirements. Nothing was made if the researcher wasn't sure of how to proceed. No names or any other personal information was collected at any point during the research. All data collected was anonymous.

The theory for this thesis was collected mainly from well-known databases and scientific articles were the main source of information. Other types of publications were used significantly less than the scientific researches. When searching and selecting the data the research questions were kept in mind in order to find the most suitable theory for this thesis. The chosen articles and researches were mainly from the 21st century so the possible old-dated information was left out.

Reliability and validity are important concepts in a research. Reliability refers to the consistency of a measure. It tests how trustful the used measures are. A research is reliable if the results are consistent over time and the results can be reproduced under a similar methodology no matter if the researcher is the same or not (Golafshani 2003, 598). In order to ensure the reliability of this thesis the data was collected from several different researchers. No more than two publications from one researcher were used

in this thesis. This ensures that the chosen data doesn't rely on only one aspect of the topic.

Validity determines how well the research measures the intended subjects and how truthful the results are. In a valid research the measures measure only and accurately those things that they are supposed to measure. A researcher shouldn't interfere with the tested hypothesis and data in order to validate the research (Golafshani 2003, 599). In this thesis the inclusion and exclusion criteria were used to ensure that the chosen data is relevant, up-to-date and published in a trustworthy site. The researcher's own opinions and ideas were also left behind so that they wouldn't affect the research results.

9. DISCUSSION

This thesis thought me a lot and made me think of my own sleeping habits and quality. I have always been fascinated of dreams and sleeping so choosing this topic seemed like a natural choice. As a student I know how difficult it can be to maintain a regular, healthy sleeping schedule. Three shift work and irregular work hours can really disturb one's sleep. Similar thing with irregular school hours. It is nearly impossible to try to maintain good grades at school, work three shifts, have hobbies and maintain a social life all at the same time. The students feel constant pressure from so many different places that in many cases it contributes to stress. Stress has a clear impact on our sleep. When stressed the sleep is shallow, we may dream about those things that stress us and we don't feel energized when waking up. When we add the additional factors that increase the risk of sleep deprivation, such as high caffeine consumption and lack of exercise, we have a whole starter package for sleep problems and sleep deprivation ready.

By doing this thesis I didn't only learn to pay attention to my own sleeping habits but I also learned the basics of conducting a research. This thesis was conducted by using two different research methods which neither of I had used before. Luckily, I got help and advice and thanks for that belongs to my supervisors. I learned the basics of both methods but I'm aware I still have lots to learn.

I managed with the time plan of my thesis surprisingly well. The idea paper was approved in spring 2017 and the plan in late fall/early winter 2017. My plan was to be done with the thesis by the end of spring 2018 in which I succeeded. In my opinion the timetable plan was good and not too loose or tight.

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APPENDICES

Appendix 1. Questions for the theme interviews

Appendix 2. Questions for the Internet questionnaire in Finnish

Appendix 3. Questions for the Internet questionnaire in English

Appendix 4. Content analysis model

Appendix 5. Extra figures and tables

Appendix 1. Questions for the theme interviews

Haastattelukysymykset // The interview questions

TAUSTAA// BACKGROUND

Sukupuoli - Gender

Ikä - Age

Opiskeluala ja vuosikurssi - What do you study and what's your study year?

Miten kuvailisit omia nukkumistottumuksiasi? – How would you describe your own sleeping habits?

NUKAHTAMINEN JA NUKKUMINEN// FALLING ASLEEP AND SLEEPING

Millainen unirytmisi sinulla on arkena ja vapaalla? Mihin aikaan menet nukkumaan ja milloin heräät?
– What kind of sleep schedule do you have during the week and weekends/free days? What time do you go to bed and what time do you wake up?

Kuinka monta tuntia nukut keskimäärin? – How many hours do you sleep in average?

Nukutko mielestäsi hyvin? – Do you think you sleep well?

Mitä teet yleensä tunnin sisään ennen nukkumaanmenoa? – What do you usually do within an hour before going to bed?

Mitkä asiat vaikuttavat eniten unenlaatuusi ja nukahtamiseen? – What things effect most on your sleep quality and falling asleep?

Millaisissa vaatteissa nukut ja millainen merkitys pyjamalla tm. on nukkumiseesi? – What kind of clothing do you wear when you sleep and what kind of influence does the clothing have on your sleeping?

Mitä teet jos uni ei tule vaikka yrität saada sängyssä unen päästä kiinni? Lasketko lampaita vai mitä teet? Mitä erilaisia nukahtamiskeinoja olet kokeillut kyseisessä tilanteessa ja mitkä ovat toimineet kohdallasi? – What do you do if you're trying to catch sleep and just can't? Do you count the sheep or what? What different sleeping techniques have you tried and what have worked on your situation?

Ovatko nukkumistottumisesi muuttuneet vuosien myötä? Jos ovat, niin miten ja miksi? – Have your sleeping habits changed over the years? If so, how and why?

UNEN VAIKUTUS// THE IMPACT OF SLEEP

Kuinka usein koet olevasi väsynyt päiväsaikaan? – How often do you feel tired during the day?

Nukutko päiväunia? Onko päiväunilla merkitys jaksamiseesi, jos on niin kuvaile miten. – Do you nap? Do naps have an influence on your energy levels, if so please explain how.

Miten koet työn ja vapaa-ajan vaikuttavan unenlaatuusi ja nukkumistottumuksiisi? – How do you feel that work and free time effects on your sleep quality and sleeping habits?

Miten koet univajeen ja huonosti nukutun yön vaikuttavan oppimiseesi ja koulun käyntiisi? – How do you think sleep deprivation and a badly slept night effects on your learning and school work?

Appendix 2, 1(3). Questions for the Internet questionnaire in Finnish

1. Sukupuoli

- Mies
- Nainen

2. Ikä

- 18-25
- 26-33
- 34-41
- 42-49
- Yli 49

3. Vuosikurssi

- 1. vuosikurssi
- 2. vuosikurssi
- 3. vuosikurssi
- 4. vuosikurssi tai sitä ylempi

4. Kuinka monta tuntia nukut keskimäärin yön aikana....**4.1 Arkena?**

- Alle 5h
- 5-8h
- 9-11h
- Yli 11h

4.2 Vapaalla?

- Alle 5h
- 5-8h
- 9-11h
- Yli 11h

5. Mihin aikaan menet yleensä nukkumaan...**5.1 Arkena?**

- Ennen klo 21
- Klo 21-21.59
- Klo 23-23.59
- Klo 00 tai sen jälkeen

5.2 Vapaalla?

- Ennen klo 21
- Klo 21-21.59
- Klo 23-23.59
- Klo 00 tai sen jälkeen

6. Mihin aikaan yleensä heräät...**6.1 Arkena?**

- Ennen klo 08
- Klo 08-08.59
- Klo 09-09.59
- Klo 10-11.00

Appendix 2, 2(3)

- Klo 11 jälkeen

6.2 Vapaalla?

- Ennen klo 08
- Klo 08-08.59
- Klo 09-09.59
- Klo 10-11.00
- Klo 11 jälkeen

7. Kuinka kauan joudut keskimäärin odottelemaan unta?

- Alle 10 min
- 10-19 min
- 20-30 min
- Yli 30 min

8. Kuinka usein sinulla on vaikeuksia nukahtaa?

- Ei koskaan
- Kuukausittain
- Viikoittain
- Lähes päivittäin
- Päivittäin

9. Mitkä asiat vaikuttavat eniten unenlaatuusi? Valitse kolme eniten vaikuttavaa.

- Heräily ilman syytä
- Heräily wc:n takia
- Vaikeus nukahtaa
- Yskä/nuha/muu sairaus
- Liian kylmä/kuuma
- Ympäristön melu
- Lemmikkieläimet
- Puoliso
- Painajaiset
- Stressi

10. Nukutko yksin vai jaatko sängyn jonkun toisen ihmisen kanssa?

- Yksin
- Jaan sängyn

11. Onko sinulla jotain seuraavista?

- Kuorsausta
- Unissakävelyä
- Unissapuhumista
- Uniapnea
- Unilääkitys

12. Kuinka usein tunnet itsesi väsyneeksi päiväsaikaan?

- En koskaan
- Harvoin

Appendix 2, 3(3)

- Lähes aina
- Aina

13. Nukutko päiväunia?

- Kyllä
- En

14. Tupakoitko?

- Kyllä
- En

15. Nuuskaatko?

- Kyllä
- En

16. Käytätkö alkoholia?

- En koskaan
- Harvemmin
- Muutaman kerran kuussa
- Viikoittain
- Lähes päivittäin
- Päivittäin

**17. Käytätkö kofeiinituotteita? Jos vastaat kyllä kuinka monta annosta päivässä?
1 annos = esim. 1 kuppi kahvia**

- En käytä
- 1-2 annosta
- 3-4 annosta
- 5-6 annosta
- Yli 6 annosta

18. Harrastatko säännöllistä liikuntaa?

- Kyllä
- En

19. Miten arvioisit kokonaisvaltaisesti nukkumistottumuksiasi?

- Erittäin hyvä
- Hyvä
- Tyydyttävä
- Huono
- Erittäin huono

Appendix 3, 1(3). Questions for the Internet questionnaire in English

1. Gender

- Male
- Female

2. Age

- 18-25
- 26-33
- 34-41
- 42-49
- Over 49

3. Are you a..

- 1st year student
- 2nd year student
- 3rd year student
- 4th year student or above

4. How many hours do you sleep in average during the night?**4.1 During the week**

- Less than 5h
- 5-8h
- 9-11h
- Over 11h

4.2 During the weekend/ free days

- Less than 5h
- 5-8h
- 9-11h
- Over 11h

5. What time do you usually go to bed?**5.1 During the week**

- Before 9 pm
- 9-9.59 pm
- 10-10.59 pm
- 11-11.59 pm
- 12 am or later

5.2 During the weekend/ free days

- Before 9 pm
- 9-9.59 pm
- 10-10.59 pm
- 11-11.59 pm
- 12 am or later

6. What time do you usually wake up?**6.1 During the week**

- Before 8 am
- 08-08.59 am

Appendix 3, 2(3)

- 09-09.59 am
- 10-11 am
- After 11 am

6.2 During the weekend/ free days

- Before 8 am
- 08-08.59 am
- 09-09.59 am
- 10-11 am
- After 11 am

7. How long does it usually take you to fall asleep?

- Less than 10 min
- 10-19 min
- 20-30 min
- Over 30 min

8. How often do you have problems falling asleep?

- Never
- Monthly
- Weekly
- Almost daily
- Daily

9. Which of the following affect most your sleep quality? Choose 3 the most affective

- Waking up without a reason
- Waking up because of the urge to go to the bahtroom
- Dficulty in falling asleep
- Cough/flu/other illness
- Too cold/hot
- Environmental noises
- Pets
- Partner/ children
- Nightmares
- Stress

10. Do you sleep alone or share a bed with someone?

- Alone
- Sharing a bed

11. Do you have any of the following?

- Snoring
- Sleep talking
- Sleep walking
- Sleep medication
- Sleep apnea

Appendix 3, 3(3)

12. How often do you feel tired during the day?

- Never
- Rarely
- Almost all the time
- All the time

13. Do you nap during the day?

- Yes
- No
- Sometimes

14. Do you smoke?

- Yes
- No

15. Do you use snus?

- Yes
- No

16. Do you use alcohol?

- Never
- Rarely
- A few times a month
- Weekly
- Almost daily
- Daily

17. Do you use caffeine products? If yes, how many portions in a day? 1 portion= e.g. 1 cup of coffee

- I don't
- 1-2 portions
- 3-4 portions
- 5-6 portions
- Over 6 portions

18. Do you exercise regularly?

- Yes
- No

19. How would you grade your overall sleep habits and quality?

- Very good
- Good
- Average
- Poor
- Very poor

Appendix 4, 1(3) Content analysis model

The original expression	The reduced expression	The main category
<i>"I don't have this proper sleep schedule. It is really changing because of working or practicing in three shifts."</i>	Shift work effects sleep schedule	Daily life and sleep
<i>"My sleep schedule is very regular during week and weekends. I go to bed around 9-10pm and wake up at 7-8am."</i>	I have a regular sleep schedule.	Daily life and sleep
<i>"If I have slept badly I can't concentrate at school at all."</i>	Sleep effects concentration.	Daily life and sleep
<i>"I can't concentrate at school if I've slept badly. Physically I can't concentrate that well either because my eyes are so tired."</i>	Without sleep I can't concentrate and it also hurts physically.	Daily life and sleep
<i>"I can't concentrate on anything, nothing stays on my mind and I'm not even interested in listening if I'm tired and slept badly."</i>	Without sleep concentrating is hard.	Daily life and sleep
<i>"I've always slept really well and I fall asleep immediately when I go to bed. I've never had any problems."</i>	I sleep well.	Good sleeper Vs. bad sleeper

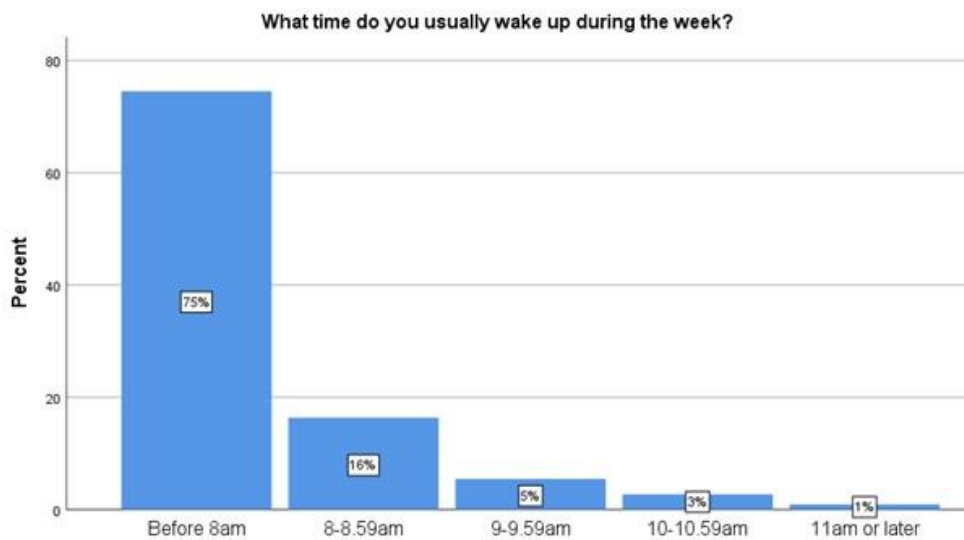
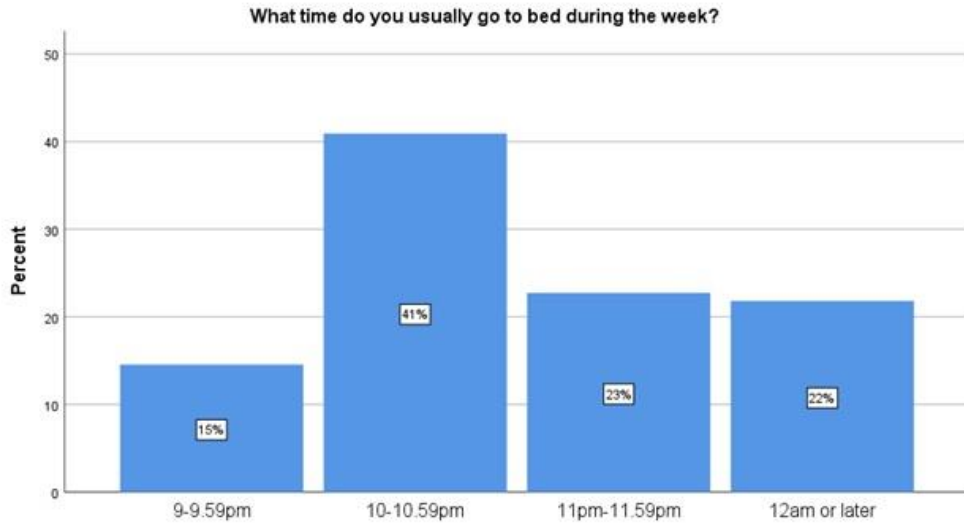
Appendix 4, 2(3)

<p><i>"I used to be a good sleeper but not anymore. If I wake up in the middle of the night I have problems falling asleep and the sleep is not solid. I can't really sleep well anymore."</i></p>	<p>I have shifted from a good sleeper to bad sleeper.</p>	<p>Good sleeper Vs. bad sleeper</p>
<p><i>"I spend quite a lot of time on my phone right before going to bed. It's easier to fall asleep knowing that I've seen all the recent news and updates."</i></p>	<p>Checking phone before going to bed is important for me.</p>	<p>Bed time rituals</p>
<p><i>"I try to avoid all electronical devices that shine light because they make it harder to fall asleep."</i></p>	<p>I avoid electronical devices before going to bed.</p>	<p>Bed time rituals</p>
<p><i>"I try to do something relaxing and avoid my phone, for instance, because when I'm calm I can catch sleep easier."</i></p>	<p>I try to calm down before going to bed.</p>	<p>Bed time rituals</p>
<p><i>"If I take naps during the day I won't be able to sleep at night. That's why I nap maybe 2-3 times a year."</i></p>	<p>I don't nap normally.</p>	<p>Napping</p>
<p><i>"I usually nap over an hour almost daily. Otherwise I wouldn't have energy to do anything in the evening but after napping I feel more energized."</i></p>	<p>I need the nap to have energy.</p>	<p>Napping</p>

Appendix 4, 3(3)

<i>"I guess 95% of the time I feel tired."</i>	I'm tired all the time.	Tiredness
<i>"During the week at school and work I feel really tired, during the weekend not so much."</i>	Work- school schedule effects my tiredness.	Tiredness
<i>"When I was younger I was really a morning person and I always woke up around 7am. Now I could stay up or sleep as long as possible."</i>	Sleep rhythm has changed.	Sleep history
<i>"Stress is more effecting my sleep than 10 years ago and I sleep much less now."</i>	As an adult I sleep worse than as a kid.	Sleep history

Appendix 5, 1(3). Extra figures and tables



Appendix 5, 2(3)



Gender * How often do you have problems falling asleep? Crosstabulation

Count

		How often do you have problems falling asleep?					Total
		Never	Monthly	Weekly	Almost daily	Daily	
Gender	Male	8	13	11	4	2	38
	Female	20	30	14	6	2	72
Total		28	43	25	10	4	110

Do you use snus? * How would you grade your overall sleep habits and quality? Crosstabulation

Count

		How would you grade your overall sleep habits and quality?					Total
		Very good	Good	Average	Poor	Very poor	
Do you use snus?	Yes	0	1	2	0	0	3
	No	9	45	39	12	2	107
Total		9	46	41	12	2	110

\$Problems*Snus Crosstabulation

			Do you use snus?		Total
			Yes	No	
\$Problems*	Snoring	Count	1	30	31
	Sleep talking	Count	2	21	23
	Sleep walking	Count	0	3	3
	Sleep medication	Count	0	2	2
	Sleep apnea	Count	0	2	2
Total		Count	2	48	50

Percentages and totals are based on respondents.

Appendix 5, 3(3)

How long does it usually take you to fall asleep? * How would you grade your overall sleep habits and quality? Crosstabulation

Count

		How would you grade your overall sleep habits and quality?					Total
		Very good	Good	Average	Poor	Very poor	
How long does it usually take you to fall asleep?	Less than 10 min	4	16	9	1	0	30
	10-19 min	4	22	13	4	0	43
	20-29 min	1	5	12	3	0	21
	30 min or more	0	3	7	4	2	16
Total		9	47	41	12	2	110

Problems*Caffeine Crosstabulation

Do you use caffeine products? If yes, how many portions in a day? 1 portion= e.g. 1 cup of coffee

			Do you use caffeine products? If yes, how many portions in a day? 1 portion= e.g. 1 cup of coffee					Total
			I don't use	1-2 portions	3-4 portions	5-6 portions	Over 6 portions	
Problems	Snoring	Count	8	6	10	3	4	31
	Sleep talking	Count	14	0	6	2	1	23
	Sleep walking	Count	2	0	1	0	0	3
	Sleep medication	Count	0	1	0	0	1	2
	Sleep apnea	Count	0	0	2	0	0	2
Total	Count	21	7	13	4	5	50	

Percentages and totals are based on respondents.

How would you grade your overall sleep habits and quality?

		Frequency	Percent
Valid	Very good	9	8,2
	Good	46	41,8
	Average	41	37,3
	Poor	12	10,9
	Very poor	2	1,8
	Total	110	100,0