

**IMPACT OF SLEEP ON STUDENTS HEALTH RESIDING IN
UNIVERSITY OF BENIN HOSTELS**

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**DEPARTMENT OF HEALTH SAFETY AND ENVIRONMENTAL
EDUCATION
FACULTY OF EDUCATION
UNIVERSITY OF BENIN**

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**A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF
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OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF BACHELOR OF EDUCATION
B.Sc (Ed) HEALTH EDUCATION**

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APPROVAL

I hereby certify that this work was carried out by Ewaenbun Faith ODUWA in the Department of Health Safety and Environmental Education, Faculty of Education, University of Benin, Benin City, Edo State in partial fulfillment of the requirement for the award of Bachelor of science Degree in Health Education.

MRS. J.U. DON
(Project Supervisor

DATE

CERTIFICATION

This is to certify that this study was carried out by Ewaenbun Faith ODUWA, with matriculation number EDU1609399 of the Department of Health Safety and Environmental Education, Faculty of Education, University of Benin, Benin City, Nigeria and that it is adequate in scope and quality in partial fulfillment for the award of the degree of Bachelor of Science Education [B.S (Ed.)] in Health Education.

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DEDICATION

This project is dedicated to the Almighty God, for giving me the strength and for His Mercy, guidance, protection, provisions, my sustainer and source of knowledge and inspiration.

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The researcher is exceedingly grateful and thankful to the Almighty God for the love, He showered on her continually, for financial breakthrough, for divine protection and care, for having spared her life from the ordeal and hiccups from the inception to the completion of this degree program. Indeed, God is faithful.

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ABSTRACT

The study investigates the Respondents' view on impact of sleep on students' health residing in the University of Benin hostel. Four (4) research questions were raised and answered, also literature of other researchers were reviewed.

The study adopted the descriptive survey research design, data was collected through the aid of a questionnaire. The questionnaire was structured according to the research questions and distributed to sample population of 100 respondents.

The findings of the study revealed that that sleep has great impact on the health of students residing which can determine their level of academic performance in school based on their frequency of falling sick. Adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep. Sleep patterns also have impact on the health of students residing in the University of Benin hostel due to the fact that students will good sleeping pattern are always mentally sound, while students who have poor seeping pattern are susceptible to fall ill regularly. Also, sleeping disorder have impact on the health of students residing in the University of Benin hostel as it can result to chronic diseases in that are detrimental to the life of the student which can make students academically backwards. It was however recommended that more awareness should be given to students in the importance of maintaining a good sleeping pattern and its impact on their health and academic performance; and that the government and the school management should ensure that that the school curriculum is not overwhelming for students as such that can disrupt their sleeping pattern.

CHAPTER ONE

INTRODUCTION

Background to the Study

Sleep serves a fundamental physiological function for human beings, and the quantity and quality of required sleep depends on a number of interacting environmental factors and underlying physiological variables. Sleep plays an important role in both student health, learning and memory formation. Sleeping facilitates the process of memory consolidation, as it provides the optimal conditions for effective reorganization of representations. According to Hershner and Chervin, (2014), sleep promotes the consolidation of both spatial and contextual memories. During sleep, neurophysiological processes occur which forward the integrations of new data into pre-existing cortical networks. This electrophysiological hippocampal activity has been associated with memory consolidation and learning.

Sleep problems have been linked to poor health, learning difficulties, neurocognitive performance, and poor academic performance. Previous studies have reported that more than 60% of the university population show sleep problems and more than 25% sleep < 7 h/night, as measured by indices reflecting poor sleep quality (Caruso,

& Rosa, 2012). Between 16–23% of university students report insomnia symptoms and significant mental health problems related to sleep disturbances. Problems related to sleep differs according to sex and age throughout the life cycle.

According to Hershner & Chervin, (2014); Buysse, (2014) have identified several socio-demographic variables, risk behaviours, and factors related to the duration of sleep and associated health states. Among other factors associated with sleep problems, gastrointestinal diseases are indicated, along with nightmares and chronotype.

Recognizing and understanding the relationship between sleep and learning in neuroscience, psychology, and neurobiology highlights the importance of sleep health in education; learning and memory are two key elements for academic success. Sleep health consists of daytime alertness, sleep duration, sleep efficiency, sleep timing, and sleep satisfaction (Buysse, 2014). Poor sleep health may inhibit one's abilities to learn due to a lack of concentration, poor memory, and/or negative affect. Sleep has been linked to learning capabilities, for example, memory, attention (Hershner & Chervin, 2014).

The history of sleep research can be traced back to the 19th century (Pelayo & Guilleminault, 2009). According to the National Sleep Foundation's Sleep in

America Poll, U.S. adults sleep about seven hours every night, a decrease of approximately two hours per night since the 19th century (National Sleep Foundation, 2005). In 2008, the same organization found that Americans expected to average 7 hr 18 min of sleep per night, but they actually only slept an average of 6 hr 40 min (National Sleep Foundation, 2008). A common term for “loss of sleep” is “sleep deprivation.” Drummond and McKenna (2009) stated that “sleep deprivation in humans can be broadly classified into three categories: total sleep deprivation, partial sleep deprivation, and sleep fragmentation (p. 249).” In previous studies, sleep deprivation was measured by type: long-term total sleep deprivation (continually awake for more than 45 hours), short-term total sleep deprivation (continually awake for up to 45 hours), and partial sleep deprivation (sleeping less than 5 hours in a 24-hour period) (Pilcher & Huffcutt, 2016).

Rosen et al. (2006) investigated the association between sleep deprivation and mood disturbance, empathy, and burnout among 47 (80% response rate) interns in a medical residency program. The researchers found an increased prevalence of chronic sleep deprivation (9% to 43%), sleepiness (11% to 36%), moderate depression (4.3% to 29.8%), and burnout (4.3% to 55.3%) by the end of the internships. Simpson and Dinges (2007) reviewed a number of comprehensive studies that examined the effects of sleep loss on the human immune system. They

found that the levels of important immune-related chemical substances in blood plasma were different at bedtime and wake-up time. These irregular changes in the immune system affected both behavioral functions (e.g., sleepiness, fatigue, and attention lapses) and physiological functions (e.g., inflammation). Lack of sleep has been linked to emotional and physical health effects including depression, burnout, obesity, diabetes mellitus, hypertension, cardiovascular disease, stroke, and even death (Rosen, Gimotty, Shea, & Bellini, 2006; Simpson & Dinges, 2007).

Evidence has shown that sleep can be an issue among college students both physically, mentally and otherwise. Common sleep problems for college students include sleep loss, delayed sleep, irregular sleep schedule, and daytime sleepiness (Hershner & Chervin, 2014). Bad habits and holding jobs that have late hours, for example, shift work can cause negative impacts on college students' sleep health. Bad habits, such as consuming caffeinated beverages in the afternoon or evening, or using technology before bed, may increase time to fall asleep, decrease sleep hours, and increase daytime sleepiness (National Sleep Foundation [NSF], 2011). Another bad habit is drinking alcohol or taking sleep aids to fall asleep, may interfere with the normal sleep cycle, make sleep quality worse, increase frequency of nightmares, and decrease alertness during the day (Ebrahim, Shapiro, Williams, & Fenwick, 2013). Sleep is very important to a human being's health. Sleep loss not only makes

people feel sleepy in the daytime, it is even a possible factor for Alzheimer's disease (McKim, 2007). The effects of sleep manifest in both health and performance. The relationships between sleep and student health have been studied in many different fields including human science, medicine, psychology, education, and business. Sleep-related variables (e.g. sleep deficiency, sleep quality, sleep habits) have been shown to influence health of students and workers (; National Sleep Foundation, 2008). Therefore, the purpose of this study was to determine the effect of sleep on student health, using UNIBEN as a study.

Statement of the Research Problem

Health is important to learning. Recognizing the balance between college students' sleep and their health can be challenging. There may be a need to develop support for college students to better manage sleep challenges. Prior to providing supports for students, it is important to confirm the significance and relevancy of sleep to students' health which in the long run affect their academic performance. However, it is uncertain whether college students perceive health as a result of adequate sleep as the most influential health issue having an impact on their academic performance, as compared to other health factors (e.g., common cold, depression, and relationship difficulties).

Encouraging college students to have good sleep behaviours is needed. However, asking students to make having adequate sleep a priority can be challenging. The relationship between sleep and students' health has been studied but previous findings were conflicting because Adewale (2013) on the one hand, stated that sleep does not really affect the health of students, saying that eating healthy food is the major health determinant for students, while Steve (2014) on the other hand stated the when students' don't enough sleep, their heath is hampered which can affect their academic performance. It is disheartening to know that a lot of students do not know the importance of sleep to their overall health, little wonder many students are slump during class and in exam halls. A study carried out by Buysse, (2014) showed that majority of the students in tertiary institutions do not have adequate sleep at night due to the bulkiness of their syllabus and the need to cover the course work before their exams which makes students' life a seeming cycle: attending classes and going for night reading. This has resulted to the decrease in the health of students as many of them are seen to frequently visit the health care centres of their institutions due to one illness or the other arising from insufficient sleep. It is against this backdrop that this study is conducted to examine the impact of sleep on students' health residing in the University of Benin hostel.

Research Question

The following research questions were made to guide the study:

1. Does adequacy of sleep have impact on the health of students residing in the University of Benin hostel?
2. Does sleep patterns have impact on the health of students residing in the University of Benin hostel?
3. Does sleeping disorder have .impact on the health of students residing in the University of Benin hostel?
4. What are the solutions to sleep disorder among students residing in University of Benin Hostel?

Purpose of the Study

The purpose of this study is to understand the underlying impact of sleep on students' health residing in the University of Benin hostel. The specific objectives of this study are to determine the:

1. Impact of adequacy of sleep on the health of students residing in the University of Benin hostel.

2. Impact of sleep patterns on the health of students residing in the University of Benin hostel.
3. Impact of sleeping disorder on the health of students residing in the University of Benin hostel.
4. The solutions to sleep disorder among students residing in University of Benin Hostel.

Significance of the Study

The study may provide useful information to policy makers as it will hopefully shed more light on how sleep affects students' health tertiary institutions.

The study is useful for education planners as it will help in planning the educational syllabus that will encourage adequate sleep from students in order to boost their health status for better academic performance.

Student will be equipped with relevant knowledge to enable them improve on their health status by the understanding the essence of adequate sleep and how it affects their overall academic performance.

It is therefore anticipated that the discoveries of this study will assist, government, agencies and organisations to enforce educational policies that will encourage adequate sleep in the part of students in order to boost their physical, mental, and psychological health.

Scope and Delimitation of the Study

The scope of this study is on the impact of sleep on students' health, and it is delimited to students residing in the University of Benin hostel. The University of Benin, Ugbowo campus has 8 undergraduate hostels (male and female hostels) with 3 post graduate hostels.

Definition of Terms

courses, and/or course completion (National College Health Assessment, 2011).

Daytime sleepiness: one's tendency to fall asleep during the day

Delayed sleep: a behaviour whereby a person goes to bed later on weekends than weekdays (Singleton & Wolfson, 2009).

External resources: three of the four categories of resources which are objects, conditions, and energies.

Health: "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity".

Internal resources: one of the four categories of resources which is personal characteristics.

Resources: anything owned by a person; examples of resources include time, money, energy, and personality traits.

Shift workers: people who work an evening shift, night shift, rotating shift, split shift, or employer-arranged irregular.

Sleep disturbance: something that interrupts someone when he/she is sleeping (Longman Dictionary of Contemporary English, 2003).

Sleep duration: sleep time length.

Sleep quality: quantitative and subjective aspects of sleep. Examples of quantitative aspects of sleep are sleep duration, sleep latency, and numbers of arousals.

Stress: “an event or events that are interpreted as threatening to an individual and which elicit physiological and behavioural responses”

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This study analyses the influence of sleep on students' health residing in the University of Benin hostel. In this chapter, existing literature which are related to the study was reviewed under the following sub-headings:

- Conceptual Framework
- Concept of Sleep
 - Causes of Sleeplessness in Students
 - Sleep-Disordered Breathing
 - Physical health factors relating to sleep health
 - Adequacy of Sleep and health Performance
 - Mental health factors relating to sleep health
 - Sleep Pattern and Health
 - Social health factors relating to sleep health
 - Sleep Disorder and Health
 - Side Effects of Sleeplessness

- Impact of Sleeplessness on Prefrontal Cortex Function
- Treatment of Sleep Disorders
- Summary of Literature

Concept of Health

Human health is a broad concept that has been studied extensively. Studies included, but are not limited to, physical, mental, behavioral, sexual, and environmental health (Buhi, Marhefka, & Hoban, 2010; Horton & Snyder, 2009). Previous literature on the topic was reviewed to provide a specific definition for the proposed study. The World Health Organization (WHO, 2016) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity”, a definition that has maintained since 1948. However, literature using the term “wellness” was also considered because of the overlap between health and wellness.

From a historical perspective, Dunn (2009) claimed that health was a passive condition which differed from wellness, a dynamic concept, which is “a condition of change in which the individual moves forward, climbing toward a higher potential of functioning” (p. 447). Nevertheless, Dunn’s definition of wellness was similar to the WHO’s definition of health. Nowadays, the definitions of health and

wellness are more similar, so although the WHO's definition of health was adopted for the proposed study, literature using both terms will be reviewed and discussed. Sleep is generally treated as part of physical health; however, Buysse's (2014) definition linked sleep health to all three dimensions of the WHO's definition of health (physical, mental, and social). Interactions between sleep health and each of the three WHO dimensions of health have been found in previous studies

Concept of Sleep

Sleep is an extremely complicated process that consists of more than simply closing one's eyelids and counting sheep. It is an active state of unconsciousness produced by the body where the brain is in a relative state of rest and is reactive primarily to internal stimulus. The exact purpose of sleep has not been fully elucidated. There are several prominent theories currently which have explored the brain and attempt to identify a purpose for why we sleep which includes the Inactivity theory, Energy conservation theory, Restoration theory, and the Brain plasticity theory. Inactivity theory is based on the concept of evolutionary pressure where creatures that were inactive at night were less likely to die from the predation of injury in the dark, thus creating an evolutionary and reproductive benefit to being inactive at night.

Energy conservation theory posits that the main function of sleep is to reduce a person's energy demand during part of the day and night when it is least efficient to hunt for food. This theory is supported by the fact that the body has decreased metabolism of up to 10% during sleep. The restorative theory states that sleep allows for the body to repair and replete cellular components necessary for biological functions that become depleted throughout an awake day. This is backed by the findings many functions in the body such as muscle repair, tissue growth, protein synthesis, and release of many of the important hormones for growth occur primarily during sleep. Brain plasticity theory is that sleep is necessary for neural reorganization and growth of the brain's structure and function. It is clear that sleep plays a role in the development of the brain in infants and children and explains why it is necessary that infants sleep upwards of 14 hours per day. These theories are not exhaustive or all-inclusive of the prevalent ideas; rather, they serve to frame the concept that we do not fully understand sleep yet. It is more accepted that no single theory explains it all, and a combination of these ideas is more likely to hold the key to sleep (Brand, Hermann, Muheim, Beck, & Holsboer-Trachsler, 2008).

Sleep is a naturally recurring state of mind and body, characterized by altered consciousness, relatively inhibited sensory activity, reduced muscle activity and inhibition of nearly all voluntary muscles during rapid eye movement (REM) sleep,

and reduced interactions with surroundings. It is distinguished from wakefulness by a decreased ability to react to stimuli, but more reactive than a coma or disorders of consciousness, with sleep displaying different, active brain patterns. Sleep occurs in repeating periods, in which the body alternates between two distinct modes: REM sleep and non-REM sleep. Although REM stands for "rapid eye movement", this mode of sleep has many other aspects, including virtual paralysis of the body. Humans may suffer from various sleep disorders, including dyssomnias such as insomnia, hypersomnia, narcolepsy, and sleep apnea; parasomnias such as sleepwalking and rapid eye movement sleep behaviour disorder; bruxism; and circadian rhythm sleep disorders. The use of artificial light has substantially altered humanity's sleep patterns (Buxton & Marcelli, 2010).

Stages of Sleep

Sleep functions in a relatively predictable cyclical pattern between 2 major phases: Non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep. NREM sleep is subdivided into several stages numbered 1 to 3. Each phase and stage represents the relative depth of sleep and offers unique characteristics in the brain wave, muscle tones, and eye movement patterns. As the name implies, NREM

is characterized by an absence of eye movements, and REM is characterized by rapid eye movements.

Sleep begins with a short NREM stage 1 phase, followed by NREM stage 2, then NREM stage 3, then finally into REM. NREM accounts for approximately 75% to 80% of total sleep and REM accounts for the remaining 20% to 25% of sleep. This progression through the stages of sleep occurs in this order of events on repeat throughout the night for varying lengths of time. The initial cycle lasts 70 to 100 minutes to complete fully. However, the remaining cycles last 90 to 120 minutes each. The amount of REM in each cycle progresses throughout the night from being minimal on the initiation of sleep, but eventually is up to 30% of the cycle later in the night. A total of 4 to 5 cycles through this progression is typical in a night (Brand, Hermann, Muheim, Beck, & Holsboer-Trachsler, 2008).

NREM stage 1 is the shallow stage of sleep where a person is still easily awoken. It lasts 1 to 7 minutes. Rhythmical alpha waves characterize electroencephalogram (EEG) at a frequency of 8 to 13 cycles per second.

NREM stage 2 lasts approximately 10 to 25 minutes in the initial cycle of sleep but progresses to consume 50% of the total sleep cycle later in the night. Stage 2 is a much deeper sleep state than stage 1, but individuals are still awoken with heavy

stimulation. Brainwave activity on EEG is low voltage “sleep spindles and K-complexes.” Current theories suggest that memory consolidation occurs primarily during this stage.

NREM stage 3 lasts about 20 to 40 minutes, initially. EEG characterized by high-voltage, slow-wave frequency.

REM is the phase of sleep responsible for dreaming. It is characterized by total body voluntary muscle paralysis (except for the extraocular muscles). This paralysis is thought to be a mechanism to prevent neural stimulus from dreams to manifest in actual muscular impulses during sleep. EEG in REM is “Sawtooth waveforms,” theta waves, and slow, alpha waves in a desynchronized pattern set (Åkerstedt, & Gillberg, 2010).

Functions of Sleep

1. Restoration

The human organism physically restores itself during sleep, occurring mostly during slow-wave sleep during which body temperature, heart rate, and brain oxygen consumption decrease. In both the brain and body, the reduced rate of metabolism enables countervailing restorative processes. The brain requires sleep

for restoration, whereas these processes can take place during quiescent waking in the rest of the body. The essential function of sleep may be its restorative effect on the brain: "Sleep is of the brain, by the brain and for the brain." This theory is strengthened by the fact that sleep is observed to be a necessary behaviour across most of the animal kingdom, including some of the least evolved animals which have no need for other functions of sleep, such as memory consolidation or dreaming. While awake, brain metabolism generates end products, such as reactive oxygen species, which may be damaging to brain cells and inhibit their proper function. During sleep, metabolic rates decrease and reactive oxygen species generation is reduced, enabling restorative processes (Curcio, Ferrara, & DeGennaro, 2006). The sleeping brain has been shown to remove metabolic end products at a faster rate than during an awake state.

2. Memory processing

It has been widely accepted that sleep must support the formation of long-term memory, and generally increasing previous learning and experiences recalls. However, its benefit seems to depend on the phase of sleep and the type of memory. For example, declarative and procedural memory-recall tasks applied over early and late nocturnal sleep, as well as wakefulness controlled conditions, have been shown

that declarative memory improves more during early sleep (dominated by SWS) while procedural memory during late sleep (dominated by REM sleep) does so. With regard to declarative memory, the functional role of SWS has been associated with hippocampal replays of previously encoded neural patterns that seem to facilitate long-term memory consolidation (Dunn, 2009).

3. Dreaming

During sleep, especially REM sleep, humans tend to experience dreams. These are elusive and mostly unpredictable first-person experiences which seem logical and realistic to the dreamer while they are in progress, despite their frequently bizarre, irrational, and/or surreal qualities that become apparent when assessed after waking. Dreams often seamlessly incorporate concepts, situations, people, and objects within a person's mind that would not normally go together. They can include apparent sensations of all types, especially vision and movement. Dreams tend to rapidly fade from memory after waking. Some people choose to keep a dream journal, which they believe helps them build dream recall and facilitate the ability to experience lucid dreams (Chiang & Arendt, 2016).

Sleep Disorders

Insomnia: Insomnia is a general term for difficulty falling asleep and/or staying asleep. Insomnia is the most common sleep problem, with many adults reporting occasional insomnia, and 10–15% reporting a chronic condition. Insomnia can have many different causes, including psychological stress, a poor sleep environment, an inconsistent sleep schedule, or excessive mental or physical stimulation in the hours before bedtime. Insomnia is often treated through behavioural changes like keeping a regular sleep schedule, avoiding stimulating or stressful activities before bedtime, and cutting down on stimulants such as caffeine. The sleep environment may be improved by installing heavy drapes to shut out all sunlight, and keeping computers, televisions, and work materials out of the sleeping area.

A 2010 review of published scientific research suggested that exercise generally improves sleep for most people, and helps sleep disorders such as insomnia. The optimum time to exercise may be 4 to 8 hours before bedtime, though exercise at any time of day is beneficial, with the exception of heavy exercise taken shortly before bedtime, which may disturb sleep. However, there is insufficient evidence to draw detailed conclusions about the relationship between exercise and sleep. Sleeping medications such as Ambien and Lunesta are an increasingly popular

treatment for insomnia (Haraszti, Ella., Gyöngyösi, Roenneberg, & Káldi, 2014). Although these non-benzodiazepine medications are generally believed to be better and safer than earlier generations of sedatives, they have still generated some controversy and discussion regarding side effects. White noise appears to be a promising treatment for insomnia.

Obstructive Sleep Apnea: Obstructive sleep apnea is a condition in which major pauses in breathing occur during sleep, disrupting the normal progression of sleep and often causing other more severe health problems. Apneas occur when the muscles around the patient's airway relax during sleep, causing the airway to collapse and block the intake of oxygen. Obstructive sleep apnea is more common than central sleep apnea. As oxygen levels in the blood drop, the patient then comes out of deep sleep in order to resume breathing. When several of these episodes occur per hour, sleep apnea rises to a level of seriousness that may require treatment. Diagnosing sleep apnea usually requires a professional sleep study performed in a sleep clinic, because the episodes of wakefulness caused by the disorder are extremely brief and patients usually do not remember experiencing them. Instead, many patients simply feel tired after getting several hours of sleep and have no idea why. Major risk factors for sleep apnea include chronic fatigue, old age, obesity, and snoring (Goss-Turner, 2014).

Aging and sleep: People over age 60 with prolonged sleep (8-10 hours or more; average sleep duration of 7-8 hours in the elderly) have a 33% increased risk of all-cause mortality and 43% increased risk of cardiovascular diseases, while those with short sleep (less than 7 hours) have a 6% increased risk of all-cause mortality.[98] Sleep disorders, including sleep apnea, insomnia, or periodic limb movements, occur more commonly in the elderly, each possibly impacting sleep quality and duration. A 2017 review indicated that older adults do not need less sleep, but rather have an impaired ability to obtain their sleep needs, and may be able to deal with sleepiness better than younger adults. Various practices are recommended to mitigate sleep disturbances in the elderly, such as having a light bedtime snack, avoidance of caffeine, daytime naps, excessive evening stimulation, and tobacco products, and using regular bedtime and wake schedules (Jung & Yoon, 2014).

Other disorders

Sleep disorders include narcolepsy, periodic limb movement disorder (PLMD), restless leg syndrome (RLS), upper airway resistance syndrome (UARS), and the circadian rhythm sleep disorders. Fatal familial insomnia, or FFI, an extremely rare genetic disease with no known treatment or cure, is characterized by increasing insomnia as one of its symptoms; ultimately sufferers of the disease stop sleeping

entirely, before dying of the disease. Somnambulism, known as sleepwalking, is a sleeping disorder, especially among children (Johns & Hocking, 2007).

Causes of Sleeplessness in Students

Parental Involvement and Social Opportunities: Parental control of sleep and wake time may diminish when a child is 12–13 years of age. This statement is supported in part by work completed by Carskadon (2009), which revealed that until ages 11 and 12 most children reported that they woke spontaneously in the morning and that parents set their bedtime. Conversely, most children in their early teens reported that parents did not set their bedtime and that an alarm clock or parent was required to assist them in waking up. Thus, as students mature, they may have greater freedom to make their own decisions regarding bedtime. These decisions may be greatly influenced by their cultural environment. Peer pressure to engage in late night activities, in addition to unsupervised television viewing, and increased access to the telephone, computerized games, or the Internet, may prevent students from going to bed early (Carskadon, 2009). However, the impact of these factors on sleep quality has not been well explored and requires further investigation.

Academic Workload and School Starting Times: Although later bedtimes might occur because of lifestyle choices, this delay may also occur because students stay up later to complete additional home-work that often is associated with increased academic expectations that typically occur as children mature. In addition, older adolescents often attend schools that have earlier school starting times when compared with school start times for younger students. This combination of increased academic workload with earlier starting times may impose serious limitations on the amount of sleep adolescents obtain. Kowalski and Allen (2015) studied 119 students in the 12th grade that were enrolled in a late-start school schedule (9:30 a.m.) and 97 11th- and 12th-grade students involved in an early-start school schedule (7:20 a.m.). Students completed a sleep-wake questionnaire in which they addressed their sleep patterns, level of alertness and sleepiness, as well as other relevant social factors. Students' responses showed that total sleep time during the school week was significantly longer for the group that started school at 9:30 a.m. (7.5 hours vs. 6.9 hours). However, during the weekend both groups went to bed and woke up at approximately the same time. This data is supported by comments that were obtained from high school students that participated in focus groups that were conducted at three high schools, which were drawn from a

stratified random sample of schools in the Minneapolis Public School system (Carskadon, 2019).

As reported by Kubow, Wahlstrom, & Bemis (2019), nearly all the students in the focus groups noted that after school start times were shifted from 7:15 a.m. to 8:40 a.m., they were feeling more rested and alert for the first hour of class and that they were generally going to bed at the same time prior to the shift in the school starting time. Thus, they were obtaining 1 additional hour of sleep each night. Additionally, results from a School Sleep Habits Survey, distributed by the Center for Applied Research and Educational Improvement located at the University of Minnesota, which focused primarily on data obtained from 3 of 17 Minnesota school districts that were demographically similar socioeconomic status, racial and ethnic diversity, school population size!, showed that shifting school start times to a later hour in one district resulted in students obtaining an additional full hour of sleep, compared with students attending school with earlier start times in two other districts (Frederickson & Wrobel, 2018). Thus, it appears that some adolescents may lose sleep during weekdays because they are required to meet early school start times that present a non-negotiable influence on sleep quality and quantity.

Employment Opportunities: Opportunities to be employed may present themselves as children mature. Many teenagers work to supplement family income, increase independence, improve self-confidence, and develop interpersonal skills. According to the United States Department of Labor and the National Academy of Science, 44% of 16- and 17-year-olds work for 20 hours or more during the school year (U.S. Bureau of the Census, 2010). As a result of working after school, students may stay up late to complete their homework, socialize with friends or family members, watch television, or relax. Surveys completed in the 1980s revealed that working after school was often associated with a later bedtime, shorter total sleep time, school tardiness, fatigue, and sleepiness (Carskadon, 2010). Similarly, additional correlation analysis of data obtained from the School Sleep Habits Survey that was distributed by CAREI to students attending high school in 1 of 17 Minnesota school districts revealed that students who reported more sleepiness stated that they struggled to stay awake or fell asleep in various situations, such as reading or during a test tended to report working more hours during the week. (Frederickson & Wrobel, 2018). Therefore, the biological need for an increase in sleep quality as a child matures is opposed by a variety of behavioural factors that may manifest themselves in increased sleepiness and daytime fatigue.

Sleep-Disordered Breathing

In addition to the behavioural factors responsible for sleep decrease, a relatively common pathophysiological problem may also be responsible for reduced sleep quality in some both adult children. Approximately 10% of population suffer from sleep-disordered breathing, with approximately 3% of the population suffering from obstructive sleep apnea, which is the severest form of this disorder. Obstructive sleep apnea is characterized by repeated obstruction of the upper airway throughout the sleep period. In the most severe cases, obstruction of the airway can occur 50 times per hour. Enlarged adenoids or tonsils often cause the obstructive episodes recorded in children and adolescents (Carskadon, 2010). In response to these obstructive episodes, individuals are aroused from sleep. These arousals are often not perceived by the individual during the sleep period and are only recognized if the individual's sleep is monitored visually or by completion of a sleep study in a clinical setting. As a consequence of these repeated arousals, deep sleep is often disturbed and reduced in quantity. The result of fragmented sleep patterns is daytime sleepiness and fatigue (Engleman, 2010).

People that suffer from asthma might also experience sleep disturbances related to this respiratory disorder. Overall, approximately 1.4% of children in the United States suffer from disabling asthma, with a significantly higher prevalence of asthma exhibited in black children (2.4%!), children from impoverished families

(2.2%), and children living in single- parent households (2.1%) (Benson & Marano, 2017). To examine the link between asthma and sleep disruption, Sadeh and Horowitz (2008) used actigraphy recordings, which measure physical activity levels in non-laboratory environments. Their results showed that a significant decrease in sleep duration and an increase in sleep fragmentation occurred in asthmatic as compared to non-asthmatic children. Thus, children with obstructive sleep apnea or asthma might be considered at risk for daytime neuro behavioural deficits associated with sleep deprivation as confirmed by increased reports of fatigue and reduced alertness. Additionally, the increased odds of a reduction in school attendance, academic performance, or both, that was recently reported for children suffering from obstructive sleep apnea.

Physical Health Factors Relating to Sleep Health

Sleep is a basic physiological need for everyone. When people sleep, their body temperatures are lower and muscle movements are decreased to save energy and recover from physical tiredness/fatigue. Human beings follow a circadian rhythm which is regulated by a hormone, melatonin. People feel sleepy two to three hours after the brain releases melatonin (Kalat, 2008). After experiencing initial sleepiness, people feel alertness again regardless of whether or not they sleep (Kalat, 2008).

This cycle accounts for why some people feel alert at certain times of the day even without sleep the night before (Kalat, 2008). However, depriving sleep may produce fatigue, cumulate sleep debt, and/or cause a series of inflammatory responses. A lack of and/or poor quality of sleep in the long-term may increase the risk of chronic illnesses such as obesity, diabetes, gastrointestinal disorders, hypertension, cardiovascular disease, Alzheimer's disease, and cancer (Overeem, 2013).

Adequacy of Sleep and Health Performance

The United States' agenda for improving the Nation's health includes Dietary Guidelines for Americans, 2010 and 2008 Physical Activity Guidelines for Americans. However, significant evidence regarding the duration and timing of sleep as determinants of health remain largely unrecognized by federal agencies, policy makers, scientists, and the public. The American Academy of Sleep Medicine and the Sleep Research Society have developed this document to communicate to national health stakeholders the current knowledge which ties sufficient sleep and circadian alignment in adults (see authors' footnote following acknowledgments) to health as tightly as good nutrition and adequate exercise. Poor sleep health is largely accounted for by the high prevalence of primary sleep disorders (e.g., sleep apnea, insomnia, narcolepsy, and restless legs syndrome)

and the growing number of people living with chronic sleep deficiency, a state of inadequate or mistimed sleep, independent of a primary sleep disorder. The Institute of Medicine estimates that 50 to 70 million adult Americans have a chronic sleep disorder that contributes to poor health (Benson, & Marano, 2017). This statement focuses upon sleep deficiency and the potential health promotion benefits of addressing this highly prevalent condition. Approximately 1 in 3 adult are sleeping less than 7 hours per night (37.1%), an amount at which physiological and neuro-behavioural deficits manifest and become progressively worse under chronic conditions. Broad societal changes, including longer work hours and commute times, shift work, later night life, increased dependence on technology, and a current mindset of “If you snooze, you lose” have contributed to the growing sleep deficiency problem. Further, an estimated 20% of the US workforce is exposed to shift work schedules (Baglioni, 2011).

Mental health factors relating to sleep health

Continuous stress impacts individual sleep health. When under stress, the human body undergoes a series of reactions to help human beings produce and save energy

(Kalat, 2008). When a person experiences stress, the body releases a hormone to enhance metabolism and brain activities, and to activate the immune system for self-protection. The immune system will eventually become exhausted if a person is continually under stress. Sleepiness is one of the symptoms of an exhausted immune system (Maier & Watkins, 1998); in other words, sleepiness might be a signal of experiencing prolonged stress.

Conversely, sleep health has an influence on certain aspects of mental health, such as individual emotion, mood, anxiety, depression, and stress (Baglioni, 2011). In a meta-analytic study, Baglioni (2011) analyzed nine longitudinal epidemiological studies and reported that the incidence of depression was twice as high in participants with insomnia as in participants without any sleep difficulties. In an experimental study, Minkel (2012) found that sleep-deprived participants (n = 29) reported a higher level of anger, anxiety, depression, and perceived stress than non-sleep-deprived participants (n = 24). Minkel (2012) suggested that the threshold for emotion may be reduced due to sleep loss. In sum, prolonged stress causing poor sleep health might impact the capability for emotional self-management, resulting in a vicious cycle.

Sleep Patterns and Health

Healthy sleeping is an essential component for the natural development of a child. Moreover, it is highly important for the general health and the development of learning skills in school. Research on children shows that the prevalence of sleep problems is between 14 and 45%.^{3,4} Sleep problems reported among children generally include behavioral sleeping problems, problems with falling asleep, waking up during the night, parasomnia, and symptoms related to sleep-disordered breathing. Recent studies show that sleep problems are highly prevalent among children. Since sleep problems among children are often related to psychological complications and illnesses, identifying related factors are of utmost importance. It is argued that sleep problems during childhood are related to mental health, and physical and bodily health. Furthermore, some studies show that sleep problems in children are related to emotional problems such as anxiety and depression in later stages of their lives. Many social and demographic factors influence sleep disorders such as the education level of parents, living in urban areas, and lack of sufficient hygiene. Socioeconomic status, side-effects of some drugs, psychological factors, environmental factors, and the interactions between children and parents can also affect sleep. Parents' attention to the schoolchild's sleep plays an important role in this regard. This is referred to as “sleep hygiene”, which is considered in the current study. An undeniable fact is that sleep pattern changes when we age. Generally, the

mechanism for the start and continuation of sleep has different patterns from infancy to adulthood. It is believed that there is a reverse relationship between sleep efficiency (quality of sleep) and aging. The effect of age on sleep patterns is a complex process, which cannot be readily understood. Assessing sleep characteristics during life can contribute in this regard and increase our understanding of the functions of sleep and how to improve sleep quality (Åkerstedt, & Gillberg, 2010).

Social health factors relating to sleep health

Social and environmental demands vary between individuals. Each individual has to adequately manage and adapt their sleep patterns to social and environmental demands (Buysse, 2014), suggesting that sleep health is potentially related to social health. While physical and mental health are terms that have generally been understood, social health is a vague term that needs to be clarified. Larson (1996) noted a possible definition of social health as follows: “individual’s social adjustment and the response to environment. It should exclude measures external to the individual, such as the size of one’s social network, social interaction, and social support except when those factors affect social adjustment” (Buysse, 2014). The WHO’s website indicates that “social determinants of health are the conditions in

which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life” (Social determinants of health, n.d.).

Recognizing that social determinants include conditions in which people live and work, influences on sleep health, such as jet lag disorders and social jetlag, have been reported. For example, jet lag disorders are common for air travelers whose circadian rhythm is disrupted due to changing time zones (Weingarten & Collop, 2013). Likewise, ‘social jetlag’, a term defined as the differences in sleep behaviors (e.g., sleep hours, sleep timing) between work days and days off, can also disrupt an individual’s circadian rhythm. The level of social jetlag depends on whether the differences in sleep behaviors between work days and days off are large or small (Wittmann, Dinich, Mellow, & Roenneberg, 2006). People working rotating shifts might have a high level of social jetlag and experience daytime sleepiness (Juda, Vetter, & Roenneberg, 2013). Lau (2013) studied social jetlag in 1,139 college students with regard to their sleep behaviors between weekdays and weekends, and found the effects of social jetlag on quality of life and mood.

Individuals’ sleep health can be impacted when they live and work in stressful conditions, such as having job stress, experiencing peer pressure, and living with family issues. Metabolism, brain activity, and the immune system are activated

when people are stressed and this may lead to sleep difficulties (Abercrombie et al., 2003). Some people drink alcohol or take sleep aids to help them fall asleep, but these may actually make their sleep quality worse. Ebrahim, Shapiro, Williams, and Fenwick (2013) reviewed 20 studies and found that drinking alcohol before going to sleep changed the normal sleep cycle and made people still feel tired after waking up, although it did help people fall asleep quickly. Taking sleep aids may result in increased frequency of nightmares (Rosenzweig, 2015).

Sleepiness seems to make people get emotional easily and may lead to broken social relationships (e.g. with spouses, children, friends, peers, and/or coworkers). In a focus group study, interviewees with sleep loss mentioned that they had a low tolerance for their children and this made them feel guilty (Papp et al., 2004). When people are sleepy, they may consume caffeinated beverages coffee, tea, chocolate, soft drinks, energy drinks as a remedy (McKim, 2007; Mednick, Cai, Kanady, & Drummond, 2008). Likewise, some researchers have found that caffeine increases the time it takes to fall asleep and reduces sleep hours, although the effects varied by when, how much, and how often an individual consumed caffeinated beverages (McKim, 2007). Some people take stimulants other than caffeine such as amphetamines. These also have been found to have negative effects on sleep (e.g., insomnia) (McKim, 2007).

In conclusion, feeling sleepy is a potential warning sign of poor physical, mental, and/or social health. People try to fall asleep at night and try to keep awake during the day to meet the demands of work and daily life. However, individuals' overall health problems can be exacerbated due to inadequate sleep coping strategies. Ultimately, good sleep health is important in coping with sleepiness and promoting individual health

Sleep Disorder and Health

There are several types of sleep disorders. Insomnia, sleep apnoea, and restless leg syndrome are some examples of clinical sleep disorders that can affect adults and interfere with normal functioning. These sleep disorders can contribute to medical or emotional problems. This is a field where a vast body of knowledge exists. For this meeting overinformation was avoided and the paper reviewed and presented the main sleep disorders in adults and the health and well-being consequences of these diseases. It focused on sleep disorders that were considered interesting, in the expert's opinion, for discerning the health impacts of sleep that is occasionally or chronically disturbed by noise. According to the Diagnostic and Statistical Manual of Mental Disorders there are four categories of sleep disorders, i) primary sleep disorders including dyssomnias, ii) parasomnias, iii) sleep disorders related to

medical/psychiatric disorders including insomnia and hypersomnia; iv) and other sleep disorders including disorders due to a general medical condition or a substance- induced sleep disorder. The presentation concentrated on dyssomnias, parasomnias, medical/psychiatric sleep disorders, obstructive sleep apnea/hypopnea syndrome, narcolepsy-cataplexy, environmental sleep disorder and periodic limb movement disorder. Primary insomnia is a dyssomnia and it has been shown that the pathophysiology of the disorder is considered to be based on the confluence of predisposing, precipitating and perpetuating factors (Dahl, 2006).

In a predisposed subject, noise may certainly act as a triggering factor. Narcolepsy-cataplexy is most often remarkable for sleep fragmentation. However, in contrast to the obstructive apnea/hypopnea syndrome there is no correlation between sleep fragmentation and excessive daytime sleepiness. Moreover the pathophysiology of narcolepsy is based on an imbalance between acetylcholine and monoamines and on an impairment of the hypocretin system, which are not found in noise induced insomnia. A polysomnographic feature of obstructive sleep apnea/hypopnea syndrome and upper airway resistance syndrome, consists in recurrent arousals and awakenings. Interestingly, most of subjects with these conditions do not complain of poor sleep, but of non-restorative sleep, fatigue and/or headache on morning awakening, and excessive daytime sleepiness (Dunn, 2009). These clinical features

are certainly an incentive to look for morning symptoms and excessive daytime sleepiness in subjects submitted to an abnormal level of noise. Environmental sleep disorder has noise as one of its possible sources, possibly the most important one. Two issues have been emphasized. First, environmental disorder does not refer only to insomnia but also to excessive sleepiness, so that the possibility of excessive daytime sleepiness in subjects undergoing a noisy environment must be kept in mind. Second, vulnerability to either insomnia or hypersomnia, must be considered when reviewing the risks from environmental sleep disorder. 8 One of the polysomnographic features of periodic limb movement disorder is arousals and awakenings.

However periodic limb movements do not seem to be the cause of arousals and awakenings. Even if noise disturbance manifests by arousals and awakenings the biological mechanisms that act on the basis of these disorders are different and in some cases due to chemical unbalances, or respiratory mechanisms, so the consequences will be different as well (Kalat, 2008). The symptoms of insomnia are very similar to the ones experienced by the people reporting noise sleep disturbance. But the single fact of having noise does not make everybody exposed insomniac. It is a very interesting finding but has to be analyzed with some caution. An insomniac is hyper-aroused, he is never sleepy. Is there evidence that people

suffering from insomnia have an increased mortality risk? Not really: there is a statistical association but we cannot say with the present state of knowledge that insomnia per se brings an increases risk of mortality. Some causality was found with hypnotic drugs taken when suffering from insomnia! Misinterpretations and misperception of sleep is common among insomniac people, they affirm not having slept and when surveyed in a laboratory they actually sleep. The insomniac subjects followed by Professor Billiard showed an increased body mass index, but obesity was not covered by the study (Overeem, 2013).

Side Effects of Sleeplessness

The side effects that manifest as a consequence of sleep deprivation are independent of whether or not the cause is behavioural or pathophysiological in origin. These side effects, which are reviewed in the following section, include inattention and poor performance in the classroom and emotional and behavioural changes.

Inattention and Poor Performance in the Classroom: Sleepiness and fatigue is an unavoidable consequence of sleep loss. It often presents itself in later waking times, tardiness, sleeping during class time, and memory loss. Thus, sleepy or fatigued students might be the last ones to take initiatives when participating in group or cooperative learning. Even if a student does not sleep during class time,

they may experience brief mental lapses. Sleep experts often refer to mental lapses as micro sleep. A state of emotional arousal or increased effort due to increased motivation can overcome sleepiness and fatigue for a short period of time without observed changes in performance. Thus, teaching techniques employed in the classroom would have to be highly rewarding and stimulating to ensure that sleepy or fatigued students remain engaged and motivated. However, tasks that are complex in nature and require simultaneous abstract thinking, creativity, integration, and planning, might be impervious to compensatory motivational strategies. These are the tasks that might be influenced primarily by sleep deprivation (Dahl, 2009). This suggestion is supported by a recently completed study (Schlesinger, 2019), which showed that students with one night of sleep deprivation had no difficulty maintaining their performance on a difficult computer task when the task was performed alone.

Emotional Changes: Sleep also influences the regulation of human emotions. Inadequate sleep may result in increased irritability and less tolerance for situations that create negative emotions, depending on the psychological profile of the individual (Dahl, 2006). Wolfson and colleagues (2015) found that students who went to bed at later times and slept less tended to display increased aggressive behaviour. The conflict that arises between students and parents because of late

wake-up times, and between teachers and students because of tardiness or sleepiness in class, can further affect a student's emotional state, leading to hostility and resentment. Sleep-deprived adolescents often lose conscious control over their emotional state, resulting in anger and aggression during stressful or unpleasant situations. Under these circumstances adolescents could become more vulnerable to the use of alcohol, drugs, and risky driving (Dahl, 2018).

Behavioural Disorders: The impact of sleep deprivation on learning and behaviour in children may not be limited to healthy adolescents but indeed may be responsible, wholly or in part, for behavioural problems exhibited by many students diagnosed with attention deficit hyperactivity disorder. Sleep deprived and ADHD students manifest similar symptoms. These symptoms include the inability to control impulses and drives that lead to inappropriate behaviour within a social context and the inability to concentrate for extended periods of time. The relationship between sleep and daytime hyperactivity was initially accounted for by the Diagnostic and Statistical Manual of Mental Disorders, version III (American Psychiatric Association, 2010), in which excessive movement during sleep was used as one of five possible behavioural characteristics of daytime hyperactivity. The relationship between behaviour and sleep deprivation has received support from recent studies, which showed that the incidence of ADHD in students with sleep disorders which

may result in sleep deprivation was higher when compared with students without sleep disorders.

Impact of Sleeplessness on Prefrontal Cortex Function

The prefrontal cortex is responsible for the regulatory integration of sleep arousal and affection attention and functions to integrate cognition and emotion into goal-directed behaviours (Dahl, 2006). The prefrontal cortex accomplishes this task by bridging the gap between internal needs and drives and socially accepted behaviour. The prefrontal cortex is responsible for anticipating, preparing, or delaying a behavioural response based on socially acceptable behaviour. Unfortunately, sleep deprivation causes dysfunction of the prefrontal cortex, which is similar to various neurophysiological disorders but is reversible with sleep recovery. It is this deficiency in prefrontal cortex function that may be responsible for the impact of sleep deprivation on emotions, attention, and intellectual performance of adolescents. Suboptimal performance of the prefrontal cortex may impair frontal functions, such as the regulation of complex tasks, creative thinking, and goal-oriented behaviours. Therefore, silly, erratic, impulsive, aggressive, and even violent behaviours observed in school may be increased as a consequence of sleep deprivation (Dahl, 2006)

From a developmental perspective the ability to regulate internal needs and drives as they are expressed by emotional behaviour according to an acceptable social context is a gradual process that is accomplished through maturation. The prefrontal cortex continues to develop throughout childhood and adolescence with important neurobiological changes occurring during puberty. Puberty therefore is an important period during which sleep and behavioural regulation are coupled with cognitive processes. Given this understanding, it is important that countermeasures are employed in an effort to ensure that students obtain the required amount of sleep. Two of the most recent countermeasures that have been used to reduce or eliminate sleep deprivation caused by societal constraints and sleep disordered breathing are outlined in the following section (Schlesinger, 2019).

Treatment Sleep Disorders

As previously mentioned, delayed sleep onset and early school start times are not responsible for excessive daytime sleepiness and the consequent decrement in performance in children with pathophysiological sleep deprivation. To improve faulty sleep architecture that causes sleep deprivation in such cases, the physiological disorder must be addressed. In children with an obstructive sleep disorder secondary to enlarged tonsils or adenoids, adenotonsillectomy has resulted

in significant reduction or complete disappearance of sleep apnea in 90% of the cases post surgically (Nuyens, 2009). Additionally, nasal continuous positive airway pressure (nCPAP), a method of respiratory therapy that provides a steady flow of air into the nose and upper airway that assists in opening the airway mechanically, provides an effective treatment of obstructive sleep disease in children that have facial or upper airway abnormalities. Asthmatic children that suffer from respiratory-related sleep deprivation typically require pharmaceutical intervention to control the symptoms of their disease to allow for improved sleep hygiene. Each of the treatments outlined here has been shown to improve daytime performance in children. More specifically, daytime napping was reduced or eliminated and the level of energy increased following treatment. In addition to increases in energy level parents subjectively reported that daytime behaviour had also improved (McNamara & Sullivan, 2010).]

Summary of Literature

The history of sleep research can be traced back to the 19th century (Pelayo & Guilleminault, 2009). According to the National Sleep Foundation's Sleep in

America Poll, U.S. adults sleep about seven hours every night, a decrease of approximately two hours per night since the 19th century (National Sleep Foundation, 2005). In 2008, the same organization found that Americans expected to average 7 hr 18 min of sleep per night, but they actually only slept an average of 6 hr 40 min (National Sleep Foundation, 2008). A common term for “loss of sleep” is “sleep deprivation.” Drummond and McKenna (2009) stated that “sleep deprivation in humans can be broadly classified into three categories: total sleep deprivation, partial sleep deprivation, and sleep fragmentation (p. 249).” Sleep deprivation was measured by type: long-term total sleep deprivation (continually awake for more than 45 hours), short-term total sleep deprivation (continually awake for up to 45 hours), and partial sleep deprivation (sleeping less than 5 hours in a 24-hour period) which is seen to have adverse effect on the health of the people especially students in tertiary institutions who are of the habit of having less sleep as a result of both academic and non-academic activities which they engage in in school. This literature elucidated the significant effects of sleep on students and how it has tremendous impact on their health. (Pilcher & Huffcutt, 2006).

CHAPTER THREE

METHOD OF THE STUDY

This chapter preempts the method and procedures used in carryout the study under the following subheadings:

- Research Design
- Population of the study
- Sample and Sampling Techniques
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

The survey research design was adopted for this study was a descriptive survey design. This is because it seeks to find out the impact of sleep on students' health residing in the University of Benin hostel. The adoption of survey design for the study was also to enable the researcher to collect and analyse data from the sampled population that will be representative of the entire population of the study.

Population of the Study

The total population in the school hostel is 19,243 students in all the 8 hostels in the University of Benin Main campus (Uniben Press, 2019). The population of this study is comprises all students residing in the University of Benin school hostels. There are 8 different hostels in the University of Benin main Campus, Ugbowo, Benin City.

Sample and Sampling Technique

In this research work, 15 students will be randomly selected from each of the 8 different hostels making a total sample size of 120 respondents used for the study. The random sampling techniques was used to select the sample size of one hundred and twenty (120) students out of the total students residing in the school hostels.

Therefore, for this research work, the random sampling technique was used to obtain the sample size used for this research work.

Research Instrument

The questionnaire titled “the impact of sleep on students’ health residing in the University of Benin hostel” was used to collect the data. It was divided into two

sections, A and B. Section A of the questionnaire was aimed at gathering data regarding personal data of the respondents such as age, sex, etc and Section B was designed to gather data to answer the questions raised for the study and other issues considered relevant to the study.

Validity of the Instrument

To determine the validity of the instrument, the questionnaire was given to the supervisor the project supervisor and two lecturers in the Department of Health, Safety and Environmental Education. This was done to ensure that the items raised could be answered with objectivity.

Reliability of the Instrument

The reliability of the instrument was determined using Cronbach alpha method. To determine the internal consistency of the items of the questionnaire, the instrument was administered on 20 students which is outside the sample of the study. Their responses were coded and inputted into the computer, using the statistical package for social science (SPSS v 22.0) which will help determine the reliability coefficient, indicating if the instrument was highly consistent and reliable or not.

Method of Data Collection

The questionnaire was administered personally by the researcher and retrieved immediately the questionnaire is completed.

Method of Data Analysis

The returned questionnaire was coded, inputted into the computer and analyzed using the SPSS software. Mean and standard deviation was employed to analyze the data meant to answer the research question. While the mean was used to determine the degree of the responses, the standard deviation was used to determine the extent at which the respondents' responses cluster around the mean. The mean rating of 2.50 was used for decision point such that items less than 2.50 was regarded as low extent while mean ratings which equals to or above 2.50 was regarded as high extent.

The workings for the Decision rule is presented below:

$$4 + 3 + 2 + 1 = 10$$

$$10/4 = 2.5$$

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF RESULTS

This chapter presents the responses to the administered questionnaires. Data were analyzed using SPSS data analysis software tool and the results of analysis were discussed under the following sub-headings;

- Answering of Research Questions
- Discussion of Findings

Answering Research Questions

Data analysis for the research questions were also carried out using frequency count mean and standard deviation. The results are presented in tables 1 to 4 below.

ANALYSIS OF RESEARCH QUESTIONS

Research Question One: Does adequacy of sleep have impact on the health of students residing in the University of Benin hostel?

Table 1: Respondents' view on adequacy of sleep and its impact on the health

S/N	Items	Total	Mean	SD	Remark
1	Student who do not have adequate sleep will regularly fall ill	120	2.67	.671	Accepted
2	Without adequate sleep, the health of students is greatly affected	120	3.36	.835	Accepted
3	Students who have inadequate sleep are prone to mental illness	120	3.56	.918	Accepted
4	Adequate sleep help students to be mentally sound and relaxed	120	2.93	.679	Accepted
5	Students who are not mentally sound are those with inadequate sleep habit	120	2.59	.551	Accepted
6	Adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep	120	2.99	.798	Accepted

Source: Fieldwork, 2021.

Scale: Mean > 2.5 is Accepted

Mean < 2.5 is Rejected

Table 1 reveals Respondents' view on adequacy of sleep and its impact on the health. Responses show the mean values ranging from 2.59 to 3.56. Item one was accepted which shows that student who do not have adequate sleep will regularly fall ill, with a mean of 2.67.

Item 2 was also accepted showing that without adequate sleep, the health of students is greatly affected, with a mean of 3.36. Item 3 was accepted with a mean of 3.56 showing that students who have inadequate sleep are prone to mental illness.

Item 4 was rejected with a mean value of 2.43 which shows that adequate sleep help students to be mentally sound and relaxed. Item 5 with a mean of 2.59 was also accepted showing that students who are not mentally sound are those with inadequate sleep habit. Lastly, Item 5 with a mean of 2.99 was also accepted showing that adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep.

Therefore, it can be inferred that adequacy of sleep have tremendous impact on the health of students residing in the University of Benin hostel. This further shows that adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep and students who are not mentally sound are those with inadequate sleep habit.

Research Question Two: Does sleep patterns have impact on the health of students residing in the University of Benin hostel?

Table 2: Respondents' view on sleep patterns impact on the health of students

S/N	Items	Total	MEAN	SD	REMARK
7	Sleep pattern of students determine how healthy the student would be	120	2.91	.809	Accepted
8	Students who have poor seeping pattern are susceptible to fall ill regularly	120	3.18	.855	Accepted
9	Ill health is always associated to poor sleeping pattern	120	3.64	.847	Accepted
10	Good sleep pattern always result to good health of the student	120	3.43	.958	Accepted
11	Poor sleeping habit of students will result to poor health	120	2.85	.798	Accepted
12	Students will good sleeping pattern are always mentally sound	120	3.01	.811	Accepted

Source: Fieldwork, 2021.

Scale: Mean > 2.5 is Accepted

Mean < 2.5 is Rejected

Table 2 reveals respondents' view on sleep patterns impact on the health of students. Responses show the mean values ranging from 2.45 to 3.64 therefore, Item 7 was accepted having a mean value of 2.91 which shows that sleep pattern of students determine how healthy the student would be.

Item 8 was also accepted showing that students who have poor seeping pattern are susceptible to fall ill regularly, with a mean of 3.81. Item 9 was accepted with a mean of 3.64 showing that ill health is always associated to poor sleeping pattern.

Item 10 was accepted with a mean value of 3.43 which shows that good sleep pattern always result to good health of the student. Item 11 with a mean of 2.45 was also accepted showing that poor sleeping habit of students will result to poor health. Lastly, Item 12 with a mean of 2.85 was also accepted showing that students will good sleeping pattern are always mentally sound.

Therefore, it can be inferred that poor sleep pattern result to poor health of students making student to fall ill regularly. Thus, sleep patterns have significant impact on the health of students residing

Research Question Three: Does sleeping disorder have impact on the health of students residing in the University of Benin hostel?

Table 3: Respondents’ view on sleeping disorder impact on the health of students

S/N	Items	Total	MEAN	SD	REMARK
13	Sleep disorder can only result to ill health of the student	120	3.30	.729	Accepted
14	Students who have sleep disorder re always mentally unstable	120	2.72	.778	Accepted
15	Sleeping disorder makes students academically backwards	120	2.71	.842	Accepted
16	Students with sleep disorder are prone to missing classes due to ill health	120	2.97	.919	Accepted
17	Sleep disorder affects the mental stability of students	120	3.59	.840	Accepted
18	Sleep disorder can result to chronic diseases in that are detrimental to the life of the student	120	2.90	.872	Accepted

Source: Fieldwork, 2021.

Scale: Mean > 2.5 is Accepted

Mean < 2.5 is Rejected

Table 3 reveals respondents’ view on sleeping disorder impact on the health of students. Responses show the mean values ranging from 2.71 to 3.59 therefore, Item 13 was accepted having a mean value of 3.30 showing that sleep disorder can only result to ill health of the student.

Item 14 was accepted showing that students who have sleep disorder are always mentally unstable, with a mean of 2.72. Item 13 was accepted with a mean of 2.71 showing that sleeping disorder makes students academically backwards.

Item 14 was accepted showing that students with sleep disorder are prone to missing classes due to ill health, with a mean value of 3.43. Lastly, Item 15 with a mean of 3.59 was accepted showing that sleep disorder affects the mental stability of students.

Therefore, it can be inferred that schools with better facilities will always perform better than students from schools that do not have adequate facilities. Hence, school facilities influences the performance of students in Biology in senior secondary school. Lastly, Item 15 with a mean of 3.59 was accepted showing that sleep disorder can result to chronic diseases in that are detrimental to the life of the student

Therefore, it can be said that sleep disorder can result to a lot of negative effect on the life of the students which when not properly checked will be detrimental to their academic pursuit. Hence, sleeping disorder have impact on the health of students residing in the University of Benin hostel.

Research Question Four: What are the solutions to sleep disorder among students residing in University of Benin Hostel?

Table 4: Respondents’ view on solutions to sleep disorder

S/N	Items	Total	Mean	SD	Remark
19	pharmaceutical intervention to control the issues of sleep disorder	120	3.16	.715	Accepted
20	Reducing stress and anxiety by exercising and stretching	120	2.92	.838	Accepted
21	Incorporating more vegetables and fish into your diet and also reducing sugar intake	120	2.69	.818	Accepted
22	Limiting caffeine intake, especially in the late afternoons and evenings	120	2.67	.977	Accepted
23	Decreasing tobacco and alcohol use	120	3.17	.904	Accepted
24	Eating smaller low carbohydrate meal before bedtime	120	2.89	.780	Accepted

Source: Fieldwork, 2021

Scale: Mean > 2.5 is Accepted

Mean < 2.5 is Rejected

Table 4 reveals respondents’ view on solutions to sleep disorder. Responses show the mean values ranging from 2.67 to 3.17 therefore, Item 19 was accepted having a mean value of 3.16 showing that pharmaceutical intervention to control the issues of sleep disorder.

Item 20 was accepted showing that reducing stress and anxiety by exercising and stretching, with a mean of 2.92. Item 21 was accepted with a mean of 2.67 showing that incorporating more vegetables and fish into your diet and also reducing sugar intake.

Item 22 was accepted showing that limiting caffeine intake, especially in the late afternoons and evenings, with a mean value of 2.67. Item 23 with a mean of 3.17 was accepted showing that decreasing tobacco and alcohol use. Lastly, Item 24 with a mean of 3.17 was accepted showing that eating smaller low carbohydrate meal before bedtime.

Therefore, it can be categorically inferred from the table above that the family background of students determine their level of academic performance whether good or bad. Hence, the family background of the students influences the performance of students in Biology in senior secondary school II in Benin City

DISCUSSION OF FINDINGS

From the research carried out, it was observed from table 1 that sleep have impact on the health of students residing in the University of Benin hostel due to the fact that Student who do not have adequate sleep will regularly fall ill, are prone to all kinds of sleep related illnesses and without adequate sleep, the health of students is

greatly affected. This is in line with Kalat, (2008) who stated that Sleep is a basic physiological need for everyone. When people sleep, their body temperatures are lower and muscle movements are decreased to save energy and recover from physical tiredness/fatigue. Human beings follow a circadian rhythm which is regulated by a hormone, melatonin. People feel sleepy two to three hours after the brain releases melatonin. After experiencing initial sleepiness, people feel alertness again regardless of whether or not they sleep.

Also, it was discovered from table 3 above that sleep patterns have impact on the health of students residing in the University of Benin hostel such as determining how healthy the student would be and also students who have poor sleeping pattern are susceptible to fall ill regularly which is always associated to poor sleeping pattern. This is in line with Minkel (2012) who stated that continuous stress impacts individual sleep health. When under stress, the human body undergoes a series of reactions to help human beings produce and save energy. When a person experiences stress, the body releases a hormone to enhance metabolism and brain activities, and to activate the immune system for self-protection. The immune system will eventually become exhausted if a person is continually under stress. Sleepiness is one of the symptoms of an exhausted immune system; in other words, sleepiness might be a signal of experiencing prolonged stress.

Furthermore, from table 3 above, it was discovered that sleeping disorder have impact on the health of students residing in the University of Benin hostel because sleep disorder can only result to ill health and mental instability of the student. Sleeping disorder makes students academically backwards, affects the mental stability of students and can result to chronic diseases in that are detrimental to the life of the student. This is in line with Dahl (2009) who opined that sleepiness and fatigue is an unavoidable consequence of sleep loss. It often presents itself in later waking times, tardiness, sleeping during class time, and memory loss. Thus, sleepy or fatigued students might be the last ones to take initiatives when participating in group or cooperative learning. Even if a student does not sleep during class time, they may experience brief mental lapses. Sleep experts often refer to mental lapses as micro sleep. A state of emotional arousal or increased effort due to increased motivation can overcome sleepiness and fatigue for a short period of time without observed changes in performance. Thus, teaching techniques employed in the classroom would have to be highly rewarding and stimulating to ensure that sleepy or fatigued students remain engaged and motivated. However, tasks that are complex in nature and require simultaneous abstract thinking, creativity, integration, and planning, might be impervious to compensatory motivational strategies. These are the tasks that might be influenced primarily by sleep deprivation.

Lastly, it was discovered from table 4 that there are several solutions to sleep disorder among students residing in University of Benin Hostel which range from pharmaceutical intervention to reducing stress and anxiety by exercising and stretching. Also, dietary intake is a fundamental way of reducing sleep disorder like incorporating more vegetables and fish into your diet and also reducing sugar intake, limiting caffeine intake, especially in the late afternoons and evenings, decreasing tobacco and alcohol use and eating smaller low carbohydrate meal before bedtime. This is in line with Nuyens (2009) who stated that to improve faulty sleep architecture that causes sleep deprivation in such cases, the physiological disorder must be addressed. In students with an obstructive sleep disorder secondary to enlarged tonsils or adenoids, adenotonsillectomy has resulted in significant reduction or complete disappearance of sleep apnea in 90% of the cases post surgically (Nuyens, 2009). In addition to increases in energy level parents subjectively reported that daytime behaviour had also improved.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The study explored the impact of sleep on students' health residing in the University of Benin hostel. The study covered students residing in the University of Benin school hostels. The study adopted a descriptive survey design where qualitative data was collected. One hundred (100) copies of questionnaire was administered and retrieved from the respondents. The summary of the research findings are as follows:

1. Sleep have significant impact on the health of students residing in the University of Benin hostel. Adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep.
2. Sleep patterns have impact on the health of students residing in the University of Benin hostel due to the fact that Students will good sleeping pattern are always mentally sound, while students who have poor seeping pattern are susceptible to fall ill regularly

3. Sleeping disorder have impact on the health of students residing in the University of Benin hostel as it can result to chronic diseases in that are detrimental to the life of the student which can make students academically backwards.
4. There are several solutions to sleep disorder among students residing in University of Benin Hostel such as pharmaceutical intervention, Reducing stress and anxiety by exercising and stretching and dietary intake.

Conclusion

The conclusion from the results of the investigation is that sleep has great impact on the health of students residing which can determine their level of academic performance in school based on their frequency of falling sick. Adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep. Sleep patterns also have impact on the health of students residing in the University of Benin hostel due to the fact that students will good sleeping pattern are always mentally sound, while students who have poor seeping pattern are susceptible to fall ill regularly. Also, sleeping disorder have impact on the health of students residing in the University of Benin hostel as it can result to chronic diseases in that are detrimental to the life of the student which can make students academically

backwards. There are several solutions to sleep disorder among students residing in University of Benin Hostel such as pharmaceutical intervention, Reducing stress and anxiety by exercising and stretching and dietary intake

Recommendations

In the light of the findings of this study, the following recommendations are made:

1. More awareness should be given to students =in the importance of maintaining a good sleeping pattern and its impact on their health and academic performance.
2. The government and the school management should ensure that that the school curriculum is not overwhelming for students as such that can disrupt their sleeping pattern.
3. The government should ensure that the sleep pattern of students is monitored so that students will have enough sleep rest needed for a sound academic mind and body.
4. Also, families should be given adequate orientations on the impact inculcating good sleeping habit on their children so they can be always health both in mind and body.

Suggestion for Further Studies

Further studies should be carried out on:

1. Impact of adequacy and inadequacy of sleep on the health of students in Nigeria.
2. An assessment of the impact of sleep patterns on the health of students in Nigeria.
3. An assessment of the impact of sleeping disorder on the health of students in Nigeria.

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APPENDIX 1

**DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL
EDUCATION
FACULTY OF EDUCATION,
UNIVERSITY OF BENIN,
BENIN CITY.**

**IMPACT OF SLEEP ON STUDENTS' HEALTH RESIDING IN THE
UNIVERSITY OF BENIN HOSTEL**

Dear Respondents,

REQUEST FOR COMPLETION OF QUESTIONNAIRE

I am an undergraduate student of the University of Benin, Benin City, conducting a research on the topic” “the impact of sleep on students’ health residing in the University of Benin hostel”.

I humbly request your assistance in filling the questionnaire. All information gathered shall be used purely for research purposes and shall be treated with utmost confidentiality.

**Oduwa Ewaenbun Faith
Researcher**

SECTION B

In this section, please tick (✓) in the appropriate box against the correct answer that best suits your own opinion.

SA - Strongly Agree = 4

A - Agree = 3

D - Disagree = 2

SD - Strongly Disagree = 1

S/N	ITEM	SA	A	D	SD
Does adequacy of sleep have impact on the health of students residing in the University of Benin hostel?					
1	Student who do not have adequate sleep will regularly fall ill				
2	Without adequate sleep, the health of students is greatly affected				
3	Students who have inadequate sleep are prone to mental illness				
4	Adequate sleep help students to be mentally sound and relaxed				
5	Students who are not mentally sound are those with inadequate sleep habit				
6	Adequacy of sleep helps students to resistant to certain illness that is associated to inadequate sleep				
Does sleep patterns have impact on the health of students residing in the University of Benin hostel?		SA	A	D	SD
7	Sleep pattern of students determine how healthy the student would be				
8	Students who have poor seeping pattern are susceptible to fall ill regularly				
9	Ill health is always associated to poor sleeping pattern				
10	Good sleep pattern always result to good health of the student				
11	Poor sleeping habit of students will result to poor health				
12	Students will good sleeping pattern are always mentally sound				

Does sleeping disorder have impact on the health of students residing in the University of Benin hostel?		SA	A	D	SD
13	Sleep disorder can only result to ill health of the student				
14	Students who have sleep disorder re always mentally unstable				
15	Sleeping disorder makes students academically backwards				
16	Students with sleep disorder are prone to missing classes due to ill health				
17	Sleep disorder affects the mental stability of students				
18	Sleep disorder can result to chronic diseases in that are detrimental to the life of the student				
What are the solutions to sleep disorder among students residing in University of Benin Hostel?		SA	A	D	SD
19	pharmaceutical intervention to control the issues of sleep disorder				
20	Reducing stress and anxiety by exercising and stretching				
21	Incorporating more vegetables and fish into your diet and also reducing sugar intake				
22	Limiting caffeine intake, especially in the late afternoons and evenings				
23	Decreasing tobacco and alcohol use				
24	Eating smaller low carbohydrate meal before bedtime				

Thank You.