



**NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF NURSING**

**DETERMINING THE SLEEP QUALITY OF NURSING STUDENTS DURING THE
COVID-19 PANDEMIC**

M.Sc. THESIS

Takudzwa Winnie CHIGORIMBO

**Nicosia
March, 2022**

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Assist. Prof. Samineh ESMAEILZADEH

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Approval

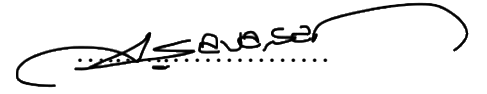
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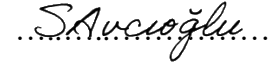
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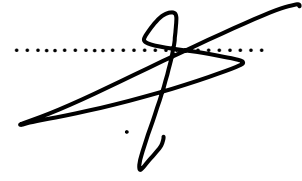


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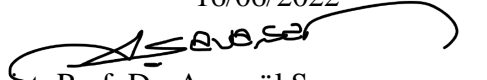
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Declaration

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.



Takudzwa Winnie CHIGORIMBO

23 March 2022

Acknowledgments

I would like to acknowledge and give my warmest thanks to my supervisor and course advisor Assist. Prof. Samineh ESMAEILZADEH who made this work possible. Her guidance and advice have carried me all through the stages of writing my thesis. I would also like to thank my family especially my mother and sister not forgetting my friends for their continuous support and prayers that sustained me this far.

Finally, I would love to thank God, for walking with me through this life changing experience, guiding me and protecting me from all obstacles, indeed he is a Faithful God. He is the author and finisher of my life and I will keep trusting in him.

Takudzwa Winnie CHIGORIMBO



Abstract

Determining The Sleep Quality Of Nursing Students During The Covid-19 Pandemic

Introduction: The present-day pandemic has brought on numerous social and behavioural modifications at a country level. These modifications had a terrible effect on intellectual fitness and sleep quality. Sleep is one of the predominant regulators and repairers of the body and is concerned in each cognition and reminiscence in addition to immunity and hormonal balance. It is understood that there may be a bidirectional relation between intellectual fitness and sleep quality, and it might be anticipated that sleep could be stricken by the pandemic.

Aim: The purpose of this study is to evaluate the sleep quality of nursing students during the Covid-19 pandemic.

Materials & Methods: A descriptive, cross-sectional online survey in regards to the sleep quality of the international undergraduate nursing students of 1st - 4th academic years will be conducted from December 2021 to May 2022 and data will be collected through online questionnaires from the study participants in Near East University, North Cyprus. Representative and convenience sampling will be used to invite the study participants to complete the questionnaires. Participation in the study will be voluntary. Taking part in the research was nameless and the non-public data of respondents will be kept private. Only the international nursing students will be considered.

Findings & Results: 230 students (188 (81.74%) females and 42 (18.26%) males) participated in the study. The delay in students' wake-up and sleep times by 2.0 (1.5–2.5) and 1.5 (0.5–2.0) hours, consequently. The Kruskal Wallis tests on the comparison of PSQI to the state of falling asleep and the state of wake-up night-time, showed statistically significant difference in the students' scores. More statistically significant differences were found in the Mann-Whitney U tests on the PSQI analyses in comparison to the history of disturbed sleep quality, having long-term ill-health condition, getting psychological support, and being diagnosed with Covid-19 during the pandemic.

Conclusions: Many activities and schedules has been altered by the pandemic, and with regards to intellectual problems that affects sleep quality, university students are among the most affected populace. Psychological health mediation and activities that will enhance the standard of sleep should be administered.

Key Words: Sleep Quality, Nursing Students, Pandemic, Covid-19.

Ozet

Hemşirelik Öğrencilerinin Covid-19 Pandemisi Sırasında Uyku Kalitesinin Belirlenmesi

Giriş: Günümüzdeki pandemi, ülke düzeyinde çok sayıda sosyal ve davranışsal değişikliği beraberinde getirdi. Bu değişikliklerin entelektüel zindelik ve uyku kalitesi üzerinde korkunç bir etkisi oldu. Uyku, vücudun baskın düzenleyicilerinden ve tamircilerinden biridir ve bağışıklık ve hormonal dengeye ek olarak her biliş ve hatırlama ile ilgilidir. Entelektüel zindelik ile uyku kalitesi arasında çift yönlü bir ilişki olabileceği ve uykunun pandemi tarafından etkilenebileceği tahmin edilebilir.

Amaç: Bu çalışmanın amacı hemşirelik öğrencilerinin Covid-19 pandemisi sırasında uyku kalitelerini değerlendirmektir.

Gereç ve Yöntem: Aralık 2021 - Mayıs 2022 tarihleri arasında 1. - 4. sınıf hemşirelik öğrencilerinin uyku kalitesine ilişkin tanımlayıcı, kesitsel bir çevrimiçi anket gerçekleştirilecek ve veriler, çalışmaya katılanlardan çevrimiçi anketler yoluyla toplanacaktır. Yakın Doğu Üniversitesi, Kuzey Kıbrıs. Çalışma katılımcılarını anketleri doldurmaya davet etmek için temsili ve kolayda örnekleme kullanılacaktır. Çalışmaya katılım gönüllü olacaktır. Araştırmada yer almak isimsizdi ve kamuya açık olmayan verileri gizli tutulacak. Sadece uluslararası hemşirelik öğrencileri dikkate alınacaktır.

Bulgular ve Sonuçlar: Çalışmaya 230 öğrenci (188 (%81,74) kız ve 42 (%18,26) erkek) katılmıştır. Öğrencilerin uyanma ve uyku saatlerinin 2,0 (1,5–2,5) ve 1,5 (0,5–2,0) saat gecikmesi, yani. PSQI'nin uykuya dalma durumu ve gece uyanma durumuyla karşılaştırılması üzerine yapılan Kruskal Wallis testleri, öğrencilerin puanlarında istatistiksel olarak anlamlı farklılık gösterdi. PSQI analizlerinde Mann-Whitney U testlerinde uyku kalitesinde bozulma, uzun süreli hastalık durumu, psikolojik destek alma ve pandemi sırasında Covid-19 tanısı alma öyküsü ile karşılaştırıldığında istatistiksel olarak daha anlamlı farklılıklar bulundu. .

Sonuç: Pandemi tarafından birçok aktivite ve program değişti ve uyku kalitesini etkileyen entelektüel problemler konusunda üniversite öğrencileri en çok etkilenen nüfus arasında yer alıyor. Psikolojik sağlık arabuluculuğu ve uyku standardını artıracak aktiviteler uygulanmalıdır.

Anahtar Kelimeler: Uyku Kalitesi, Hemşirelik Öğrencileri, Pandemi, Covid-19.

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List of Abbreviations

PSQI:	Pittsburgh Sleep Quality Index (Scale)
TRNC:	Turkish Republic of North Cyprus
COVID-19:	Coronavirus Disease 2019
SPSS:	Statistical Package for Social Sciences

CHAPTER I

Introduction

The foremost detection of coronavirus disease 2019 (COVID-19) was in Wuhan, China on the eight of December 2019, and it swiftly escalated across the planet (Pan et.al., 2020). By the fourth of June 2021, 171,782,908 occurrences and 698,621 deaths globally were confirmed by the WHO, (World Health Organization, 2021). The pandemic has been a worldwide catastrophe, significantly affecting socio-economic orders, intellects and health security, and it looked like the calamities were unending (Firth et.al., 2020, Pfefferbaum & North, 2020). In order to curb the widespread unfolding, a range of crucial & productive mass wellness activities began in China and in quite a lot of other countries, including hygienic hand practices, usage of masks, lockdowns, extensive tests and vaccination, critical retracement of contacts, sustained physical distancing, population surveillance, the construction of temporary improvised hospitals, compulsory isolation of suspected or confirmed COVID-19 victims and their close association, (Firth et.al., 2020, Budd et.al., 2020, Ruktanonchai et.al., 2020, Pan et.al., 2020). Irrespective of the commencement of these mass wellness procedures, the occurrences increased continuously. The main struggles in China were that many people that were infected were returning to China from other countries, and brought the infections including occurrences that showed no symptoms (Chen et.al., 2020). For the sake of deter s the escalation of Covid-19, students mostly went through long-term suspensions of school and there was an eventual switch to home online tutoring. Some studies showed that the mental impact of the Covid-19 pandemic on university students was possibly significant. University students of China went through symptoms of stress, PTSD, anxiety and depression at the Covid-19 pandemic onset phase (Li H.Y. et.al., 2020, Zhang et.al., 2020, Tang et.al., 2020). Additionally, medical students could be victims of greater stress than their non-medical counterparts as a result of the Covid-19 breakout (Ye et al., 2020).

The global population's psychological and physical health has been massively stricken by the Covid-19 pandemic. The younger populace has also been impacted even though Covid-19 created additional health threats for the middle-aged and older adults. The gloomy economic crash, social distancing, and fear of casualties had significant effects on university students. Several cities' universities stayed unopened irrespective of the re-instalment of business activities in locations that were previously locked-down. Covid-19 pandemic affected the health associated standard of living of students and adults (Riiser et.al., 2020, Azizi et.al., 2020). New proof has made it known that the Covid-19 pandemic instigated a swap related to adults' sleep

habits, particularly in the locations that were locked down. Even though more time was spent in bed, the quality of sleep was disclosed by adults to have worsened (Riiser et.al., 2020, Cellini et.al., 2020, Azizi et.al., 2020, Genta et.al., 2021). Sleeping late is a typical preference of students. The usage of electronic gadgets, a set-back phase of sleep, (Lagerge et al 2001), and social life are related to students' sleep practices. The influence of the pandemic on the standard and practices of sleep and on the standard living among university students has not been sufficiently distinguished and set aside with the timeframe prior to the pandemic in the same group of students.

Statement of the Problem

Many countries around the planet were distressed by Covid-19 which spiralled into a global pandemic. As neighbourhoods' shutdown to mitigate the viral extension, every ramifications of life were changed, sleep included. The populace of the locations that were affected by the Covid-19 pandemic faced challenges various facets. School closure and home confinement has particularly affected university students. The effect of the pandemic on sleep habits and quality, and the life quality of university students has not been adequately pointed out. In this study, we will scrutinize the impacts of Covid-19 on sleep and the connected risk factors on the nursing students at Near East University. An online cross-sectional research concerning the sleep wellness of 250 nursing students was performed and data will be collected through questionnaires from the study participants in Near East University. Representative and convenience sampling will be used to invite the study participants to complete the questionnaires.

Purpose of the Study

This study intends to asses and gauge the sleep and life quality of the nursing students of Near East University during the Covid-19 pandemic.

Questions of the Research

1. Through the course of the Covid-19 pandemic, what is the proportion of the sleep wellness and standard of nursing students?
2. Does a connection exist between the social and personal factors and the sleep quality of nursing students?

Significance of the Study

The path of the evolvement of the populaces' psychological health during the Covid-19 pandemic under different lockdown measures is poorly understood, and the repercussions on health disproportions are ambiguous. Insomnia and sleep-wake cycle disparities have been quite obvious among the populace and were to a great degree intensified by the increment of anxiety and depressive symptoms that took place during the pandemic. Students went through vital routine alternation disrupting their daily activities, including physical activities, class calendar, and the usage of electronic gadgets, which in turn accentuate sleep problems affecting their academic performance and learning. The pandemic has changed many habits and routines, with students among the mainly affected populace, both in terms of psychological problems affecting quality of sleep, as well as irregular sleep that itself influences cognition and learning. Insomnia has proved to be frequent in the populace, and its effects on the body, especially in regards to the immune system and emotional regulation are not favourable for confronting the new coronavirus.

For this reason, **the objective** of this study is to determine the nursing students' sleep quality during the Covid-19 lockdown. To address these hypotheses, nursing students will participate in this study on sleep quality and life's standard prior to the pandemic. An important **conclusion** is that the comprehensive quality of sleep worsened during the lock down even though more time was spent in bed by university students. Inadequate efforts to recognize and address university students' mental health challenges, especially during a pandemic, could have long-term consequences on their health and education. University administrators could best serve students if they better understood the impacts of COVID-19 and the risk factors of its psychological impacts. These impacts are of critical importance to warrant immediate mental health interventions focused on prevention and treatment [Stieger 2020].

Limitations

This research is limited to the opinions of the students of the Nursing Faculty of the Near East University and cannot be generalized.

CHAPTER II

Literature Review

Sleep

For preserving the living standard of human, sleep is a crucial activity. Sufficient standard of sleep and timing are critical for wellness, living and health, while sleep destitution has a great unwanted effect on day-to-day activities and psychological well-being (Chokroverty and Ferini 2017). For instance, sleep issues could predict the probability that there will be sickness or diseases like depression in the future. Intriguingly, the escalation of COVID-19 in 2019 has been divulged to portray an extensive unsettling to personal schedules, psychological well-being and sleep, all around the planet (Fabbri et.al. 2022). Several elements, both behavioural and biologic, impact people's sleep patterns, often with connections among them. The amount of sleep and timing of the circadian, controlling sleep balance, and the EEG (electroencephalogram) of sleeping has been shown to impacted by genetic factors, though quite a lot are left to be known about such pathways. Natural procedures for regulation provide additional help to figure out the length of sleep, timing of the circadian, which leads to being alert when one is awake, and are notion to contain two elements: sleep equilibrium or sleep duress and timing of the circadian (Borbely 1982). When the rhythmic timing is delayed, such as the time it takes to go to sleep and become awake are the most noteworthy changes in the circadian process. This mechanism is portrayed in people through a marker of behavioural, a later "chronotype," and the melatonin that is secreted at late evening-time. Melatonin is a symbol for natural night-time, "this opens the pathway to sleep." The ensuing postponement of sleepiness, that takes place evidently and regress to the initial set-up after younger adulthood, is likewise stricken by overdue night time, being open to light and not having natural light in the morning, cordially normally encountered by modern young adults (Terra et.al. 2022).

Insufficient sleep can also be a contributing factor to both the evolution and heightening of principal medical situations via various fundamental pathways. These encompass the compound two-way correlation between mediators that respond to the immune system (mediators of inflammation) and sleep. For instance, brief sleep is connected to vulnerability to and delay recuperation from septicaemia, along with elevated interval of usually contagious sicknesses, and can also lead to a diminished antibody reaction to vaccines like hepatitis B and influenza (Prather et.al. 2012). Moreover, due to the two-way connection linking insufficient aches and sleep in regards to elevated aches discernment & severity & diminishing threshold for and endurance of aches, young people that have persistent painful circumstances can

especially be susceptible to the repercussions of insufficient sleep with ensuing actual dysfunction (Evans et.al. 2017). Eventually, sleep-deficient young adults are at high vulnerability to a variety of injuries especially because of the already stated shortcomings in important performances connected to insufficient sleep (e.g, deficit management of urge, poor ability to make decisions, and dysfunction in the regulation of emotions).

Sufficient and exquisite sleep is needed for obtaining, integrating, and recovering information across the lifetime. Vigorous research on young adults, with a combination of natural researches & researches grounded on laboratory experiments, connects insufficient sleep, which encompass preferred evening circadian, to disabled psychological and behavioural execution, demonstrated by feeling sleepy during the daytime, grumpiness, impetuosity, absentmindedness, inattentiveness, delayed psychomotor reaction, and the absence of incentive (Carskadon 2011, Tonetti et.al. 2015, Abraham and Scaria 2015). Losing one night of sleep significantly affects the functioning of the brain, limiting the capability to perform new events to memory. As a result, students who get not up to eight hours of sleep every night have greater possibility to lose recollection capability while sleeping or educational chances the next day as their brains is unable to work at full capability. The conjoining of going to sleep late (probably as a result of alteration to the circadian, assignments, after-school activities, public relationships, and/or getting exposed to blue light) and being forced to wake up earlier usually results to young adults in this sleep-deficit state, increasing the likelihood that going to school at early hours will negatively affect academic performance. Surely, various researches insinuate that students that position academic timetable with the timing of the daily routine have greater chances to get better academic performances (Smarr and Schirmer 2018). Additionally, several studies have particularly connected starting school at earlier hours with less satisfactory education success and academic accomplishments, which includes diminished sustained attention and increased rates of being absent, lateness and dropping out of the university.

University students have horrendous sleep deprivation and bad sleep habits (Shelley 2015, Vakulin et.al.2007). Even though this can be regarded as conventional, it is difficult to disregard the impact of the poor sleep health of students when face with such a student. University students are sleepier than either adults or teens and disclose more difficulties with memory and paying attention. Being deprived of sleep affect students in ways that they may not acknowledge. There is a correlation among delayed reaction time, diminished immune function, greater susceptibility to infection, learning and even compromised memory. Specific types of learning and memory needs sleep, and staying up all night can result to the student's

performance never recovering from that sleep loss occurrence (Shelley 2015). Expectedly, an inconsistent sleep timing can negatively affect grade point average. Outside the classroom, there is the connection between compromised driving, sleep deficiency, and alcohol. As little as 1-2 alcoholic drinks in combination with only 4 hours of sleep lead to car accidents in 23%-33% of students on a driving simulator (Vakulin et.al 2007). Concurrently, previous research has suggested negative effects of poor sleep indices on academic performance (Gaultney 2010, Hysing et.al. 2016). Gaultney (2010) sampled 1845 university students in America with a validated sleep disorder questionnaire. Results showed that 27% of students were at risk for at least one sleep disorder. Furthermore, students at risk for sleep disorders were overrepresented among students in academic jeopardy, with a grade point average (GPA) of <2.0. Similarly, Gomes et al. (2011) surveyed 1654 full-time undergraduate students in Portugal using a questionnaire on sleep, academics, lifestyle and well-being. The main predictors of academic success in their study were: self-reported sleep quality and self-reported frequency of sufficient sleep, class attendance, night outings and previous academic achievement.

Sleep Quality

Sleep, being one of the simple needs, is a vital element of health affecting individuals' standard of living (Elif & Handan 2020). Sleep is productive in preserving standard thermal regulation, empowering the immune system, somatic growth and development, and assisting in brain development (Potter et.al. 2016, Sari et.al.2015). Consequent and substantial sleep improves the capability to reason; thus, the increasing the capacity of decisions making and acquiring new data (Rasch & Born 2013). Several elements influence sleep quality and quantity, which is one of the necessities of healthy living. Several studies divulged that an increased record of sleep disorders is experienced by people with low sleep quality and experience (Wesselius et al., 2018, Delaney et al., 2018, Gellerstedt et al., 2019, Dobing et al., 2016,). Little is recognized about factors affecting poor sleep hygiene and relations of sleep problems with the quality of life among adults. Sleep hygiene can be established as private behaviours and environmental regimens that reinforce sleep and keep away from situations that interrupt or cause sleep delay (Mastin et.al. 2006). Poor sleep hygiene is thought to be one of the contributing factors for sleep-related problems including insomnia and excessive daytime sleepiness (Mastin et.al. 2012, Kaur & Singh 2017, Irish et.al. 2015, Cho et.al. 2013). Poor sleep, insomnia, and daytime sleepiness are considered serious public health problems due to their increasing prevalence and dangerous consequences. These consequences include physical and mental health impairments, diminished productivity, accident proneness, increased

medical utilization, and elevated risk of psychiatric disorders (Itani et al., 2018, Irish et al., 2015, Zhang et al., 2018, Sariarslan et al., 2015). Today's life technology and modern lifestyle provide many potential factors that could implicate sleep hygiene. These factors include easy 24hours per day access to the internet; online media interaction; computer, smartphone, and television viewing; and video game addiction (Adams et al. 2013). Besides, stressful life conditions, smoking, caffeine, energy drinks, and unhealthy dietary habits may have a disruptive effect on sleep and may exaggerate sleep-related problems (Grandner et al. 2014, Khazaie et al. 2016). The overall populace were generally affected by sleeping difficulties during the Covid-19 pandemic (Alshumrani et al. 2022). Both anxiety about sleep and sleep hygiene behaviours may be influenced by pain and may contribute to sleep quality. Both anxiety about sleep and sleep hygiene have been associated with poor sleep quality (Rakhimov et al. 2022, Cho et al. 2013) and poor sleep hygiene has been associated with the presence and persistence of insomnia (Jansson et al. 2019). The general lifestyle, sleep habits and physical activity has been altered by the Covid-19 pandemic. Sleep disrupters are considered as any factor that negatively impacts any aspect of sleep. Sleep is a major component in cognition, learning and memory consolidation, well-being, cell growth and repair, glucose metabolism, secretion of leptin and ghrelin, and immune system function (Melone et al. 2022, Cohen et al. 2009). Furthermore, sleep debt may lead to an increased risk of injuries, altered performance, prolonged recovery and loss of motivation (Milewski et al. 2015, Reardon et al. 2019).

Corona Virus (COVID-19)

China identified a collection of pneumonia incidences in the city of Wuhan in January 2020. The Covid-19 disease was ascribed to the locating of a novel coronavirus, named SARSCoV2. World Health Organization (WHO) pronounced a pandemic on eleven March two thousand & twenty after Covid-19 swiftly escalated to 120 countries (Fuss et al. 2022). Acute COVID-19 disease is usually complex through a means of elongated signs and symptoms which regularly go on for months. These symptoms encompass tiredness, difficulty breathing, intellectual and psychologic problems, chest & joint pains, feeling faint, muscle pains, changes or absence of taste or smell, cough, headache, and gastrointestinal difficulties (Kaur et al. 2022).

Covid-19 & Psychological Impacts

The break out of COVID-19 in December 2019 unexpectedly spiralled into a worldwide pandemic disturbing countries around the planet, forcing social quarantine procedures to halt

the escalation of the disease. The general home restraint added to the unpredictability of the pandemic resulted in extreme alteration in people's lives, influencing social activities, careers, education, sleep and physical activity (Morin and Carrier 2020). Thus, the Covid-19 pandemic has imposed extreme psychological stress on many individuals, the extent of which we are only just beginning to understand. There were substantial worries concerning the effect of Covid-19 pandemic plus the connected alleviation interventions on the populace psychological well-being. All around the world, there is evidence that the pandemic has resulted in poorer mental health (Santomauro et.al, 2020), but much of this might depend on Covid-19 rates and the varying mitigation policies implemented. Concerns exist that specific policy responses, notably so-called lockdown measures, may themselves adversely affect mental health. Examining changes from before the pandemic, but also across different pandemic periods with different restrictions in place, may help understand the factors associated with adverse mental health effects.

Poor sleep is associated with adverse health outcomes, including cardiovascular disease, cancer, hypertension, obesity & diabetes, and all-cause mortality, as well as psychological disorders such as depression. Therefore, maintaining sleep health may be critical to preserving good over all physical and mental health during the Covid-19 pandemic. Also, there is preliminary evidence that depression and anxiety levels during the Covid -19 pandemic are elevated and potentially associated with poorer sleep quality (Rajkumar 2020). Before 2020, the fourth fore-running source of death were respiratory diseases (Nowbar et.al. 2019). The unexpected occurrence of a menacing illness exerts massive stress on workers in the healthcare sectors (Liu et.al 2012). Apart from healthcare workers, the overall populace has the probability to incur psychological and sleep wellness issues resulting from the consequences of Covid-19 (Xiong et al 2020) with a significant alteration in lifestyle being a great stressor (Balanz et al 2021, Rodríguez et al 2020). For instance, people may be required to isolate themselves and quarantine at home, to stay away from social events for fun and refreshment that they were formerly a part of, and stringently adhere to the new policies to reduce the extension of Covid-19 (for instance, using a face mask in communal places). Day-to-day statistics about getting infected with Covid-19 and dying divulged by the online platforms and broadcasting agencies could be perceived as frightening information by the overall populace (Zainab et al 2021). With the way of life altered and frightening statistics, the overall populace may stay away from being in touch with other individuals resulting from severe fear of getting infected, growing emotions of incapability or having panic attacks. To express this differently, the Covid-19 pandemic can result in the incidence of mental problems amongst the overall

populace. Several elements in addition to insomnia and psychological issues have been divulged. Working in a healthcare sector, having a primary illness, staying in local locations, female gender, and the threat of possibly coming in touch with patients that are already infected by Covid-19 are the major crucial probability elements for insomnia and intellectual health issues during the Covid-19 pandemic. (Zainab et.al 2021). Having an underlying disease is a risk factor for finding it hard to sleep and intellectual wellness issues surrounding non-medical healthcare workers. Definitely, amongst the normal and artificial calamities that humans are liable to face, as a result of the massive amount of people worldwide attacked by the Covid-19 pandemic, there has been serious mental unrest due the deadly transmissible course of the virus.

The Covid-19 pandemic as a global general wellness problem is a disturbing occurrence which influenced both sleep and psychological health of the overall populace and workers that provide healthcare (Zainab et al 2021). Furthermore, several strategies used to diminish the expansion of the virus (e.g., quarantine) were discovered to have some negative influences on an individuals' intellectual well-being (AlSaif 2019). The standard of sleep throughout the viral pandemic and its associated elements were disclosed in an uprising statistic of researches. The latest research on a meta-analysis to comprehend the sleep issues during the Covid-19 pandemic (Jahrami et al 2021). It discovered that the integrated common statistics of sleep issues around the world was 35.7%, with the patients suffering from Covid-19 emerging as the majorly affected group (74.8%), then providers of healthcare (36.0%), and the overall populace (32.3%). Additionally, sleep problems and mental issues resulting from the virus on those patients with the virus were disclosed in a sectional research (Huang et al 2021). At 6 months after acute infection, patients with Covid-19 had hard times sleeping, depression, & anxiety. An alternative structured review discovered the correlation between Covid-19 and mental issues among sick people with psychological disorders, workers in health facilities, and workers in non-health facilities (Vindegaard&Benros 2020). Nonetheless, only the information on sleep issues has been well assessed and evaluated through the abundant systematic analysis technique. Thus, intellectual issues and the connections of sleep and mental issues have not been integrated yet. Considering the outstanding amount of available researches on the standard of sleep, mental issues, & associated elements, & the significance of structured evaluations and systematic analysis in briefing & examining the outcome of available researches, the present study was structured and organized with the goal of approximating sleep concerns in the course of the Covid-19 pandemic and its connection to mental issues.

These are entirely associated with the unpredictability around a pandemic of this degree (Wang et al., 2020). Additionally, workers in health facilities have fears of falling ill while sick

people have the fears of contaminating their closed relatives and loved ones (Kilic, et al., 2020). Monetary deprivation followed by losses of jobs are also essential elements in the uprising of mental issues (Kilic, et al., 2020). It is disclosed that people go through elevated distress, anxiousness, and downtimes at times like this (Wang et al., 2020). Nevertheless, it is disclosed that several elements including academic class, sex, and marital status have effects on these signs (Erdogdu et al., 2020). Bad emotions for prolonged periods have the ability to diminish the works of people's immune system and negatively alter the usual physical stability. Thus, it is paramount to comprehend the possible psychological alterations resulting from Covid-19 (Li, Wang, et al., 2020). Results from a research discovered that thirty five percent of the respondents went through mental issues in connection to the viral pandemic, and the rate of mental issues was established as greater for peoples in the between 18–30 & 60yrs upwards (Qiu et al., 2020). Noting the outcome of the study, it is remarkable that university students with a significant position amongst the categories that the Covid-19 pandemic intellectually affected (Wang et al., 2020, Ho et al., 2020). For instance, in a research, university students were discovered to go through greater intensity of stress, anxiety, and depression because of the unpredictability and the prospective unwanted influence of the pandemic's on educational advancement (Wang et al., 2020). A different research portrayed 28.8 percent of the respondents went through anxiousness while 16.5percent had moderate to high ranges of signs of being depressed, and university students were amongst the classification with the highest mental issues (Ho et al., 2020).

Sleep in University Students

Researches made on sleep disclosed that 1/3 of adults were victims of sleep issues and that university students had lesser sleep in comparison to the overall populace as a result of stress from education (Henry et.al, 2019, Ghanei et al., 2011, Anjum et al., 2014). University students are especially vulnerable to these skyrocketing pressures on sleep. Low standard of sleep has been discovered to be related to increased non-successful rates and low performance in terms of academics. Studies confirmed that 54.1percent of the student in a university in Germany suggested that they were deprived of sleep and negative sleep nice as a reason for his or her mastering and operating problems. Students with negative and regularly avoid getting enough sleep so as to enhance their grades. This leads to a ferocious pattern related to an unfavorable impact on sleep nice and intellectual fitness. Sleep nice and length is suffering from elements which include years, gender, and way of life. Female university students had been proven to have a better danger of negative sleep nice and longer imply general sleep time.

Ways of life elements which include food (big foods, tyramine/tryptophan wealthy foods), alcohol, caffeine, usage of medications, and physical activities can also additionally make contributions to sleep disturbances (Henry et al 2019). The extended occurrence of sleep epidemics in youths that work is a chief fitness challenge as overdue bedtime, quick sleep length, and negative sleep nice had been related to an extended danger of bodily and intellectual diseases, which include being overweight, type 2 diabetes, depression, negative paintings performances, unethical and high-danger behaviours low existence pride and well-being, growing all-reason mortality (Lijuan and Lin 2021).

Sleep in Nursing Students.

Nursing college students undergo lengthy and extensive educational years earlier than turning into nurses. In West Africa, there is scarcity of facts on sleep conduct and its issues amongst the academic populace. The preferred goal of this look at became to look at sleep conduct and issues in clinical college students of UGSMD and determine their feasible impact on self-stated educational overall execution. Being deprived of sleep and terrible sleep excellent are specially accepted amongst clinical college students as visible in research through (Eller et al., 2006; Ghanei et l., 2011; and Eslami et al., 2012). These research file that among 43percent and 88percent of college students of the fitness sciences be afflicted by terrible sleep excellent because of the steady pressure and tension from their sizeable nursing curricula, common tests, and worry of failing. Bad sleep amongst nursing college students is typically potrayed in being deprived of sleep which is seen as feeling immoderate examinations during daylight hours (Anjum, etal 2014). In such college students, sleep can be voluntarily sacrificed because of numerous educational and social commitments or involuntarily curtailed due to a nap problem. Sleep issues were observed to be related to multiplied occurrence of social issues in addition to numerous physical and/ or mental issues. The state of being severly deprived of sleep ensuing in terrible sleep excellent may also have an effect on the intellectual and movement overall performance of nursing college students. In Africa, few research in Sudan, Ethiopia, Nigeria, and Ghana (Henry et al 2019) have resulted in unagreeable endings at the subject. These research have used pattern sizes starting from 31-6011 clinical university students. From the Ghanaian point of view, even though nursing college students were deprived of sleep, they did now no longer enjoy any bodily symptoms.

Covid-19 & Quality Of Sleep

Sleep is a physical system important to people and their regular activities. Sleep conduct and troubles also are prompted via way of means of bodily, mental, and environmental elements inclusive of age, gender, work, ways of life, tensions in emotion, and noise. Adults need on common among 7&9hrs of sleep every night. Both the amount and best of sleep perform a crucial function in a person's mental and bodily wellness. In the course of sleeping, the mind performs reminiscence reinforcement and combination; good enough and best sleep gets rid of awareness problems with out which, discernments, emotions and capability to research and hold records lose strength. Sleep additionally lets in the mind to higher system new reviews and information which will increase knowledge and retention (Henry et al 2019). The current Covids-19 pandemic caused by a new coronavirus (SARS-CoV-2), regards the spread of an acute and contagious respiratory disease. Because it is new, the human being has no previous immunity and its spread has taken global dimensions, resulting in a great economic, social and public health national crisis. Sleep is a physiological procedure that is meant to maintain and fix the body, portraying a crucial responsibility in most of its works. Latest researches display significant connection between being deprived of sleep and rising blood pressure, with the two being connected to a high activity in the sympathetic nervous system and retention of sodium in the kidney, including the ensuing emotional alterations like grumpiness, feelings of negativity and stress which negatively affects the activities of living healthy (Santos & Souza, 2021). In addition, the hyperlink among sleep and immune machine exceptional has been nicely glaring in current years. A low exceptional of sleep negatively influences the human immune machine, contributing to the implantation of an inflammatory situation withinside the frame and irritating antiviral responses. This state of affairs may be visible in a sequence of sleep problems defined with the aid of using the 2014 International Classification of Sleep Disorders divided into seven essential groups: insomnia problems, sleep associated respiratory problems, relevant hypersomnia problems, circadian rhythm sleep-wake problems, parasomnia problems, sleep associated motion problems, amongst others. The worry surrounding the coronavirus disease, the emotional strain of isolation and the monetary burden delivered on with the aid of using the state of affairs, make this surroundings beneficial for an boom of stressful and depressive signs withinside the populace. Therefore, sleep styles and their performance are affected. Those which might be maximum broadly visible withinside the modern landscape are insomnia, itself pretty related to superb emotional strain, and out of section sleep as a result of longer durations of time the usage of social media at night, consequently changing the circadian rhythm of the regular brain. Both negatively have an effect

on the law of physical natural features in addition to emotion and cognition, considering that sleep is the primary issue for reminiscence consolidation. Knowing which instances are associated with sleep problems is of superb significance for the improvement of treatments withinside the future. The Brazilian Consensus on Insomnia has already offered guide techniques for those who gift such difficulties (Nami et al., 2020; Voitsidis et al., 2020).

In this context, this observe seeks to talk about sleep problems throughout the COVID-19 pandemic, its principal reasons and courting with the better stages of melancholy and tension throughout this period. Emphasizing, also, its effects for the exceptional of lifestyles and feature of the organism, thinking about the immune machine, the hormones cortisol and melatonin, the feature of reminiscence, amongst different results for the overall populace and especially, for student. Studies that have examined factors related to sleep quality amidst social isolation measures have shown that older age was associated with less difficulties falling asleep during the pandemic, and strict home confinement without working and female sex were associated with increased sleep difficulties in a Portuguese sample of respiratory patients (half of them had a confirmed diagnosis of sleep disordered breathing) (Pinto et.al 2020). Additionally, in the general UK populace, greater time spent outdoor has been related to sleeping better, while worsen standard of sleep has been connected to being infected with Covid-19. A research that specialized in healthcare employees in Bahrain discovered that being a female and being a non-health-allied member have been correlates of poorer sleep first-rate and moderate-excessive strain levels. Finally, Wang et al (2020) mentioned that scientific occupation, parental burden, demise of a cherished one, anxiety, and despair have been correlates of poorer sleep first-rate amongst Chinese healthcare employees. Dilara et al (2020) suggested higher levels of anxiety, depression, and stress being associated with poorer sleep health. These results emphasize the importance of maintaining good sleep health during the pandemic, since poorer sleep health may trigger or exacerbate mental health disorders.

Results recommended that intellectual fitness consistently worsened throughout the period of the viral pandemic than the period prior to its occurrence, especially amongst females, people with better degrees, and people between 25 to 44 years. The endured downturn, even after the lockdown procedures were reduce, fairly disproves the concept that relieving lockdown initiatives particularly made intellectual wellness better and notioned that there are countless procedures resulting to unfavourable psychologic wellness results (Kishan et.al. 2022). Few studies have investigated sleep quality and mood at the end of a Covid -19 lockdown. For example, a longitudinal study in France compared sleep disorders during the first week, in the middle, and at the end of confinement, as well as one month after the end

(Beck et.al. 2021). Similarly, Waage et al. reported that more than 80% of Norwegian nurses did not show any change in sleep duration or sleep quality after the first wave of the Covid 19 pandemic compared to before (data collected between June and September 2020). These studies may indicate that the distress determined by lockdown (home confinement, social distancing, closure of activities) probably affected the sleep–wake cycle immediately, with a decrease in sleep quality and an increase in sleep problems. This influence, however, seems to be temporary, given that after lockdowns, sleep impairment seems to be naturally resolved, probably thanks to a reduction in general distress. However, the amount of time that is needed for this return to baseline is not clear, given that the two studies covered different time. Furthermore, and more importantly, much remains to be understood about which psychological factors are responsible for a reduction in distress symptoms and, consequently, for a “return-to-baseline” of sleep–wake problems. Fabbri et.al. (2022) confirmed that the COVID-19 lockdown negatively affected psychological variables and sleep–wake quality.

Roles of Nurses on Sleeping Problems

Nursing is one of the maximum demanding jobs within the world. In the occupational setting, the publicity of nurses to pressure and the steady want to explicit empathy at the same time as presenting care to sufferers are inherent factors of each day work. The courting among the terrible best of sleep and pressure is bidirectional (Van et.al. 2015) however maximum of the to be had research have targeted on investigating the impact of pressure on sleep best. The fitness of nurses has an instantaneous effect at the best of care and fitness effects for sufferers. The duration and best of sleep in addition to the depth of perceived pressure have an effect at the fitness of nurses. The implementation of avoidant and support-searching for and emotion-orientated pressure coping techniques through nurses had been related to the sleep problems (Kowalczyk et.al., 2021). A suitable pressure coping approach can lessen the effect of pressure and mitigate its poor consequences. As potential nurses, college students of nursing are answerable for defensive their sufferers’ fitness in medical practice. In order to satisfy this responsibility, they ought to additionally defend their personal fitness. Esposito and Fitzpatrick (2011) observed a hyperlink among nurses’ sleep best and coaching behaviors, and discovered that individuals who followed wholesome behaviors had been much more likely to be superb position fashions for his or her sufferers in affected person training. In a retrospective study, it become observed that there has been a sizable correlation among nurses’ sleep deprivation and best of care (Stimpfel et.al., 2020). Nursing roles on sleeping problems includes but are not limited to;

- Asking suitable questions
- Observing sleep patterns
- Advising on life-style choices
- Explaining and demonstrating
- Helping with symptom management
- Setting up a sleep-inviting environment
- Diet for good sleep promoting comfort and relaxation
- Addressing emotional stress
- Medication for enhanced sleep

CHAPTER III

Methodology

Research Design

Representative and convenience sampling will be used to invite the study participants to complete the questionnaires. Participation in the study will be voluntary. Taking part in the research was nameless and the non-public data of respondents will be kept private. Only the international nursing students will be considered.

Study Type and Time

A descriptive, cross-sectional online survey in regards to the sleep quality of the international undergraduate nursing students of 1st - 4th academic years will be conducted from December 2021 to May 2022 and data will be collected through online questionnaires from the study participants in Near East University, North Cyprus.

Participants / Population & The Sample / Study Group

Representative and convenience sampling will be used to invite the study participants to complete the questionnaires. Participation in the study will be voluntary. Taking part in the research was nameless and the non-public data of respondents will be kept private. Only the international nursing students will be considered.

Data Collection Tools/Materials

This cross-sectional study was descriptive. Out of the 337 students, the minimum study sample size is 183 Students, however, 230 students participated. the study is restricted to all international students presently at Near East University Nursing department.

Data Collection Procedures

Sample Selection: The sample size will be determined by using Slovin's Formula, which is a method that guess the sample size through the random sampling technique formula. The minimum sample size (183) was determined using Slovin's formula (Stephanie, 2003) which is expressed as;

$$n = \frac{N}{1 + N(e)^2}$$

Where

n is sample size

N is population size, = 337

e is margin of error =0.05

$$n = \frac{N}{1 + N(e)^2}$$

$$\frac{337}{1 + 337(0.05)^2}$$

$$n = \frac{337}{1.8425}$$

$$n = 183$$

The survey instrument that would be used will be done using the Google Survey services. The questionnaires will be generated and share online targeting social media forums frequented with Near East University, Faculty of Nursing students in TRNC. Also, it will be emailed to students using directories of University organization groups, WhatsApp, Instagram and Twitter handle. When filled, the response will be automatically saved and can be accessed by the researcher on the Google survey website.

Data Analysis

Data turned into acquired via way of means of the size transferred to laptop and after that decontamination mistakes from gathered records (editing) procedure is carried out. Statistical Package for the Social Sciences (SPSS) 26.zero for Evaluation model turned into used for the statistical evaluation of records. Frequency evaluation turned into used to decide the solutions given to scale gadgets and descriptive traits of the students. The suggest and general deviation values associated with The Pittsburgh Sleep Quality Index had been additionally given. As a end result of the carried out Kolmogrov-Sminov check, it turned into decided that the records taken from the size doesn't display everyday distribution and nonparametric hypotheses assessments had been used withinside the evaluation. Mann-Whitney U check, that is one of the parametric hypotheses' assessments, turned into used withinside the popularity of getting impartial variables, and to evaluate the impartial and established variables. Finally, Kruskal-Wallis H check turned into used in which there had been greater than impartial variables. The Cronbach alfa coefficient is 0.722.

Inclusion criteria based on scholarly articles with;

- English language.
- Undergraduate near east nursing students

Exclusion criteria

- Those that do not speak English

Participation Criteria for Research Sample

- To be an undergraduate student studying in the Faculty of Nursing at Near East University in TRNC.
- Reading and able to write in the English language.

The survey questionnaire, in English, will consist of 15 socio-demographic questions which includes but is not limited to; academic year, sleep patterns during the pandemic, symptoms of insomnia, stress and burnout.

- **Independent Variables:** Socio-Demographical Variables for the Individual
- **Dependent Variables:** Sleep Quality

The Pittsburgh Sleep Quality Index (PSQI): The order of the PSQI objects has been changed from the unique order so as to in shape the primary nine objects (which might be the simplest objects that make contributions to the whole score) on a unmarried web page. Item 10, that is the second one web page of the scale, does now no longer make contributions to the PSQI score. In scoring the PSQI, seven thing ratings are derived, every scored zero (no difficulty) to 3 (intense difficulty). The thing ratings are summed to provide a international score (variety zero to 21). Higher ratings suggest worse sleep quality.

The PSQI is a powerful tool applied to degree the nice and styles of sleep in older people. It differentiates “terrible” from “exact” sleep nice with the aid of using measuring seven areas (additives): personal sleep, sleep lagging, timing of sleep, ordinary sleep effectiveness, sleep disturbances, use of sleep medicines, and daytime-dysfunction over the lastmonth. Nineteen man or woman objects produce 7 "element ratings. The combinations of ratings for those 7 additives produces 1 international rating. An overall rating of “five” or extra is indicative of terrible sleep nice. If you scored “five” or extra it's far advised which you speak your sleep behavior with a fitness care provider (Buysse et.al., 1989).

Key Facts About The PSQI

- The PSQI changed into evolved with the aid of using Daniel J. Buysse and partners to degree nice of sleep and to assist discriminate among folks who enjoy terrible sleep as opposed to folks who sleep well (Buysse et.al., 1989).
- The scale has parts: 19 self-rated questions, applied to fee the size, and 5 questions rated with the aid of using a mattress partner. The scale also can receive with the aid of using a clinician or studies assistant.
- Most of the objects are prepared in a couple of preference questions and are quick and clean to apprehend and answer.
- The PSQI questions are rated from zero = no trouble to 3 = intense trouble, producing ratings that correspond to the domain names of the size.

- The ratings variety from zero to 21 and the authors recommend that a rating > five be taken into consideration as a large sleep disruptors.
- Time to finish PSQI scale: five–10 min.
- The reliability of the size is taken into consideration exact with Cronbach's alpha of zero.eighty three for the overall rating. Test–retest reliability is likewise taken into consideration exact.
- The validity of PSQI has been defined with the aid of using the authors as exact with a sensitivity of 89.6% and a specificity of 86.five% of sufferers as opposed to manage subjects.

Evaluation of Research Data

Research records may be factually dissected in IBM SPSS 26.zero software. The independent variable is the Covid-19 pandemic whilst the structured variable is the sleep best of nursing students. Frequency evaluation may be used to decide the nursing students' sleep best in the course of the lockdown. In order to evaluate the Pittsburgh sleep best index (PSQI) questionnaire in keeping with diverse traits of the students, the country of the data's compliance with the same old dissemination will first be tested with the Kolmogorov-Smirnov, Shapiro-Wilk tests. Accordingly, in evaluating the dimensions rankings of the students' socio-demographic traits; if the impartial variable is in 2 categories, Mann-Whitney U take a look at may be used, if extra than 2 categories, Kruskal-Wallis H take a look at may be used.

CHAPTER IV
Findings and Discussion

Table 1.
Socio-Demographic Characteristics of the Students

	Sayı (n)	Yüzde (%)
Gender		
Female	188	81,74
Male	42	18,26
Age		
17-19 years	61	26,52
20-22 years	70	30,43
23-25 years	51	22,17
26 years and older	48	20,87
Years at univesity		
1 st Year	110	47,83
2 nd Year	33	14,35
3 rd Year	51	22,17
4 th Year	27	11,74
5th Year	9	3,91
Living place		
House for rent by myself	96	41,74
At home with my friend for rent	94	40,87
Student residence	25	10,87
With family	7	3,04
Other	8	3,48
Having roommate		
Yes	142	61,74
No	88	38,26
State of falling asleep		
Very Easy	33	14,35
Easy	68	29,57
Average	100	43,48
Very Difficult	29	12,61
State of wake up at night-time		
Never	9	3,91
Seldom	22	9,57
Sometimes	116	50,43
Often	51	22,17
Always	32	13,91
Having history of disturbed sleep quality		
Yes	70	30,43
No	160	69,57
Having any long-term ill health condition		
Yes	12	5,22
No	218	94,78
Getting psychological support		
Yes	19	8,26
No	211	91,74
Diagnosed with Covid-19 during the pandemic		
Yes	87	37,83
No	143	62,17
Doing physical activity during lockdown		
Yes	109	47,39
No	121	52,61
Living place during the Covid-19 pandemic		
My Country	125	54,35
North Cyprus	105	45,65
Academic performance in Covid-19 period		
Poor	7	3,04
Fair	43	18,70
Good	133	57,83
Excellent	47	20,43

In Table 1, the distribution of the students' descriptive characteristics is given. It is seen that 81,74 % of the students are female and 18,26% of them are male. 26,52% of the students are 17-19 years old, 30,43% of them are between 20-22 years old, 22,17% are in 23-25 years old and 20,87% are 26 years and older age group. %47,83 of the students are in their first year at university, %14,35 of them are in their second year at university, %22,17 of them are in their third year at university, %11,74 of them are in their fourth year at university and %3,91 of them are in their fifth year at university. %41,74 of the students living alone in a rent house, %40,87 of the students living with their friends in a rent house, %10,87 of the students living in a student residence, %3,04 of the students living with their family, %3,48 of the students living in other ways, %61,74 of the students have roommate, %38,26 of the students does not have any roommate. As we investigate the state of falling asleep %14,35 of them fall asleep very easily, %29,57 of them fall asleep easy, %43,48 of them fall asleep average, %12,61 of them fall asleep very difficult. %3,91 of the students never wake up at night-time, 9,57 of the students wake at night-time seldom, 50,43 of the students sometimes wake up at night-time, %22,17 of the students often wake up at night-time, %13,91 of the students always wake up at night-time. %30,43 of the students having history of disturbed sleep quality, %69,57 of the students does not having history of disturbed sleep quality. %5,22 of the students having long-term ill health conditions, %94,78 of the students does not having any long-term ill health conditions, %8,26 of the students getting psychological support, %91,74 of the students does not getting psychological support, %37,83 of the students with Covid-19 in the pandemic, %62,17 of the students did not infected with Covid-19 in the pandemic, %54,35 of the students were living in North Cyprus during the Covid-19 pandemic, %45,65 of the students were living in their country during the Covid-19 pandemic. It is seen that %3,04 of the students get poor academic performance in Covid-19 pandemic, %18,70 of the students get fair academic performance in Covid-19 pandemic, %57,83 of the students get good academic performance in Covid-19 pandemic and 20,43 of the students get excellent academic performance in Covid-19 pandemic.

Table 2.*The Descriptive Statistics Students' Scores on The Pittsburgh Sleep Quality Index*

	n	\bar{x}	s	Min	Max
PUKI	230	7,03	3,77	0	19

In table 2, the Descriptive Statistics Students' marks on The PSQI is given. It is seen that Students' take average $7,03 \pm 7,03$ points, minimum 0, maximum 19 points from The PSQI.

Table 3.*The Comparison of Students' Points Taken from The PSQI by Gender*

Gender	n	\bar{x}	s	M	MR	Z	p
Female	188	7,15	3,67	7	118,67	-1,537	0,124
Male	42	6,52	4,20	6	101,30		

The Mann-Whitney U test that is done to contrast the points of the students taken from The Pittsburgh Sleep Quality Index by their gender is given in Table 3. On the examination of Table 3, there was a discovery of no statistically significant difference between the PSQI marks in regards to the respondents' gender included in the study ($p > 0,05$). Male and female students get similar points from The Pittsburgh Sleep Quality Index.

Table 4.***The Comparison of Students' Points Taken from The PSQI by Age Group***

Age	n	\bar{x}	s	M	MR	X²	p
17-19 years	61	6,62	3,65	7	108,52	5,061	0,167
20-22 years	70	7,99	4,19	7,5	130,34		
23-25 years	51	6,63	3,65	7	109,78		
26 years and older	48	6,60	3,24	6	108,79		

The outcome of Kruskal-Wallis H test on the collation of The Pittsburgh Sleep Quality Index scores in Table 4, to age group of the students who are taken into the study. It was discovered that there is no significant statistically differences between the Pittsburgh Sleep Quality Index to their classification by age ($p > 0.05$). Students between 20-22yrs have more scores than those in age group 17-19, students in age group 23-25 and students in age group 26 years and older but as a result the scores between age groups are statistically showed no significance.

Table 5.***The Comparison of Students' Points Taken from The PSQI by Years at University***

Years at University	N	\bar{x}	S	M	MR	X²	P
1 st Year	110	7,02	3,70	7	115,82	4,801	0,308
2 nd Year	33	7,09	3,34	7	119,62		
3 rd Year	51	6,67	4,41	6	102,77		
4 th Year	27	7,96	3,66	9	136,17		
5 th Year	9	6,33	2,50	7	106,61		

The outcome of Kruskal-Wallis H test on the collation of The Pittsburgh Sleep Quality Index scores in Table 5, to the years at university of the respondents who took part in the study. When Table 5 is examined, no significant statistic difference was discovered between the The Pittsburgh Sleep Quality Index marks in regards to the years at university of the study respondents ($p > 0,05$). All students who are at first, second, third, fourth and fifth years at the university get similar scores from the The Pittsburgh Sleep Quality Index.

Table 6.*The Comparison of Students' Points Taken from The PSQI by living place*

Living place	n	\bar{x}	s	M	MR	X²	p
House for rent by myself	96	7,10	3,93	7	116,48	2,290	0,683
At home with my friend for rent	94	7,06	4,01	6,5	114,57		
Student residence	25	7,16	2,70	7	122,82		
With family	7	5,14	2,61	6	81,21		
Other	8	7,13	2,80	7	121,75		

The outcome of Kruskal-Wallis H test on the collation of The Pittsburgh Sleep Quality Index scores in Table 6 according to the living place of the students who partook in the study. Upon the examination of Table 6, no significant statistically difference was discovered between the PSQI marks in relation to the living place of the respondents in the study ($p > 0,05$). Living place of the students does not affect their marks of the the PSQI.

Table 7.*The Comparison of Students' Points Taken from The PSQI by having roommate*

Having roommate	n	\bar{x}	s	M	MR	Z	p
Yes	142	7,08	3,75	7	115,92		
No	88	6,95	3,83	7	114,82	-0,123	0,902

The Mann-Whitney U test is done to compare the points of the students taken from The Pittsburgh Sleep Quality Index by their having roommate given in Table 7. Upon the examination of Table 6, no significant statistically difference was discovered between the The Pittsburgh Sleep Quality Index marks in relation to having roommate of the respondents of the study ($p > 0,05$). Students' who have roommates get higher scores form The Pittsburgh Sleep Quality Index than the Students' whom have not roommates, but this difference is not significant statistically.

Table 8.***The Comparison of Students' Points Taken from The PSQI by State of Falling Asleep***

State of Falling Asleep	n	\bar{x}	s	M	MR	X²	p	Dif.
Very Easy	33	4,55	2,62	4	69,17	74,459	0,000*	1-4
Easy	68	5,12	2,79	4	80,79			2-4
Average	100	7,80	2,94	8	134,36			3-4
Very Difficult	29	11,72	4,28	12	184,60			

The discoveries of Kruskal-Wallis H test on the comparison of The Pittsburgh Sleep Quality Index scores according to state of falling asleep of the students in table 8 was considered. It portrayed significant statistic differences on the Pittsburgh Sleep Quality Index according to their state of falling asleep ($p < 0.05$). Students who fall asleep very difficult get higher scores from the Pittsburgh Sleep Quality Index than students whom fall asleep very easy, easy and average.

Table 9.***The Comparison of Students' Points Taken from The PSQI by state of Wake-Up Night-Time***

State of Wake-Up at Night-Time	n	\bar{x}	s	M	MR	X²	p	Diff.
Never	9	6,11	4,43	4	91,89	28,954	0,000*	1-5
Seldom	22	5,77	3,13	6	93,70			2-5
Sometimes	116	6,22	3,40	6	101,81			3-5
Often	51	7,55	3,21	7	128,62			4-5
Always	32	10,28	4,33	9,5	165,84			

The comparison of the points of the respondents taken from The Pittsburgh Sleep Quality Index by their state of wake-up night-time given in Table 9 was done through the Kruskal-Wallis H test. Upon the examination of Table 9, it portrayed significant statistic differences on the Pittsburgh Sleep Quality Index according to the state of wake-up night-time of the respondents that participated in the study ($p < 0,05$). Students who always wake up night-time, get statistically significantly higher scores from The Pittsburgh Sleep Quality Index, than the students whom never wake up night-time, whom seldomly wake up night-time, whom sometimes wake up night-time and whom often wake up night-time.

Table 10.***The Comparison of Students' Points Taken from The PSQI by History of Disturbed Sleep Quality***

History of Disturbed Sleep Quality	n	\bar{x}	s	M	MR	Z	p
Yes	70	9,61	3,76	9	160,66	-6,838	0,000*
No	160	5,91	3,19	6	95,74		

The Mann-Whitney U test is done to compare the points of the students taken from The Pittsburgh Sleep Quality Index by their History of disturbed sleep quality given in Table 10. Upon the examination of Table 10, it portrayed significant statistic differences on the Pittsburgh Sleep Quality Index according to the History of disturbed sleep quality of the students in this study ($p < 0,05$). Students' who have History of disturbed sleep quality get statistically significantly higher scores from the PSQI, than the students whom have not History of disturbed sleep quality.

Table 11.***The Comparison of Students' Points Taken from The PSQI by Having Long-Term Ill Health Condition***

Having Any Long-Term Ill Health Condition	n	\bar{x}	s	M	MR	Z	p
Yes	12	10,42	4,80	9,5	163,63	-2,585	0,010*
No	218	6,85	3,63	7	112,85		

The Mann-Whitney U test is done to compare the points of the students taken from The Pittsburgh Sleep Quality Index by their having long-term ill health condition given in Table 11. Upon the examination of Table 10, it portrayed significant statistic differences on the Pittsburgh Sleep Quality Index according to having long-term ill health condition ($p < 0,05$). Students' who have long-term illness condition, get statistically significantly higher scores from the PSQI, than the students whom have not any long-term illness condition.

Table 12.***The Comparison of Students' Points Taken from The PSQI by Getting Psychological Support***

Getting Psychological Support	n	\bar{x}	s	M	MR	Z	p
Yes	19	9,21	4,08	9	151,89	-2,500	0,012*
No	211	6,84	3,69	7	112,22		

Table 12 portrays the discoveries of The Mann-Whitney U test on the contrast to the Pittsburgh Sleep Quality Index scores according to getting psychological support of the study respondents. As we examine Table 12, we figure out that there is significant statistical difference between the The Pittsburgh Sleep Quality Index scores according to the students getting psychological support ($p < 0,05$). Students' who are getting psychological support, get higher scores than the students' whom are not getting psychological support and the points between scores are statistically significant.

Table 13.***The Comparison of Students' Points Taken from The PSQI by Diagnosis of Covid-19 During the Pandemic***

Diagnosis of Covid-19 During the Pandemic	n	\bar{x}	s	M	MR	Z	p
Yes	87	7,71	3,37	7	129,90	-2,571	0,010*
No	143	6,62	3,96	6	106,74		

Table 13 portrays the discoveries of the Mann-Whitney U test on the comparison of The Pittsburgh Sleep Quality Index scores according to diagnosis of Covid-19 during the pandemic of the students who were taken to the study. As we examine Table 13, we figure out that there is significant statistical difference between the The Pittsburgh Sleep Quality Index scores according to the students diagnosed with Covid-19 during the pandemic ($p < 0,05$). Students' who were diagnosis of Covid-19 in the course of the pandemic, get higher The

Pittsburgh Sleep Quality Index scores, than the students' whom were not diagnosis of Covid-19 in the course of the pandemic.

Table 14.

The Comparison of Students' Points Taken from The PSQI by doing physical activity during lockdown

Doing physical activity during lockdown	n	\bar{x}	s	M	MR	Z	p
Yes	109	7,43	3,46	7	124,10	-1,869	0,062
No	121	6,68	4,02	6	107,75		

The Mann-Whitney U test is done to compare the points of the students taken from The Pittsburgh Sleep Quality Index by their physical activity condition is given in Table 14. Upon the examination of Table 14, the discovery showed no significant statistical difference between the The Pittsburgh Sleep Quality Index scores in accordance to the physical activity condition of the study respondents ($p > 0,05$). Students' who did physical activity during lockdown and students' who did not do physical activity during lockdown, get similar scores from the PSQI

Table 15.

The Comparison of Students' Points Taken from The PSQI by living place during the Covid-19 pandemic

Living place during the Covid-19 pandemic	n	\bar{x}	s	M	MR	Z	p
My Country	125	6,95	3,45	7	115,68	-0,045	0,964
North Cyprus	105	7,13	4,13	7	115,29		

The Mann-Whitney U test is done to compare the points of the students taken from the PSQI by their living place during the Covid-19 pandemic is given in Table 15. Upon the examination of Table 15, the discovery showed no significant statistical difference between the the PSQI scores in accordance to the students' living place during the Covid-19 pandemic

($p>0,05$). Respondents living in their own country and respondents living in North Cyprus in the course of the Covid-19 pandemic get similar scores from the PSQI.

Table 16.

The Comparison of Students' Points Taken from The PSQI by Academic Performance in Covid-19 Period

<i>Academic Performance in Covid-19 Period</i>	n	\bar{x}	s	M	MR	X²	p
Poor	7	7,29	3,90	7	120,93	3,444	0,328
Fair	43	7,53	4,18	7	120,42		
Good	133	7,22	3,71	7	119,27		
Excellent	47	6,02	3,47	5	99,53		

Table 16 portrays the discoveries of Kruskal-Wallis H test on the comparison of the PSQI scores according to the respondents' academic performance in Covid-19 period. Upon the examination of Table 16, the discovery showed no significant statistical difference between the the PSQI scores in accordance to the respondents' academic performance in Covid-19 period ($p>0,05$). Students' who get excellent academic performance in Covid-19 period, get lower Pittsburgh Sleep Quality Index score than the students' who get poor, fair and good academic performance in Covid-19 period, but the difference in points is not statistically significant.

CHAPTER V

Discussion

Sleep is a physiological method important to human beings and their regular functioning. Sleep conduct and troubles also are motivated with the aid of using bodily, mental, and environmental elements which includes age, gender, work, routines of life, noise and tensions in emotional (Irish et al, 2007). The pandemic has led to major changes in human behaviour in general. Furthermore, isolation has also facilitated an adoption of sedentary life habits by adolescents and young adults. There was a reduction in the amount of physical exercises as opposed to the increase in the time spent on electronic equipment (Brito et al., 2020). Youths need on common among 7&9hrs of sleep every night. Both the amount and high-satisfactory of sleep performs a critical position in a person's mental and bodily wellness (Giri et al, 2013). In the course of sleeping, the mind conducts reminiscence consolidation and integration; good enough and high-satisfactory sleep gets rid of awareness difficulties (Rasch and Born 2013) with out which, discernments, emotions, and potential to examine and hold statistics are weakened. (Anim and Yirdong 2013). Sleep additionally permits the mind to higher method new reports and information which will increase know-how and retention (Majid et.al. 2006). Epidemics that unfold all around the global are called "pandemic". Coronavirus disorder (COVID-19) has been declared an global emergency with the aid of using the World Health (WHO). The speedy unfold of the disorder has supposed that unparalleled regulations were applied to manipulate its unfold and mitigate its impact (WHO 2020). The contemporary COVID-19 pandemic led to low degrees of sleep high-satisfactory as a result of strain and anxiety (Xiao et.al. 2019). University students are well known for their erratic sleep schedules and late bedtimes, with up to 50% of students reporting significant levels of daytime sleepiness (Lund et.al. 2010). In light of this, university students are especially susceptible to getting hardships concerning sleep, with previous research also insinuating unfavourable effects on their educational activities, mostly connected to not being able to pay attention as a result of not sleeping well (Driller et.al. 2022). From the socio-demographic result of this study in Table 1, findings showed that there were 230 participants in the study and majority of the study participants well females, most students were between 20-22yrs old, and most of the students were in their first year in the university. There was a closely similar high percentages of student living in a "house for. Rent by myself" and those living "at home with my friend for rent". Many students also confirmed that they have roommates. Most students claimed "average" state of falling asleep and majority of them "sometimes" wake up at night-times

though most of them reported that they do not have history of disturbed sleep quality. Another majority vote showed that; they do not have any long-term health condition, they do not get psychological support, there were not diagnosed with Covid-19 during the pandemic, and that they were not doing physical activity during the lockdown. Notably, more students were living in their nations through the period of the viral pandemic. Finally, most of the respondents reported “good” academic performances in the Covid-19 period. Sweileh et.al. (2011) also reported no relationship between sleep quality and academic success in Palestinian undergraduate students. In their study, they demonstrated that complaints about sleep problems were common among university students, with approximately 28% of students evaluating their sleep quality as ‘satisfactory’ or ‘poor’ on a four-point scale.

The consequences of lockdown on sleep issues aren't but thoroughly understood, however we understand that the populace spent greater time in mattress, spent greater time on virtual gadgets near bedtime, went to mattress and were given up later, and their sleep best worsened (Cellini et.al. 2020). Table 2 portrayed the descriptive statistics scores on the PSQI to beaverage. Table 3's Mann-Whitney U test on the PSQI analysis on gender portrayed no significant statistic difference ($p>0,05$). The standards for terrible sleep first-class range relying on gender (Tsai and Li, 2004), with gender variations in variables including latency and waking at some stage in the night, and girls experiencing extra issues than men (Becker et.al., 2018). In this study, each genders acquired comparable overall rankings; however, lockdown triggered extensive adjustments in girls however now no longer in men. In all of the sleep parameters analysed, better rankings had been acquired at some stage in lockdown, indicating worse sleep first-class, besides in issue 3 (period of sleep). The Kruskal Wallis tests on the comparison of PSQI to the age groups, years at the university and living place, displayed no significant difference in the scores of respondents in Table 4,5 and 6 respectively. Regarding the college students' yr of take a look at, the preliminary sleep pleasant ratings have been comparable, despite the fact that they have been decrease consistent with the sooner the yr of take a look at. First and second-yr college students skilled vast adjustments throughout lockdown. The preliminary years in nursing research are in particular theoretical, turning into a great deal extra sensible as time is going on, with a extra range of medical credits. Previous research on scientific college students of their very last years of take a look at and with medical touch determined excessive tiers of strain and bad sleep pleasant (Alsaggaf, et.al., 2016). This may also be the case for nursing college students. Also, the reality that scholars in in advance years of take a look at skilled notably worse sleep pleasant throughout lockdown indicates that the equal reasoning applies; college students of their very last years of take a look at had their

placements cancelled, whilst college students of their first years of take a look at needed to adapt to a brand new manner of coaching and digital tests on the way to byskip the yr, which can have extended strain and worsened sleep pleasant. The Mann-Whitney U check at the PSQI evaluation on having roommate additionally displayed no vast difference ($p>0,05$) in Table 7. Another thrilling issue became the region of house throughout the instructional yr. Before lockdown, ratings are comparable for every variable, however, lockdown most effective brought on vast adjustments to the ones dwelling with own circle of relatives. Living with different college students throughout the instructional yr, together with at college houses or shared residences, had a power on sleep pleasant (Sexton and Hartley, 2013). All college students dwelling in college houses or rented residences needed to go back to their own circle of relatives houses and this will have advanced sleep pleasant, stopping any vast variations withinside the ratings throughout lockdown. It is envisioned that amongst college college students, the superiority of bad sleep pleasant is round 60% [Lund et.al. 2010] or maybe higher. Despite an growth withinside the range of hours spent in mattress, factor four indicates that sleep efficiency (the ratio among time in mattress and real sleep time) declined throughout the lockdown. In different words, despite the fact that college students spent extra hours in mattress, they took longer to fall asleep. Although the PSQI worldwide ratings extended, indicating worsening of sleep pleasant, sleep timing delayed (indicative of doubtlessly decrease social jetlag because of a discrepancy among endogenous circadian rhythm and real sleep instances imposed with the aid of using social obligations). This is probably beneficial or useful to college students considering the fact that they now no longer want to awaken early for class (Wright et.al., 2020), however the consequences of lockdown have been extra unfavourable to college students' sleep, and the sleep timing postpone did now no longer strongly affect.

The Kruskal Wallis tests on the comparison of PSQI to the state of falling asleep and the state of wake-up night-time, showed significant statistical difference ($p<0,05$) in the students' scores according to the results in Table 8 and 9 respectively. From Tables 10-13, more significant statistic difference ($p<0,05$) were found in the Mann-Whitney U tests on the PSQI analyses in comparison to the history of disturbed sleep quality, having long-term ill-health condition, getting psychological support, and being diagnosed with Covid-19 during the pandemic. Previous research speak approximately impaired performance, behavioural changes, nutritional changes, or even aggression in nursing college students as a result of altered sleep patterns [Ferreira & De Martino 2012, Fornés et.al 2016, da Silva et.al. 2020]. However, Tables 14 and 15 indicated no significant statistic difference ($p>0,05$) was found in the Mann-Whitney U tests on the PSQI analyses of the students' score in terms of doing physical activity during

the lockdown and their living places during the pandemic. No relationship was noted between the standard of sleep during lockdown and physical activity, eating habits, tobacco consumption, or anxiety/ depression (Cristina et.al., 2020). Finally, the Kruskal Wallis tests on the comparison of PSQI to the academic performance in the Covid-19 period displayed no significant statistic difference ($p>0,05$) in the students' scores in Table 16. This finding opposed to Henry et.al., (2019) studies that found a significant relationship between sleep quality and academic performance. Not getting enough sleep in the most students was characterized by little time asleep at night, being tired in the morning, feeling extremely sleepy during the day, and having plenty naps in the day. In comparison, Driller et.al. (2022) found that 68% of students had moderate to poor sleep quality as assessed by the PSQI. The lack of findings for the relationship between academic grades and TST has also been reported previously. Eliasson (2010) reported that sleep factors such as bed and wake times had a greater impact on academic performance than TST in American university students. Apart from this, another harmful implication to individuals affected by sleep disorders is related to cognitive aspects (Saad et.al., 2021).

CHAPTER VI

Conclusion and Recommendations

Conclusion

The COVID-19 pandemic has changed many habits and life routines of the general population, affecting their biological clocks and especially the sleep-wake cycle. The implications of this disorder affect several points in human homeostasis, such as the growth hormone, which is mostly produced during sleep and will not be able to properly perform its functions due to involuntary sleep deprivation, and the increase in inflammatory mediators, that leads to a dangerous pro-inflammatory state for a disease whose pathophysiology seems to be related to exacerbated inflammatory responses. The study outcome displayed none significant statistic difference ($p > 0,05$) on the the Mann-Whitney U test on the PSQI analysis on gender, on having roommate, in terms of doing physical activity during the lockdown and the living places during the pandemic. While the Kruskal Wallis tests on the comparison of PSQI to the state of falling asleep and the state of wake-up night-time, showed significant statistic difference ($p < 0,05$) in the respondents' points where most respondents indicated that they 'sometimes' wake up at night times. Good standard of sleep is critical for overall health and full performance of all organ systems. Students have gone through major routine changes disrupting their daily activities, such as physical activities, class schedules, and use of electronic equipment, which in turn accentuate sleep problems. The occurrence of negative sleep best amongst college students could be very excessive and, in nursing college students, has been related to decreased performance, behavioural adjustments, nutritional adjustments, or even competitive behaviour because of adjustments in sleep patterns. Sleep dysfunctions are manifested as dangerous alterations in standard, timing, and attitudes connected to sleep; they stand for a broad degree of issues and sicknesses that badly affect good sleep and eventually, lots of other day-to-day routines. In light of this, issues connected to sleep can portray themselves primarily as outbursts connected to too much or absence of sleep as well as weird movings while sleeping. Identifying the main reasons for sleep problems is of utmost importance since their abnormalities are major contributors for triggering ideation and suicide attempts.

This study is not without its limitations. The sample size in the current study was relatively small ($n = 230$). However, this was largely due to the size of the overall population to draw from studying in the same degree program. Future research should aim to evaluate whether the findings in the current study are similar to those in students across other fields of

study in non-health-related programs (e.g., business administration, Engineering, Computer Sciences). Inadequate efforts to recognize and address university students' mental health challenges, especially during a pandemic, could have long-term consequences on their health and education. Enhancing awareness of the impact of sleep timing on academic success should be prioritized and strategies to improve sleep hygiene should be promoted to university students.

Recommendations

- It is known that disrupted sleep duration and quality are related to many diseases. Training on sleep risk factors and lifestyle changes to increase the quality and duration of sleep should be made.
- Besides the professional development of nursing students, the factors affecting mental health integrity should be evaluated.
- Special training and conferences should be implemented to help university students identify and cope with sleep problems.

References

- Abraham J and Scaria J (2015). Influence of sleep in academic performance an integrated review of literature. *J Nurs Health Sci.* 4 (4): pp 78–81.
- Adams SK, Daly JF, Williford DN (2013). Adolescent sleep and cellular phone use: Recent trends and implications for research. *Health Serv Insights*; 6, pp 99-103.
- Alsaggaf, M.A.;Wali, S.O.; Merdad, R.A.; Merdad, L.A (2016). Sleep quantity, quality, and insomnia symptoms of medical students during clinical years: Relationship with stress and academic performance. *Saudi Med. J.*, 37, pp 173–182.
- AlSaif HI (2019). Prevalence of and risk factors for poor sleep quality among residents in training in KSA. *Journal of Taibah University Medical Sciences*; 14:5 pp 2–9.
- Alshumrani R, Qanash S, Aldobyany A, Alhejaili F, AlQassas I, ShabrawishiM,Alnashiwaty O, Badghaish M, Adnan M, Afeef AB, Alghamdi D, AljehaniS,Alsurahi A, Faruqui A, Krayem Awadalla NJ, Mahfouz AA, Shehata SF, Al Thibiait SA, Aljihani AH, Hafez SM, et al (2020). Sleep hygiene, sleep-related problems, and their relations with quality of life in a primary-care population in southwest Saudi Arabia. *J Family Med Prim Care*; 9:31 pp 24-30.
- Azizi A, Achak D, Aboudi K, et al (2020). Health-related quality of life and behaviour related lifestyle changes due to the COVID-19 home confinement: dataset from a Moroccan sample. *Data Brief.* 32: pp 106-239.
- A. Anjum, M. A. Bajwa, and R. Saeed (2014). “Sleep patterns among medical and nonmedical students of University of Lahore,” *Professional Medical Journal*, vol. 21, no. 1, pp. 148–156.
- A, Manzar MD, Wali S (2022). Sleep quality and mentalhealth in coronavirus disease 2019 patients and general population during thepandemic. *Ann Thorac Med* 17:2 pp1-7
- A. Schlarb, M. Claßen, S.Hellmann, C. Vögele, and M.D. Gulewitsch, (2017). “Sleep and somatic complaints in university students,” *Journal of Pain Research*, vol. 10, pp 1189–1199.
- Balanç_a-Martínez V, Kapczinski F, de Azevedo Cardoso T, et al (2021). The assessment of lifestyle changes during the COVID-19 pandemic using a multidimensional scale. *Revista de Psiquiatria y Salud Mental* 14(1): pp 14–26. doi: 10.1016/j.rpsm.2020.07.003.
- Beck, F.; Leger, D.; Cortaredona, S.; Verger, P.; Peretti-Watel, P (2021). the COCONEL group. Would we recover better sleep at the end of COVID-19? A relative improvement observed at the population level with the end of the lockdown in France. *Sleep Med.* 78, pp 115–119.

- Becker, S.P.; Jarrett, M.A.; Luebke, A.M.; Garner, A.A.; Burns, G.L.; Kofler, M.J (2018). Sleep in a large, multi-university sample of college students: Sleep problem prevalence, sex differences, and mental health correlates. *Sleep Health*, 4, pp 174–181.
- Borbely A A (1982). A two process model of sleep regulation. *Hum Neurobiol.* 1(3): pp 195–204.
- Prather AA, Hall M, Fury JM, et al (2012). Sleep and antibody response to hepatitis B vaccination. *Sleep*; 35 (8): pp 1063–1069.
- Browning MHEM, Larson LR, Sharaievska I, Rigolon A, McAnirlin O, Mullenbach L, et al. (2021) Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. *PLoS ONE* 16(1): pp 245-327. <https://doi.org/10.1371/journal.pone.0245327>
- Brito, L. M. S., Boguszewski, M. C. S., Souza, M. T. R., Martins, F., Mota, J., & Leite, N. (2020). Indoor Physical Activities, Eating and Sleeping Habits among School Adolescents during COVID-19 Pandemic. *Revista Brasileira de Atividade Física & Sa.de*, pp 25, e0117. <https://doi.org/10.12820/rbafs.25e0117>
- Budd, J., Miller, B., Manning, E., Lampos, V., Zhuang, M., Edelstein, M., et al. (2020). Digital technologies in the public-health response to COVID-19. *Nat. Med.* 26, pp 1183–1192. doi: 10.1038/s41591-020-1011-4
- Buysse, DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ (1989). The Pittsburgh Sleep Quality Index (PSQI): A new instrument for psychiatric research and practice. *Psychiatry Research* 28: pp 193-213.
- B. Rasch and J. Born, (2013). “About sleep’s role in memory,” *Physiological Reviews*, vol. 93, no. 2, pp. 681–766.
- Cain N, Gradisar M (1989). Electronicmedia use and sleep in school-aged children and adolescents: a review. *Sleep Med.* 11(8): pp735–742.
- Carskadon MA(2011). Sleep in adolescents: the perfect storm. *PediatrClin North Am.* 58(3): pp 637–647.
- Carskadon MA (2011). Sleep’s effects on cognition and learning in adolescence. *Prog Brain Res.* 190: pp 137–143.
- Cellini N, Canale N, Mioni G, Costa S (2020). Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy. *J Sleep Res.* 29(4): e13074.
- Chen, L., Cai, J., Lin, Q., Xiang, B., and Ren, T. (2020). Imported COVID-19 cases pose new challenges for China. *J. Infect.* 80: pp 43–44. doi: 10.1016/j.jinf.2020.03.048

- Cho S, Kim G-S, Lee J-H (2013). Psychometric evaluation of the sleep hygiene index: A sample of patients with chronic pain. *Health Qual Life Outcomes*. 11:213.
- Chokroverty, S. Ferini-Strambi, L (2017). *Oxford Textbook of Sleep Disorders*; Oxford University Press: Oxford, UK.
- Cohen, S.; Doyle, W.J.; Alper, C.M.; Janicki-Deverts, D.; Turner, R.B (2009). Sleep Habits and Susceptibility to the Common Cold. *Arch. Intern. Med.* 169, pp 62–67.
- Cristina Romero-Blanco, Julián Rodríguez-Almagro, María Dolores Onieva-Zafra, María Laura Parra-Fernández, María del Carmen Prado-Laguna and Antonio Hernández-Martínez (2020). Sleep Pattern Changes in Nursing Students during the COVID-19 Lockdown. *International Journal of Environmental Research and Public Health*, pp 1-11, 17, 5222; doi:10.3390/ijerph17145222
- Da Silva, K.K.M.; de Martino, M.M.F.; Bezerra, C.M.B.; de Souza, Â.M.L.; da Silva, D.M.; Nunes, J.T (2020). Stress and quality of sleep in undergraduate nursing students. *Rev. Bras. Enferm.* Pp 73, e20180227.
- Delaney LJ, Currie MJ, Huang HC, Lopez V, Van Haren F (2018). They can rest at home: an observational study of patients' quality of sleep in an Australian hospital. *BMC Health Serv Res*; 18:524.
- DilaraYuksel, Grace B. McKee, Paul B. Perrin, ElisabetAlzueta, SedyCaffarra, Daniela Ramos-Usuga, Juan Carlos Arango-Lasprilla, Fiona C. Baker, (2021). Sleeping when the world locks down: Correlates of sleep health during the COVID-19 pandemic across 59 countries. *Sleep Health; Journal of the National Sleep Foundation*, pp 134-142.
- Dobing S, Frolova N, McAlister F, Ringrose J (2016). Sleep quality and factors influencing self-reported sleep duration and quality in the general internal medicine inpatient population. *PLoS One* 2;11:e0156735.
- Driller, M.; Suppiah, H., Gastin, P.B. and Beaven, C.M. (2022). Questionnaire-Derived Sleep Habits and Academic Achievement in First Year University Students. *Clocks & Sleep* 2022, 4, pp 1–7. <https://doi.org/10.3390/clockssleep4010001s>
- Dunster GP, de la Iglesia L, Ben-Hamo M, et al (2018). Sleep more in Seattle: later school start times are associated with more sleep and better performance in high school students. *Sci Adv.* 4(12):eaau6200.
- Eliasson, A.H.; Lettieri, C.J (2009). Early to bed, early to rise! Sleep habits and academic performance in college students. *Sleep Breath.* 14, pp 71–75.

- Elif Günay İsmailoğlu, Handan Özdemir, (2020). Factors Affecting Sleep Hygiene Training of Nursing Students. *Journal of Turkish Sleep Medicine* 3: pp 195-200. DOI: 10.4274/jtsm.galenos.2020.43531
- Esposito EM, Fitzpatrick JJ (2011). Registered nurses' beliefs of the benefits of exercise, their exercise behaviour and their patient teaching regarding exercise. *Int J Nurs Pract*, 17:35 pp 1-6.
- Erdoğdu, Y., Kocaoğlu, F., & Sevim, C. (2020). An investigation of the psychosocial and demographic determinants of anxiety and hopelessness during COVID-19 pandemic. *KlinikPsikiyatriDergisi*, 23(1), pp 24–37.
- Evans S, Djilas V, Seidman LC, Zeltzer LK and Tsao JCI (2017). Sleep quality, affect, pain, and disability in children with chronic pain: is affect a mediator or moderator? *JPain*. 18(9): pp 1087–1095.
- Fabbri, M., Simione, L., Martoni, M. and Mirolli, M. (2022). The Relationship between Acceptance and Sleep–Wake Quality before, during, and after the First Italian COVID-19 Lockdown. *Clocks & Sleep* 4, pp 172–184. <https://doi.org/10.3390/clockssleep4010016>
- Firth, J., Hellewell, J., Klepac, P., Kissler, S., Kucharski, A., and Spurgin, L. (2020). Using a real-world network to model localized COVID-19 control strategies. *Nat. Med.* 26, pp 1616–1622. doi: 10.1038/s41591-020-1036-8
- Ferreira, L.R.C.; De Martino, M.M.F (2012). Sleep patterns and fatigue of nursing students who work. *Rev. Esc.Enferm. USP*, 46, pp 1178–1183.
- Fornés-Vives, J.; Garcia-Banda, G.; Frias-Navarro, D.; Rosales-Viladrich, G (2016). Coping, stress, and personality in Spanish nursing students: A longitudinal study. *Nurse Educ. Today*, 36, pp 318–323.
- Fullagar, H.H.K.; Skorski, S.; Duffield, R.; Hammes, D.; Coutts, A.J.; Meyer, T (2015). Sleep and Athletic Performance: The Effects of Sleep Loss on Exercise Performance, and Physiological and Cognitive Responses to Exercise. *Sports Med.* 45, pp 161–186.
- Fuss, F.K., Weizman, Y. and Tan, A.M. (2022). COVID-19 Pandemic: How Effective Are Preventive Control Measures and Is a Complete Lockdown Justified? A Comparison of Countries and States. *COVID* 2, pp 18–46. <https://doi.org/10.3390/Covid2010003>
- Gao J, Wang F, Guo S and Hu F (2021). Mental Health of Nursing Students amid Coronavirus Disease 2019 Pandemic. *Front. Psychol.* 12:699558. doi: 10.3389/fpsyg.2021.699558
- Genta FD, Rodrigues Neto GB, Sunfeld JPV, et al (2021). COVID-19 pandemic impact on sleep habits, chronotype, and health-related quality of life among high school students: a longitudinal study. *J Clin Sleep Med.*;17(7): pp 1371–1377.

- Gaultney, J.F (2010). The Prevalence of Sleep Disorders in College Students: Impact on Academic Performance. *J. Am. Coll. Health*, 59, pp 91–97.
- Gellerstedt L, Medin J, Kumlin M, Karlsson MR (2019). Sleep as a topic in nursing education programs? A mixed method study of syllabuses and nursing students' perceptions. *Nurse Educ Today*; 79:1 pp 68-74.
- Gomes, A.A.; Tavares, J.; De Azevedo, M.H.P (2011). Sleep and Academic Performance in Undergraduates: A Multi-measure, Multipredictor Approach. *Chronobiol. Int.*, 28, pp 786–801. [CrossRef]
- Grandner MA, Knutson KL, Troxel W, Hale L, Jean-Louis G, Miller KE. Implications of sleep and energy drink use for health disparities. *Nutr Rev* 2014;72(Suppl 1):14-22.
- G. Curcio, M. Ferrara, and L. De Gennaro, (2006). "Sleep loss, learning capacity and academic performance," *Sleep Medicine Reviews*, vol. 10, no. 5, pp. 323–337.
- Henry J. Lawson, Jude T.W. Mensah, and Salamatu A. Nantogma (2019). Evaluation of Sleep Patterns and Self-Reported Academic Performance among Medical Students at the University of Ghana School of Medicine and Dentistry. Volume 2019, pp 1-9. Article ID 1278579. <https://doi.org/10.1155/2019/1278579>.
- Ho, C. S., Chee, C. Y., & Ho, R. C. (2020). Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. *Annals of the Academy of Medicine*, 49(3), pp 155–153.
- Huang C, Huang L, Wang Y, et al (2021). 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. *The Lancet*;397(10270):2 pp 20–32. doi: 10.1016/S0140-6736(20)32656-8.
- Hysing, M.; Harvey, A.G.; Linton, S.J.; Askeland, K.G.; Sivertsen, B (2016). Sleep and academic performance in later adolescence: Results from a large population-based study. *J. Sleep Res.* 25, pp 318–324.
- H. G. Lund, B. D. Reider, A. B. Whiting, and J. R. Prichard, (2010). "Sleep patterns and predictors of disturbed sleep in a large population of college students," *Journal of Adolescent Health*, vol. 46, no. 2, pp. 124–132.
- Irish LA, Kline CE, Gunn HE, Buysse DJ, Hall MH (2015). The role of sleep hygiene in promoting public health: A review of empirical evidence. *Sleep medicine reviews*;22: pp 23-36.
- Itani O, Kaneita Y, Jike M, Furuya M, Uezono C, Oda F, et al (2018). Sleep-related factors associated with industrial accidents among factory workers and sleep hygiene education intervention. *Sleep Biol Rhythms*;16:2 pp 39-51.

- Jansson-Fröjmark M, Evander J, Alfnsson S (2019). Are sleep hygiene practices related to the incidence, persistence and remission of insomnia? Findings from a prospective community study. *J Behav Med.* Feb 1; 42(1):1 pp 28–38. <https://doi.org/10.1007/s10865-018-9949-0> PMID: 29995266
- Jahrami H, BaHammam AS, Bragazzi NL, Saif Z, Faris M, Vitiello MV (2021). Sleep problems during the COVID-19 pandemic by population: a systematic review and meta-analysis. *Journal of Clinical Sleep Medicine*;17: pp 299–313.
- J. D. Kloss, C. O. Nash, S. E. Horsey, and D. J. Taylor, (2011). “The delivery of behavioral sleep medicine to college students,” *Journal of Adolescent Health*, vol. 48, no. 6, pp. 553–561.
- Kaur, A., Michalopoulos, C., Carpe, S., Congrete, S., Shahzad, H., Reardon, J., Wakefield, D., Swart, C. and ZuWallack, R. (2022). Post-COVID-19 Condition and Health Status. *COVID*, 2, pp 76–86. <https://doi.org/10.3390/Covid2010006>
- Kaur G, Singh A (2017). Sleep Hygiene, sleep quality and excessive daytime sleepiness among Indian college students. *J Sleep Med Disord*;4:1076.
- Khazaie H, Chehri A, Sadeghi K, Heydarpour F, Soleimani A, Rezaei Z (2016). Sleep hygiene pattern and behaviors and related factors among general population in west of Iran. *Global J Health Sci*;8:53434.
- Kilic, R., Hatipoğlu, C., A., & Güneş, C. (2020). Quarantine and its legal dimension. *Turkish Journal of Medical Sciences*, 50(SI-1), pp 544–548.
- Kishan Patel, Elaine Robertson, Alex S. F. Kwong, et.al, (2022). Psychological Distress Before and During the COVID-19 Pandemic Among Adults in the United Kingdom Based on Coordinated Analyses of 11 Longitudinal Studies. *JAMA Network Open*. 2022; 5(4): e227629, pp 1-15. doi:10.1001/jamanetworkopen.2022.7629
- Kowalczyk K, Krajewska-Kułak E and Sobolewski M (2021) Relationships Between Sleep Problems and Stress Coping Strategies Adopted by Nurses Including Socio-Occupational Factors. *Front. Psychiatry* 12:660776. doi: 10.3389/fpsy.2021.660776
- Laberge L, Petit D, Simard C, Vitaro F, Tremblay RE, Montplaisir J (2001). Development of sleep patterns in early adolescence. *J Sleep Res.*10(1): pp 59–67.
- Li, H. Y., Cao, H., Leung, D. Y. P., and Mak, Y. W. (2020). The Psychological impacts of a COVID-19 outbreak on college students in China: a longitudinal study. *Int. J. Environ. Res. Public Health* 17:3933. doi: 10.3390/ijerph17113933
- Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The impact of COVID-19 epidemic declaration on psychological consequences: A study on active Weibo users. *International Journal of Environmental Research and Public Health*, 17(6), pp 20-32.

- Lijuan Zhao and Lin Wu (2021). The Relationship Between Digital Activity and Bedtime, Sleep Duration, and Sleep Quality in Chinese Working Youth. *Nature and Science of Sleep* 2022:14 pp 419–432
- Liu X, Kakade M, Fuller CJ, et al (2012). Depression after exposure to stressful events: lessons learned from the severe acute respiratory syndrome epidemic. *Comprehensive Psychiatry*53: pp 15–23
- Lund, H.G.; Reider, B.D.; Whiting, A.B.; Prichard, J.R (2010). Sleep patterns and predictors of disturbed sleep in a large population of college students. *J. Adolesc. Health*, 46, pp 124–132.
- L. K. P. Suen, L. K. Ellis Hon, and W. W. S. Tam, (2008). “Association between sleep behavior and sleep-related factors among university students in Hong Kong,” *Chronobiology International*, vol. 25, no. 5, pp. 760–775.
- Mastin DF, Bryson J, Corwyn R (2006). Assessment of sleep hygiene using the Sleep Hygiene Index. *J Behav Med*;29:22 pp 3-7.
- Mastin DF, Siddalingaiah H, Singh A, Lal V (2012). Excessive daytime sleepiness, sleep hygiene, and work hours among medical residents in India. *J Trop Psychol*; pp 2:4.
- Melone, M.-A.; Tourny, C.; Gehlbach, B.K.; Schmidt, E.L.; Lalevée, M.; L’Hermette, M (2022). Prevalence and Risk Factors of Poor Sleep Quality in Collegiate Athletes during COVID-19 Pandemic: A Cross-Sectional Study. *Int. J. Environ. Res. Public Health*, 19, 3098. <https://doi.org/10.3390/ijerph19053098>
- Milewski, M.D.; Skaggs, D.L.; Bishop, G.A.; Pace, J.L.; Ibrahim, D.A.; Wren, T.A.; Barzdukas, A (2014). Chronic Lack of Sleep is Associated With Increased Sports Injuries in Adolescent Athletes. *J. Pediatr. Orthop.*, 34, pp 129–133.
- Morin CM, Belleville G, Bélanger L, Ivers H (2011). The Insomnia Severity Index: psychometric indicators to detect insomnia cases and evaluate treatment response. *Sleep*;34(5): 601–8. Epub 2011/05/03. pmid:21532953 View Article PubMed / NCBI Google Scholar
- Morin CM, Carrier J (2020). The acute effects of the COVID19 pandemic on insomnia and psychological symptoms. *Sleep Med.* \. <https://doi.org/10.1016/j.sleep.2020.06.005>.
- Motlagh H (2010). Impact of EventScale-revised. *Journal of physiotherapy*. 56(3):203. Epub 2010/08/28. pmid:20795930.ViewArticlePubMed/NCBI Google Scholar
- M. T. Anim and F. Yirdong, (2013). “Effects of sleep deprivation on students’ learning: a study of medical students in University of Cape Coast,” *Journal of Counselling, Education, and Psychology*, vol. 3, no. 1, pp. 122–138.
- Nami, M., Mehrabi, S., Kamali, A. M., Kazemiha, M., Carvalho, J., Derman, S. et al. (2020). A New Hypothesis on Anxiety, Sleep Insufficiency, and Viral Infections; Reciprocal Links to

Consider in Today's "World vs. COVID-19" Endeavors. *Frontiers in Psychiatry*, 11, Article ID: 585893. <https://doi.org/10.3389/fpsyt.2020.585893>

Nowbar AN, Gitto M, Howard JP, Francis DP, Al-Lamee R (2019). Mortality from ischemic heart disease: Analysis of data from the World Health Organization and coronary artery disease risk factors From NCD Risk Factor Collaboration. *Circulation: Cardiovascular Quality and Outcomes*;12:e005375.

O. Oluwole, (2010). "Sleep habits in Nigerian undergraduates," *Acta Neurologica Scandinavica*, vol. 121, no. 1, pp. 1–6.

Pan, A., Liu, L., Wang, C., Guo, H., Hao, X., Wang, Q., et al. (2020). Association of public health interventions with the epidemiology of the COVID-19 outbreak in Wuhan, China. *JAMA* 323, pp 1915–1923. doi: 10.1001/jama.2020.6130

Pavlova, M. K., & Latreille, V. (2019). Sleep Disorders. *The American Journal of Medicine*, 132, pp 292-299. <https://doi.org/10.1016/j.amjmed.2018.09.021>

Pfefferbaum, B., and North, C. (2020). Mental health and the Covid-19 pandemic. *N. Engl. J. Med.* 383, pp 510–512. doi: 10.1056/NEJMp2008017

Pinto J, van Zeller M, Amorim P, et.al., (2020). Sleep quality in times of Covid-19 pandemic. *Sleep Med.* 74: 81–85.

Potter P, Perry A, Stockert P, Hall A (2016). *Fundamentals of Nursing*. 9th ed, Mosby.

P. Giri, M. Baviskar, and D. Phalke, (2013). "Study of sleep habits and sleep problems among medical students of Pravara Institute of Medical Sciences Loni, Western Maharashtra, India," *Annals of Medical and Health Sciences Research*, vol. 3, no. 1, pp. 51–54.

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33(2), e100213.

Rajkumar RP (2020). COVID-19 and mental health: a review of the existing literature. *Asian J Psychiatry*; 52: 102066.

Rakhimov A, Whibley D, Tang NKY (2022) Cognitive-behavioural pathways from pain to poor sleep quality and emotional distress in the general population: The indirect effect of sleep-related anxiety and sleep hygiene. *PLoS ONE* 17(1):me0260614. <https://doi.org/10.1371/journal.pone.0260614>

Rasch B, Born J (2013). About sleep's role in memory. *Physiol Rev*;93: pp 681-766. Reardon, C.L.; Hainline, B.; Aron, C.M.; Baron, D.; Baum, A.L.; Bindra, A.; Budgett, R.; Campriani, N.; Castaldelli-Maia, J.M.; Currie, A.; et al. (2019). Mental health in elite athletes: International Olympic Committee consensus statement. *Br. J. Sports Med.* 2019, 53, pp 667–699.

- Riiser K, Helseth S, Haraldstad K, Torbjørnsen A, Richardsen KR (2020). Adolescents' health literacy, health protective measures, and health-related quality of life during the Covid-19 pandemic. *PLoS One*.15(8): e0238161.
- Rodríguez-Rey R, Garrido-Hernansaiz H, Collado S (2020). Psychological impact and associated factors during the initial stage of the coronavirus (COVID-19) pandemic among the general population in Spain. *Frontiers in Psychology*; 11:1540.
- Ruktanonchai, N., Floyd, J., Lai, S., Ruktanonchai, C., Sadilek, A., Rente-Lourenco, P., et al. (2020). Assessing the impact of coordinated COVID-19 exit strategies across Europe. *Science* 369, pp 1465–1470. doi: 10.1126/science.abc5096
- R. Ghanei, M. M. Hemmati, K. Rezaei, V. Baghi, and B. Maki (2011). “Nursing students quality of sleep in dormitories URMIA,” *Journal of Nursing and Midwifery Urmia Univ Med Sci*, vol. 9, no. 4, pp. 277–282.
- R. Eslami Akbar (2011). “The prevalence of sleep disorder and its causes and effects on students residing in Jahrom University of Medical Sciences dormitories, 2008,” *Pars of Jahrom University of Medical Sciences*, vol. 9, no. 4, pp. 14–19.
- Saad, G., de Souza, V. C. R. P., Neto, J. B. de M., e Silva, E. de S. M., & de Souza, J. C. R. P. (2021). Sleep Disorders in Students during the COVID-19 Pandemic. *Creative Education*, 12, pp 378-390. <https://doi.org/10.4236/ce.2021.122027>
- Sanderson WC, Arunagiri V, Funk AP, et al (2020). The nature and treatment of pandemic-related psychological distress. *Journal of Contemporary Psychotherapy*;27: pp 1–13. doi: 10.1007/s10879-020-09463-7.
- Santomauro DF, Mantilla Herrera AM, Shadid J, et al (2021). COVID-19 Mental Disorders Collaborators. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet*. 398(10312): pp 1700-1712. doi:10.1016/S0140-6736(21)02143-7
- Santos, E. S. G., & Souza, O. F. (2021). Evidence of the Association between Sleep Duration and Blood Pressure in Adolescents: A Systematic Review. *Revista Paulista de Pediatria*, pp 39, e2019225. <https://doi.org/10.1590/1984-0462/2021/39/2019225>
- Sarı ÖY, Üner S, Büyükakkuş B, Bostancı EÖ, Çeliksöz AH, Budak M (2015). Bir üniversitenin yurttakalan öğrencilerin deuykukalitesi ve etkileyen bazı faktörler. *TAF Preventive Medicine Bulletin*;14: pp 93-100.
- Sarıarslan HA, Gulhan YB, Unalan D, Basturk M, Delibas S (2015). The relationship of sleep problems to life quality and depression. *Neurosciences* 20:2 pp 36-42.

- Sexton-Radek, K.; Hartley, A (2013). College residential sleep environment. *Psychol. Rep.* 113, pp 903–907.
- Shelley Hershner (2015). Is sleep a luxury that college students cannot afford? *Sleep Health; Journal of the National Sleep Foundation*, pp 13–14.
- Smarr BL, Schirmer AE (2018). 3.4 million real-world learning management system log-ins reveal the majority of students experience social jetlag correlated with decreased performance. *SciRep*; 8 (1): 4793.
- Stieger S, Lewetz D, Swami V (2020). Psychological well-being under conditions of lockdown: An experience sampling study in Austria during the COVID-19 pandemic. *psyarxiv.com*. <https://doi.org/10.31234/osf.io/qjhfp>
- Stimpfel AW, Fatehi F, Kovner C (2020). Nurses' sleep, work hours, and patient care quality, and safety. *Sleep Health*;6:314-20.
- S. A. Ghoreishi and A. H. Aghajani, (2008). "Sleep quality in Zanjan University medical students," *Tehran University Medical Journal*, vol. 66, no. 1, pp. 61–67.
- S. Majid, F. Farah, M. S. Salahuddin et al., (2006). "Sleep deprivation and its associated factors among general ward patients at a tertiary care hospital in Pakistan," *Journal of Pakistan Medical Association*, vol. 56, no. 12, pp. 614–617.
- S. K. Davies, J. E. Ang, V. L. Revell et al., (2014). "Effect of sleep deprivation on the human metabolome," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 111, no. 29, pp. 10761–10766.
- Tang, W., Hu, T., Hu, B., Jin, C., Wang, G., Xie, C., et al. (2020). Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *J. Affect. Disord.* 274, pp 1–7. doi: 10.1016/j.jad.2020.05.009
- Terra D .Ziporyn, Judith A. Owens, Kyla L. Wahlstrom, Amy R. Wolfson, Wendy M. Troxel, Jared M .Saletin, Sonia L. Rubens, Rafael Pelayo, Phyllis A. Payne, Lauren Hale, Irena Keller and Mary A. Carskadon (2022). Adolescent sleep health and school start times: Setting the research agenda for California and beyond. A research summit summary. *Sleep Health; Journal of the National Sleep Foundation*, pp 11-22.
- Tonetti L, Fabbri M, Filardi M, Martoni M and Natale V (2015). Effects of sleep timing, sleep quality and sleep duration on school achievement in adolescents. *Sleep Med.* 16 (8): pp 936–940.
- Tsai, L.L.; Li, S.P (2004). Sleep patterns in college students: Gender and grade differences. *J. Psychosom. Res.*, 56, pp 231–237.

- T. Eller, A. Aluoja, V. Vasar, and M. Veldi (2006). "Symptoms of anxiety and depression in Estonian medical students with sleep problems," *Depression and Anxiety*, vol. 23, no. 4, pp. 250–256.
- van Laethem M, Beckers DG, Kompier MA, Kecklund G, van den Bossche SN, Geurts SA. Bidirectional relations between work-related stress, sleep quality and perseverative cognition. *J Psychosom Res.* (2015) 79:391–8. doi: 10.1016/j.jpsychores.2015.08.011
- Vakulin A, Baulk SD, Catcheside PG, et al (2007). Effects of moderate sleep deprivation and low-dose alcohol on driving simulator performance and perception in young men. *Sleep*, 30(10):13 pp 27–33.
- Vindegard N, Benros ME (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity*;89:5 pp 31–42.
- Voitsidis, P., Gliatas, I., Bairachtari, V., Papadopoulou, K., Papageorgiou, G., Parlapani, E. et al. (2020). Insomnia during the COVID-19 Pandemic in a Greek Population. *Psychiatry Research*, 289, Article ID: 113076. <https://doi.org/10.1016/j.psychres.2020.113076>
- World Health Organization (2021). Novel Coronavirus (COVID-19) Situation. Available online at: <https://Covid19.who.int/> (accessed June 4, 2021).
- Waage, S.; Pallesen, S.; Vedaa, Ø.; Buchvold, H.; Blytt, K.M.; Harris, A.; Bjorvatn, B (2021). Sleep patterns among Norwegian nurses between the first and second wave of the COVID-19 pandemic. *BMC Nurs.*, 20, 105.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, 17(5), pp 1729.
- Wang W, Song W, Xia Z, et al (2020). Sleep disturbance and psychological profiles of medical staff and non-medical staff during the early outbreak of COVID-19 in Hubei Province, China. *Front Psychiatry*. 11: 733.
- Wesselius HM, van den Ende ES, Alsma J, TerMaaten JC, Schuit SCE, Stassen PM, de Vries OJ, Kaasjager KHAH, Haak HR, van Doormaal FF, Hoogerwerf JJ, Terwee CB, van de Ven PM, Bosch FH, van Someren EJW, Nanayakkara PWB (2018). "Onderzoeks Consortium Acute Geneeskunde" Acute Medicine Research Consortium. Quality and quantity of sleep and factors associated with sleep disturbance in hospitalized patients. *JAMA Intern Med*; 178:120 pp 1-8.
- WHO. Coronavirus Disease (COVID-19) (2020). Situation Report-110. Available online: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

- Wright, K.P.; Linton, S.K.; Withrow, D.; Casiraghi, L.; Lanza, S.M.; de la Iglesia, H.; Vetter, C.; Depner, C.M (2020). Sleep in University Students Prior to and During COVID-19 Stay-at-Home Orders. *Curr. Biol.*
- Xiong J, Lipsitz O, Nasri F, et al (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*; 277: pp 55–64. doi: 10.1016/j.jad.2020.08.001.
- Ye, W., Ye, X., Liu, Y., Liu, Q., Vafaei, S., Gao, Y., et al. (2020). Effect of the novel coronavirus pneumonia pandemic on medical students' psychological stress and its influencing factors. *Front. Psychol.* 11:548506. doi: 10.3389/fpsyg.2020.548506
- Zainab Alimorad, Anders Broström, Hector W.H. Tsang, Mark D. Griffiths, ShahabHaghayegh, Maurice M. Ohayon, Chung-Ying Lin, & Amir H. Pakpour (2021). Sleep problems during COVID-19 pandemic and its' association to psychological distress: A systematic review and meta-analysis, pp 1-30. *EClinicalMedicine* 36 100916. <https://doi.org/10.1016/j.eclinm.2021.100916>
- Zhang J, Xu Z, Zhao K, Chen T, Ye X, Shen Z, et al (2018). Sleep habits, sleep problems, sleep hygiene, and their associations with mental health problems among adolescents. *J Am Psychiatr Nurses Assoc*;24:2 pp 23-34.
- Zhang, Y., Zhang, H., Ma, X., and Di, Q. (2020). Mental health problems during the COVID-19 pandemics and the mitigation effects of exercise: a longitudinal study of college students in China. *Int. J. Environ. Res. Public Health* 17:3722. doi: 10.3390/ijerph17103722

Appendices

Appendix A: Questionnaire

Dear Participant,

I am a master's student in the department of psychiatric nursing, Near East University. The aim of this questionnaire is to determine the relationship between the effect of Covid-19 & quarantine on the sleep quality of nursing students. This questionnaire is for survey purpose only. Kindly note that your participation in this study is voluntary and any information in connection with this study that can be identified with you remains confidential and anonymous. Thank you for your participation.

Part 1: Read the question carefully and select the option that best applies on you, thanks!

1. Gender: Male Female
2. Age:
 - 17 & below
 - 18-23
 - 24-29
 - 30 & above
3. Nationality:
 - Nigerian
 - Zimbabwean
 - Kenya
 - Other (please specify) _____
4. What year are you at the university?
 - 1st Year
 - 2nd Year
 - 3rd Year
 - 4th Year
5. Where do you live?
 - Student residence
 - With my family
 - At home with my friend for rent
 - House for rent by myself
 - Other
6. Do you have a room-mate?
 - Yes

- No
7. How is falling asleep usually like for you?
- Very Easy
 - Easy
 - Average
 - Very Difficult
8. Do you usually wake up at night-time?
- Never
 - Seldom
 - Often
 - Sometimes
 - Always
9. Do you have a history of disturbed sleep quality?
- Yes
 - No
10. Do you have any long-term ill health condition?
- Yes
 - No
11. Have you ever seen a psychologist/psychiatrist/counselor before for personal issues?
- Yes
 - No
12. Were you or any of your close friends/relatives diagnosed with Covid-19 during the pandemic?
- Yes
 - No
13. Did you engage in any form of physical exercise/activity during the Covid-19 lockdown?
- Yes
 - No
14. Where did you live during the Covid-19 pandemic?
- North Cyprus
 - My country
 - Other country (please specify) _____
15. How would you rate your academic performance especially in this Covid-19 period?
- Excellent
 - Good
 - Fair
 - Poor

Part 2 Instructions: The following questions relate to your usual sleep habits during Covid-19 pandemic. Your answers should indicate the most accurate reply for the majority of days and nights. Please answer all questions.

1. What time have you usually gone to bed at night? _____
2. How long (in minutes) has it usually taken you to fall asleep each night? _____
3. What time have you usually gotten up in the morning? _____
4. How many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.) _____

5. How often have you had trouble sleeping because you...	Not during the Covid-19	Less than once a week	Once or twice a week	Three or more times a week
a. Cannot get to sleep within 30 minutes				
b. Wake up in the middle of the night or early morning				
c. Have to get up to use the bathroom				
d. Cannot breathe comfortably				
e. Cough or snore loudly				
f. Feel too cold				
g. Feel too hot				
h. Have bad dreams				
i. Have pain				
j. Other reason(s), please describe:				
6. How often have you taken medicine to help you sleep (prescribed or "over the counter")?				
7. How often have you had trouble staying awake while driving, eating meals, or engaging in social activities?				
8. How much of a problem has it been for you to keep up enough enthusiasm to get things done?	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
9. How would you rate your sleep quality overall?	Very good	Fairly good	Fairly bad	Very bad
10. Do you have a bed partner or roommate?	No bed partner or roommate	Partner/roommate in other room	Partner in same room but not same bed	Partner in same bed
If you have a roommate or bed partner, ask him/her how often in the past month you have had:	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
a. Loud snoring				
b. Long pauses between breaths while asleep				
c. Legs twitching or jerking while you sleep				
d. Episodes of disorientation or confusion during sleep				
e. Other restlessness while you sleep, please describe:				

Appendices
Appendix B
Ethical Approval Form



YAKIN DOĞU ÜNİVERSİTESİ
BİLİMSEL ARAŞTIRMALAR ETİK KURULU

ARAŞTIRMA PROJESİ DEĞERLENDİRME RAPORU

Toplantı Tarihi :27.01.2022
Toplantı No : 2022/99
Proje No :1439

Yakın Doğu Üniversitesi Hemşirelik Fakültesi öğretim üyelerinden Yrd. Doç. Dr. Samineh Esmailzadeh'in sorumlu araştırmacısı olduğu, YDU/2022/99-1439 proje numaralı ve "**Determining the sleep quality of nursing students during the COVID-19 pandemic**" başlıklı proje önerisi kurulumuzca değerlendirilmiş olup, etik olarak uygun bulunmuştur.

S. Çalı

Prof. Dr. Şanda Çalı

Yakın Doğu Üniversitesi

Bilimsel Araştırmalar Etik Kurulu Başkanı

Kurul Üyesi	Toplantıya Katılım	Karar
	Katıldı(✓)/ Katılmadı(X)	Onay(✓)/ Ret(X)
Prof. Dr. Tamer Yılmaz	✓	✓
Prof. Dr. Şahan Saygı	✓	✓
Prof. Dr. Nurhan Bayraktar	✓	✓
Prof. Dr. Mehmet Özmenoğlu	X	X
Prof. Dr. İlker Etikan	✓	✓
Doç. Dr. Mehtap Tınazlı	✓	✓
Doç. Dr. Nilüfer Galip Çelik	✓	✓
Doç. Dr. Emil Mammadov	✓	✓
Doç. Dr. Ali Cenk Özay	X	X

Appendix C
Scale Permission Letter



Weber, Carolyn J <cweber@innovation.pitt.edu>

to

Research use of the PSQI:

Thank you for your interest in our PSQI instrument. research or education or the product or service you a commercial entity. It cannot be used for patient care survey according to the following provisions:

This copyright in this form is owned by the University commercial research and educational purposes. You permission from the University of Pittsburgh. If you w commercially sponsored research, please contact th licensing information.

The information is found on the Sleep Medicine Instit [instruments/](#).

All publications, presentations, reports, or developme as follows: The Pittsburgh Sleep Quality Index: A Ne Buysse, Charles F. Reynolds III, Timothy H. Monk, S

There would need to be a separate agreement if you have the PSQI available in an electronic format, that will take additional time if used in this fashion as we l for the electronic use of the PSQI. If there is a third

Appendix D
Turnitin Similarity Report

Determining The Sleep Quality Of Nursing Students During The Covid-19 Pandemic

ORJİNALLİK RAPORU

<p>% 18</p> <p>BENZERLİK ENDEKSİ</p>	<p>% 18</p> <p>İNTERNET KAYNAKLARI</p>	<p>% 10</p> <p>YAYINLAR</p>	<p>%</p> <p>ÖĞRENCİ ÖDEVLERİ</p>
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BİRİNCİL KAYNAKLAR

1	<p>www.ncbi.nlm.nih.gov</p> <p>İnternet Kaynağı</p>	% 12
2	<p>www.scirp.org</p> <p>İnternet Kaynağı</p>	% 5
3	<p>www.naspspa.com</p> <p>İnternet Kaynağı</p>	<% 1
4	<p>Dilara Yuksel, Grace B. McKee, Paul B. Perrin, Elisabet Alzueta et al. "Sleeping when the world locks down: Correlates of sleep health during the COVID-19 pandemic across 59 countries", Sleep Health, 2021</p> <p>Yayın</p>	<% 1
5	<p>academic.oup.com</p> <p>İnternet Kaynağı</p>	<% 1
6	<p>Henry Jeremy Lawson, Jude Tettey Wellens-Mensah, Salamatu Attah Nantogma. "Evaluation of Sleep Patterns and Self-Reported Academic Performance among Medical Students at the University of Ghana</p>	<% 1

Appendix E
CURRICULUM VITAE

1. PERSONAL INFORMATION

NAME, SURNAME:	TAKUDZWA WINNIE CHIGORIMBO
DATE OF BIRTH AND PLACE:	12/09/1997 AND ZIMBABWE
CURRENT OCCUPATION: STUDENT	
ADDRESS of CORRESPONDENCE: NEAR EAST UNIVERSITY	
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2. EDUCATION

YEAR	GRADE	UNIVERSITY	FIELD
2021-2022	MSC	NEAR EAST UNIVERSITY	PSYCHIATRIC NURSING
2016-2020	BSC	NEAR EAST UNIVERSITY	NURSING
2010-2015	HIGH SCHOOL	GREEN GABLES HIGH / EATC COLLEGE	ORDINARY LEVEL / ADVANCED LEVEL

3. WORK EXPERIENCE

PERIOD	2017-2020
TITLE	UNLICENSED NURSE ASSISTANT (STUDENT NURSE)
PLACE	NEAR EAST UNIVERSITY HOSPITAL