

**CORRELATION BETWEEN INTERNET ADDCITION AND PHYSICAL
ACTIVITY AMONG YOGYAKARTA STATE UNIVERSITY STUDENTS:
THE MEDIATING ROLE OF SLEEP QUALITY**



Purpose to fulfill the requirements for obtaining a degree Master of Sports
Sciences

Program of Sports Science Study

By:

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ABSTRAK

Muhammad Salman: Korelasi antara Kecanduan Internet dan Aktivitas Fisik Para Mahasiswa Universitas Negeri Yogyakarta: Peran Mediasi Kualitas Tidur, Tesis. **Fakultas Ilmu Keolahragaan dan Kesehatan, Universitas Negeri Yogyakarta, 2025.**

Penelitian ini mengkaji korelasi antara kecanduan internet dan aktivitas fisik di kalangan mahasiswa S1 Program Studi Ilmu Keolahragaan, Fakultas Ilmu Keolahragaan dan Kesehatan (FIKK), Universitas Negeri Yogyakarta, berfokus pada peran mediasi kualitas tidur. Penelitian ini didorong oleh meningkatnya kekhawatiran tentang bagaimana penggunaan internet yang berlebihan yang berdampak negatif pada kebiasaan mahasiswa, terutama pada tingkat tidur dan aktivitas fisik mereka.

Sebanyak 210 mahasiswa FIKK dipilih dan pengumpulan data menggunakan alat standar: Pittsburgh Sleep Quality Index (PSQI) untuk mengukur kualitas tidur, International Physical Activity Questionnaire (IPAQ) untuk mengukur tingkat aktivitas fisik, dan Young Diagnostic Questionnaire (YDQ) untuk mengukur kecanduan internet. Analisis data dilakukan dengan menggunakan bantuan aplikasi SPSS versi 25. Deskriptif statistik digunakan untuk membuat profil sampel, sedangkan analisis inferensial seperti korelasi dan regresi dilakukan untuk menilai hubungan antar variabel. Analisis mediasi mengikuti langkah-langkah Baron dan Kenny (1986).

Menurut analisis deskriptif, tingkat aktivitas fisik pada setiap individu bervariasi, kecanduan internet mereka pada tingkatan sedang, dan kualitas tidur mereka secara umum buruk. Penelitian menunjukkan bahwa kecanduan internet berdampak signifikan pada kualitas tidur dan aktivitas fisik. Selain itu, ditemukan bahwa aktivitas fisik dan kualitas tidur berkorelasi positif. Hubungan antara kecanduan internet dan aktivitas fisik ditemukan sangat terhubung dengan kualitas tidur. Hasil ini menunjukkan bahwa kecanduan internet memiliki efek negatif pada aktivitas fisik melalui kualitas tidur yang buruk. Untuk menjaga kondisi fisik, prestasi akademis, dan kondisi umum mahasiswa, penelitian ini menekankan perlunya pengobatan yang berfokus pada kebiasaan tidur yang tepat dan penggunaan internet yang tepat. Terapkan program terpadu yang menekankan perilaku tidur dan perilaku digital untuk mendorong kebiasaan yang lebih baik.

Kata kunci: Kecanduan Internet, Aktivitas Fisik, Kualitas Tidur, Mahasiswa

ABSTRACT

Muhammad Salman: Correlation Between Internet Addiction and Physical Activity Among Yogyakarta State University Students, Thesis: **The Mediation Role of Sleep Quality. The Faculty of Sports Science, Yogyakarta State University, 2025.**

This study examines the relationship between internet addiction and physical activity among Yogyakarta State University undergraduate students enrolled in the Sports Science (FIKK) program, with a focus on the mediation role of sleep quality. The study was driven by rising concerns about how excessive internet use negatively impacts students' habits, especially their sleep and [physical activity levels.

Sports sciences 210 students (FIKK) selected, and data was collected using standardized tools: The Pittsburgh Sleep Quality Index (PSQI) measures sleep quality, the International Physical Activity Questionnaire (IPAQ) assesses physical activity levels, and the Young Diagnostic Questionnaire (YDQ) assesses Internet Addiction. Data was analyzed using SPSS version 25. Descriptive statistics were used to profile the sample, while inferential techniques such as correlation and regression were employed to determine the relationship between variables. The mediation analysis followed the steps outlined by Baron and Kenny (1986).

According to descriptive analysis, individuals' levels of physical activity varied, their internet addiction was moderate, and their sleep quality was generally poor. Studies showed that internet addiction significantly impacted sleep quality and physical activity. Additionally, it was found that physical activity and sleep quality were positively correlated. The relationship between internet addiction and physical activity was found to be considerably mediated by sleep quality. These results suggest that internet addiction has a negative effect on physical activity through poor sleep quality. To preserve students' physical health, academic performance, and general well-being, the study emphasizes the necessity of remedies that concentrate on proper sleeping habits and appropriate internet use. Implement into practice integrated programs that emphasize sleep hygiene and digital wellbeing in order to encourage better behavior.

Keywords: Internet Addiction, Physical Activity, Sleep Quality, University Students

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To the best of my knowledge, no work or view in this thesis has ever been written or published by anyone other than those cited in this manuscript and listed in the bibliography. I certify that this thesis is entirely original with no submissions ever made to a university for a Master's degree.

Yogyakarta, 22 April 2025



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Jurnal dengan Judul

**MENGAMATI BAGAIMANA KEPUASAN HIDUP DAN AKTIVITAS FISIK
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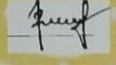
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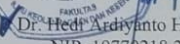
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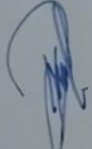
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DEDICATION

With appreciation for Allah SWT's wealth of wisdom and mercy. The author dedicates this thesis to:

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Yogyakarta, 22 April 2025

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A handwritten signature in black ink, appearing to read 'M. Salman', with a stylized flourish at the end.

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CHAPTER I INTRODUCTION

A. Study Background

Excessive and compulsive involvement with online activities defines problematic internet use, sometimes known as internet addiction, which greatly compromises daily activities and well-being. In recent years, this phenomenon has drawn more attention, especially among young adults and teenagers who use digital technology the most. Among the many signs connected to internet addiction are salience, overuse, expectation, loss of control, and social life neglect (Lin et al. 2019). The prevalence of internet addiction is worrying, with research indicating that a significant proportion of students show indicators of this illness, which can have severe implications such as social isolation, academic deterioration, and mental health concerns (Tran et al., 2023; Kashfi, 2023).

Excessive and compulsive internet use is also called internet addiction, which harms many areas of life. including social connections, academic performance, and health (Chen & Gau, 2016; Tan et al., 2016). This deficiency is significant because it can lead to a number of health issues, such as emotional disorders and cognitive deficiencies (Tan et al., 2016). Poor sleep quality has far-reaching consequences, such as decreased overall quality of life, emotional disorders, and impaired cognitive function (Mishra et al., 2022; Seol et al., 2020). Social relationships,

academic achievement, and mental health are all negatively impacted by internet addiction, which is particularly prevalent among teens and young adults. Insufficient sleep worsens its effects by intensifying emotional issues, impairing cognitive functions, and affecting overall wellbeing. Consequently, tackling these problems is essential for enhancing health and quality of life.

The connection between Internet addiction and mental health is especially concerning. Overuse of the Internet has been linked to heightened levels of anxiety and depression, which can exacerbate addictive tendencies (Nguyen et al., 2022). Furthermore, research has shown that individuals addicted to the Internet often experience poor sleep quality, leading to a harmful cycle of addiction and deteriorating mental health (Yang, 2020). Effective interventions to address Internet addiction are critical because it poses significant risks to the psychological and social well-being of those affected.

"Sleep quality" refers to a personal assessment of sleep that considers aspects such as how long one sleeps, how quickly one falls asleep, and how often sleep is interrupted. More individuals are realizing that poor sleep is a public health concern, especially for youth and adolescents. Longer onset times, frequent awakenings, and dissatisfaction with sleep are all associated with poor sleep quality caused by internet addiction (Nagori et al., 2019; Çelebioğlu et al., 2020). Studies have

identified a strong link between Internet addiction and negative sleep outcomes, with the Pittsburgh Sleep Quality Index (PSQI) being a commonly utilized tool for assessing sleep quality (Hammad, 2024). Internet addiction is significantly associated with poor sleep quality, anxiety, and depression, creating a harmful cycle that negatively impacts mental health and overall well-being. Addressing this issue, particularly among young people, is critical for improving sleep and lowering the psychological hazards linked with excessive internet usage.

Poor sleep quality has serious implications for cognitive function, emotional regulation, and general health. Sleep difficulties can cause daytime dysfunction, poor academic performance, and an increased susceptibility to mental health illnesses (Kang et al., 2022). Moreover, the relationship between sleep quality and Internet addiction is reciprocal; Internet addiction not only leads to poor sleep, but a lack of sufficient sleep can also heighten addictive tendencies (Hallez et al., 2023). Therefore, enhancing sleep quality is essential for mitigating the adverse effects of Internet addiction and improving overall well-being.

Research consistently shows that individuals engaged in problematic Internet use often experience sleep disturbances. A longitudinal study revealed that those addicted to the Internet reported needing more sleep but actually getting less, leading to a significant sleep deficit (Chen and Gau, 2016). There is a strong link between poor

sleep quality and Internet addiction, as studies have shown. Sleep problems such as increased sleep latency, reduced total sleep time, and overall lower sleep quality are frequently associated with excessive Internet use (Deshpande, 2023). One possible explanation for this connection is the impact of blue light from screens, which can disrupt circadian rhythms and make falling asleep difficult (Mishra et al., 2022). The habit of using screens before bedtime, which is associated with delayed sleep onset and poorer sleep quality, further strengthens the relationship between Internet addiction and sleep quality (Zhang et al., 2021). Additionally, research indicates that the psychological effects of Internet addiction, including heightened anxiety and stress, can exacerbate sleep issues, creating a vicious cycle that negatively affects both mental and physical health (Seol et al., 2020; Chin, 2021).

Studies show that Internet addiction is a significant indicator of sleep problems, such as reduced sleep duration, increased time to fall asleep, and overall lower sleep quality. Research involving medical students revealed a connection between Internet addiction and various sleep-related challenges, including the use of sleep medications and daytime performance issues (Kashfi, 2023). Additionally, a recent investigation into high school students demonstrated that those addicted to the Internet faced a notably higher risk of poor sleep quality, with male students being 2.17 times more likely to experience these issues compared to their non-addicted counterparts (Tran et al., 2023). Poor

sleep quality can lead to cognitive impairments, mood disturbances, and decreased academic performance (Çelebioğlu et al., 2020).

Excessive internet use among students has been linked to several negative impacts on their social, intellectual, and physical well-being. It often diminishes students' interest in academic activities due to procrastination and distractions, leading to poor academic performance. Moreover, spending excessive time online promotes a sedentary lifestyle, decreasing physical activity and increasing the risk of health issues such as obesity and poor posture. Socially, excessive screen time can weaken social skills, causing loneliness and reduced empathy. Additionally, constant exposure to digital content can impair students' ability to concentrate, think critically, and remember information, potentially leading to addictive behaviors and information overload. These effects underscore the importance of students using the internet responsibly and in moderation.

Physical activity is essential for a healthy lifestyle, offering benefits for both mental and physical health. Regular exercise has been shown to improve mood, alleviate anxiety and depression symptoms, and enhance sleep quality (Liu, 2024). Conversely, individuals with Internet addiction often engage in sedentary activities, resulting in reduced physical activity and heightened health risks (Demenech et al., 2023). Research indicates that physically inactive individuals are more

likely to develop Internet addiction, creating a cycle of negative health outcomes. Furthermore, the relationship between internet addiction and physical activity is noteworthy. Those with problematic Internet use often participate in sedentary behaviors, which can lead to a decline in physical activity levels (Buntaran, 2023).

The reduction in physical activity not only exacerbates the effects of Internet addiction but also leads to various health problems, such as obesity and heart disease (Buntaran, 2023). Conversely, consistent exercise has been proven to improve sleep quality, indicating that promoting active lifestyles could help counteract the negative impacts of Internet addiction (Kumar, 2021).

Regular physical activity can enhance overall sleep quality, decrease the time it takes to fall asleep, and increase sleep efficiency (Pano-Rodríguez et al., 2023). Physical activity improves sleep quality through physiological and psychological mechanisms, such as regulating circadian rhythms, reducing anxiety and depression, and fostering a structured daily routine (Master et al., 2019; Pano-Rodríguez et al., 2023). Therefore, the complex and multifaceted relationship between physical activity and sleep quality has implications for interventions aimed at reducing the harmful effects of Internet addiction. Moreover, there is a connection between levels of physical activity and sleep quality, with sedentary behavior often

exacerbating sleep disturbances (Seol et al., 2019; Zhang, 2023). These elements are interrelated, as regular exercise has been shown to improve sleep quality (Mishra et al., 2022).

There is a significant correlation between exercise and sleep quality. Regular physical activity has been shown to enhance sleep quality by promoting deep sleep and reducing the time it takes to fall asleep (Razik et al., 2021). On the other hand, poor sleep quality can perpetuate a sedentary lifestyle by decreasing motivation for physical activity (Guclu, 2024). Thus, encouraging physical activity among individuals prone to Internet addiction is vital for improving overall health and sleep quality.

Regular exercise is essential for enhancing mental and physical well-being, particularly for those dealing with Internet addiction. It promotes a structured routine, alleviates anxiety and depression, and improves sleep quality. Conversely, the sedentary behavior associated with Internet addiction disrupts sleep and raises the risk of obesity and cardiovascular disease. For individuals at risk of Internet addiction, physical activity is crucial for breaking the cycle, enhancing sleep, and promoting overall well-being.

Previous research has identified a link between problematic internet use and sleep disturbances. For example, Zou (2019) et al.

found that sleep quality mediated the relationship between college students' depressive symptoms and problematic mobile phone use, indicating that poor sleep may exacerbate mental health problems associated with excessive technology use. Similarly, Wang et al. (2021) observed that sleep quality significantly mediated the connection between college students' psychological distress and problematic internet use. However, there is a lack of understanding regarding how these factors interact in the context of overall health, as most studies focus on psychological outcomes rather than physical activity levels.

Moreover, the relationship between physical activity and sleep quality has been well-documented; Master et al. (2019) identified reciprocal relationships between adolescents' physical activity and sleep. This suggests that increased physical activity could enhance sleep quality, potentially affecting online time. The precise relationship between sleep quality, internet addiction, and physical activity levels among university students remains unclear.

Additionally, while several studies have explored the effects of sleep quality on other health outcomes, such as depression and anxiety, the specific context of university students, particularly in Yogyakarta, has been underexplored. For instance, Liu et al. (2021) found that physical exercise and napping significantly impact sleep quality among university students. This implies that lifestyle factors, such as physical

activity levels, may play a crucial role in understanding sleep quality and its influence on internet addiction.

Ultimately, internet addiction poses risks to both mental and physical health, especially in adolescents and young adults. It results in poor sleep quality, which exacerbates cognitive deficits, emotional issues, and academic performance. Internet addiction, sleep problems, and mental health are interrelated, creating a worsening cycle over time. Exercise is essential to breaking this cycle. Regular physical activity has been shown to improve overall well-being, alleviate anxiety and depression, and enhance sleep quality. However, the sedentary lifestyle associated with internet addiction contributes to other health problems, such as obesity and cardiovascular disease. Addressing these interconnected issues, such as increasing physical activity and improving sleep quality, can mitigate the negative effects of internet addiction. Future research should explore how sleep quality influences the relationship between internet addiction and physical activity, particularly in academic settings, to develop more effective interventions for improving student health outcomes.

B. Identification of The Problem

The following problem has been identified in this investigation based on the backdrop mentioned above:

1. Excessive Internet use at night also affects the sleep quality of the students at Yogyakarta State University, making them unable to perform well during class. It is necessary to address this issue to improve the sleep quality of the students.
2. Internet addiction affects the physical activity among the students at Yogyakarta State University, which directly affects their educational performances, so that they cannot perform well because of poor health.
3. Apart from the latest technical developments, gadgets such as computers, the Internet, and mobile phones greatly influence the life in several ways. So that adequate use of internet it crucial for good physical activity, and for excellent academic performance as well.

C. Limitation of the Problems

Given the foregoing context, the problem's limitations in this study are as follows:

1. The findings are limited to students at Yogyakarta State University and may not reflect other groups.
2. Because the study just examines sleep quality as a mediator, it may overlook other important factors that could influence the relationship between internet addiction and physical activity, such as mental health, academic workload, or social ties.

3. University-specific cultural norms and academic responsibilities may influence internet usage and physical activity patterns, reducing the findings' generalizability.

D. Formulation of the Problems

The problems are formulated as follows, taking into account the aforementioned limitations:

1. How much impact does internet addiction have on Yogyakarta State University students' physical activity levels?
2. How does internet addiction affect students at Yogyakarta State University's quality of sleep?
3. How does Yogyakarta State University students' physical activity relate to their sleep quality?
4. How does sleep quality mediate the relationship between internet addiction and physical activity among Yogyakarta State University students?

E. Research Objectives

The following are the primary goals of the research:

1. Analysis the impact of internet addiction on physical activity among Yogyakarta State University

2. Analysis how Yogyakarta State University students' internet addiction affects their quality of sleep.

3. Analysis how Yogyakarta State University students' physical activity is mediated by their sleep quality.

F. Research Benefits

The theoretical and practical expected benefits of this research is as follows:

Theoretical Benefits

1. This study adds empirical support to behavioral health theory frameworks by demonstrating the connections between internet addiction, physical activity, and sleep quality. It complements and may even broaden current models, including behavioral addiction theories and the biopsychosocial model.
2. The study contributes to the theoretical discussion of how excessive technology use, or internet addiction, affects other lifestyle choices like sleep and physical activity. By examining the mediating function of sleep quality, it contributes to the improvement of current hypotheses.

Practical Benefits

1. The findings may guide university activities to prevent internet addiction, increase physical exercise, and improve sleep hygiene for better student health and academic success.
2. This research can help formulating policies and interventions to promote healthy internet usage and lifestyle behaviors among students, such as digital detox programs and sleep management seminars.

CHAPTER II

LITERATURE RIVIEW

A. Theoretical Review

The literature review chapter covers the concerned literature of all related variables that have helped in formulating the research framework for this study. The literature was thoroughly reviewed for all study variables following the hypothetical relationship of variables. The literature review chapter has covered the variables, namely, Internet addiction, sleep quality, and physical activity. Moreover, the literature has also covered the theories that are linked with the variables.

1. Internet Addiction

Internet addiction poses a substantial and rising hazard to both mental and physical health, particularly among young people. This addiction, defined by excessive and unrestrained use of online platforms, frequently results in a cascade of negative repercussions, such as social isolation, scholastic deterioration, and mental anguish. As people emphasize screen time over real-world contacts and activities, their sedentary lifestyles worsen physical health issues like obesity and cardiovascular disease. Furthermore, the internet's addictive nature affects sleep habits, resulting in a vicious cycle that harms both mental and physical well-being. Addressing internet addiction is

therefore critical not just for improving mental and emotional resilience, but also for encouraging a healthier, more active lifestyle.

According to the Dr. Kimberly S. Young (1998), Young's Internet Addiction Theory is foundational, defining internet addiction as a compulsive behavior characterized by symptoms such as obsession with online activities, tolerance, withdrawal, and negative impacts on daily life. This approach has influenced research correlating excessive internet use to negative physical and mental health effects, such as poor sleep and decreased physical activity (Kuss et al., 2014).

Particularly among adolescents and young adults, internet addiction is a serious public health issue (Kaya & Dalgıç, 2021). In terms of symptoms and results, it has been likened to heroin addiction and is described as a pattern of excessive internet use that results in impairment or distress (Siste et al., 2021). The online Addiction Diagnostic Questionnaire and Young's Internet Addiction Test (IAT) are the two most widely used diagnostic methods for assessing online addiction. These metrics evaluate things like compulsive usage, loss of control, withdrawal symptoms, and continued use in spite of negative consequences. According to research, between 2 and 18% of teenagers and adults suffer from internet addiction (Kuss et al. 2014).

Internet addiction has been connected to personality traits including neuroticism and impulsivity (Zhang, 2020) as well as related mental health issues like anxiety, depression, and ADHD (Wong et al., 2019). Problematic internet use has been connected to poor consequences such as sleep issues, scholastic challenges, and dangerous behaviors such as substance abuse and suicide (Guo et al., 2020). Parental variables also play a role, with low parental connection, family conflict, and inadequate supervision linked to an increased risk of internet addiction in adolescents (Awaluddin et al., 2019). According to the research, the kind of internet use is also crucial, with entertainment-oriented activities such as social media and gaming being more strongly associated with addiction than instructional or informational use (Jiang, 2023).

Recent theories include the Problematic Internet Use (PIU) Theory, which proposes that some patterns of excessive or maladaptive internet use are caused by reasons such as emotional instability or a need for escapism (Caplan, 2010). Problematic Internet Use is increasingly being utilized to investigate how internet use influences daily habits, such as sleep and physical health.

Social media platform design is often influenced by theories of adolescent psychology (Bossen et al., 2020). A common reason why children use social media is to grow their social networks, become

famous, express themselves, and be recognized as distinct individuals. According to research, various factors may influence the popularity of certain social media platforms among young people. TikTok, for example, allows users to create and share short movies and music pieces, providing a forum for young people to express themselves creatively and innovatively. TikTok has evolved into an alternative media platform for young people to showcase their abilities online (Patel and Binjola, 2020).

Finally, theoretical frameworks on Internet addiction stress its complexities, emphasizing compulsive behaviors such as fixation, tolerance, and withdrawal. Problematic Internet Use (PIU) theories emphasize emotional instability and escapism as important drives, whilst others argue that the internet may be used to relieve stress. Social media services, such as TikTok, contribute to internet addiction by providing a venue for young people to express themselves and interact with others, emphasizing the importance of effective treatments to combat its harmful effects.

2. Sleep Quality

Sleep quality is critical to general health and well-being, and a deterioration can have far-reaching repercussions. Poor sleep quality, defined as trouble falling asleep, frequent awakenings, and insufficient rest, has a direct influence on cognitive performance, emotional control,

and physical health. In the context of internet addiction, excessive use of digital devices, particularly before bedtime, disturbs circadian cycles, resulting in lower sleep quality. This decline in sleep quality exacerbates concerns such as anxiety, sadness, and cognitive deficits, resulting in a vicious cycle that impairs people's ability to function well in everyday life. As a result, enhancing sleep quality is critical for combating the harmful consequences of internet addiction and promoting general state of mental, emotional, and physical well-being.

Inadequate sleep has been linked to a number of long-term health issues, such as metabolic and cardiovascular disorders, weakened immune systems, a higher chance of mistakes, and reduced cognitive performance (Medic et al., 2017). Additionally, extended sleep deprivation may exacerbate stress at work, resulting in decreased job satisfaction and productivity (Deng et al., 2020). the suggested adult sleep duration and quality metrics, taking into account the most recent recommendations from the American Academy of Sleep Medicine (AASM, 2024).

Table 2.1
Recommendations From the American Academy of Sleep Medicine

Sleep Indicator		Recommended value	Description
Total Sleep Time		7-9 hours per night	Optimal amount of sleep is associated with health and well-being.

Sleep Latency	$\leq 1/2$ an hour	The amount of time it takes to fall asleep after bed.
Efficiency of Sleep	$> 85\%$	Percentage of time spent sleeping in bed.
Wake Up	Less Than 20 Minutes	After Sleep Start duration of time spent awake following initial sleep.
Count of Awakenings	$< One$ extended awakening	Frequency of waking episodes during the night.
Felt well rested when I woke up	Yes,	Yes, a subjective sense of well-being and refreshment.

Furthermore, young people frequently utilize screen-based technologies, and poor sleep quality is strongly positively connected with both high screen time and low physical activity (Wu et al., 2015). While there are numerous causes of poor sleep quality, media use at night is commonly mentioned as one likely culprit (Whipps et al., 2018). In addition to causing sleep issues, excessive smartphone use also leads to physical inactivity, which exacerbates sleep issues (Gangwar et al., 2018).

According to circadian rhythm theory, screen time before bed can disturb the body's natural sleep-wake cycle, resulting in delayed

sleep onset and shorter sleep duration (Higuchi et al., 2005). The theory has significant implications for understanding health issues, as altered circadian rhythms have been related to a variety of illnesses, including sleep disorders, depression, obesity, and cardiovascular disease. A consistent sleep pattern and exposure to natural light can assist promote a healthy circadian rhythm (Walker, 2017).

Students should participate in moderate to vigorous physical activity (MVPA) for at least 60 minutes each day, according to the Canadian 24-Hour Movement Guidelines (Chen et al., 2021). Studies show that physical exercise successfully reduces academic stress, which helps students become more psychologically resilient. This level of activity has been associated with gains in mental health (Hou et al., 2022).

To summarize, poor sleep quality is an increasing problem, with serious consequences for cognitive function, immunological health, and long-term illnesses including cardiovascular disease and metabolic disorders. Sleep quality is impacted by a variety of factors, including sleep length, continuity, and disturbances, with screen time and physical inactivity contributing significantly to sleep issues, particularly among young individuals. The circadian rhythm theory explains how evening media consumption disrupts the natural sleep-wake cycle, resulting in delayed sleep start and reduced sleep duration. These

findings highlight the need of developing techniques to enhance sleep hygiene, particularly in terms of screen time management, in order to promote greater health and wellness.

3. Physical Activity

Physical activity is crucial for both mental and physical health. It enhances sleep quality, elevates mood, and reduces anxiety and depression symptoms. Regular exercise improves cognitive function and general well-being, providing a natural remedy to a variety of health problems. Sedentary behavior, on the other hand, raises the risk of obesity, heart disease, and mental illness. Therefore, increased physical activity is essential for improving quality of life and reducing chronic health problems, particularly in a society that is becoming more sedentary.

Any skeletal muscle-driven movement that necessitates the use of energy is considered physical activity (Caspersen et al., 1985). Numerous health benefits, such as less stress, enhanced cardiovascular health, and improved cognitive function, have been linked to physical activity. A higher overall quality of life, a decreased risk of chronic diseases, and improved mental health outcomes are all associated with regular exercise (Mahindru et al., 2023; Schrader et al., 2023).

Social Cognitive Theory (Bandura, 1986) states that behaviors are determined by interactions between personal, contextual, and behavioral factors. Many researchers have expressed a strong interest in physical activity or exercise as a means of improving the psychological, physical, and social elements of men's lives (Ye et al., 2018). Physical activity has numerous health benefits, including greater functional ability, reduced disease risk, and improved body fitness (Vaz et al. 2019).

To summarize, physical exercise is critical for supporting overall health and well-being, with advantages ranging from improved cardiovascular health to increased mental well-being and cognitive function. According to Social Cognitive Theory, personal, environmental, and behavioral variables all impact physical exercise participation. Frequent exercise improves mental and social health in addition to physical health, which lowers the risk of chronic diseases and improves quality of life. These results emphasize how important it is to promote physical activity as a vital part of a healthy lifestyle.

B. Relevant Studies

Numerous studies have examined the relationship between internet addiction, physical activity, and sleep quality, providing valuable information about how these variables interact, especially in adolescents and young adults. Drawing from a range of study findings,

this synthesis will look at the evidence supporting these links. Karki et al. found a statistically significant correlation between poor sleep quality and internet addiction, highlighting the value of physical activity as a preventative intervention. Additionally, Nayak et al. found that while regular physical activity enhances general well-being and sleep hygiene, bad lifestyle choices such as excessive internet use impair the quality of sleep (Nayak et al., 2021).

This association is significant because it shows that encouraging physical exercise may be an effective remedy for persons suffering from internet addiction and the resulting sleep difficulties. The interaction of internet addiction, physical exercise, and sleep quality emphasizes the significance of multifaceted treatments to these challenges. For example, Younes et al. highlighted that sleep problems frequently occur as a result of internet addiction, but they also acknowledged the possibility of reverse causation, in which sleep troubles lead to increasing internet use. This bidirectional association emphasizes the importance of interventions that not only address internet addiction, but also promote healthy sleep habits and physical activity.

The relationship among internet addiction, exercise, and sleep quality highlights the importance of using holistic approaches to address these issues. For example, Younes et al. recognized that sleep

problems frequently occur as a result of internet addiction, but they also mentioned the possibility of reverse causation, in which sleep problems lead to increasing internet use. This bidirectional association underscores the importance of programs that not only address internet addiction but also promote healthy sleep habits and physical activity.

On the other hand, it has been shown that exercise enhances the quality of sleep (Gothe et al., 2019), found that regular physical exercise is linked to better sleep hygiene and general quality of life, implying a bidirectional relationship in which better sleep can increase physical activity involvement. Similarly, Narayana et al., (2023). discovered that people who engaged in more physical activity had better sleep quality, indicating that exercise can protect against the negative effects of sedentary behaviors, such as those associated with internet use. Furthermore, Alnawwar's (2023). systematic analysis found that moderate-intensity physical activities are most beneficial at improving sleep quality by decreasing sleep latency and increasing total sleep time.

Evidence suggests that even light-intensity physical activity can improve sleep quality in elderly persons (Seol et al., 2020). This is significant because it suggests that incorporating physical activity into daily routines could be an effective technique for minimizing the negative effects of internet addiction on sleep. Furthermore, research

has shown that physical activity can increase endorphin release, reduce tension, and promote relaxation, all of which contribute to better sleep outcomes (Alkhaldi., 2023). Furthermore, Santos et al. stressed that regular moderate-intensity exercise can enhance sleep phases and total sleep quality, implying that physical activity can be a beneficial solution for persons having sleep difficulties caused by internet addiction (Santos et al., 2023). Štefan et al. (2018) found a link between insufficient physical exercise and poor sleep quality, emphasizing the importance of promoting physical activity for those at risk of internet addiction. This is especially important for younger people, as internet addiction is increasing, and sleep quality is frequently disturbed.

Poor sleep quality is frequently connected to internet addiction, according to research. For instance, Banthiya et al. (2021) discovered that internet use contributed to poor sleep quality during the COVID-19 pandemic, with a significant percentage of individuals reporting poor sleep quality. There is a clear link between internet addiction and poor sleep quality, according to several research. According to Canan et al. (2013), sleep issues like insomnia and trouble falling asleep were more common among Turkish high school students who were addicted to the internet. By establishing specific patterns of internet addiction linked to poor sleep quality among female college students, Lin et al. provided support for these findings (Lin et al., 2010).

Furthermore, Chen and Gau (2016). conducted a longitudinal study that found that internet addiction was related with a significant sleep deficit, implying that internet addicts not only needed more sleep but also reported shorter actual sleep durations. This is consistent with the findings of Bhandari et al., (2017) who found that internet addiction among undergraduate students was associated with depressed symptoms, implying that poor sleep quality may be a contributing cause to mental health concerns. A large amount of research shows that internet addiction impairs sleep quality. Similarly, Zhang et al., (2021). found that internet addiction among junior middle school kids was associated with greater worry and depression, both of which can exacerbate sleep issues

However, physical activity has been found as a protective factor that can improve sleep quality. For example, Khan et al. (2017) discovered that students who engaged in regular physical activity had reduced levels of online addiction, suggesting that physical activity may act as a buffer against the detrimental effects of excessive internet use. This is reinforced by Xu et al.'s (2018) research, which found that parental physical activity increased preschool children's activity levels, implying that active surroundings promote physical engagement and potentially better sleep outcomes. Furthermore, Kamate et al. (2019). identified a rivalry between physical activity and media use, implying that encouraging physical exercise could minimize the likelihood of

internet addiction and its associated sleep. This is especially true for teens, who are more likely to develop internet addiction and poor sleep quality.

Additionally, Kamate et al. (2019) discovered a competition between media consumption and physical activity, suggesting that promoting physical activity could reduce the risk of internet addiction and the sleep disorders that are linked to it. Teenagers, who are more prone to develop internet addiction and poor sleep quality, should pay particular attention to this.

In summary, the connection between internet addiction, exercise, and sleep quality emphasizes the value of all-encompassing treatments. Poor sleep is closely linked to online addiction, yet exercise helps people sleep better and lessens the negative effects of excessive internet use. One effective strategy for resolving the problems caused by internet addiction, particularly in teens and young adults, is to encourage regular exercise and good sleep habits.

i.Impact of Internet Addiction on Students

Internet addiction has arisen as a major worry among university students, with numerous detrimental consequences for their academic performance, mental health, and social connections. The prevalence of this addiction is concerning, with research revealing that a sizable

number of students indulge in excessive internet use, frequently at the price of their academic obligations and personal well-being. For example, a study done at Dilla University discovered that 19.4% of undergraduate students engaged in problematic internet use, demonstrating a broad problem that crosses regional boundaries. Similarly, research of Tanzanian medical students found that internet addiction might have major consequences for academic performance, indicating a clear correlation between excessive internet usage and poor educational outcomes (Mboya et al., 2020).

This conclusion is consistent with study from Azad Kashmir, which found that internet addiction had a detrimental impact on academic performance, with students who often used instant messaging having worse cumulative grade point averages (CGPA) (Javaeed et al., 2019). Excessive internet use can negatively impair students' academic performance, leading to procrastination and decreased attention (Díaz et al., 2020).

academic responsibilities Furthermore, it is impossible to overlook the psychological effects of internet addiction. Research has consistently shown that university students who are addicted to the internet have greater levels of anxiety, depression, and insomnia (Younes et al., 2016; Mahmoud et al., 2022). For example, a cross-sectional research discovered that students with internet addiction

had lower sleep quality, which increased their mental health problems (Mahmoud et al., 2022). The cyclical nature of this link suggests that not only can internet addiction cause sleep problems, but these sleep disorders can also fuel addictive behaviors, generating a negative feedback loop that harms overall well-being (Younes et al., 2016).

Addiction to the internet has a negative impact on interpersonal connections. According to research, adolescents who are hooked to the internet frequently report weakened social bonds and reduced familial relationships (Naseri et al., 2015). This decline in social ties can cause feelings of isolation and loneliness, exacerbating mental health issues. For example, a study of female students in Saudi Arabia indicated that moderate to severe internet addiction was associated with considerable social and vocational issues, particularly when internet use occurred late at night (Abdel-Salam et al., 2019). Such findings imply that the obsessive nature of internet use can interrupt regular social interactions and impede the formation of meaningful connections.

In addition to these psychological and social repercussions, internet addiction has been linked to aggressive conduct among university students. A research looking at the mediating function of family relationships discovered that internet addiction was positively

connected with aggressiveness, implying that adolescents who struggle with online addiction may also experience greater levels of hostility and interpersonal conflict (Akbar et al., 2022). This anger can further isolate kids from their friends and family members, resulting in a cycle of conflict that worsens their addiction and its harmful consequences.

Beyond personal experiences, internet addiction has an impact on the entire academic community. Students may neglect their as they get increasingly absorbed in their online activities, which would lower their schools' overall academic performance. This development presents a problem for educators and administrators who must address the rising incidence of internet addiction and its influence on student achievement (Kuss et al., 2013). Furthermore, normalizing excessive internet usage among peers can foster a climate in which hazardous behaviors are ignored or even encouraged, prolonging the addiction cycle (HOTAR et al., 2021).

To short, internet addiction among university students is a complex issue with far-reaching ramifications for academic achievement, mental health, and social connections. The data implies that as students increasingly rely on the internet for social contact and pleasure, they risk jeopardizing their academic progress and general well-being. Addressing this rising problem will need a collaborative

effort from educational institutions, mental health specialists, and families to encourage healthy internet usage and offer support to those who are struggling with addiction.

ii.Impact of Bad Sleep Quality on Students

Sleep is a key physiological activity that has a substantial impact on many areas of human health, particularly for university students who are frequently under academic stress. Sleep is essential for cognitive performance, emotional management, and overall well-being, in addition to being restful. According to research, proper sleep is vital for memory consolidation, which is especially important for students who must remember and integrate new material for their studies.

Inadequate sleep has a wide-ranging detrimental influence on kids' academic performance as well as their emotional health. Becker et al. (2018). In addition to cognitive difficulties, poor sleep has been related to a variety of mental health problems among university students. Milojevich and Lukowski (2016). discovered that worse sleep quality is associated with poor mental health, implying that sleep disruptions might exacerbate illnesses like anxiety and depression. This association is especially troubling given that many students already experience tremendous stress during their academic careers. Sleep deprivation can cause a vicious cycle in which poor mental health

disturbs sleep, resulting in a negative feedback loop that affects both academic achievement and emotional well-being.

Additionally, the effects of sleep deprivation extend to physical health. Chronic sleep deprivation in teenagers has been linked to a number of health issues, including as obesity and weakened immune systems (Perotta et al., 2021). University students, who could already engage in detrimental behaviors including poor eating habits and inactivity, should be particularly concerned about this. The connection between physical health and sleep highlights how important it is for students to integrate healthy sleep habits into their overall wellbeing.

Poor sleep also has social consequences that must be considered. Students who are sleep deprived frequently exhibit irritability and mood fluctuations, which can affect interactions with classmates and family members (Amin et al., 2016). This social isolation can worsen feelings of loneliness and sadness, resulting in a tough cycle to escape. Alotaibi et al. (2022) discovered that adolescents with poor sleep quality reported more emotional health symptoms, such as weariness and bewilderment, which can impair their capacity to engage socially and intellectually. Thus, the impact of sleep deprivation goes beyond individual health and affects larger social dynamics in academic settings.

To counteract the deleterious impacts of sleep deprivation, institutions must raise awareness among students about the need of sleep. Educational programs that highlight good sleep habits and the repercussions of sleep loss might help students make more educated decisions about their sleep patterns. For example, measures that promote regular sleep patterns, restrict coffee and electronics usage before bedtime, and establish favorable sleep settings can dramatically enhance students' sleep quality (Abu-Snieneh et al., 2020). Furthermore, treating sleep disorders should be included into university mental health services, as improved sleep quality can benefit both general mental health and academic performance (Angehrn et al., 2020).

In the end, sleep is essential for university students' health and well-being. The research is clear that insufficient sleep can cause cognitive deficiencies, emotional difficulties, physical health problems, and strained social interactions. As a result, students must prioritize sleep as a critical component of both their academic and psychological well-being. Universities play an important role in creating a sleep-positive culture and providing services to help students improve their sleep hygiene. By doing so, they can improve students' academic achievement, mental health, and general quality of life.

iii.Impact of Bad Physically Active on Students

Maintaining a healthy lifestyle requires physical activity (PA), particularly for college students who are struggling academically. Frequent exercise has been shown to have a number of benefits beyond physical health, such as enhanced mental health, academic performance, and cognitive function. Better mental health outcomes are also associated with physical activity. Frequent exercise has been linked to reduced anxiety and depression, two conditions that are prevalent among college students. The triadic relationship between physical activity, stress, and academic performance is the subject of Wunsch et al.'s (2021) systematic review, which suggests that increased physical activity can lower stress and boost academic performance. This is especially pertinent in university settings, where students frequently suffer high levels of stress owing to academic responsibilities. Students who include physical activity into their routines might build resistance to stresses, resulting in greater mental health and academic success.

Physical inactivity can have a harmful influence on kids, resulting in a variety of results. Students who do not participate in regular physical exercise are more likely to have poor mental health, which can show as anxiety, sadness, and stress (Tyson et al., 2010). For example, Maqbool et al. (2020) discovered that a lack of physical

exercise is linked to increased levels of perceived stress, which has a poor impact on academic performance. This association emphasizes the significance of physical activity as a preventative measure against the mental health issues that many kids confront.

Furthermore, physical inactivity might reduce self-efficacy and self-control, both of which are necessary for academic achievement. Li et al. (2022). found that students who participate in physical exercise had greater levels of self-control and self-efficacy, which are necessary for managing academic duties and overcoming procrastination. Students who are physically inactive may struggle with self-discipline and motivation, resulting in greater academic procrastination and poor performance. This link emphasizes the importance of encouraging physical exercise to improve children' psychological resiliency and academic performance.

The societal consequences of physical inactivity are equally significant. Students who do not participate in physical exercise may feel isolated and have less social connection, which can lead to mental health problems. Zhang et al. (2023). discovered that students who engage in physical activities are more satisfied with themselves and their social life than their sedentary counterparts. This shows that physical exercise not only enhances physical and mental health, but

also fosters social ties, which are essential for a positive university experience.

To mitigate the detrimental effects of physical inactivity, institutions should create programs and initiatives that encourage students to participate in regular physical exercise. This might include providing a range of sports and fitness programs, raising knowledge about the advantages of physical activity, and making exercise facilities more accessible (Wunsch et al., 2021). Universities can assist students build healthy habits that will benefit their general well-being and academic achievement by creating an environment that encourages physical exercise.

To summarize, physical exercise is an essential component of a healthy lifestyle for university students, with important consequences for cognitive function, mental health, and academic achievement. The research clearly shows that regular physical exercise improves kids' well-being and academic performance, but physical inactivity can have a variety of detrimental implications. As a result, it is critical for students to emphasize physical exercise as part of their daily routines, and colleges must support projects that encourage active lives among their students.

iv. Impact and Importance for Sports Science Students

Research on internet addiction, sleep quality, and physical activity among sports science students is critical for a variety of reasons, especially given this demographic's distinct lifestyle and needs. Sports science students frequently participate in strenuous physical training and intellectual endeavors that necessitate peak mental and physical health. Understanding the relationship between internet addiction, sleep quality, and physical activity might provide light on how these factors impact their general well-being and academic achievement.

First, internet addiction has been noted as an increasing issue among university students, especially those enrolled in sports science degrees. Research shows that many students experience internet addiction, which can negatively impact academic performance, social isolation, and mental health (Dindar & Koç, 2021; Çelik & Haney, 2023). Athlete students in Turkey have a high frequency of internet addiction, with almost one-third experiencing varying degrees (Çelik & Haney, 2023). This implies that, even among individuals who are physically active, the internet can lead to addictive behaviors that interfere with their athletic and academic obligations.

Additionally, it's concerning because internet addiction and sleep quality are related. Since excessive screen time, especially before bed, can affect circadian rhythms and cause insomnia, poor sleep quality is a common issue among students who spend a lot of time online (Tahir et al., 2021; Razik et al., 2021). As stated by Nayak et al. (2021) and Çelebioğlu et al. (2020), students who spend more time online have higher rates of sleep disruptions. This is especially important for sports science students since proper sleep is necessary for recuperation, performance, and general health. Poor sleep has a significant detrimental influence on physical and cognitive functioning, resulting in lower sports performance and poorer learning capacities (Tarrahi & Zhaleh, 2022).

Physical activity is essential in reducing the impacts of both internet addiction and poor sleep quality. Regular physical exercise has been demonstrated to improve sleep quality and alleviate feelings of anxiety and sadness, which are frequently aggravated by excessive internet usage. For example, research has shown that students who participate in sports or have an active lifestyle had higher sleep quality and lower levels of perceived stress (Alime, 2023; Ali, 2023). This shows that encouraging physical exercise among sports science students may function as a buffer against the negative consequences of internet addiction and poor sleep.

Furthermore, the academic environment of sports science students, which emphasizes health and physical activity, provides a unique context for exploring these relationships. The findings from studies indicate that students in health-related fields, including sports science, tend to have lower levels of internet addiction compared to their peers in other disciplines (Dindar & Koç, 2021).

C. Theoretical Framework

- Internet addiction is the independent variable.
- Sleep quality is the mediating variable.
- Physical activity is the dependent variable.

Hypothetical Relationships:

Fig. 2.1 showed the structure of the mediation study utilizing the causal stages method developed by Baron and Kenny (1986).¹ A causal model diagram can be used to illustrate a mediation theory. Here, two frameworks have been distinguished.

Figure.2.1

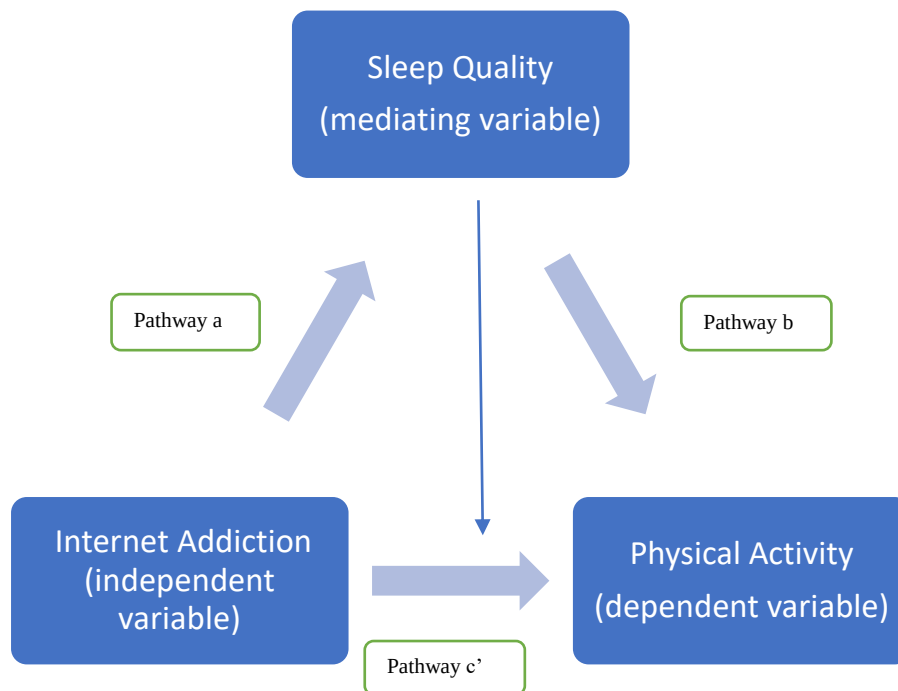
Impact of Internet Addiction on Physical Activity



In the first framework, a direct path model illustrates the overall impact of Internet addiction (an independent variable) on physical activity (a dependent variable). In the study figure 2.2 the path is represented by pathway c when the mediating variable is omitted.

Figure 2.2

Included Mediating Variable in Study



The second diagram depicts relationships and paths when mediating variable is included in the study “a” points to the path from Internet Addiction (independent variable) to the Sleep Quality (mediating variable), “b” represents path from Sleep Quality (mediating variable) to Physical Activity (dependent variable) while “c’” represents direct effect from Internet Addiction (independent variable) to Physical Activity (dependent variable) when Sleep Quality (mediating variable) included in this study.

1. Step: Determine the direct link between the Independent Variable (IV) and Dependent Variable (DV).

Internet Addiction → Physical Activity

This stage determines whether Internet addiction has a major influence on physical activity (H1).

2. Step: Determine the relationship between the Independent Variable (IV) and Mediating Variable (M).

Internet Addiction → Sleep Quality

This stage will establish whether Internet addiction has a significant positive impact on sleep quality (H2).

3. Step: Examine the relationship between the Mediating Variable (M) and the Dependent Variable (DV) while controlling for the Independent Variable.

4. Sleep Quality → Physical Activity

This stage investigates if sleep quality has a significant effect on physical activity (H3).

5. Step: Analyse the mediated relationship by examining the impact of the Independent Variable (IV) on the Dependent Variable (DV), while also considering the Mediating Variable (M).

If sleep quality is included in the model, the relation between Internet addiction and physical activity is considered to be mediated (H4).

Direct Effect

The direct effect is the influence of the independent variable (Internet addiction) on the dependent variable (physical activity) without accounting for the mediator (sleep quality).

Path C: Internet Addiction to Physical Activity.

Indirect effect.

The indirect impact arises when the association between the independent variable (Internet addiction) and the dependent variable (physical activity) is routed through the mediator (sleep quality). It is a result of two pathways:

1. Path A: Internet Addiction → Sleep Quality.
2. Path b: Sleep Quality to Physical Activity.

The indirect impact may be computed as follows:

Indirect Effect = Path a x Path b.

This depicts how Internet addiction affects physical activity indirectly via sleep quality.

Total Effect

The total effect is the sum of the direct and indirect effects. It depicts the entire impact of Internet addiction on physical activity, including both direct and mediated paths. Total effect equals direct effect (Path c) plus indirect effect ($a \times b$).

D. Hypothesis

Hypothesis is a provisional answer to the formulation of the research problem (Sugiyono, 2017: 96). The hypotheses in this study are:

H1: There is a negative relationship between internet addiction and physical activity among Yogyakarta State University students.

H2: There is a negative relationship between Internet addiction and sleep quality.

H3: There is a positive correlation between sleep quality and physical activity.

H4: Sleep quality mediates the relationship between Internet addiction and physical activity.

CHAPTER III

RESEARCH METHODS

A. Type of Research

This study will be cross-sectional, which will be a sort of observational research that examines data from a population at a certain time. This study design will allow researchers to examine the prevalence of outcomes or features within a certain group, which may help in identifying potential relationships between variables.

In a cross-sectional study, participants are chosen based only on the study's inclusion and exclusion criteria. Once the participants have been chosen for the study, the investigator follows the study to assess exposure and outcomes.

B. Place and Time of Research

The place of the research will be carried out at Yogyakarta State University that is the analysis among the university students. Meanwhile, the research will be carried out from December 2024 to March 2025.

C. Research Population and Sample

In this study investigating purposively select university students from Sports Sciences (FIKK) department who involved physical

activities, particularly bachelor students at Yogyakarta State University and the sample taken using the online google form sending by WhatsApp. It were able to establish the overall s approximately 210 students that meet the criteria of the study.

A popular statistical technique for figuring out the right sample size for a population while preserving a particular margin of error is the Taro Yamane formula (1967). In research, it is helpful to draw conclusions about the entire population from a subgroup.

The formula for Taro Yamane's sample size calculation is:

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

- i. n = Required sample size
- ii. N = Total population size (the number of individuals in the entire study population)
- iii. e = Margin of error (a percentage that represents the level of accuracy desired in the study, often 5% or 0.05).
- iv. For a population size of 445, using a 5% margin of error, the sample size is 211.

Inclusion criteria:

- 1) Students must be enrolled in Yogyakarta State University Sports Science program in order to be eligible.
- 2) must be enrolled in Yogyakarta State University S1 Bachelor program.
- 3) Students at Yogyakarta State University who studied sports science, both male and female.

Exclusionary criteria:

- 1) Students not enrolled in Yogyakarta State University Sports Science program.
- 2) Yogyakarta State University students who are not enrolled in S1 Bachelor.
- 3) Yogyakarta State University students studying sports science, both male and female, who do not participate in physical activity.

D. Research Variables

In this study, there will three variables, namely Internet Addiction, Physical Activity and Sleep Quality are used the operational definition of each variable in this study is:

1. Internet Addiction

In this study, "internet addiction" will define as a pattern of excessive and compulsive internet use that significantly impairs a person's daily functioning, sleep quality, and internet addiction. This

term will cover a wide range of online activities, including but not limited to social networking, online gaming, streaming, and surfing.

2. Physical Activity

In this study, physical activity will be defined as any bodily action that requires energy expenditure and contributes to overall physical, mental, and social well-being. It includes a wide range of intensities and varieties, from everyday routine activities to planned exercise, all of which have an impact on sleep quality, mental health, and other aspects of physical activity. This concept covers the effect of regular physical activity on the body's physiological systems, which can be influenced by lifestyle factors like internet use and sleep patterns.

3. Sleep Quality

In this study, "sleep quality" will operationally define as an individual's overall sleep experience, characterized by subjective satisfaction as well as measurable indicators of sleep duration, sleep continuity, and sleep disruptions. This definition will focus on the effect of sleep quality on physical activity and its correlation to internet addiction.

E. Research Instruments

The Young Diagnostic Questionnaire will be used to examine internet addiction. The Pittsburgh Sleep Quality Index and the International Physical Activity Questionnaire will be used to evaluate physical activity, respectively.

1. Internet Addiction

The Young Diagnostic Questionnaire (YDQ) is a popular measure for measuring internet addiction, especially in identifying problematic internet usage habits. Dr. Kimberly S. Young (Young, 1999), which has been shown to be reliable and valid for Chinese teenagers (Li et al., 2014). The questionnaire, which consists of eight diagnostic criteria based on the DSM-IV criteria for compulsive gambling but altered to assess the amount and impact of internet usage on an individual's everyday life. It is widely used to investigate internet addiction in a variety of populations, particularly teenagers and young adults, and provides useful insights on the behavioral, emotional, and social aspects of excessive internet usage.

Table no 3.1

Young Diagnostic Questionnaire

No	Indicators	Items
1	Preoccupation	Do you feel preoccupied with the Internet (thinking about previous online activities or

		anticipating the next session)?
2	Increased Use	Do you feel the need to use the Internet for increasing amounts of time to achieve satisfaction?
3	Unsuccessful Control	Have you made repeated unsuccessful efforts to control, cut back, or stop your Internet use?
4	Withdrawal Symptoms	Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
5	Extended Use	Do you stay online longer than you originally intended?
6	Risking Relationships	Have you jeopardized or risked losing a significant relationship, job, educational opportunity, or career because of the Internet?
7	Lying About Use	Have you lied to family members, therapists, or others to conceal the extent of your involvement with the Internet?
8	Escapism	Do you use the Internet as a way of escaping from problems or relieving a dysphoric mood (such as feelings of helplessness, guilt, anxiety, or depression)?

a. Scoring Criteria

Each item received a score of 1 for "yes" and 0 for "no", with a total score of 0 to 8. Higher scores suggested an increased risk of internet addiction. The population divided adolescents into three groups

based on their overall scores: (1) adaptive internet usage (AIU) (total score ≤ 2), (2) maladaptive internet use MIU (total score 3-4), and pathological internet use (3) PIU (total score ≥ 5).

2. Physical Activity

The International Physical Activity Questionnaire (IPAQ) is a standardized tool for determining levels of physical activity in diverse groups. It assesses activity in a variety of categories, including the intensity of the activity, and provides information on the frequency, duration, and intensity of physical activity. The IPAQ, which is widely used in research and public health, aids in the evaluation of physical activity patterns and their relationship to health outcomes, making it an important tool for understanding and supporting active lives throughout the world. Craig et al. (2003) developed the International Physical Activity Questionnaire to assess individuals' weekly physical activity levels. The survey consisted of seven items and open-ended questions on a person's recall of their last 7 days of physical activities.

The International Physical Activity surveys (IPAQ) consists of four surveys. There are both long (5 activity domains asked separately) and short (4 general items) versions available for usage via telephone or self-administered techniques. The surveys' objective is to offer universal instruments for collecting internationally comparable data on health-related physical activity. The creation of an international

physical activity measure began in Geneva in 1998, with rigorous reliability and validity testing conducted across 12 nations (14 locations) in 2000. The final results indicate that these measures have appropriate measuring qualities for application in a variety of locations and languages, making them ideal for national population-based prevalence investigations of physical activity participation.

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Consider all the strenuous activities you engaged in during the prior seven days. Vigorous physical activities are those that require a lot of physical effort and cause you to breathe harder than usual. Consider

only physical activities that you completed for at least 10 minutes at a time.

Table no 3.2

Physical Activity Questionnaire

No	Indicators	Items
1	Vigorous Physical Activities	1.During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling? _____ days per week ☐ No vigorous physical activities → Skip to question 3 2.How much time did you usually spend doing vigorous physical activities on one of those days? _____ hours per day _____ minutes per day ☐ Don't know/Not sure
2	Moderate Physical	1.During the last 7 days, on how many days

	Activities	did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking. _____ days per week ☐ No walking → Skip to question 5 2.How much time did you usually spend doing moderate physical activities on one of those days? _____ hours per day _____ minutes per day ☐ Don't know/Not sure
3	Walking Physical Activities	1.During the last 7 days, on how many days did you walk for at least 10 minutes at a time? _____ days per week ☐ No walking → Skip to question 7 2.How much time did you usually spend

		walking on one of those days? _____ hours per day _____ minutes per day ☐ Don't know/Not sure
4	Spend on Sitting	1. During the last 7 days, how much time did you spend sitting on a weekday? _____ hours per day _____ minutes per day ☐ Don't know/Not sure

b. Scoring Criteria

This scale has great reliability ($\alpha < .80$). To satisfy the assessment standards, each activity must last at least 10 minutes. Multiplying the values for minutes, days, and MET. Every week, the score is determined using MET minutes. It was classified into three levels: high, moderate, and low physical activity. They also reported the number of days per week they exercised and the duration of each session, and the total number of minutes spent on each intensity type of physical activity per week was calculated. To assess the individuals'

weekly energy expenditure, the work metabolic rate was divided by the normal resting metabolic rate (MET). The energy consumption in MET-minutes per week (METs) may be determined for certain activities using. According to the Compendium of Physical Activities, each physical activity group has an average MET coefficient of 3.3 for mild exercise, 4.0 for moderate exercise, and 8.0 for severe exercise. The METs-minutes per week were calculated by adding the product of the intensity (MET value) and duration (min/week) of the three intensity kinds of physical exercise. According to the IPAQ Working Group's guidelines, participants' physical activity may be classified into three levels: low, moderate, and high (Fan et al 2014). By inquiring about participants' daily sitting time, IPAQ takes into account sedentary behavior in addition to physical exercise. Nevertheless, this is recorded separately and is not immediately factored into the physical activity levels computation.

Assign participants to one of the three activity levels based on their weekly total MET-minutes:

- i. Low: Under 600 MET-minutes per week.
- ii. Moderate: 600–2,999 MET-minutes per week.
- iii. High: 3,000 MET-minutes per week or higher.

An example of scoring

a. Walking Activity

- i. 30 minutes per day, five days a week.
- ii. $3.3 \text{ METs} \times 30 \text{ minutes} \times 5 \text{ days} = 495 \text{ MET-minutes/week}$ is the formula for MET-minutes/week.

b. Activity at a moderate intensity:

- i. 45 minutes per day, three days a week.
- ii. $4.0 \text{ METs} \times 45 \text{ minutes} \times 3 \text{ days} = 540 \text{ MET-minutes/week}$ is the formula for MET-minutes/week.

c. Vigorous Exercise:

- i. Every day for 60 minutes, twice a week.
- ii. $8.0 \text{ METs} \times 60 \text{ minutes} \times 2 \text{ days} = 960 \text{ MET-minutes/week}$ is the formula for MET-minutes/week.

d. Weekly total MET-minutes:

- i. The weekly total of walking (495) + moderate (540) + vigorous (960) is 1,995 MET-minutes.
- ii. This person's total MET-minutes would place them in the "Moderate" category.

3.Sleep Quality

The Pittsburgh Sleep Quality Index (PSQI) is a well-known instrument for evaluating sleep quality and diagnosing sleep disruptions during a one-month period. It uses a self-reported questionnaire to assess many aspects of sleep, such as length, latency, efficiency, and disruptions. The PSQI gives a global score that helps define people as excellent or bad sleepers, making it a useful tool in both clinical and research contexts for studying sleep habits and their influence on general health and well-being.

Sleep disruption will measure using the Chinese version of the Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989), which has been shown to be valid in the Chinese population (Liu, 1996). The questionnaire contains 19 items that address seven dimensions: subjective sleep quality (1 item), sleep latency (2 items), sleep duration (1 item), habitual sleep efficiency (3 items), sleep disruption (9 items), use of sleep medicine (1 item), and daytime dysfunction (2 items).

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month.

Table no 3.3

Pittsburgh Sleep Quality Index Questionnaire

No	Indicators	Items
1	Subjective Sleep Quality	1. During the past month, how would you rate your sleep quality overall? Very good b. Fairly good c. Fairly bad d. Very bad
2	Sleep Latency	1. During the past month, how long (in minutes) has it usually taken you to fall asleep each night? NUMBER OF MINUTES _____ 2. During the past month, how often have you had trouble sleeping because you... (Cannot get to sleep within 30 minutes). Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
3	Sleep Duration	1. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spend in bed.) HOURS OF SLEEP PER NIGHT- _____
4	Habitual Sleep Efficiency	1. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spend in bed.) HOURS OF SLEEP PER NIGHT- _____ 2. During the past month, when have you usually gotten up in the morning? USUAL GETTING UP TIME _____

		3. During the past month, when have you usually gone to bed at night? USUAL BEDTIME _____
5	Sleep Disturbances	During the past month, how often have you had trouble sleeping because you... 1. Wake up in the middle of the night or early morning Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 2. Have to get up to use the bathroom Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 3. Cannot breathe comfortably Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 4. Cough or snore loudly Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 5. Feel too cold Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 6. Feel too hot Not during the Less than past month

		Less than once a week Once or twice a week Three or more times a week 7.Had bad dreams Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 8 Have pain Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 9. How often during the past month have you had trouble sleeping because of this? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
6	Use of Sleeping Medication	1.During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
7	Daytime Dysfunction	1.During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 2.During the past month, how much of a problem has it been for you to keep up

		enough enthusiasm to get things done? a. No problem at all b. Only a very slight problem c. Somewhat of a problem d. A very big problem 3. During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
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c. Scoring Criteria

The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire that examines sleep quality over the preceding month. It consists of 19 self-rated items and 5 additional questions answered by a roommate or bed partner (they are not included in the scoring).

Seven component scores, with 0 denoting little difficulty and 3 denoting extreme difficulty, are produced by the 19 self-rated questions. The Global PSQI Score, which ranges from 0 to 21, is then calculated by adding these elements.

Based on answers to particular questions, each component is given a score ranging from 0 (no difficulty) to 3 (severe difficulty):

C1: (Components 1) Quality of Sleep Subjectively

Based on Question 6 ("How would you rate your sleep quality overall?")

Scoring:

i.0 = Very good

ii.1 = Fairly good

iii.2 = Fairly bad

iv.3 = Very bad

C2: (Components 2) Sleep Latency

With reference to Questions 2 and 5a

If it's time to go to sleep (Q2), then:

i.≤15 minutes to 0

ii.16–30 minutes → 1

iii.31–60 minutes → 2

iv.60 minutes → 3

If the frequency of difficulty sleeping (Q5a) is:

i.0(not in the previous month) → 0.

ii.(less frequently than weekly) → 1

iii.Two times a week or more → 2

iv. (at least three times per week) → 3

Final score for the component: Convert the two scores to a 0–3 scale by adding them up.

C3: (Components 3) Duration of Sleep

- i. ≥ 7 hours $\rightarrow 0$
- ii. 6–7 hours $\rightarrow 1$
- iii. 5–6 hours $\rightarrow 2$
- iv. 5 hours $\rightarrow 3$

C4: (Components 4) Efficiency of Habitual Sleep

computed as follows:

$(\text{Total hours spent sleeping}) / (\text{Total hours spent in bed}) \times 100$

$(\text{Total hours spent sleeping}) / (\text{Total hours spent in bed}) \times 100$

With reference to Questions 1, 3, and 4,

Rating:

- i. $\geq 85\%$ $\rightarrow$ zero
- ii. 75–84% $\rightarrow 1$
- iii. 65–74% $\rightarrow 2$
- iv. $< 65\%$ $\rightarrow 3$

C5: (Component 5) sleep disorders

According to Questions 5b–5j (such as pain, bad dreams, waking up in the middle of the night, and using the restroom),

The number of disturbances determines the score:

- i. Never = 0.
- ii. Less than once per seven days = 1.
- iii. 1-2 times per week equals 2.
- iv. ≥ 3 times each week = 3

C6: (Component 6) Using Sleep Medications

Considering Question 6

Rating:

- i. 0 = Not in the previous month
- ii. 1 = Not more than once per week
- iii. 2 = a couple of times every week
- iv. 3 = Three times a week or more

C7: (Component 7) Dysfunction During the Day

According to Questions 7 and 8 (difficulty remaining awake, daytime sleepiness)

Rating:

- i. There is no issue = 0.
- ii. A mild issue is equal to 1.
- iii. A moderate issue is equal to 2.
- iv. Serious issue = 3.

Calculating the Global PSQI Score

To compute the Global PSQI Score, add the scores for all seven components. The Global PSQI Score ranges from 0 to 21, where higher scores indicate worse sleep quality.

Interpretation of Global PSQI Score

- i. 0–5: Quality of sleep
- ii. 6–10: Moderate disruption of sleep
- iii. 11–15: Mildly disruptive sleep
- iv. 16–21: Severe disruption of sleep

Clinical and research applications

A Global PSQI Score more than 5 is often suggestive of poor sleep quality. This threshold is commonly used in clinical and research settings to identify people who have serious sleep disorders.

Additional Notes

The PSQI is sensitive to changes in sleep quality over time, making it an effective measure for tracking sleep improvements or deteriorations. It has been verified in a variety of demographics, including medical and psychiatric patients, as well as healthy people.

F. Validity and Reliability of Instruments

1. Instrument Validity

Testing item validity with the help of *IBM SPSS Statistics Version 25* using the Pearson Correlation or Pearson Product Moment analysis method, namely by correlating the item score with the total item score. A validity test is a tool used to assess if a concept or measure mentioned in a questionnaire can be measured by the questions in the questionnaire. Put differently, the purpose of the validity test is to assess how well each questionnaire item or indicator captures the concept you wish to assess. Comparing the computed value of the correlation coefficient (r) (r-calculated) with the crucial value (r-table) yields the validity test's feasibility. In the instance that the r-count exceeds the r-table, the data is deemed legitimate and suitable for inclusion in the research. with a 0.138 table r value.

Table no 3.4

Internet Addiction Validity Test

No	Items	Table Value	R	Results
1	IA 1	0.442		valid
2	IA 2	0.454		valid
3	IA 3	0.505		valid
4	IA 4	0.573		valid
5	IA 5	0.582		valid
6	IA 6	0.495		valid
7	IA 7	0.506		valid
8	IA 8	0.533		valid

The validity test scores are more than 0.138, indicating that all of the items are considered valid, as can be seen from the above table.

Table no 3.5

Physical Activity Validity Test

No	Items	Table R Value	Results
1	PA 1	0.236	valid
2	PA 2	0.299	valid
3	PA 3	0.281	valid
4	PA 4	0.190	valid
5	PA 5	0.643	valid
6	PA 6	0.743	valid

The validity test scores are more than 0.138, indicating that all of the items are considered valid, as can be seen from the above table.

Table no 3.6

Sleep Quality Validity Test

No	Items	Table R Value	Results
1	SQ 1	0.361	valid
2	SQ 2	0.734	valid
3	SQ 3	0.190	valid
4	SQ 4	0.734	valid
5	SQ 5	0.503	valid
6	SQ 6	0.353	valid
7	SQ 7	0.219	valid
8	SQ 8	0.365	valid
9	SQ 9	0.234	valid

10	SQ 10	0.343	valid
11	SQ 11	0.287	valid
12	SQ 12	0.297	valid
13	SQ 13	0.580	valid
14	SQ 14	0.704	valid
15	SQ 15	0.734	valid
16	SQ 16	0.361	valid
17	SQ 17	0.681	valid
18	SQ 18	0.496	valid
19	SQ 19	0.734	valid

The validity test scores are more than 0.138, indicating that all of the items are considered valid, as can be seen from the above table.

1. Reliability

The degree of accuracy with which an instrument tends to yield the same or nearly same data when utilized by anyone and at any time is known as reliability. The Alpha Cronbach technique was used to perform the calculation. The following table serves as the basis for the reliability coefficient criteria:

Table no 3.7

Reliability Coefficient Criteria

Score	Classification
≥ 0.9	Very Good

0,8 – 0,89	Good
0,7-0,79	Pretty good
0,6-0,69	Not good
$\leq 0,6$	Not good

The more reliable the research tool, the closer it is to 1.00. IBM SPSS Statistic 25 is used for reliability testing. In the reliability test using a valid item, the Internet Addiction scale's reliability coefficient was 0.850, the Physical Activity scale's reliability coefficient was 0.836, and the Sleep Quality scale's reliability coefficient was 0.801. The reliability of all three variables was good, indicating that the scale could be used for further studies.

G. Data Analysis Techniques

Descriptive statistics: To describe the fundamental properties of the data. Variables Internet addiction, physical exercise, and sleep quality were all assessed. Techniques include mean, median, and standard deviation for continuous variables. For categorical data, specify the frequency and percentage (if relevant).

Correlation analysis: Investigate the connections between variables. Techniques used Pearson's correlation (for normally distributed, continuous data). Spearman's correlation (where the data is

non-parametric or ordinal). Output: Correlation coefficients used to assess the strength and direction of the association.

Mediation Analysis: The purpose of this study is to determine if sleep quality mediates the association between internet addiction and physical activity. Techniques used Baron and Kenny's Approach (a traditional approach that is less commonly used nowadays). The bootstrapping method is recommended for current mediation research because of its resilience. Sobel test (to determine the significance of the mediation effect).

Regression analysis.: To better understand the influence of internet addiction on physical activity, both directly and indirectly through sleep quality. Techniques used Multiple Linear Regression with Continuous Dependent Variables. If additional factors (such as demographics) are controlled for, use hierarchical regression.

CHAPTER IV

RESULTS AND DISCUSSION

A. Descriptive Analysis

Descriptive Statistics

Table 4. 1

	N	Minimum	Maximum	Mean	Std. Deviation
Internet Addiction	210	1	8	3.88	1.830
Physical Activity	210	30.600	578062.50 0	7652. 712	39919.598
Sleep Quality	210	0	17	7.50	3.395
Valid N (listwise)	210				

Table 4.1 displays the descriptive statistics for the 210 students' levels of physical activity, Internet addiction, and sleep quality. The Internet Addiction scores, which range from 1 to 8, have a mean of 3.88 and a standard deviation of 1.830, indicating that participants' internet usage habits differ to some extent. Physical activity ranges from 30.600 to 578,062.500, with a mean of 7,652.712 and an exceptionally high standard deviation of 39,919.598. This implies that participants' levels of physical activity varied significantly, maybe as a result of outliers or extreme values. In the meantime, individuals' moderately different sleep patterns are reflected in their Sleep Quality scores, which vary from 0 to 17. The mean score is 7.50, with a standard deviation of 3.395.

Tests of Normality

Table 4. 2

Kolmogorov-Smirnov^a

	Statistic		Sig.
Internet Addiction	.135	210	.000
Physical Activity	.424	210	.000
Sleep Quality	.101	210	.000

a. Lilliefors Significance Correction

As shown in Table 4. 2, the Kolmogorov-Smirnov test was employed to ascertain if the data in this study were normal. The three primary variables—physical activity, sleep quality, and internet addiction—all deviate significantly from a normal distribution, according to the research. The test yielded Kolmogorov-Smirnov statistics of 0.135, 0.424, and 0.101 for Internet addiction, physical activity, and sleep quality, respectively, with corresponding p-values of 0.000 ($p < 0.05$). Every variable violates the assumption of normality since the significant values fall below the accepted cutoff point of 0.05. This implies that the data are not distributed regularly.

Table 4. 3

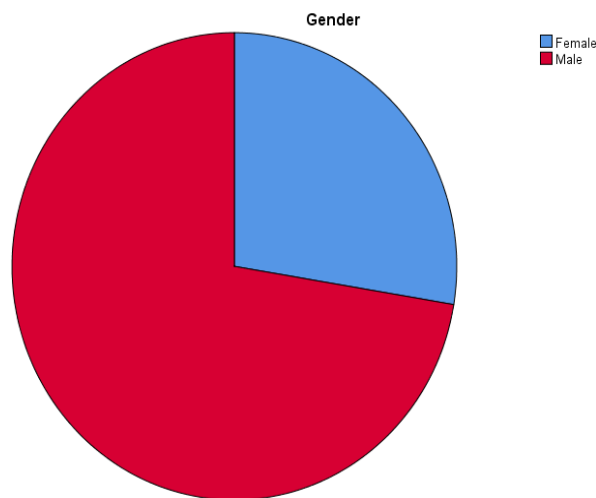
Gender

	Frequency	Percent
Female	58	27.6
Male	152	72.4
Total	210	100.0

The study participants' gender distribution is shown in Table 4.3. 152 (72.4%) of the 210 participants are men, and 58 (27.2%) are

women. This implies that women comprise a smaller fraction of the sample than males do.

Figure 4.1
Gender Distribution Pie Chart



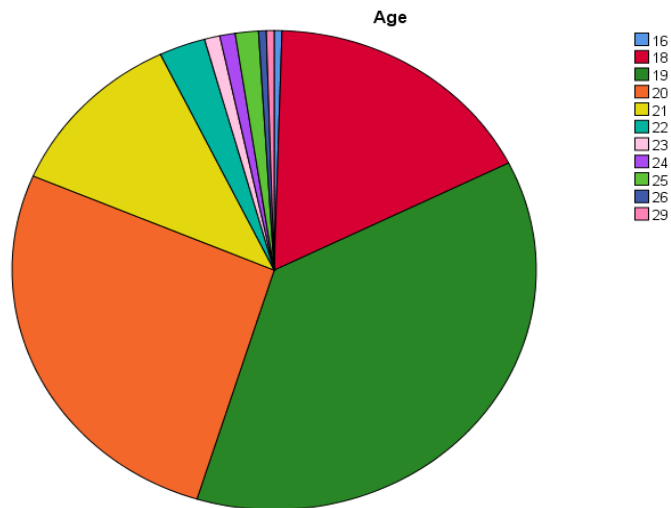
The study participants' gender distribution is depicted in the pie chart. Males make up the majority of the sample, as evidenced by the red section, which represents male participation, taking up a substantially bigger portion of the chart. The blue component, which represents female participants, on the other hand, occupies a lesser percentage, indicating that women comprise a smaller portion of the study population. According to this graphic representation, which is consistent with the tabular data, the majority of respondents (72.4%) are men and 27.2% are women.

Table 4.4

Age		
	Frequency	Percent
16	1	.5
18	36	17.1
19	78	37.1
20	56	26.7
21	24	11.4
22	6	2.9
23	2	1.0
24	2	1.0
25	3	1.4
26	1	.5
29	1	.5
Total	210	100.0

The study participants' age distribution is shown in the table. Most responders (37.1%) are 19 years old, followed by 20 years old (26.7%) and 18 years old (17.1%). The age groups of 21 years (11.4%), 22 years (2.9%), and 23 to 26 years (varying from 0.5% to 1.4%) comprise a lesser percentage of participants. Ages 16, 26, and 29 are the least represented, making up just 0.5% of the sample as a whole. According to this distribution, the majority of participants are between the ages of late adolescence and early twenties, and the frequency gradually decreases with age.

Figure 4.2
Age Distribution Pie Chart



The pie graphic shows the age distribution of the research participants. The majority of the sample is made up of people who are 19 years of age or older. The next largest demographics are 18 and 20-year-olds, who also make up a sizable portion. The age group of 21 also accounts for a significant portion of the population, although the remaining age groups—including those between 22 and 29 years old—make up lower percentages.

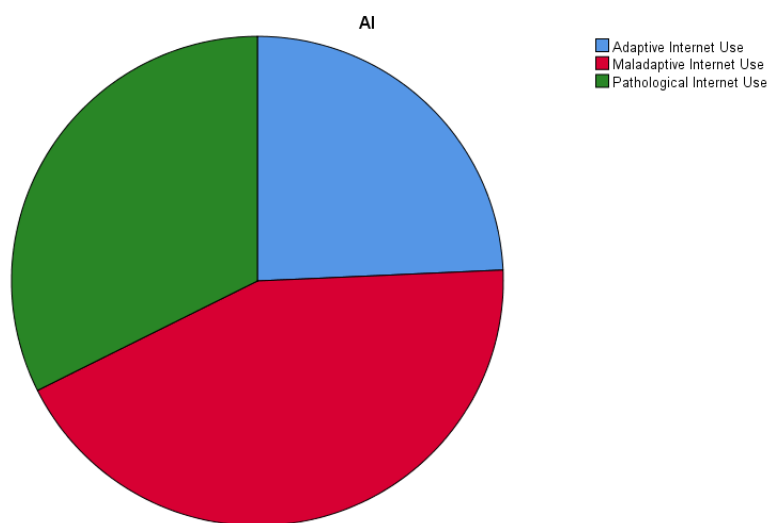
Table 4.5

Internet Addiction		
	Frequency	Percent
Adaptive Internet Use	51	24.3
Maladaptive Internet Use	91	43.3
Pathological Internet Use	68	32.4
Total	210	100.0

Table 4.5 displays the prevalence and percentage distribution of Internet addiction among the 210 individuals, who are categorized as adaptive, maladaptive, and pathological. The findings show that 51 participants (24.3%) use the internet in an adaptive manner, indicating that their online activity is balanced and under control. Maladaptive Internet Use, which includes excessive or problematic use that may interfere with daily activities but does not reach a pathological level, accounts for 91 individuals (43.3%), which is a bigger fraction. In contrast, 68 participants (32.4%) fall under the category of pathological internet use, indicating a severe reliance on the internet that may have a substantial negative influence on their everyday functioning and general well-being.

Figure 4.3

Internet Addiction Distribution Pie Chart



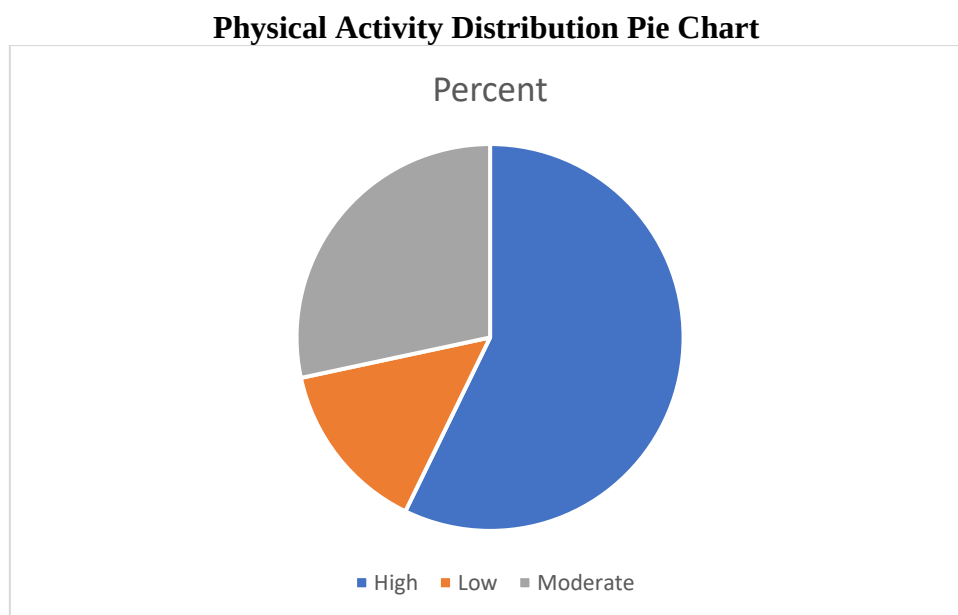
The distribution of Internet addiction among individuals, divided into three categories—adaptive, maladaptive, and pathological—is depicted in the pie chart. Those who use the internet in a balanced way without experiencing major negative consequences are represented by the blue section, which stands for Adaptive Internet Use and accounts for 24.3% of participants. Maladaptive Internet Use, which is shown by the greatest red section (43.3%), is when internet use starts to interfere with day-to-day activities but does not escalate to a severe or pathological level. Last but not least, the area of green denotes pathological internet use, which accounts for 32.4% of participants and shows a high degree of reliance that could have a major influence on their everyday functioning and general well-being. The graphic highlights the need for awareness and intervention techniques by visually reiterating the worry that the majority of participants (75.7%) use the internet in a way that is either maladaptive or pathological.

Table 4.6
Physical Activity

	Frequency	Percent
High	120	56.7
Low	31	14.3
Moderate	59	28.1
Total	210	100.0

Table 4.6 displays the distribution of the three categories (High, Moderate, and Low) for the 210 individuals' levels of physical activity. A physically active lifestyle is shown by the fact that 120 participants, or the majority, (56.7%), participate in high levels of physical exercise. A balanced but not particularly active routine is suggested by the 59 individuals (28.1%) who fit into the moderate physical activity category. On the other hand, 31 participants (14.3%) show low levels of physical activity, suggesting little exercise, which could have an impact on their health and general well-being. The findings show that while most participants have active lifestyles, a significant portion (42.4%) only engage in moderate to low levels of physical activity, highlighting the need to promote more frequent physical activity among some people.

Figure 4.4



With 120 participants, or 56.7% of the total, those with high levels of physical activity occupy the largest portion of the chart. This suggests that a substantial portion of the participants—more than half—engage in physical activity. The moderate physical activity group, which makes up 59 individuals, or 28.1% of the total, and represents those who engage in balanced physical activity, makes up a minor but noteworthy section of the chart. The smallest group of participants—14.3%, or 31 individuals—are those who engage in little to no physical activity, suggesting that they are a minority. The pie chart unequivocally demonstrates that most participants lead active lifestyles, as the bulk of them are in the high physical activity bracket. Nonetheless, a sizeable percentage (42.4 percent in the moderate and low categories) can profit from programs that encourage higher levels of physical exercise for better health and wellbeing.

Table 4.7
Sleep Quality

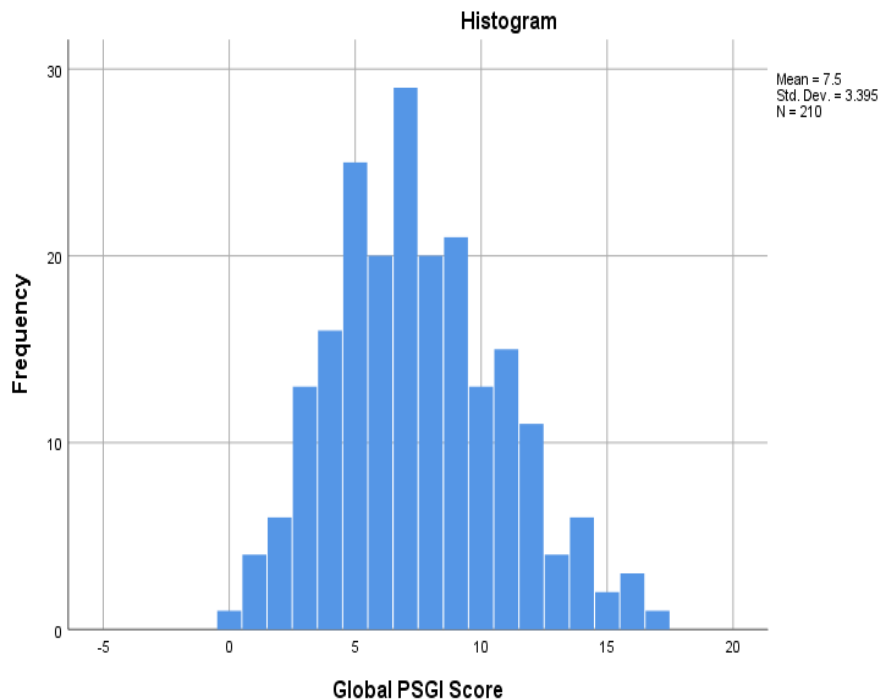
No	Frequency	Percent
0	1	.5
1	4	1.9
2	6	2.9
3	13	6.2
4	16	7.6
5	25	11.9
6	20	9.5
7	29	13.8
8	20	9.5
9	21	10.0
10	13	6.2

11	15	7.1
12	11	5.2
13	4	1.9
14	6	2.9
15	2	1.0
16	3	1.4
17	1	.5
Total	210	100.0

The distribution of the 210 individuals' Sleep Quality scores is shown in Table 4.7. The scores vary in frequency throughout the categories and range from 0 to 17. 29 participants (13.8%) reported a sleep quality score of 7, which is the most common, followed by 5 (11.9%) and 9 (10.0%). Scores of 6 and 8 (both at 9.5%) are also typical. On the other hand, only one person (0.5%) reported having either score of 0 or 17. The distribution indicates that participants' sleep quality varied widely, with a propensity toward moderate ratings. Even though a sizable percentage of participants said their sleep was generally good, the existence of lower scores suggests that some people might have bad sleep, which could have an impact on daily functioning and general well-being.

Figure 4.5

Sleep Quality Distribution Histogram



The histogram displays the distribution of the 210 participants' Global PSQI (Pittsburgh Sleep Quality Index) scores. The frequency of each score is shown on the y-axis, while the PSQI values are shown on the x-axis. The data shows a fairly normal distribution, with most patients scoring in the range of 4 to 10, indicating moderate sleep quality. The results show that people's sleep quality varied, with a mean score of 7.5 and a standard deviation of 3.395. Scores 6 to 8 are the most commonly reported, as indicated by the histogram's peak around these numbers. Given that the distribution is somewhat skewed to the right, some participants reported higher PSQI ratings, which are indicative of lower-quality sleep. Participants with extremely low or extremely high scores are also less numerous. Although the majority report intermediate sleep quality, this distribution suggests that a

sizable portion of people may have poor sleep quality, which could impact their overall health and well-being.

B. Regression Test

a. The association between physical activity and internet addiction

Table 4.8

Hypothesis	Beta Coefficients	R Square	F	t-value	p- value
H1	-.341	0.245	67.64	-8.225	0.00

The regression test's R-square score is 0.245, which indicates that 24.5% of the variation in physical activity may be attributed to internet addiction. The remaining 75.5% are influenced by additional factors. The F-statistic (67.64), which demonstrates that internet addiction significantly affects students' changes in physical activity levels, validates the statistical significance of the regression model. The beta value (-.341) suggests a negative correlation between internet addiction and physical exercise. This suggests that as internet addiction increases, physical activity decreases. Furthermore, the t-count value (-8.225) is bigger in absolute terms than the necessary t-table value (~1.96 at a 95% confidence level), and the p-value (0.000) is smaller than 0.050. These results imply that internet addiction and exercise have a statistically significant relationship. Accept H1, which confirms that internet addiction significantly reduces students' physical activity at

Yogyakarta State University, because the significance value is less than the 0.050 threshold.

b. The association between Internet addiction and the quality of sleep

Table 4.9

Hypothesis	Beta Coefficients	R Square	F	t-value	p- value
H2	-.495	0.291	61.89	-7.86	0.00

According to the results of the regression test, internet addiction accounts for 29.1% of the variation in sleep quality, Having a 0.291 R-squared value. The remaining 70.9% of the difference in sleep quality can be attributed to other factors. The F-statistic (61.89) indicates that the regression model is statistically significant overall. A high F-statistic shows that the independent variable (internet addiction) has a considerable impact on sleep quality and that the model fits the data well. The beta value (-0.495) shows the strength and direction of the relationship between internet addiction and sleep quality. The negative beta coefficient suggests that higher levels of internet addiction are associated with lower-quality sleep. The t-value (-7.86) is used to test the significance of the beta coefficient. Since the absolute value of the t-value is substantially greater than the crucial t-value, which is typically 1.96 at a 95% confidence level, the outcome is statistically significant. The p-value (0.000) is less than 0.05, confirming that the

result is highly statistically significant. The acceptance of H2 is shown by a 0.000 p-value. This suggests that internet addiction has a substantial negative impact on sleep quality.

c. The association between physical activity and sleep quality.

Table 4.10

Hypothesis	Beta Coefficients	R Square	F	t-value	p-value
H3	6.11	0.873	67.35	8.34	0.00

According to the results of the regression test, the R-square value (0.873) shows that sleep quality accounts for 87.3% of the variation in physical activity, with other factors influencing the remaining 12.7%. The regression model as a whole is statistically significant, according to the F-statistic (67.35). A high F-value suggests that the model is a good fit for explaining how physical activity and the independent variable (sleep quality) are related. The beta coefficient (6.11) indicates the strength and direction of the relationship between physical activity and sleep quality. The positive coefficient shows a clear relationship between increased physical activity and improved sleep quality. The t-value (8.34) is used to test the significance of the beta coefficient. The positive and substantial t-value validates the statistical significance of the association between physical activity and sleep quality. Furthermore, because the p-value (0.000) is less than

0.05, the result can be regarded as statistically significant. Since the p-value is 0.000 and shows a significant positive correlation between physical activity and sleep quality, accept H3.

d.The association between Internet addiction and physical activity is mediated by sleep quality.

The R square value is 0.453 based on the regression test findings. According to this figure, 45.3% of the variation in physical activity can be attributed to Internet addiction and poor sleep quality. The remaining 54.7% are influenced by additional factors.

Model Summary

Table 4.11

R Square	Adjusted R Square	Std. Error of the Estimate
.453	.448	14.77

Predictors: (Constant), total Internet Addiction, total Sleep Quality

The findings of the ANOVA test show that sleep quality mediates the statistically significant association between internet addiction and physical activity. The F-value of 85.81 represents the ratio of the variance explained by the regression model to the variance. The p-value (Sig. = 0.000), which is less than 0.05, validates the regression model's statistical significance. This suggests that internet

addiction and physical activity, as well as the mediating variable of sleep quality, are statistically correlated (H4 accepted).

ANOVA^a

Table 4.12

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3583.4	2	1791.7	85.81	.000
	Residual	43184.9	207	208.7		
	Total	46768.3	209			

a. Dependent Variable: total Physical Activity

b. Predictors: (Constant), total Internet Addiction , total Sleep Quality

The table demonstrates that sleep quality mediates the association between internet addiction and physical activity, which is more significant than either of them alone (Sig. 0.000 < 0.050). The coefficients table shows the axis and amplitude of the relationships. The beta coefficient for Internet addiction (-0.187, $p = 0.002$) indicates a negative correlation between higher levels of Internet addiction and lower levels of physical activity. On the other hand, a positive influence is indicated by the beta coefficient for sleep quality (0.515, $p = 0.000$), suggesting that increased physical activity is linked to better sleep.

Coefficients^a

Table 4.13

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	42.47	5.98		.7.099	.000
	total Internet Addiction	-.223	.071	-.187	3.131	.002
	total Sleep Quality	.676	.075	.515	9.056	.000

a. Dependent Variable: total Physical Activity

Path Analysis and Mediation test

A path analysis using Causal Step and Product of Coefficient was performed to ascertain the extent of direct and indirect influences. The value of the beta coefficient in the Standardized Coefficient of the regression test findings is used in the causative step as follows:

- Path *a*: regression results of internet addiction (X) and sleep quality (M) ($a = -.495$).
- Path *b*: regression results of sleep quality (M) and physical activity (Y) ($b = 6.11$).
- Path *c* (total effect): the result of regression of internet addiction (X) and physical activity (Y) ($C = -0.341$).

- d. The c'' pathway is called the direct effect or the value of the coefficient of the result of physical activity regression (Y) with internet addiction (X) and sleep quality (M) as predictors. ($c'' = -0.187$).
- e. Coefficient ab (Indirect Effect)

The coefficient ab or indirect effect is the result of the multiplication between the coefficient a and the coefficient b . $ab = -0.495 \times 6.112 = -3.254$.

Based on the results of the description of *the Causal Step* above, the mediation scheme can be determined as shown.

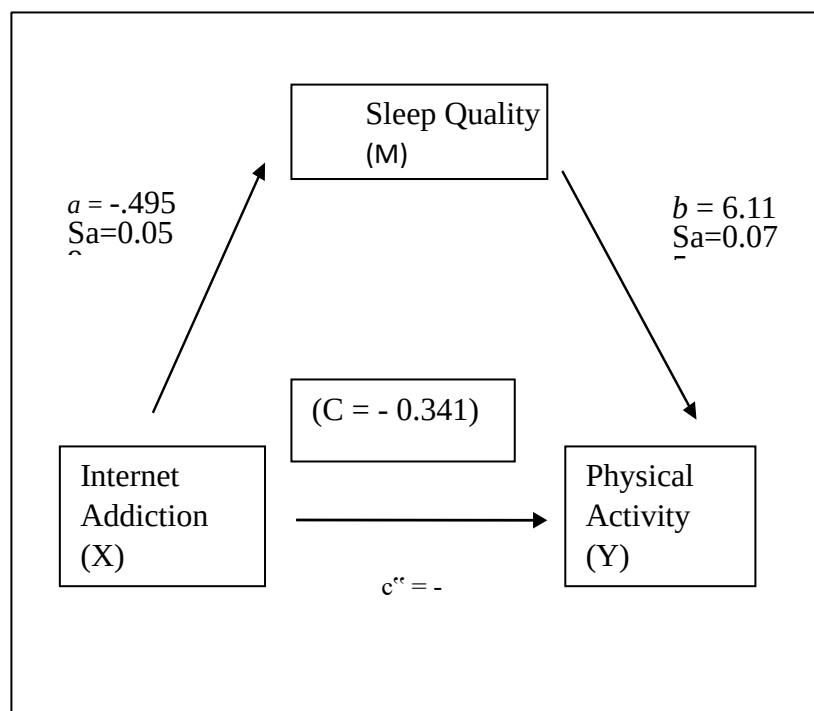


Figure 4.6

Assess the significance of the indirect effect of the link between Internet addiction and physical activity using the Sobel Test on Product of Coefficient. The determined Z-value (-8.34) was bigger in

absolute value than the table's critical value (1.96), according to the Sobel Test results, at a significance level of 0.05. This suggests that the mediator variable has a considerable impact on the link between the independent and dependent variables. These results demonstrate that the mediator variable (sleep quality) has a strong indirect impact on the link between the independent variable (Internet addiction) and the dependent variable (physical activity) (H4 approved).

The fact that the regression procedure has determined that coefficients a and b are significant indicates that there is a mediation process, according to Causal Steps. The most crucial step in establishing mediation, according to David A. Kenny (1986), is for paths a and b to be significant. The mediation model is said to be complete mediation if the c'' pathway is insignificant or has a value of 0. If the path c'' causes the value of the dependent variable coefficient then and significantly, then partial mediation occurs.

The Sobel Test Result				
Input:		Test statistic:	Std. Error:	p-value:
a	-0.495	Sobel test: -8.34569056	0.36239661	0
b	6.11	Aroian test: -8.34506849	0.36242363	0
s _a	0.059	Goodman test: -8.34631278	0.3623696	0
s _b	0.075	Reset all	Calculate	

Figure 4.7

The relationship between the independent variable (internet addiction) and the dependent variable (physical activity) is mediated by the mediator sleep quality variable, as seen in Figure (4.7). It is nevertheless important when the value of the coefficient β physical activity through the mediator variable decreases than the value of the coefficient without going through the mediator variable. This indicates that, with or without the mediator variable (sleep quality), the internet addiction variable affects the physical activity variable. Stated differently, there is a statistically significant indirect link between sleep quality and physical exercise and internet addiction. Students who are addicted to the internet have trouble sleeping, and they are less likely to be physically active.

At a 0.05 significance level, the Z-value of -8.34 is more than the crucial value of ± 1.96 , suggesting that there is very little possibility that this finding would have occurred by chance. As a result, sleep quality has a significant mediating effect, which helps to explain how or why changes in physical activity are associated with internet addiction. According to these results, enhancing students' sleep quality may lessen the detrimental effects of excessive internet use on their habits of physical exercise.

C. DISCUSSION

1. The association between physical activity and internet addiction

These results imply that internet addiction and exercise have a statistically significant relationship. (Accept H1), which demonstrates that Yogyakarta State University students' internet addiction dramatically lowers their physical activity levels. Furthermore, the t-count value (-8.225) is bigger in absolute terms than the necessary t-table value (~ 1.96 at a 95% confidence level), and the p-value (0.000) is smaller than 0.050. Research indicates that Internet addiction leads individuals to become more sedentary as they spend more time online rather than exercising. Higher levels of physical activity are associated with a lower risk of Internet addiction, according to research by Sun et al. (2025), which demonstrated a substantial negative association between college students' levels of physical activity and Internet addiction. This is in line with the understanding that exercise improves mental and emotional well-being, which reduces the allure of addictive behaviors like excessive Internet use.

Similar conclusions were drawn by Alshehri and Mohamed's (2019) study on the connection between electronic gaming and physical activity, which discovered that playing more video games has a detrimental impact on engaging in physical exercise. This claim emphasizes a typical pathway through which addiction, especially to

screen-based activities, reduces possibilities for physical activity, hence strengthening the negative correlate you have seen. Investigated the connection between Internet addiction and depressive symptoms, emphasizing that people who are not physically active are more prone to get addicted to the Internet and experience the associated psychological discomfort (Demenech et al., 2023). Their results support the idea that exercise is important for fostering mental health in addition to acting as a preventative measure against addictive behaviors. This connection highlights the ways in which inactivity increases the risk of developing depressive symptoms and leads to Internet addiction.

This viewpoint highlights how physical activity might operate as a moderating factor, lessening the detrimental effects of Internet addiction on overall psychological and physical health (Lin et al., 2020). The ability of physical activity to reduce the detrimental health effects of Internet addiction highlights how important it is to have an active lifestyle, particularly for vulnerable populations like students.

2.The association between Internet addiction and the quality of sleep

Since the absolute value of the t-value is substantially greater than the crucial t-value, which is typically 1.96 at a 95% confidence level, the outcome is statistically significant. The t-value for

significance is -7.86. The p-value (0.000) is less than 0.05, confirming that the result is highly statistically significant (H2 is accepted).

This implies that internet addiction significantly impairs the quality of sleep. Results indicate a strong negative relationship between internet addiction and lower-quality sleep, indicating that excessive internet use, especially in the evening, throws off circadian rhythms and eventually shortens the amount of time and quality of sleep. In conformity with previous research highlighting the negative impact of late-night internet use on sleep patterns, Arayici et al. (2025) discovered a significant association ($r = 0.593$; $p < 0.001$) between internet addiction and declining sleep quality. Additionally, research specifically on college students indicates that poor sleep quality is associated with a number of elements of internet addiction, including excessive use and disregard of offline social interactions. Lin et al. (2019) further supported the notion that the detrimental effects of internet use go beyond simple distraction and significantly affect restorative sleep by identifying several online addiction symptom patterns that impair female students' sleep quality. In a similar vein,

Hammad et al. (2024) found that changes in sleep patterns could account for a significant amount of the variance in internet addiction, even after controlling for demographic and lifestyle factors like living conditions and smoking, highlighting the constant correlation between

these variables. These findings are also supported by research conducted in a variety of contexts, such as Saudi Arabian medical students and college students who experienced higher internet usage during the pandemic. These studies show that increased screen time results in noticeably worse sleep outcomes, which include shorter sleep duration and more dysfunction during the day (Nagori et al., 2019; Kumar et al., 2022).

These claims are further supported by lots of evidence from worldwide studies. For instance, a statistically significant correlation between internet addiction and poor sleep quality was found among Nepalese teenagers, which is consistent with data from Taiwanese and Turkish populations (Karki et al., 2021). The claim that internet addiction reliably predicts declines in sleep quality across cultural contexts is further supported by a meta-analysis of multiple studies that shows the associations hold true across demographic factors and different forms of internet use (Acharya et al., 2025).

3.The association between physical activity and sleep quality.

The t-value (8.34) is used to test the significance of the beta coefficient. The positive and substantial t-value validates the statistical significance of the association between physical activity and sleep quality. Furthermore, because the p-value (0.000) is less than 0.05, the result can be regarded as statistically significant. Since the p-value is

0.000 and shows a significant positive correlation between physical activity and sleep quality, accept H3. Alime et al. (2024) discovered that more physical activity can help avoid sleep disturbances, emphasizing its importance in improving both physical and mental health, especially as people age. This supports the findings of Byun et al. (2024), who found that consistent exercise greatly enhances sleep metrics without having any discernible negative effects. Acute physical activity has also been demonstrated to positively affect deep sleep, rapid eye movement (REM) sleep, and total sleep duration—all of which are critical components of high-quality sleep (Wunsch et al., 2017). The proven thermogenic benefits of physical activity, which enhance metabolic health, provide additional evidence for the molecular mechanisms underpinning the relationship between these two variables (Master et al., 2019).

These results are corroborated by meta-analyses, which demonstrate that exercise is a successful non-pharmacological treatment for sleep issues. Research shows that even moderate-intensity exercise significantly improves sleep quality metrics including total sleep time and sleep onset delay (Oudjedi et al., 2022). This methodical approach emphasizes how the relationship is reciprocal; better sleep can increase one's ability and drive to engage in physical exercise, resulting in a positive feedback loop of health advantages (Gothe et al., 2019).

The universality of this association is emphasized by studies conducted on different demographic groups. Research conducted on college students shows a strong correlation between physical activity levels and sleep quality, indicating that physical exercise is necessary for the best possible health outcomes (Santos et al., 2023). A possible dose-response connection influenced by age is also suggested by studies on older persons, which shows that exercise interventions result in higher improvements in sleep quality over time as compared to younger age groups (Wang & Boros, 2019; OSUNDIYA et al., 2021).

This established association is further reinforced by statistical analyses. According to studies, individuals who report being more physically active typically have greater overall sleep efficiency and fewer sleep problems. According to Gilbert et al. (2018), there is a bidirectional association since those who are physically active not only have better sleep, but they are also more inclined to be physically active. These findings emphasize how important it is to incorporate physical activity into therapy, and they are especially relevant in clinical settings where treating both sleep and physical exercise can improve quality of life.

Given worldwide disruptions like the COVID-19 pandemic, environmental and situational elements that impact physical activity levels are crucial to take into account. During this time, studies showed

that sleep quality was negatively impacted by decreased physical activity, highlighting the connection between lifestyle decisions and the effects on mental health (Diniz et al., 2020). This highlights the need of regular physical activity as a preventative measure against sleep disturbances.

4.The association between Internet addiction and physical activity mediated by sleep quality.

Through sleep quality, there is a statistically significant indirect link between internet addiction and physical activity. Students who are addicted to the internet have trouble sleeping, and they are less likely to be physically active. At a significance threshold of 0.05, the Z-value of -8.34 is more than the crucial value of ± 1.96 . As a result, sleep quality has a significant mediating effect, which helps to explain how or why changes in physical activity are associated with internet addiction. According to these results, enhancing students' sleep quality may lessen the detrimental effects of excessive internet use on their habits of physical exercise. Research on the mechanisms underlying the relationship between physical activity and sleep quality suggests that improvements in sleep quality may boost the energy and motivation required to engage in physical activities.

According to Byun et al. (2024), physical activity significantly improves sleep quality, and those who sleep better are more likely to be physically active. This bidirectionality highlights how crucial sleep is as a mediator, suggesting that getting more sleep can mitigate the detrimental effects of internet addiction on exercise engagement. Furthermore, research demonstrates that both insufficient physical exercise and poor sleep quality independently affect overall quality of life, which lends credence to this mediating role (Gothe et al., 2019). Since effective treatments aimed at enhancing sleep quality can lead to higher levels of physical activity as well as improved general health outcomes, they make it clear that sleep quality plays a significant role in the link between physical activity and internet addiction.

It has been demonstrated that internet addiction negatively affects sleep, which in turn may affect physical activity levels. Elements of internet addiction significantly predict subjective sleep quality, and sleep problems affect daytime functional performance, including physical activity. Research specifically shows that individuals with high levels of internet addiction have sleep problems that impact their willingness and capacity to exercise regularly, suggesting that the association between levels of physical activity and internet addiction is mediated by the quality of sleep (Kashfi et al., 2023; Bhandari et al., 2017).

Further evidence for this link comes from research that link internet addiction to poor sleep, which in turn affects physical activity (Chen & Gau, 2016). According to their longitudinal studies, internet addicts typically experienced more sleep deprivation, which further decreased their propensity to engage in physical activity. This pattern is in keeping with studies by Tran et al. (2023), which discovered that internet-dependent high school students had significantly lower sleep quality scores, which in turn reduced their propensity for physical activity.

Additionally, a study by Alime et al. (2023) demonstrates that people who frequently exercise had a significantly lower likelihood of experiencing poor sleep quality, supporting the correlations. This link lays the groundwork for understanding how therapies that encourage physical activity can improve sleep quality and lessen the negative impacts of internet addiction. Furthermore, more proof of this mediating impact is provided by Zhao and Kou (2024). Their research on college students showed that internet addiction had a negative effect on sleep, which in turn affected physical activity levels. They discovered that sleep quality decreased with increasing addiction to short videos, a type of internet use, which is consistent with your findings about the mediating effect of sleep quality.

Ultimately, it's critical to keep in mind that while prior research has supported the notion that sleep quality mediates the relationship between internet addiction and physical activity, the results vary due to factors such as demographic variations, definitions of physical activity, and the use of various measurement tools to assess the relationship. These variations highlight the need for more extensive, well-structured longitudinal studies to elucidate these relationships and support the idea that sleep quality serves as a mediating factor.

CHAPTER V

CONCLUSION AND SUGGESTIONS

A. CONCLUSION

In conclusion, the results of this study provide clear evidence of the connections between Yogyakarta State University students' internet addiction, sleep patterns, different degrees of physical activity. Notably, the study shows that sleep quality acts as a mediator in the relationship between internet addiction and physical activity. Students with better sleep can lessen the negative impacts of internet addiction on levels of physical activity, whereas those with poor sleep, which is exacerbated by excessive internet use, are less likely to be physically active. These results highlight how crucial it is to implement integrated interventions that focus on digital wellness and sleep hygiene in order to promote healthier behavioral patterns and improve students' general wellbeing.

- i. First, students who use the internet more frequently tend to be less active, according to the investigation, research discovered a strong and statistically significant inverse relationship between physical activity and internet addiction, which demonstrates how internet addiction dramatically lowers Yogyakarta State University students' levels of physical exercise. Furthermore, the t-count value (-8.225) is bigger in absolute terms than the necessary t-table value (~1.96 at a 95% confidence level), and the p-value (0.000) is less than 0.05.
- ii. Internet addiction and sleep quality are negatively correlated. Since the absolute value of the t-value is substantially greater than the crucial t-value,

which is typically 1.96 at a 95% confidence level, the outcome is statistically significant. The t-value for significance is -7.86. The fact that the p-value (0.000) is less than 0.05 confirms that the result is highly statistically significant.

- iii. The statistically significant finding shows a strong positive correlation between sleep quality and physical activity. The t-value (8.34) is used to test the significance of the beta coefficient. The positive and substantial t-value validates the statistical significance of the association between physical activity and sleep quality. Furthermore, because the p-value (0.000) is less than 0.05, the result can be regarded as statistically significant.
- iv. iv. Through sleep quality, there is a statistically significant indirect link between internet addiction and physical activity. Students who are addicted to the internet have trouble sleeping, and they are less likely to be physically active. At a 0.05 significance level, the Z-value of -8.34 is more than the crucial value of ± 1.96 . As a result, sleep quality has a significant mediating effect, which helps to explain how or why changes in physical activity are associated with internet addiction.

B. SUGGESTIONS

1. To implement into practice integrated programs that emphasize sleep hygiene and digital wellbeing in order to encourage better behavior.
2. Create fitness challenges, peer-led sports groups, or group activities to promote engagement and cut down on screen time.

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Appendix

Research Questionnaires

Respondent Information:

Name :

Age :

Gender :

Class :

Young Diagnostic Questionnaire Items

No	Indicators	Items
1	Preoccupation	Do you feel preoccupied with the Internet (thinking about previous online activities or anticipating the next session)?
2	Increased Use	Do you feel the need to use the Internet for increasing amounts of time to achieve satisfaction?
3	Unsuccessful Control	Have you made repeated unsuccessful efforts to control, cut back, or stop your Internet use?
4	Withdrawal Symptoms	Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
5	Extended Use	Do you stay online longer than you originally

		intended?
6	Risking Relationships	Have you jeopardized or risked losing a significant relationship, job, educational opportunity, or career because of the Internet?
7	Lying About Use	Have you lied to family members, therapists, or others to conceal the extent of your involvement with the Internet?
8	Escapism	Do you use the Internet as a way of escaping from problems or relieving a dysphoric mood (such as feelings of helplessness, guilt, anxiety, or depression)?

Physical Activity Questionnaire

No	Indicators	Items
1	Vigorous Physical Activities	1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling? _____ days per week ☐ No vigorous physical activities 2. How much time did you usually spend doing vigorous physical activities on one of those days?

		_____ hours per day _____ minutes per day ☐ Don't know/Not sure
2	Moderate Physical Activities	1. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking. _____ days per week ☐ No walking → Skip to question 5 2. How much time did you usually spend doing moderate physical activities on one of those days? _____ hours per day _____ minutes per day ☐ Don't know/Not sure
3	Walking Physical Activities	1. During the last 7 days, on how many days did you walk for at least 10 minutes at a time? _____ days per week

		☐ No walking → Skip to question 7 2.How much time did you usually spend walking on one of those days? _____ hours per day _____ minutes per day ☐ Don't know/Not sure
4	Spend on Sitting	1.During the last 7 days, how much time did you spend sitting on a weekday? _____ hours per day _____ minutes per day ☐ Don't know/Not sure

Pittsburgh Sleep Quality Index Questionnaire

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month.

No	Indicators	Items
1	Subjective Sleep Quality	1.During the past month, how would you rate your sleep quality overall? Very good b. Fairly good c. Fairly bad d. Very bad
2	Sleep Latency	1.During the past month, how long (in minutes) has it usually taken you to fall asleep each night? NUMBER OF MINUTES_____ 2.During the past month, how often have you had trouble sleeping because you... (Cannot get to sleep within 30 minutes). Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
3	Sleep Duration	1.During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spend in bed.) HOURS OF SLEEP PER NIGHT_____
4	Habitual Sleep Efficiency	1.During the past month, how many hours of actual sleep did you get at night? (This may be different

		than the number of hours you spend in bed.) HOURS OF SLEEP PER NIGHT_____ 2.During the past month, when have you usually gotten up in the morning? USUAL GETTING UP TIME_____ 3.During the past month, when have you usually gone to bed at night? USUAL BEDTIME_____
5	Sleep Disturbances	During the past month, how often have you had trouble sleeping because you... 1.Wake up in the middle of the night or early morning Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 2.Have to get up to use the bathroom Not during the Less than past month Less than once a week Once or twice a week Three or more times a week

		3. Cannot breathe comfortably Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 4. Cough or snore loudly Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 5. Feel too cold Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 6. Feel too hot Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 7. Had bad dreams Not during the Less than past month
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		Less than once a week Once or twice a week Three or more times a week 8 Have pain Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 9. How often during the past month have you had trouble sleeping because of this? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
6	Use of Sleeping Medication	1. During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
7	Daytime Dysfunction	1. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

		Not during the Less than past month Less than once a week Once or twice a week Three or more times a week 2. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done? a. No problem at all b. Only a very slight problem c. Somewhat of a problem d. A very big problem 3. During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? Not during the Less than past month Less than once a week Once or twice a week Three or more times a week
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No	Name	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	C 1	C 2	C 3	C 4	C 5	C 6	C 7	PA 1	PA2	PA 3	PA 4	PA 5	PA6
1	Eka	1	1	1	1	1	0	1	1	3	3	2	3	1	0	2	1	4	5	3	7	3
2	Muhammad Raif Mus1ffa	0	0	0	0	0	0	0	0	1	3	0	3	1	0	0	4	120	5	12 0	4	60
3	Hafidz Nauval Makarim	0	0	1	0	0	0	0	0	1	1	3	0	0	0	0	4	90	3	45	0	0
4	Charindra Ali1 Maharani	0	1	1	0	1	0	0	1	1	1	0	0	2	0	0	4	90	3	60	1	60
5	Rizqi As'Ad Bintang Sampurna	0	0	1	0	0	0	0	0	0	3	0	3	1	0	0	5	360	1	18 0	0	60
6	Cristian agung dodok	0	1	0	0	1	1	1	1	0	1	0	0	2	2	1	1	120	2	13 5	1	70
7	Farel Rezy Rasendria	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4	4	2	2	0	0
8	Salma Salsabilla	1	0	1	0	0	0	0	0	1	3	0	3	3	3	0	0	120	4	36 0	3	60
9	M. Satrian Andika Yuliswara	0	0	1	0	1	0	0	1	1	1	2	0	1	0	1	2	90	3	30 0	7	10
10	Dina Rahmania	1	1	1	0	1	0	1	1	3	2	3	0	3	3	3	4	120	3	90	2	20
11	NASWA KHOIRUNNISA	0	0	1	0	1	1	0	1	3	3	2	3	1	0	2	2	90	4	90	4	30
12	ELFRIDA KYNTHIA JANITRA	1	1	0	0	1	0	0	0	2	3	2	3	3	0	3	2	60	5	60	7	30
13	Andhika Tri Wija1nto	1	0	0	0	1	0	0	0	1	2	1	3	0	0	0	2	120	5	60	0	90
14	Muhammad Alfarezi Insan S	1	0	1	0	1	0	0	0	0	2	2	3	1	1	2	3	180	4	18 0	2	60
15	Alethea Wahyu M.	1	0	1	0	1	0	0	1	1	0	2	0	1	0	1	2	60	3	30	1	10
16	Faiz	1	1	1	0	1	0	1	1	2	1	2	0	1	0	2	0	300	1	12 0	4	0
17	Septia Nugraheni	1	1	0	0	1	0	0	0	3	3	3	1	2	0	2	1	90	2	90	1	30
18	Muhammad Rafi Pratama	1	1	1	1	1	1	1	1	2	2	3	0	2	0	2	2	120	3	18 0	7	120

19	Yosafat Charlie Hutabarat	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	5	90	5	40	7	30
20	Pipit	0	0	1	0	1	0	0	0	2	2	2	0	2	0	2	2	90	3	25 0	2	10
21	MAULANA AGIL NAFISHA	1	0	0	0	0	0	0	0	1	2	2	3	1	0	1	5	250	2	90	4	30
22	Abri1no Nabil Kusuma	1	0	0	0	1	0	0	0	1	2	0	3	1	0	0	5	60	5	40	7	300
23	Shauma aulia mustika kerti	1	1	1	0	1	0	0	1	2	2	0	0	1	0	0	2	90	2	90	7	30
24	Damian Gesit Adit1 Nala	1	1	1	0	0	0	0	0	1	1	0	0	2	1	2	5	60	4	90	0	0
25	Ardhika Rizqi Karunia Putra	1	0	1	0	0	1	0	1	1	2	2	3	1	0	1	0	130	0	12 0	0	120
26	Arifan Affandi Lutfi	0	0	1	0	1	0	0	1	2	1	1	0	1	0	1	3	130	2	90	1	30
27	Alisha Mirza Santosa	1	0	1	0	1	0	0	1	1	2	0	3	2	0	0	3	60	2	20 0	5	45
28	AFIFAH NUR	1	1	1	0	1	0	0	1	1	3	3	3	1	0	0	0	0	2	25 0	0	0
29	RAVAELLE KHAECAR VINNANTO	1	1	1	1	1	1	1	1	0	3	0	3	3	0	0	7	120	7	12 0	7	30
30	abdullah fadly dzul qornain	0	0	1	0	0	0	0	0	0	2	0	3	1	0	0	3	180	2	12 0	2	30
31	Nabila Rizki Pradipta	1	1	0	0	0	0	0	1	2	3	2	3	2	0	2	2	30	2	15	0	0
32	S1khrull annam	1	1	1	0	1	0	0	1	0	1	0	0	1	0	0	3	60	3	80	3	60
33	Athillah Amar Pratama	0	1	0	0	0	0	1	1	2	2	3	0	1	0	0	3	120	3	60	0	10
34	Muhammad Harda Isafandi	1	1	1	0	1	0	0	1	0	1	1	0	1	2	1	1	7	1	42 0	1	5
35	Yusnia Anastas1 Lailla Jenny	1	1	0	0	1	0	0	0	1	2	3	3	1	1	1	1	60	1	20	0	0
36	Fahrezi Daffa Kristiano	0	1	0	0	0	0	0	1	1	3	0	3	1	0	1	3	150	1	60	1	5
37	Adit1 Ahmad Prayogo	0	0	0	0	0	0	0	0	2	3	3	3	2	0	0	3	60	2	30	5	60
38	Ananta Alfahreva Hida1nto	0	0	1	0	0	0	0	0	1	2	2	3	1	0	0	3	135	2	13 5	2	90

39	Affan Aji Wija1	1	0	0	0	0	0	0	1	1	2	1	3	1	1	0	2	1	4	60	2	30
40	vikri ale1sin sinambela	1	0	1	0	1	1	0	1	2	3	1	3	1	0	1	2	120	3	60	0	60
41	Naufal Mahesa Nurukhman	1	1	1	1	1	0	0	1	3	3	2	3	2	0	2	0	40	0	65	0	30
42	Farell DanuAji S1hputra	1	1	1	0	1	0	0	0	1	1	0	0	2	1	1	0	60	0	60	0	0
43	daffa faalih ananta	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	90	0	90	0	90
44	Aryo Ihsan Pradipta	1	1	0	0	0	0	0	0	1	2	2	3	1	0	0	2	30	3	30	1	30
45	Reva Brian Setiawan	0	0	1	0	1	1	0	1	1	2	0	3	2	2	1	4	180	4	120	5	120
46	A. Zuhruddin Hadi Saputra	0	1	1	0	0	0	0	1	0	0	2	0	1	0	0	5	150	6	120	7	60
47	Ataka Levi Liandono	1	0	1	1	1	1	1	1	2	2	0	0	2	1	1	7	150	7	150	7	150
48	Ahmad Zidane	1	0	1	0	1	0	0	1	2	1	3	0	1	0	1	0	0	0	0	0	0
49	Ananda Putri Widiati	1	0	1	0	1	1	0	1	1	2	2	0	1	0	1	0	0	0	3	10	
50	Hikmal Maulana	1	0	1	0	0	0	0	0	1	2	3	3	1	0	1	3	120	3	120	7	40
51	Galih Januar Wira Wicaksana	1	0	1	0	0	1	0	0	1	3	2	3	1	0	1	5	50	3	15	5	30
52	Muhammad Ihsan Maolani	0	1	1	0	1	0	1	0	1	3	2	3	2	0	1	4	1	2	2	4	1
53	Ahmad Hakan	1	1	1	0	1	0	0	1	2	2	0	0	1	0	1	3	1	3	1	3	1
54	Wandagulo	1	1	1	1	0	0	1	0	0	0	2	0	1	0	0	0	60	4	60	2	2
55	MUHAMMAD RIZKI	0	1	1	1	1	0	1	1	1	0	2	0	2	0	1	3	180	3	180	2	0
56	alvonsius rivaldy manik	0	1	1	0	0	1	1	0	1	1	0	0	1	0	0	5	595	1	330	7	70
57	082161306851	0	0	0	0	0	0	0	0	1	3	1	3	1	0	1	0	0	2	120	0	0
58	Yoel Gomagel	1	0	1	1	1	0	1	1	1	1	0	0	2	0	1	7	120	7	150	4	70

59	M. Ar1 Sajid Zein	1	0	1	0	1	1	0	0	0	1	3	0	1	1	1	5	270	3	15 0	1	90
60	Wahyullah	1	0	1	0	1	0	0	1	2	1	2	0	1	0	1	2	90	2	60	5	20
61	Kevin Gracio Zalukhu	0	1	1	0	0	0	0	1	2	3	3	1	2	0	1	0	120	2	70	7	330
62	Ari1nto	1	1	1	0	1	1	1	1	1	2	0	3	2	0	1	5	300	5	60	2	60
63	Ahmad Fauzan	0	1	1	0	0	0	0	0	1	1	0	0	1	0	0	3	120	3	60	1	15
64	Nazwa Amalia	1	0	0	0	1	0	0	1	1	1	2	0	2	0	2	0	180	0	90	3	45
65	MIKAEL TARIGAN	0	0	1	0	0	0	0	0	1	3	2	3	2	0	1	3	40	4	15 0	7	180
66	Halimah	1	1	1	0	1	0	0	1	2	3	2	3	2	0	1	0	60	3	60	4	60
67	Hajjan Mabruron Nugroho	1	1	0	0	1	0	0	0	2	1	2	0	2	0	1	4	90	2	90	2	30
68	Muhammad Dafa Putra Pratama	1	1	1	0	1	1	0	0	1	2	2	3	1	0	1	5	90	2	30	7	180
69	Rafael risman barus	1	0	0	1	0	0	0	0	2	1	3	0	1	0	2	3	180	2	12 0	2	120
70	Muhammad hady al mukhtar	0	0	1	1	1	0	0	0	1	2	0	0	1	0	0	2	120	0	12 0	7	60
71	Roy Astoni Siahaan	0	1	0	0	1	0	1	1	1	0	1	0	2	0	1	0	40	0	75	2	345
72	Devan Ginting	1	1	0	0	0	0	1	0	1	1	0	0	2	0	0	4	60	4	24	7	### #
73	HENRY KEVIN KASIH LOMBU	1	0	1	0	0	0	0	0	2	2	1	3	1	0	0	5	60	5	12 0	5	10
74	Mantra Chepy Damanik	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	4	120	4	30 0	4	300
75	YOGI GONJALES SIREGAR	0	0	1	0	1	0	1	1	0	1	0	0	1	0	1	3	40	4	60 5	7	62
76	Bastian pratama lumban gaol	1	1	1	0	1	0	0	0	1	2	0	0	2	0	0	7	60	6	60	2	10
77	Genhart yerikho pospos	1	0	1	0	0	0	1	1	2	0	2	0	1	0	0	0	120	0	90	0	90
78	M.ferdi1ns1h	0	1	0	1	1	1	1	1	2	1	0	0	2	2	1	1	120	3	30	3	30

79	ISVA YUDI	1	1	1	0	1	1	1	1	2	3	1	1	1	0	1	4	90	3	90	2	30
80	Natas1 Khaili1ni	0	1	1	0	0	0	1	0	2	2	0	0	2	2	1	2	90	0	18 0	0	65
81	RIDCARD HAMONANGAN SIHOMBING	0	0	0	0	0	0	0	1	1	2	0	3	1	0	0	0	60	7	12 0	0	20
82	Anni lastio manik	0	0	1	0	1	0	0	1	1	1	1	0	2	1	2	5	90	2	30	0	15
83	Doni Setiari	0	0	0	1	1	1	0	0	1	0	3	0	2	0	0	5	180	2	18 0	7	0
84	Mustrismas Zega	1	1	1	1	0	1	0	0	2	3	3	3	2	0	2	0	0	0	0	2	5
85	Ebenezer Tarigan	1	1	1	1	1	1	0	0	1	1	0	0	2	0	0	2	60	1	60	7	120
86	FRANS SISKUS GEA	1	1	1	1	1	1	1	1	1	2	1	0	2	0	1	1	30	1	30	7	15
87	Cindi enjelia gulo	0	1	0	0	1	0	1	1	1	1	2	0	2	0	1	3	135	1	90	1	20
88	Anugrah panca Dinata	1	0	0	0	0	0	1	0	2	1	0	0	1	0	0	3	180	3	60	7	120
89	AGUS DARMA WIJA1	0	0	1	1	1	1	0	0	1	1	3	0	1	0	0	3	1	2	60	5	15
90	KRISMAN BOY GULO	0	1	1	1	1	0	1	1	1	3	2	3	1	0	1	2	70	2	18 0	6	75
91	Nayna Firoza	1	1	1	0	1	0	0	1	2	2	0	0	2	0	1	3	120	5	12 0	7	30
92	AFRILLIA	0	1	1	1	0	1	0	1	3	2	2	0	2	0	2	0	90	1	0	7	10
93	Sintia Sopi Engelina Sihite	1	0	1	0	1	0	0	0	3	3	2	3	2	0	3	0	30	7	90	7	60
94	EKA SELVIA TAMPUBOLON	1	1	1	0	0	1	0	0	1	2	0	3	2	0	2	3	60	7	90	7	150
95	Steven Siburian	1	0	1	0	0	0	0	1	1	3	0	3	1	0	1	2	180	2	12 0	5	15
96	Lia Irmawati	1	0	0	0	0	0	0	1	0	2	1	3	1	0	1	5	120	6	60	7	60
97	Diego Gunawan Girsang	1	1	1	0	1	0	0	0	1	2	1	0	2	0	2	3	60	1	60	0	30
98	Rahmad Sentosa Waruwu	0	1	0	0	1	0	0	0	1	3	1	3	1	0	1	0	5	2	30	7	15
99	CARLIN SEPAKAT ELI GULO	1	0	1	1	1	1	1	1	1	1	0	0	2	0	2	1	40	2	70	3	120

100	FIRMAN HAKIM	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	90	0	60	0	30
101	Intan permata Sari br Saragih	0	0	1	0	0	1	0	1	1	1	0	0	2	1	1	7	120	7	120	7	300
102	FAJAR ZEGA	1	1	1	0	1	1	1	1	2	2	3	0	2	2	2	2	180	4	180	3	60
103	Fayza Asyiva Zuhra	1	1	1	0	1	0	0	1	2	2	0	3	2	0	1	1	90	1	80	0	180
104	Reymond Benedith Hutajulu	1	1	1	1	0	0	0	1	1	2	0	0	3	0	1	3	60	5	240	7	120
105	DELLA SRI TRINITA SINAGA	0	0	1	0	0	0	0	1	2	0	0	0	1	1	0	0	60	0	60	7	120
106	Meria Zega	1	1	1	0	0	0	1	1	0	2	1	0	2	1	2	2	120	6	300	7	120
107	ALIF ALBUKHORI	1	0	1	1	0	0	0	1	1	1	0	0	1	0	2	4	75	6	65	5	37
108	SHAKILLA AYU NATAS1 HSB	1	0	1	0	0	0	0	1	1	0	0	0	1	1	2	4	75	6	120	6	15
109	FATHIR SUHADA	1	1	1	1	1	0	0	1	1	1	2	0	2	1	2	1	120	3	330	0	5
110	BOY FREND LAIA	1	1	1	0	1	0	0	1	1	0	1	0	1	0	2	2	60	1	120	7	30
111	Nuraini	0	0	1	0	1	0	0	1	2	2	2	0	2	1	0	5	240	1	300	7	60
112	Brema pehulisa pandia	0	0	0	0	1	0	1	0	0	2	1	3	1	0	0	5	45	3	45	5	15
113	Alfrindo Sinaga	0	1	1	0	0	1	1	0	2	1	0	0	1	0	0	2	120	2	120	2	0
114	Diva fitria Rahma	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	2	90	1	90	5	5
115	Annisa putri	1	1	0	1	0	0	1	0	1	1	0	0	1	0	0	2	90	1	90	5	5
116	M. RAFLY LUBIS	0	1	0	0	0	0	0	1	1	0	1	0	2	0	1	2	27	4	60	3	90
117	ANDI SIRANTA BANGUN	1	1	1	0	0	0	0	0	1	1	1	0	1	0	0	3	2	3	1	0	0
118	Farhan yudhistira	0	1	1	0	0	0	0	1	1	2	1	0	1	0	2	5	0:00	5	60	6	60
119	Aqila Azura	0	0	1	1	0	1	1	0	2	2	0	0	2	1	0	3	120	2	12	1	90

																						0
120	Adhit1 Putra Susanto	1	1	0	0	0	0	0	1	0	0	1	0	1	0	1	0	180	2	90	1	30
121	LUIS CRISTIAN TAMBUNAN	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	60	0	60	0	150
122	M hafiz ismail	0	0	1	0	0	0	0	1	0	1	3	0	1	0	2	5	120	3	120	7	30
123	Muhammad Ikhsan Alfi	0	1	1	0	1	1	0	1	1	2	0	1	2	1	1	5	120	5	120	7	60
124	Fara dilla	0	0	1	1	1	1	1	1	1	1	0	0	2	0	2	5	180	4	240	3	20
125	bulan oktapia manalu	1	1	0	0	1	0	0	1	2	3	1	3	2	0	1	3	120	2	120	2	70
126	Sri Wahyu Mendrofa	1	1	1	0	1	0	1	1	1	1	0	0	2	0	1	2	120	1	120	7	10
127	RAFLI IKLANS1H	0	1	0	1	1	0	0	1	3	2	1	0	3	0	2	5	180	3	60	3	60
128	Miftha Aulia Lubis	0	1	0	0	0	0	1	1	2	2	0	0	1	0	0	3	150	2	60	0	10
129	FAUZAN KHAIRUL SHOLEH	0	0	1	0	0	0	1	0	1	2	0	3	0	0	1	3	0	7	0	3	0
130	Muhammad Fadhel S1hputra	1	0	1	0	1	0	1	1	1	2	0	3	1	0	1	3	120	4	240	0	5
131	Pius populer putra daeli	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	120	4	120	3	120
132	Ica S1harani	1	1	1	0	0	0	0	1	1	3	0	3	2	0	1	1	70	1	80	2	63
133	Naifi Zazk1 Sabrina	0	0	1	1	1	0	0	1	2	2	3	0	2	0	2	2	180	3	72	1	30
134	MAHDA AL KANDA1	1	0	1	0	0	0	1	1	1	2	0	3	1	0	1	4	120	5	90	7	320
135	WIDI 1RNI NAZARA	1	1	1	1	1	1	1	1	1	2	3	0	2	1	2	3	120	3	60	2	60
136	Satria agus situmorang	1	1	1	1	1	1	0	1	0	0	1	0	0	0	1	5	120	4	180	0	20
137	Sabarta ginting	0	1	0	1	0	0	0	1	1	2	0	3	1	0	0	5	480	5	300	3	120
138	Egi wiranata sembiring	0	1	1	0	0	1	1	1	0	2	0	3	2	0	1	0	360	7	6	7	5

139	TALENTA SIBARANI	1	0	1	0	1	1	0	1	2	1	0	0	2	3	1	5	120	3	90	7	10
140	Jenas pardomuan sihotang	1	1	1	1	1	1	0	1	2	1	0	0	1	0	1	4	120	4	120	4	90
141	DESNOR STEVEN WARUWU	1	1	1	1	1	0	1	1	2	2	2	0	2	0	3	2	90	5	190	6	120
142	Abdullah	1	0	0	0	0	0	0	0	1	3	3	3	1	0	1	3	0	3	30	6	10
143	mhd alwi rasyid	1	1	1	0	0	0	0	0	0	1	3	0	2	0	0	5	2	7	23	3	0
144	RIZKY FERNANDA	0	0	1	1	1	0	1	1	1	1	3	0	1	0	1	0	120	0	60	0	30
145	Daiva Wira Budipratama	1	1	0	0	1	0	0	1	1	1	1	0	2	0	1	7	40	7	30	7	60
146	Arvin suhendra	1	0	0	0	0	0	0	0	1	2	1	1	1	0	1	5	520	5	520	7	60
147	Yurmelia Gulo	1	0	1	1	1	1	1	1	2	1	3	0	1	0	2	4	60	5	60	4	0
148	Lili risma yuliana	1	1	1	1	1	0	1	1	0	2	0	3	1	0	1	2	90	7	90	7	130
149	SAMSUL BAHARI SIMANULLANG	1	0	1	1	0	0	1	0	0	1	0	0	1	0	1	2	120	2	120	2	15
150	Dimas Sugiarto	1	1	1	0	0	1	1	1	1	3	1	3	2	0	2	5	120	3	90	0	0
151	FIBRIANUS GULO	1	1	1	1	1	0	0	1	1	1	0	0	1	0	0	0	90	2	60	7	150
152	Muhammad fahman alwi	1	0	1	0	0	1	0	0	1	1	2	0	2	0	1	2	210	3	80	5	200
153	Veby yona br sembiring	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	90	3	90	3	60
154	Marsella Br Tarigan	1	0	1	0	1	0	0	1	1	3	3	3	2	0	2	0	180	3	30	6	20
155	JOAN SAMUEL SITOANG	0	1	0	1	0	0	0	0	1	1	0	1	2	2	1	0	130	3	90	3	90
156	Erdiawan Harefa 7	0	0	1	0	0	0	0	1	1	1	0	0	2	0	1	2	90	0	60	5	15
157	FAHJRI S1HRUL	1	0	1	0	1	0	1	0	1	1	0	0	2	0	3	3	60	3	60	3	10
158	M.ZAKA GAMARA GINTING	1	0	1	0	0	0	0	0	1	1	2	0	1	0	0	2	120	2	120	0	0
159	M.ZAKA GAMARA GINTING	0	0	1	0	0	0	0	0	1	1	2	0	1	0	0	2	120	2	2	0	0
160	Laila Febri	1	0	1	0	0	0	0	1	2	2	0	0	2	0	1	1	90	1	90	4	30

161	Ananta Alfahreva Hida1nto	0	0	0	0	0	0	0	0	1	2	1	3	0	0	0	2	130	3	80	2	60
162	Handhika AMalento	1	1	0	0	1	0	0	0	1	2	1	0	1	0	0	3	90	3	30	0	0
163	Damian Gesit Adit1 Nala	1	1	1	0	1	1	1	0	1	1	0	0	2	0	1	4	60	4	90	3	30
164	Cristian Agung Dodok	1	0	1	1	1	1	1	1	0	1	0	0	1	2	0	2	120	2	60	3	60
165	Yusnia anastas1 lailla jenny	1	0	1	0	1	0	0	1	2	1	2	0	1	0	3	3	1	2	1	6	30
166	Muhammad Harda Isafandi	0	0	1	0	0	1	0	1	1	1	0	0	1	1	1	4	480	4	30 0	7	240
167	R1d Faiz	0	0	0	0	0	1	0	0	1	2	2	0	1	0	0	4	45	4	15	5	8
168	Rizqi As'Ad Bintang Sampurna	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	7	250	2	15 0	7	2
169	Muhammad Rizqey Ar1 Sutans1ch	1	1	1	1	1	1	0	1	2	3	0	3	1	0	0	3	1.3	2	60	3	1.3
170	Hikmal Maualana	1	0	0	0	0	0	0	0	0	2	0	3	0	0	0	4	120	3	2	3	120
171	Muhammad Ar1 Fikri Ramadhany	0	0	1	0	1	0	0	1	1	2	0	0	2	0	1	3	75	2	35	5	40
172	Lusi zahra ma1s1	1	1	1	0	1	0	0	0	1	2	0	3	2	1	2	4	3	3	4	3	1
173	Athillah Amar Pratama	1	0	1	0	1	1	1	1	2	2	2	0	1	0	1	2	120	2	30	3	30
174	Anggraini putri p	1	1	1	1	1	1	1	1	0	0	3	0	0	0	0	1	-	1	0	1	0
175	Aryo Ihsan Pradipta	1	0	0	0	0	0	0	0	1	0	2	0	0	1	0	2	1	2	1	2	1
176	Muhammad Zaqi Al Hafis	1	0	0	0	1	1	0	0	2	2	3	0	2	0	1	3	60	3	90	7	120
177	Cindy Rahma Putri	0	0	0	0	0	0	0	0	0	2	2	3	0	0	0	4	150	3	90	7	90
178	Intan Wid1wati	1	1	1	0	1	0	0	0	0	3	0	3	2	0	0	4	360	2	12 0	2	60
179	Reva Brian Setiawan	1	1	1	1	1	1	0	0	2	3	3	3	2	2	1	4	120	2	30	5	120
180	Alifian Naufal Hanif	0	1	1	0	1	0	0	1	0	3	2	3	2	0	0	4	120	1	60	5	10
181	S1khrul annam	0	1	0	0	1	0	0	0	0	2	0	0	2	1	1	3	90	3	13 0	2	80

182	Mashuri Abdul Fatah	0	0	1	0	1	1	1	0	1	2	0	1	2	0	1	3	63	3	63	3	245
183	Salman al farisi	0	1	1	0	0	0	0	0	2	3	1	3	2	0	1	2	2	3	2	2	1
184	ardhika rizqi karunia putra	0	0	1	0	1	0	1	1	1	3	0	3	1	0	1	0	120	5	120	7	60
185	Fajrians1h Dwi Praset1di	0	0	0	0	1	0	1	1	0	3	2	3	1	0	0	3	90	4	90	1	120
186	Imam baihaki	1	1	1	0	0	1	0	0	1	0	0	0	0	0	1	4	120	2	190	7	0
187	Zaidan Omar	0	0	1	1	1	1	0	0	3	0	0	0	2	0	1	0	90	0	70	0	0
188	vikri ale1sin sinambela	1	1	1	0	1	1	0	1	2	3	1	3	1	0	2	4	120	3	60	2	15
189	Hafidz Nauval Makarim	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	30	1	30	1	10
190	Wisnu Pradiva Wid1nto	1	1	1	1	1	1	1	1	0	2	2	3	2	1	1	1	120	3	180	7	60
191	Pipit Athifah Hana Saputri	0	0	0	0	1	0	1	0	1	2	2	1	1	0	0	2	105	3	180	3	20
192	M. Atha Fadlullah	1	0	1	1	1	0	0	0	1	1	0	0	2	0	1	4	250	2	90	4	120
193	FAA IZ ALFI RADIT1	0	0	1	0	0	0	1	0	0	0	1	0	1	0	1	4	120	2	240	7	60
194	INA ANJELINA 1MHIN	1	1	1	0	1	0	0	0	3	3	0	0	2	1	1	4	18030	3	30	5	45
195	Muhammad Harun Nur Rasyid	1	1	1	1	1	0	1	1	1	3	1	3	2	0	0	1	90	2	135	7	50
196	Muhammad rizqi aji	0	0	0	0	0	0	0	1	0	2	0	3	1	0	1	3	3	3	180	3	3
197	Fath Akbar muhammad	1	0	0	0	1	1	0	1	1	1	0	0	1	0	1	5	90	1	30	0	0
198	Rizky Putra	1	0	1	0	1	0	0	0	1	2	1	3	1	0	1	2	150	3	150	4	1
199	Titis pambudi	1	1	1	1	1	0	0	1	1	0	2	0	1	0	0	5	150	3	120	4	300
200	Gunawan Iskandar	1	0	1	1	1	0	1	1	3	3	3	3	1	0	1	3	60	5	90	7	0

201	Daniel Ramadana	1	0	1	0	1	1	0	1	1	2	2	0	2	0	2	3	60	3	45	3	20
202	Mulia Anggi Wulandari	1	0	1	0	0	0	0	1	2	2	2	0	3	1	2	3	90	5	18 0	4	240
203	M chandra dassena	1	1	1	0	0	1	0	0	0	1	0	0	2	1	1	7	180	3	12 0	2	30
204	Nikmatul A.	0	1	0	0	0	1	0	1	1	2	0	1	1	0	1	1	300	3	12 0	7	10
205	KENDALIKAN TELAUMBANUA	1	1	1	1	1	1	1	1	0	2	0	3	0	0	0	2	18	2	60	1	120
206	Novita Putri 1ni Ndruru	0	0	1	0	1	0	0	1	1	1	0	0	1	1	1	3	75	2	75	2	15
207	Ikhtiar Setiawan Lombu	0	0	1	0	1	0	0	0	2	2	1	3	2	1	1	1	60	2	60	3	10
208	PANDI AGUS KURNIAWAN	1	0	1	1	1	0	0	1	1	1	0	0	2	0	0	0	90	0	90	0	30
209	ROMANUS WARUWU	1	0	1	1	1	0	1	0	1	1	0	0	2	0	0	2	180	2	14 0	5	60
210	RAYMOND JULVADAMAI HULU	1	1	1	1	0	0	0	1	1	1	0	0	1	0	1	2	60	2	60	6	20

Appendix Correlation between Validity Variables

		Correlations								
		IA1	IA2	IA3	IA4	IA5	IA6	IA7	IA8	total Internet Addition
IA1	Pearson Correlation	1	.156*	.151*	0.128	.210**	0.08	0.004	0.037	.442**
	Sig. (2-tailed)		0.024	0.028	0.064	0.002	0.251	0.949	0.598	0
	N	210	210	210	210	210	210	210	210	210
IA2	Pearson Correlation	.156*	1	0.011	.143*	0.135	0.064	0.125	.154*	.454**
	Sig. (2-tailed)	0.024		0.879	0.039	0.051	0.357	0.07	0.026	0
	N	210	210	210	210	210	210	210	210	210
IA3	Pearson Correlation	.151*	0.011	1	.192**	.178**	.220**	0.126	.229**	.505**
	Sig. (2-tailed)	0.028	0.879		0.005	0.01	0.001	0.069	0.001	0
	N	210	210	210	210	210	210	210	210	210
IA4	Pearson Correlation	0.128	.143*	.192**	1	.227**	.254**	.297**	.171*	.573**

	Sig. (2-tailed)	0.064	0.039	0.005		0.001	0	0	0.013	0
	N	210	210	210	210	210	210	210	210	210
IA5	Pearson Correlation	.210**	0.135	.178**	.227**	1	.158*	.169*	.259**	.582**
	Sig. (2-tailed)	0.002	0.051	0.01	0.001		0.022	0.014	0	0
	N	210	210	210	210	210	210	210	210	210
IA6	Pearson Correlation	0.08	0.064	.220**	.254**	.158*	1	.207**	0.105	.495**
	Sig. (2-tailed)	0.251	0.357	0.001	0	0.022		0.003	0.131	0
	N	210	210	210	210	210	210	210	210	210
IA7	Pearson Correlation	0.004	0.125	0.126	.297**	.169*	.207**	1	.181**	.506**
	Sig. (2-tailed)	0.949	0.07	0.069	0	0.014	0.003		0.009	0
	N	210	210	210	210	210	210	210	210	210
IA8	Pearson Correlation	0.037	.154*	.229**	.171*	.259**	0.105	.181**	1	.533**
	Sig. (2-tailed)	0.598	0.026	0.001	0.013	0	0.131	0.009		0
	N	210	210	210	210	210	210	210	210	210

total Internet Addiction	Pearson Correlation	.442**	.454**	.505**	.573**	.582**	.495**	.506**	.533**	1
	Sig. (2- tailed)	0	0	0	0	0	0	0	0	
	N	210	210	210	210	210	210	210	210	210

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		1.lte am	2.lte am	3. lte am	4.lte am	5a.lt eam	5b.lt eam	5c.lt eam	5d.lt eam	5e.lt eam	5f.lt eam	5g.lt eam	5h.lt eam	5i	5j.lt eam	6.lte am	7.lte am	8.lte am	9.lte am	10.lt eam	tota l Sle ep Qu ality
1.lte am	Pears on Correl ation	1	0.04 2	0.0 51	0.04 2	0.06 3	0.08 4	0.11 1	.203* *	.140* *	.211 **	0.06 1	.214* *	.32 1**	.137 *	0.04 2	1.00 0**	.158 *	0.08 5	0.04 2	.36 1**
	Sig. (2- tailed)		0.54 9	0.4 60	0.54 9	0.36 5	0.22 6	0.10 8	0.00 3	0.04 3	0.00 2	0.38 0	0.00 2	0.0 00	0.04 7	0.54 9	0.00 0	0.02 2	0.21 9	0.54 9	0.0 00
	N	210	210	21 0	210	210	210	210	210	210	210	210	210	21 0	210	210	210	210	210	210	210
2.lte am	Pears on Correl ation	0.04 2	1	.20 1**	1.00 0**	.467* *	.212* *	0.04 1	.185* *	0.02 0	.136 *	0.10 3	0.05 7	0.1 28	.450 **	1.00 0**	0.04 2	.381 **	.187 **	1.00 0**	.73 4**
	Sig. (2- tailed)	0.54 9		0.0 03	0.00 0	0.00 0	0.00 2	0.55 3	0.00 7	0.76 9	0.04 9	0.13 6	0.40 8	0.0 65	0.00 0	0.00 0	0.54 9	0.00 0	0.00 7	0.00 0	0.0 00
	N	210	210	21 0	210	210	210	210	210	210	210	210	210	21 0	210	210	210	210	210	210	210

	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
3. Item	Pears on Correlation	0.051	.201**	.1	.201**	.165*	0.080	0.027	-0.003	0.069	0.005	-0.006	0.046	0.006	0.130	.201**	0.051	-0.018	0.054	.201*	.190*
	Sig. (2-tailed)	0.460	0.003		0.003	0.017	0.250	0.699	0.970	0.321	0.939	0.931	0.504	0.933	0.060	0.003	0.460	0.796	0.440	0.003	0.043
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
4. Item	Pears on Correlation	0.042	1.000**	.201**	1	.467*	.212*	0.041	.185*	0.020	.136*	0.103	0.057	0.128	.450**	1.000**	0.042	.381**	.187**	1.000**	.734**
	Sig. (2-tailed)	0.549	0.000	0.003		0.000	0.002	0.553	0.007	0.769	0.049	0.136	0.408	0.065	0.000	0.000	0.549	0.000	0.007	0.000	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5a. Item	Pears on Correlation	0.063	.467**	.165*	.467**	1	.358*	.210*	.162*	.237*	.294**	.260*	.157*	.168*	.546**	.467**	0.063	.227**	.157*	.467*	.503**
	Sig. (2-tailed)	0.365	0.000	0.017	0.000		0.000	0.002	0.019	0.001	0.000	0.000	0.023	0.015	0.000	0.000	0.365	0.001	0.023	0.000	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5b. Item	Pears on Correlation	0.084	.212**	0.080	.212**	.358*	1	.393*	.205*	.271*	.159*	.203*	.243*	.209**	.341**	.212**	0.084	.258**	.142*	.212*	.353**
	Sig. (2-tailed)	0.226	0.002	0.250	0.002	0.000		0.000	0.003	0.000	0.021	0.003	0.000	0.002	0.000	0.002	0.226	0.000	0.039	0.002	0.000

	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5c.It	Pears on Correlation	0.111	0.041	0.027	0.041	.210*	.393*	1	0.120	.219*	.204**	.262*	.283*	.210**	.211**	0.041	0.111	.160*	.136*	0.041	.219**
	Sig. (2-tailed)	0.108	0.553	0.699	0.553	0.002	0.000		0.082	0.001	0.003	0.000	0.000	0.002	0.002	0.553	0.108	0.020	0.050	0.553	0.001
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5d.It	Pears on Correlation	.203**	.185**	-0.003	.185**	.162*	.205*	0.120	1	.384*	.150*	.233*	.260*	.282**	.274**	.185**	.203**	.256**	.177*	.185*	.365**
	Sig. (2-tailed)	0.003	0.007	0.970	0.007	0.019	0.003	0.082		0.000	0.030	0.001	0.000	0.000	0.000	0.007	0.003	0.000	0.010	0.007	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5e.It	Pears on Correlation	.240*	0.020	0.069	0.020	.237*	.271*	.219*	.384*	1	.281**	.340*	.317*	.207**	.269**	0.020	.140*	0.129	.187**	0.020	.234**
	Sig. (2-tailed)	0.043	0.769	0.321	0.769	0.001	0.000	0.001	0.000		0.000	0.000	0.000	0.003	0.000	0.769	0.043	0.061	0.006	0.769	0.001
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5f.It	Pears on Correlation	.211**	.136*	0.005	.136*	.294*	.159*	.204*	.150*	.281*	1	.333*	.382*	.381**	.241**	.136*	.211**	.196**	.166*	.136*	.343**
	Sig. (2-tailed)	0.002	0.049	0.939	0.049	0.000	0.021	0.003	0.030	0.000		0.000	0.000	0.000	0.000	0.049	0.002	0.004	0.016	0.049	0.000

	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5g.It	Pears on Correlation	0.061	0.103	-0.006	0.103	.260*	.203*	.262*	.233*	.340*	.333**	1	.227*	.211**	.306**	0.103	0.061	.139*	.274**	0.103	.287**
	Sig. (2-tailed)	0.380	0.136	0.931	0.136	0.000	0.003	0.000	0.001	0.000	0.000		0.001	0.002	0.000	0.136	0.380	0.044	0.000	0.136	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5h.It	Pears on Correlation	.214**	0.057	0.046	0.057	.157*	.243*	.283*	.260*	.317*	.382**	.227*	1	.361**	.216**	0.057	.214**	.228**	0.119	0.057	.297**
	Sig. (2-tailed)	0.002	0.408	0.504	0.408	0.023	0.000	0.000	0.000	0.000	0.000	0.001		0.000	0.002	0.408	0.002	0.001	0.085	0.408	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5i	Pears on Correlation	.321**	0.128	0.006	0.128	.168*	.209*	.210*	.282*	.207*	.381**	.211*	.361*	1	.313**	0.128	.321**	.326**	.227**	0.128	.580**
	Sig. (2-tailed)	0.000	0.065	0.933	0.065	0.015	0.002	0.002	0.000	0.003	0.000	0.002	0.000		0.000	0.065	0.000	0.000	0.001	0.065	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
5j.It	Pears on Correlation	.137*	.450**	0.130	.450**	.546*	.341*	.211*	.274*	.269*	.241**	.306*	.216*	.313**	1	.450**	.137*	.285**	.205**	.450*	.704**
	Sig. (2-tailed)	0.047	0.000	0.060	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000		0.000	0.047	0.000	0.003	0.000	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210

				0										0							
6. Item	Pearson Correlation	0.042	1.000**	.201**	1.000**	.467*	.212*	0.041	.185*	0.020	.136*	0.103	0.057	0.128	.450**	1	0.042	.381**	.187**	1.000**	.734**
	Sig. (2-tailed)	0.549	0.000	0.003	0.000	0.000	0.002	0.553	0.007	0.769	0.049	0.136	0.408	0.065	0.000		0.549	0.000	0.007	0.000	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
7. Item	Pearson Correlation	1.000**	0.042	0.051	0.042	0.063	0.084	0.111	.203*	.140*	.211**	0.061	.214*	.321**	.137*	0.042	1	.158*	0.085	0.042	.361**
	Sig. (2-tailed)	0.000	0.549	0.460	0.549	0.365	0.226	0.108	0.003	0.043	0.002	0.380	0.002	0.000	0.047	0.549		0.022	0.219	0.549	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
8. Item	Pearson Correlation	.158*	.381**	-0.018	.381**	.227*	.258*	.160*	.256*	0.129	.196**	.139*	.228*	.326**	.285**	.381**	.158*	1	.348**	.381*	.681**
	Sig. (2-tailed)	0.022	0.000	0.796	0.000	0.001	0.000	0.020	0.000	0.061	0.004	0.044	0.001	0.000	0.000	0.000	0.022		0.000	0.000	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
9. Item	Pearson Correlation	0.085	.187**	0.054	.187**	.157*	.142*	.136*	.177*	.187*	.166*	.274*	0.119	.227**	.205**	.187**	0.085	.348**	1	.187*	.496**
	Sig. (2-tailed)	0.219	0.007	0.440	0.007	0.023	0.039	0.050	0.010	0.006	0.016	0.000	0.085	0.001	0.003	0.007	0.219	0.000		0.007	0.000
	N	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210

10.It eam	Pears on Correl ation	0.04 2	1.00 0**	.20 1**	1.00 0**	.467* *	.212* *	0.04 1	.185* *	0.02 0	.136 *	0.10 3	0.05 7	0.1 28	.450 **	1.00 0**	0.04 2	.381 **	.187 **	1	.73 4**
	Sig. (2- tailed)	0.54 9	0.00 0	0.0 03	0.00 0	0.00 0	0.00 2	0.55 3	0.00 7	0.76 9	0.04 9	0.13 6	0.40 8	0.0 65	0.00 0	0.00 0	0.54 9	0.00 0	0.00 7		0.0 00
	N	210	210	21 0	210	210	210	210	210	210	210	210	210	21 0	210	210	210	210	210	210	210
total Slee p Qual ity	Pears on Correl ation	.361 **	.734 **	.19 0*	.734 **	.503* *	.353* *	.219* *	.365* *	.234* *	.343 **	.287* *	.297* *	.58 0**	.704 **	.734 **	.361 **	.681 **	.496 **	.734* *	1
	Sig. (2- tailed)	0.00 0	0.00 0	0.0 43	0.00 0	0.00 0	0.00 0	0.00 1	0.00 0	0.00 1	0.00 0	0.00 0	0.00 0	0.0 00	0.00 0	0.00 0	0.00 0	0.00 0	0.00 0	0.00 0	

Correlations

		PA1	PA2	PA3	PA4	PA5	PA6	total Physical Activity
PA1	Pearson Correlation	1	.156*	.151*	.128	.210**	.080	.236**
	Sig. (2-tailed)		.024	.028	.064	.002	.251	.000
	N	210	210	210	210	210	210	210
PA2	Pearson Correlation	.156*	1	.011	.143*	.135	.064	.299**
	Sig. (2-tailed)	.024		.879	.039	.051	.357	.000
	N	210	210	210	210	210	210	210
PA3	Pearson Correlation	.151*	.011	1	.192**	.178**	.220**	.281**
	Sig. (2-tailed)	.028	.879		.005	.010	.001	.000

	N	210	210	210	210	210	210	210
PA4	Pearson Correlation	.128	.143*	.192**	1	.227**	.254**	.190**
	Sig. (2-tailed)	.064	.039	.005		.001	.000	.000
	N	210	210	210	210	210	210	210
PA5	Pearson Correlation	.210**	.135	.178**	.227**	1	.158*	.643**
	Sig. (2-tailed)	.002	.051	.010	.001		.022	.000
	N	210	210	210	210	210	210	210
PA6	Pearson Correlation	.080	.064	.220**	.254**	.158*	1	.743**
	Sig. (2-tailed)	.251	.357	.001	.000	.022		.000
	N	210	210	210	210	210	210	210
total Physical Activity	Pearson Correlation	.236**	.299**	.281**	.190**	.643**	.743**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	210	210	210	210	210	210	210

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Reliability Statistics

Physical activity

Reliability Statistics

Cronbach's Alpha	N of Items
.850	6

Sleep Quality

Reliability Statistics

Cronbach's Alpha	N of Items
.831	19

Internet Addiction

Reliability Statistics

Cronbach's Alpha	N of Items
.801	8

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Internet Addiction	210	1	8	3.88	1.830
Physical Activity	210	30.600	578062.500	7652.712	39919.598
Sleep Quality	210	0	17	7.50	3.395
Valid N (listwise)	210				

Hypothesis 1

Model Summary

	R	R Square	Adjusted R Square
1	.495	.245	.245

a. Predictors: (Constant), total Internet Addiction

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	636.4	2	6836.4	67.64	.000
	Residual	21012.3	208	101.98		
	Total	27848.7	210			

a. Dependent Variable: total Physical Activity

Predictors: (Constant), total Internet Addiction

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	69.240	2.366		29.269	.000
	total Internet Addiction	-.375	.046	-.341	-.8225	.000

Dependent Variable: total Physical Activity

Hypothesis 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.0461	.291	.242	9.87

a. Predictors: (Constant), total Internet Addiction

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6257.8	1	6257.8	61.89	.000
	Residual	21036.4	208	101.12		
	Total	27294.2	209			

a. Dependent Variable: total Sleep Quality

b. Predictors: (Constant), total Internet Addiction

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	74.85	2.125		35.22	.000
	total Internet Addiction	-.467	.059	-.495	-7.86	.000

a. Dependent Variable: total Sleep Quality

Hypothesis 3

e1 Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.934	.873	.872	3.073

a. Predictors: (Constant), total Sleep Quality

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6382.79	1	6382.79	673.5	.000
	Residual	928.82	98	9.48		
	Total	7311.61	99			

a. Dependent Variable: total Physical Activity

b. Predictors: (Constant), total Sleep Quality

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.6695	.666		41.269	.000
	total Internet Addiction	6.9135	.112.	6.112	8.34	.000

a. Dependent Variable: total Physical Activity

Hypothesis 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.673	.453	.448	14.77

Predictors: (Constant), total Internet Addiction total Sleep Quality

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3583.4	2	1791.7	85.81	.000
	Residual	43184.9	207	208.7		
	Total	46768.3	209			

a. Dependent Variable: total Physical Activity

b. Predictors: (Constant), total Internet Addiction , total Sleep Quality

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	42.47	5.98		.7.099	.000
	total Internet Addiction	-.223	.071	-.187	3.131	.002
	total Sleep Quality	.676	.075	.515	9.056	.000

Dependent Variable: total Physical Activity

The Sobel Test Result

Input:		Test statistic:	Std. Error:	p-value:
a	-.495	Sobel test: -8.34569056	0.36239661	0
b	6.11	Aroian test: -8.34506849	0.36242363	0
s_a	0.059	Goodman test: -8.34631278	0.3623696	0
s_b	0.075	Reset all	Calculate	