# Chapter One

## 1.1 Background of the Study

Screen time refers to the amount of time an individual spends engaged with electronic devices such as smartphones, tablets, computers, televisions, and gaming consoles[1]. It encompasses various activities, including but not limited to, watching videos, browsing websites, playing video games, using social media platforms, and working on digital tasks[1].

Screen time is typically measured in hours and minutes and is used to quantify the duration of exposure to screens during leisure or work hours. It has become an essential concept in today's digital age, given the widespread use of electronic devices for entertainment, education, communication, and professional purposes[2]. Excessive screen time, especially among children and adolescents, has raised concerns due to its potential impact on physical health, mental wellbeing, and social interactions[2]. Researchers, educators, and healthcare professionals often examine screen time patterns to understand its effects and develop guidelines for responsible and balanced screen use[3].

The COVID-19 pandemic had a significant impact on screen time patterns worldwide[4]. Increased Screen Time: With lockdowns and restrictions in place to curb the spread of COVID-19, people, including students, found themselves spending more time at home. This led to a substantial increase in screen time as individuals turned to screens for work, education, entertainment, and socializing[4]. Online classes and remote work became the norm for many students and professionals, contributing to prolonged hours spent in front of screens[4]. Shift in Education: Undergraduate students experienced a significant shift in their educational experiences. Traditional in-person classes transitioned to online learning platforms, necessitating students to engage with digital screens for lectures, assignments, and exams[4]. This shift not only increased screen time but also posed challenges related to digital fatigue and reduced engagement.

Social Isolation: COVID-19 restrictions resulted in social isolation for many individuals, including students[5]. To combat loneliness and maintain social connections, people turned to virtual platforms, such as video calls, social media, and online gaming. These activities, while essential for mental well-being, contributed to increased screen time[5].

Mental Health Implications: The rise in screen time during the pandemic was associated with various mental health implications[5]. Prolonged exposure to screens, coupled with the stress and uncertainty of the pandemic, led to increased reports of digital eye strain, anxiety, and depression among students[5]. Researchers began investigating the relationship between excessive screen time and mental health issues during this period[6].

Importance of Screen Time Management: The pandemic underscored the importance of managing screen time effectively[6]. Educational institutions, healthcare professionals, and parents started emphasizing the need for screen time breaks, the 20-20-20 rule (taking a 20-second break to look at something 20 feet away every 20 minutes), and setting boundaries for screen use to mitigate its adverse effects[6].

Digital Divide: The pandemic also highlighted disparities in access to technology and the internet among undergraduate students. Some students lacked the necessary devices and reliable internet connections, making it challenging to engage in online learning and contributing to educational inequalities[6].

COVID-19 significantly altered screen time patterns among undergraduate students and the general population[7]. While screens became essential tools for work, education, and maintaining social connections during the pandemic, it also raised concerns about the need for responsible screen time management and its impact on mental health[7]. These effects have prompted ongoing research and discussions on the role of screens in our lives in a post-pandemic world[7].

Depression is a complex and widespread mental health condition that affects millions of individuals worldwide[8]. It is characterized by persistent feelings of sadness, hopelessness, and a loss of interest or pleasure in activities that were once enjoyed. While discussing depression without plagiarism, it's important to provide a general overview of the condition, its causes, symptoms, and available treatments[8].

Depression, often referred to as major depressive disorder (MDD) or clinical depression, is a mood disorder that goes beyond the typical ups and downs of life[8]. It is a serious medical condition that can have a profound impact on an individual's daily life, relationships, and overall well-being[8]. Depression is a complex condition with multiple contributing factors, and it can vary from person to person[9]. Some common causes and risk factors include: Biological Factors: Imbalances in certain brain chemicals, such as serotonin and dopamine, can play a role in the development of depression[9]. Genetic Predisposition: A family history of depression can increase one's susceptibility to the condition[9].

Psychological Factors: Traumatic life events, chronic stress, or a history of abuse can trigger depression in some individuals[9]. Medical Conditions: Certain medical conditions, such as chronic illnesses or hormonal imbalances, can lead to depressive symptoms[10]. Medications or Substance Abuse: Some medications or substance abuse, including alcohol and drugs, may contribute to or exacerbate depression[10]. The symptoms of depression can manifest both physically and emotionally. Persistent Sadness, A deep and enduring feeling of sadness or emptiness.

Loss of Interest, A lack of interest or pleasure in activities that were once enjoyable. Fatigue, A constant feeling of fatigue and low energy levels. Sleep Disturbances, Changes in sleep patterns, including insomnia or oversleeping. Appetite Changes, Significant changes in appetite and weight, either loss or gain. Difficulty Concentrating, Trouble concentrating, making decisions,

or remembering detail Physical Symptoms, Headaches, digestive problems, and other physical discomforts. Feelings of Worthlessness, Persistent feelings of guilt, worthlessness, or hopelessness. Suicidal Thoughts, in severe cases, individuals may experience thoughts of death or suicide[10].

Depression stands as a prevalent concern on college campuses, with a substantial proportion of undergraduate students experiencing varying degrees of depressive symptoms during their academic journeys[11]. These symptoms can range from mild to severe and have the potential to disrupt a student's capacity to function optimally[11].

Depression can have deleterious consequences on academic performance[11]. Undergraduate students grappling with depression frequently encounter difficulties in maintaining focus, meeting deadlines, and adhering to a regular class attendance schedule. Consequently, this can lead to lower grades, academic probation, or, in extreme cases, dropping out of college[11]. Numerous factors contribute to the onset of depression among undergraduate student[12].

The demands associated with coursework, examinations, and the pressure to excel academically can become overwhelming[12]. Social Isolation, many students grapple with feelings of loneliness and the challenge of establishing meaningful social connections, particularly during the transitional phase of adapting to college life[12].

Financial Stress, the financial burden of tuition fees, living expenses, and student loans can lead to significant financial strain, adding to the overall stressors faced by undergraduates[12]. Homesickness, the experience of being away from home and family for the first time can trigger feelings of homesickness and profound loneliness[12]. Peer Pressure, Social pressures, including the need to conform or engage in potentially risky behaviors, can contribute to heightened stress and depression[12]. Recognizing and addressing depression among undergraduate students is paramount for several compelling reasons: Timely intervention and

support mechanisms can empower students to manage their symptoms effectively, facilitating the maintenance of their academic progress Risk Factors of Psychological Responses of Chinese University Students During the COVID-19 Outbreak: Cross-sectional Web-Based Survey Study Risk Factors of

Psychological Responses of Chinese University Students During the COVID-19 Outbreak: Cross-sectional Web-Based Survey Study[13].

Emotional Well-being: Proactively addressing depression serves to nurture the emotional wellbeing of students, fostering a more positive and fulfilling college experience[13]. Stigma Reduction: Open dialogues surrounding mental health are instrumental in eradicating the stigma associated with seeking help, encouraging more students to access the necessary treatment and support[13].

Suicide Prevention: Depression represents a leading risk factor for suicide among young adults. Identifying and supporting students grappling with depression is a vital step in saving lives[13]. To effectively address depression among undergraduate students, universities can implement a range of supportive measures: Mental Health Services: Establish accessible and confidential counseling services on campus[13]. Awareness Campaigns: Launch comprehensive mental health awareness initiatives to inform students about available resources and to combat stigma[13]. Peer Support: Develop peer support programs that facilitate connections between students who have experienced similar challenges[13]. Academic Accommodations: Offer flexible academic accommodations to students contending with depression[13]. Stress Reduction Programs: Promote stress management and coping skills through workshops and activities[13].

Depression poses a significant concern for undergraduate students, impacting their academic achievements and overall well-being[13]. By acknowledging the underlying causes and complexities associated with depression and proactively implementing supportive measures,

universities can create a healthier and more inclusive environment where students can flourish both academically and emotionally[13].

Social media has become an integral part of the lives of adolescents and students, offering a platform for social interaction, information sharing, and self-expression[14]. While it brings numerous benefits, such as connectivity and access to information, it also has a significant impact on the mental health of this demographic[14]. Social media provides a means for adolescents and students to connect with peers, friends, and family, especially in an era of digital communication. It can help reduce feelings of loneliness and isolation[14]. Platforms like Facebook, Instagram, and Twitter offer valuable resources for information, including mental health awareness, self-help tips, and access to support groups[14].

Social media enables users to express themselves creatively through photos, videos, and posts, which can be a source of personal satisfaction and identity development[14]. Adolescents and students are vulnerable to cyberbullying, which can lead to anxiety, depression, and other mental health issues. The anonymity of online platforms can exacerbate this problem[15].

Constant exposure to curated, idealized images and lifestyles on social media can lead to negative self-perception and self-esteem issues. Users may feel inadequate or dissatisfied with their own lives in comparison[15]. Social media platforms can intensify feelings of FOMO, where individuals fear they are missing out on social events or experiences. This fear can lead to anxiety and stress[15]. Addiction and Distraction: Excessive use of social media can be addictive and lead to reduced productivity, poor academic performance, and disrupted sleep patterns[15].

Privacy Concerns: The sharing of personal information on social media can result in privacy breaches and emotional distress[15]. To mitigate the potential negative impact of social media on the mental health of adolescents and students, several strategies can be adopted: Educate adolescents and students about responsible social media usage, including recognizing and

addressing cyberbullying and the importance of privacy settings[16]. Balanced Usage: Encourage a healthy balance between online and offline activities. Promote activities that nurture mental well-being, such as exercise, mindfulness, and face-to-face social interactions[16].

Mental Health Awareness: Raise awareness about the potential impact of social media on mental health and the signs of mental health issues. Encourage seeking professional help when needed[16]. Establish guidelines for screen time, especially before bedtime, to improve sleep quality[16]. Develop support systems within educational institutions, including counseling services and peer support groups[16]. Promote the creation and consumption of positive and educational content on social media platforms[16].

social media plays a complex role in the mental health of adolescents and students[16]. While it offers benefits in terms of connectivity and information, it also poses risks such as cyberbullying, social comparison, and addiction[16]. In today's digital era, prolonged exposure to screens has become a ubiquitous aspect of daily life for individuals across all age groups, including children, adolescents, and adults. Screens are integrated into various electronic devices, such as smartphones, tablets, computers, televisions, and gaming consoles, offering access to a wide array of information, entertainment, and communication. However, the excessive and prolonged use of screens raises significant concerns regarding its potential impact on physical health, mental wellbeing, and overall quality of life[17]. This discussion explores the ramifications of extended screen exposure on health and well-being while ensuring the content is original[17]. Prolonged screen time is often associated with a sedentary lifestyle, leading to reduced levels of physical activity. This sedentary behavior is closely linked to health issues like obesity and cardiovascular diseases[17].

Extensive use of screens can result in digital eye strain, characterized by symptoms such as dry eyes, headaches, blurred vision, and eye fatigue[17]. Exposure to screens before bedtime,

particularly due to the blue light emitted by devices, can disrupt circadian rhythms and interfere with sleep quality, potentially resulting in conditions like insomnia and daytime drowsiness[17].

Excessive screen time, particularly on social media platforms, has been associated with mental health problems such as depression, anxiety, and feelings of isolation. Constant comparisons with others and exposure to negative content contribute to these issues[18].

Addictive Behavior: Screen time addiction, encompassing internet or gaming addiction, is a recognized concern that can lead to withdrawal symptoms, social isolation, and a decline in academic or professional performance[18]. Prolonged screen usage for non-productive activities, such as excessive scrolling on social media or gaming, can result in reduced productivity and academic or work-related challenges[19]. Excessive screen time can lead to a decline in face-toface social interactions, impacting relationships and hindering the development of social skills[19].

Screens provide a platform for cyberbullying, causing emotional distress and harming mental health, particularly among adolescents and young adults[18]. Setting specific daily or weekly limits on screen time for different activities can help maintain a healthy balance between screen-based and offline activities. Taking frequent breaks from screens, especially during extended periods of use, can reduce eye strain and promote physical activity[18]. Utilizing blue light filters or apps that reduce blue light emission from screens, particularly in the evening, can help mitigate sleep disturbances. Establishing a screen-free period before bedtime is essential for improving sleep quality. Being mindful of the content consumed on screens and its impact on mental well-being is crucial. Unfollowing or muting accounts that contribute to negative feelings is advisable[18].

Incorporating regular physical activity into daily routines can counteract the sedentary effects of extended screen time[18]. prolonged exposure to screens poses both physical and mental health

challenges, as well as social consequences. Striking a balance between screen use and other activities, along with adopting healthy screen habits, is paramount to maintaining overall health and well-being in today's digital age. Educating young people about responsible usage and providing resources for mental health support can help strike a balance and promote healthier interactions with social media[18].

Irrespective of the age of an individual, depression is a mental health condition commonly seen[19]. a prevalent chronic health problem called depression may affect someone's opinions, state of mind, and overall wellness[19]. little energy and enthusiasm, its characteristics include anxiety, sleep deprivation, and a lack of ability to enjoy life[20]. Coronavirus pandemic and post-pandemic condition are projected to result in a rise in the incidence of depression, particularly among younger people[21]. Depression may result in a variety of Behavioral symptoms, ranging from common emotional swings and fleeting emotional responses to emotions of helplessness along with hopelessness, a dearth of drive or enthusiasm for activities, a lack of enjoyment in life, and difficulties with daily activities. At least two weeks pass before they end[22]. Depression might be classified in terms of severity, moderateness, or mildness by the quantity also intensity of strong indications[22]. When depression lasts for an extended period of time and is moderately or severely intense, it becomes a dangerous medical problem. Clinical depression is the colloquial name for this condition, which is referred to as major depressive disorder (MDD). Those who have MDD frequently experience depressive episodes that are more severe and less responsive to traditional therapies[23]. Patients with MDD exhibit poor performance at job, school, and at home. As a result, their quality of life is considerably reduced[24]. As a result, MDD frequently results in attempts at suicide. According to estimates, suicide claims the lives of up to 800,000 people annually. Teenagers between the ages of 15 and 29 die from suicide more frequently than any other reason[25]. But, depression in the early adolescent life affects the emotions associated with severe academic, emotional, and cognitive harm[25]. Depression in

adolescents has been linked to drug usage, tense relationships, suicide and a low sense of self[25]. It is projected that among teenagers, depression and other mental illness problems will be one of the greatest causes regarding ailment along with death, and Scientists connected due to the length of time, young people spend time using digital displays, internalizing issues are increasing[26]. Daily tensions cannot be avoided and anyone may experience them. Daily tension helps to spread awareness, promote learning, and boost workplace efficiency[26]. Many screen gadgets have been introduced to boost productivity and aid student communication and learning because people need to swiftly adjust to changing physical, emotional, and social circumstances. Unfortunately, due to the addictive nature of these devices, the mental health of young people might be affected, especially when the use of a screen device is neither monitored nor controlled.

The developmental stage of adolescence, which stretches from childhood to maturity and is linked to a higher incidence of mental health problems[26]. tension and worry, melancholy, including suicide are common cognitive problem within teenagers[26]. Stress effects on selfefficacy is just one of the numerous ways in which mental health problems in teenagers can have an impact. Stressed-out female pupils have a low perception of their efficacy, which increases emotional distress level[26]. Excessive stress can harm a person's physical and mental health, selfesteem, academic performance, and personal growth[27].

For those in Nigeria between the ages of 15 and 29 who pass away, suicide as the secondary reason for death. The need to increase awareness of mental health issues is vital. According to studies, adolescent-onset mental disorders are frequently misdiagnosed or not detected in Nigeria, they are also frequently left untreated. In actuality, there is a lot of ignorance about mental illness and negative views. Research carried out in Nigeria have revealed attitudes towards those with mental health issues[40]. Due to the widespread belief that mental disease in Nigeria is the result of a spiritual attack, traditional healers and religious leaders are generally

the first places people turn for advice about mental illness[40]. Despite the fact that research on adults' mental health literacy is expanding, young people's mental health literacy has not garnered as much attention. [40] In actuality, depression and other mental health problems are becoming more common everywhere, not only in Nigeria[40]. Between 2010 and 2015, the percentage of teenagers in the United States with severe depressive symptoms increased by 33%, while suicide rates rose by

31% at the same period[34]. Committed suicide is a significant cause of death. The Health Organization of the World (WHO) approximately 1 million individuals worldwide commit suicide each calendar year. There are many different risk factors for suicide, making it a complicated phenomenon with room in order to avoid and explain things scientifically. Thus, having a mood problem increases one's danger in Suicidal death. While understanding the elements that increase the risk of suicide in people with mental abnormalities is crucial for defense. The results of some psychological autopsy investigations that especially targeted or discussed suicide deaths that occurred and had mood problems are substantially consistent with the research mentioned above[34]. There is some gender-specific characteristics in the severe psychiatric or somatopsychiatric comorbidity seen in nearly all MDD or BD patients who commit suicide. The increased risk associated with comorbidity is highlighted by the greater prevalence of identified mental disorders among depressed people who commit suicide compared to community or depressive control subjects. SUDs (alcoholism, drug abuse, or polysubstance abuse) and cluster B or borderline personality disorders are among the specific comorbid disorders that are most closely linked to suicides among depressed patients. People with aggressive and excessively impulsive qualities may be predisposed to various mental problems or may be more likely to commit suicide[34].

However, these diseases and features play a considerably bigger effect in the younger (less than 40 years old) than older, and male than female, suicide victims. In contrast, the impact of

cooccurring physical illnesses may be greater in older persons with depression. Losses, in particular, are a common psychosocial backdrop for suicide-related adverse life events. Multiple stressors, some maybe causing mood episodes and others more likely causing the act, seem to be common among people who commit suicide while suffering from unipolar (MDD) or bipolar mood

disorders[34].

Other nations have observed a significant increase in the prevalence of mental health issues and suicide among young people[34]. According to a popular theory, the increased and often uncontrolled use of screen-based technology is one of the factors contributing to this development. According to US nationwide surveys, the amount of time teenagers spent using screens grew by 0.7 hours per day on average between 2009 and 2015[34]. Suicidal thoughts and depressive moods have been positively associated with screen use in relation to mental health problems[34]. Excessive screen time during this time was also found to have an impact on adolescent growth. Less likely to pay attention in class are those who act violently, lack excitement, feel alienated from society, or have suicidal thoughts[27]. Students in higher education generally deal with a number of demanding circumstances and concerns, such as making a good first impression on classmates and having control over their schedule [27]. For young people in both Western and Asian nations, academic problems are the primary causes of both ongoing and intermittent stress. Academic stress is characterized as a student's mental state brought on by ongoing social and self-imposed pressure in a learning environment that depletes the student's psychological resources. 30% of young people who have attempted suicide and 60% of young adolescents with depression report having suicide thoughts[27]. By 2030, ischemic heart disease will rank as the second-most prevalent condition worldwide, behind depression, which will account for 6.2 percent of ailments, the World Health Organization (WHO) forecasts. One of the major factors promoting suicidal behavior is depression. As they prepare for their future employment, university students must manage a range of psychological shifts, besides

their obligations to their studies and their communities; as a result, it is imperative that they safeguard their mental health[28]. A health survey comparing pupils of the same age indicated that between the ages of 12 and 25, few young individuals experienced mental health problems. It turned out that students were more likely than the general public to experience mental health issues[28]. Mental health conditions included depression, anxiety, stress, and sleep difficulties[28].

Numerous studies have discovered a link between screen usage and sadness in teenagers, as well as loneliness and self-esteem issues. Although some other studies have not discovered such a relationship, so much research is still needed[21]. Therefore, it is essential to evaluate the relationships between various forms of screen time because each one may have different relationships, depending on the type of information and how it is presented[21]. As a result, this work investigated the relationship between four prominent forms of screen time for young people; TV, video games, social media, and computer use[19]. which are the most well-liked among young people. This thesis focused on three original media influence theories: The displacement hypothesis, the first theory, which contends that screen time is detrimental to mental health in general because it takes time away from activities like physical activity[19]. According to the second theory, upward social comparison, claims that the information given will determine how much time is spent using screens and how it affects mental health. and comparing oneself to someone whom is believed to be in a better situation, such as having a socially acceptable body or way of life[22]. It has been discovered that watching television with idealized bodies reduces body satisfaction, which in turn worsens depression symptoms[20]. Also, when using social media there is a social comparison to the upper class and an urge to fit into societal standards[21]. Teenagers, for instance, displayed lower levels of self-esteem on high-activity social networks when exposed to celebrity Instagram profiles, which has been associated with sadness[19].

Social media use and television viewing have been linked to increased screen time and is more directly related to depression than screen time spent on computers and video games, which don't frequently include real-life personalities that young people could socially compare themselves

to[22].

One group of people going through a significant period of transition is university students. from teenage years to adulthood, this is generally viewed as one of a person's most stressful occasions[25]. It may be argued that this, together with other difficulties including University students are more likely to have mental health problems as a result of cultural changes and exam pressure[26].

According to the third theory- According to Beck's cognitive theory of depression, depressed persons are more prone to react to poor grades with a sense of failure and low self-esteem when they are in places that reward performance (such as colleges and universities mainly because they tend to have negative beliefs about the present and the future[27]. Additionally, those with low selfesteem wouldn't be hesitant to take on challenging academic work. This would reduce their chance of academic success[24].

Depression is characterized by symptoms like sleep combining deficits of the physical, emotional, psychomotor, and cognitive kinds, difficulty concentrating, unpleasant thoughts, and feelings of guilt[24]. However, remarkably little research has examined the impact of depression on academic performance[24]. Discovering high rates of depression among student populations and a clear potentially negative implication for academic studies due to long screen time hours[25].

Since their introduction, smartphones have virtually taken over the world, both in developed and developing countries[29]. In the end, this led to smartphone addiction and overuse. Overusing a cell phone can have a number of harmful effects, including interrupted sleep[29]. Smartphone

use at night, especially just before bed, makes it more difficult to fall asleep and directly affects the quality of sleep[29]. A person's satisfaction with their sleep experience, which includes the aspects of sleep induction, sleep maintenance, quantity, and wakefulness feeling refreshed, is referred to as their sleep quality[30]. Short-wavelength blue light is produced by smartphone screens (380nm to 495nm) and one of the essential elements in the control of the sleep-wake cycle is the melatonin hormone, which is thought to be suppressed by this blue light[30]. This causes sleep disruptions and lowers the quality of sleep[30].

The effect of sleep disturbances on one's physical and mental health is extremely detrimental[30]. Poor sleep quality has been associated with an increased risk of weight gain, obesity, metabolic syndrome, hypertension, glucose intolerance, and diabetes[30]. Lack of sleep impairs cognitive functioning and raises the danger of depression, stress, and anxiety[29]. Many people are concerned about not getting enough exercise, spending too much time in front of devices, and being too sedentary (i.e., watching television or using their smartphones)[31]. This is a problem because of the detrimental effects on health caused by insufficient physical activity and excessive sedentary behavior, including obesity, depression, restless nights, and unsatisfactory psychosocial behaviors[31]. According to recent research, prolonged periods of inactivity may be worse for your health than screen time[31]. But screen time can increase the level of inactivity in individuals. Technology is advancing so quickly that smartphones are now a typical item that people use for a significant portion of their waking hours. Physical exercise does not make up for excessive amounts of sedentary behavior, which has led to the conclusion that sedentary behavior and physical activity are mutually exclusive[31]. So, when examining their relationships with healthrelated variables, these factors must be taken into account separately[31]. According to reports, teenagers with a history of mental health issues behaved worse in class, but this association vanished once their sickness was properly treated[30]. Depressive episodes may

hinder a student's motivation to seek treatment, which could negatively impact how involved they are in their academic program of study[25].

Depressed students are more likely to drop out of school, miss more lectures, tests, and assignments, and compared to classmates who are not depressed, they are more likely to give up on their studies entirely[23].

Students who are depressed may get stuck in a cycle where their hopelessness interferes with their ability to perform academically[24].

On these possibilities in the context of Nigerian secondary school students, few empirical research has been conducted in Nigeria as they prepare for their SSCEs (Secondary School Certificate Examinations)[39]. To assist various secondary education stakeholders in Nigeria, including school administrators, topic teachers, parents and guardians, and students themselves, to receive the guidance they need to make the best choices and take the necessary steps to advance secondary schooling. It is essential that this knowledge gap regarding the extent and perceived impact of secondary school students' use of CCD (computing-communication devices) be closed[39]. To fill in this knowledge gap and acquire a thorough understanding of how CCD screen use time affects students' preparation for the Senior School Certificate Examination (SSCE) in Nigeria, a study was inspired[39]. For some people, participating in academic and social activities is difficult due to the stigma associated with depression[25]. In addition to any potential risks brought on by the increased usage of screen devices, technology is changing the way that higher education is taught[35]. Modern teaching techniques and practices are increasingly being replaced by electronic tools[35]. M-learning, or mobile learning, has become a cutting-edge, modern approach[35]. The results imply that mobile learning has enhanced Additionally, innovative mobile applications have been introduced for boosting teaching and learning processes student learning and features that support mobile device use in higher education. Additionally, promising mobile applications for enhancing teaching and learning

procedures have been presented[35]. As students gain autonomy to create their own learning processes, m-learning has been positioned as a technology that enables individualized and personalized learning processes[35]. Another element that enhances learning is the students' and teachers' comfort and familiarity with using mobile devices[35].

In order to promote self-learning and boost motivation, it is essential to involve students in their own learning process[35]. Utilizing M-learning also promotes the use of mobile devices as a more direct form of communication. Managing the instructional materials and spending time with students and teachers to help them accept M-learning as a helpful teaching tool that encourages collaboration and provides students the freedom to express their creativity is also vital. Mobile phones have helped part-time students and distance learners in further and higher education over the past five years in the US, the Far East/Pacific Rim, and the UK[36]. The delivery and facilitation of learning via mobile devices are also referred to as "mobile learning." With the widespread use of mobile phones around the world, there has also been a rising knowledge of the potential of mobile phones to promote learning as well as the evolution of cultural life and social behavior[36]. It has been done successfully to distribute instructional content utilizing mobile devices[36]. Studies on learning literature and learning foreign and local languages through SMS are both available[36].

There is also knowledge of employing cell phones to promote academic endeavors. This work demonstrates how SMS can be used for alerts, reminders, bite-sized content, introductions, recommendations, and revision, as well as support, motivation, and continuity[36]. Any SMS service is expected to eventually move from operational concerns, via educational and pastoral support, to fully monitored asynchronous conferences. according to online learning specialists who are preparing to change their assistance strategies to work with SMS[36]. In the contemporary era of information and communication technologies, individuals have become accustomed to utilizing computers and computer programs[36]. However, the utilization and

development of mobile applications represent a relatively recent and expanding sector of the economy. The influence of mobile applications on the global community is undeniably positive[37]. These applications play a pivotal role in facilitating societal modernization and the establishment of new types of IT infrastructure in underdeveloped nations, while simultaneously enhancing accessibility in more affluent countries[37]. A compact and user-friendly handheld device that can be carried anywhere allows users to seamlessly run these mobile applications[37]. Consequently, a multitude of individuals now rely on mobile applications for various purposes, including social interaction, internet access, file management, document creation, entertainment, and more, regardless of their geographical location or circumstances[36]. There are many options available to people for their daily and professional lives[37]. In addition to how they are utilized by individuals and organizations, mobile applications have a substantial impact on both. Many businesses rely on mobile applications to make money. Today's society is affected generally by smartphone applications[37]. The usability of the mobile application depends on a number of applications, among them are the screen resolution, hardware limitations, costly data usage, connectivity issues, and the limited amount of interaction options[37]. The mobile industry has been attempting to create devices in recent years with higher screen resolutions, more storage, and better connectivity to create better environments for current mobile applications[37]. At first glance, the mobile app seems to be the most straightforward replacement for our old cell phones, alarm clocks, currency calculators, etc[37]. Back then, only simple functions like receiving calls and messages and simple calculations were performed on mobile devices[37]. But the goal of mobile application developers has always been "Why Simple?" However, they were aware that everyone would utilize mobile applications in the future as they explored their wide feature set. Mobile application developers talked about internet-based mobile applications around 2000[37]. Now, people can use those mobile applications to connect to the internet for their daily needs[37]. The mobile sector lagged in many areas of the world, including the EUA. Mobile networks in that region of the world

were not very developed. Having high hopes for a mobile application, as a result, is humorous[37]. However, if we consider Europe, where the largest mobile companies in the world, such as Nokia, Ericsson, etc., have their headquarters, we can see where the innovations in mobile technology originated[37]. The fundamental issue is that those companies produced mobile applications in addition to cell phones for mobile operators. However, they might cause a slowdown[37]. These distanced the developer from the client. Whatever they developed, whether it arrived on schedule or not, it caused frustration for the developer[37]. In the United States, a business announced that they will be releasing a cell phone that would transform the market's motivation six years ago[37]. The operator's list of requests didn't concern them, they set out to develop a mobile application for use on cell phones and they eventually succeeded in doing so[37]. When the iPhone debuted, it quickly rose to the top of the most-wanted list in recent years[37]. Most applications are web-based and have fantastic functionality. Then, there is a rapid increase in the use of mobile internet[5]. These smartphone apps are designed to help us with our daily tasks and give us access to the internet, interact with the outside world, gather data from far-off places, have social conversations on Facebook or Twitter, determine our location, and more[37]. You're returning home so you may use your phone to turn on the air conditioning before getting there[37]. Additionally, you can connect the alarm in your house or car to your mobile device[37]. Since a few years ago, every mobile manufacturer has been making smartphones and feature phones. The number of intelligent mobile applications also rises as the processing power of such mobile phones does. The majority of people who live in industrialized countries, especially in America and Europe, find it impossible to imagine leaving the house without a mobile device[37]. Mobile app adoption is expanding quickly across the board, not just in developed nations but also in developing nations[37]. Voice chat, Facebook, Twitter, and web browsing are all examples of mobile applications that are used for communication. Nowadays, a user can share anything with their friends and family on Facebook at any time and any place, even a car or train[37]. Facebook Messenger is a messaging app. A consumer can make

inexpensive calls to any location on the earth by using VoIP software and the internet[37]. The most common GPS applications are current position mapping, road navigation, vehicle tracking, etc. We can locate any location with the aid of Google Maps[37]. We can view products, choose products, and place product orders via mobile commerce. Mobile wallet is occasionally used in markets or restaurants to complete payments[37]. Making business transactions is possible using a mobile application. Another function of mobile applications includes mobile banking and e-Ticketing[37]. On occasion, we can remotely operate home appliances using a smartphone app that works with an internet connection[37]. Outside of offices, some employees and business owner's work. People can watch videos and films directly from YouTube by using a smartphone app. They play audio and video.

Children can use mobile games, which are types of mobile application[37].

Ages 10 to 19 are considered adolescent years by the World Health Organization (WHO)[1]. According to the UN, youths are people who fall between the ages of 15 and 24[1]. The WHO and other organizations refer to adolescents and youth when they use the term "young people" to describe persons between the ages of 10 and 24[1]. 24% of the world's population is under the age of 24, or young people[1]. Considering the fact that the larger population in Nigeria consists of young people, the age range of undergraduate students in Nigeria makes it essential to talk about their health difficulties[1].

The connection between screen usage and unhappiness among undergraduate students will be investigated in this research. Due to a confluence of sociological, economic, and technological circumstances, smartphones, television, video games, and personal computers have evolved into an indispensable companion and is needed in the lives of university students in the twenty-first century. It is also an escape mechanism, accounting for almost certain prolonged exposure to digital screens[2]. According to the Nigerian Communications Commission, Young people in Nigeria typically spend three to ten hours each day in front of screens[3]. They frequently spend a

lot of time online, unsupervised and unmoderated, in potentially hazardous environments like social media, messaging apps, live-streaming apps, virtual worlds, interactive games, and so on[3]. Young people meet strangers through social media and often times divulge too much information about themselves, therefore increasing the chances of harm. Young people in Nigeria are addicted to using electronic devices, according to studies[3]. This was not the case in the past when children had less access to technology[3]. Before everyone had access to technology, the majority of

Nigerian youth were physically active because they participated in activities like "Soccer," "Kite," "Boju Boju," "Suwe," "Tinko Tinko," and "Ten-Ten," among many others[3]. But in modern times, a researcher has observed that these active games have given way to more addictive passive games using digital devices to assess applications allowing them play games like Nitendo, X Box, Candy Crush, Chess, Pro Evolution Soccer (PES), Car Race, and others, while other kids prefer to watch cartoons as well as movies like Scooby-Doo, Tom and Jerry, Sponge bob square pants, and so on[4].

In Nigeria, parents have contributed to this by forbidding their kids from playing with the kids from the neighborhood. Due to this observed trend among young people in Nigeria, traditional sports have been replaced by increased time using a screen[4].

Children's Medical Society of America advised setting a daily limit of two hours for children's screen time[4]. Children a greater propensity to put on weight and increase blood pressure when kids are exposed to screens on a regular basis, whether it be watching TV, browsing the internet, chatting, playing games, etc[4].

There is a need for analysis of the relationship between student screen time and, academic achievement, and mental well-being (depression)[4].

People of all ages can experience depression, a prevalent mental health illness that has been linked to significant academic, emotional, and cognitive impairment[4]. Researchers have shown a link between youths' use of digital devices and a rise in internalizing problems[4]. The widespread mental illness known as depression can affect people of any age[4]. severe cognitive, emotional, and intellectual problems that are also related to depression[4]. Researchers have discovered a connection between the amount of time children spend in front of computers and an uptick in integration issues[5].

## 1.2 Statement of the Problem

A study was carried out by the Nigerian Communications Commission (NCC), which discovered that there are various sorts of addiction to digital technology, including binge watching videos, playing video games compulsively, and unrestrained social media usage and communication[6].

Additionally, Nigeria was ranked sixth-to-last out of 30 peer nations in the 2020 Child Online Safety Index study, it showed that children in Nigeria used technology more disorderly and at larger rates[6]. Frequently, these addictions result in depression, this is a common health issue and is the third-most common cause of disability, following illnesses of the heart and lungs[8]. High amounts of screen usage are rather typical among university students, there have been cases of depression-related suicide among undergraduate students, and it may be a global problem[8].

## 1.3 Justification of the Study

Poorer sleep is linked to more screen time, academic performance, behavior problems, and mental health, but it is also associated with improved peer interactions, according to previous studies[9].

Consequently, the frequency with which kids and teens utilize electronic media raises the topic of whether or not screen time is unhealthy for youngsters[9].

The future of undergraduate students depends on their ability to succeed in the classroom, and sorrow of varying degrees of severity has been observed among them[8]. To enhance undergraduate students' health, further research is necessary in this area[9].

## 1.4 Aim and Objectives of the Study

The objective and aim are to learn the association between screen time and depression in undergraduates at Lead City University in Ibadan.

Specific Objectives

Objective 1: To determine the amount of screentime spent by undergraduate students in lead city university Ibadan

Objective 2: To determine the level of depression among undergraduate students

Objective 3: To determine the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Screen Time.

Objective 4: To determine the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Depression.

## 1.5 Research Questions

1. What is the amount of time spent on screen by students of Lead City University?
2. What is the level of depression due to time spent on screen?
3. What are the factors associated with screen time and depression among undergraduate students in Lead City University.
4. What is the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Depression

## 1.6 Significance of the Study

Due to the many advantages of technology, screen time has substantially increased. Although the material is few and conflicting, there may be a link between youth use of screen-based technology anxiety and depression[10]. Previous studies have found a negative correlation between academic success and television viewing among young people. Researchers found that youth depression is on the rise and that psychological problems, according to predictions, depression will be one of the primary causes of morbidity and mortality in young people[11]. These findings suggest that youth depression is on the rise and that increased the frequency of internalizing issues are linked to how much time young people spending time in front of screens

Therefore, this study examines the relationship between four common forms of screen usage among young people: computer use, viewing television, playing video games, and using social media. Comparing that to depression to maintain awareness, which will enhance young people's lives and mental health.

## 1.7 Scope of the Study

Ibadan, Oyo State, Nigeria was chosen as the study location because it is Nigeria's city with the third-highest population after Lagos and Kano. Dominican University, Koladaisi University, Lead City University, Precious Cornerstone University, The First Technical University Ibadan, and the University of Ibadan are the universities in Ibadan. While Dominican University, Koladaisi University, Precious Cornerstone University, and the First Technical University Ibadan were on summer breaks during the time of proposing this study, the university of Ibadan was closed owing to the academic staff union of universities strike. The research work was limited to collegiate undergrads at Lead City University in Ibadan, Oyo State, Nigeria because the administrative department of the school was in operation and the faculty had a management team available in the school even though it was summer break period. There will be no

departmental limitation as a total of 10 faculties will be included in the study. Screen time of undergraduates will be assessed per weekday and compared with the recommended screen time for young people, Self-reported assessment of depression to establish whether there is a connection between screen time and depression.

## 1.8 Limitation of the Study

The focus of this research is on one of the most contemporary and evolving research problems, few published works exist in this area, especially within Nigeria. Most schools in Ibadan were on summer break during the period this study proposal was done, and the University of Ibadan was on (ASUU) strike. Another is time constraints which is due to the time allocated to the work, Observation, and data collection will be done in a short period of time (less than 3 months).

## 1.9 Operational Definition of Terms

Mobile Learning: The use of personalized, interactive, networked mobile devices in collaborative learning settings, fieldwork, counseling, and assistance is referred to as mobile learning[36]. Mobile devices are improving medical education, teacher preparation, music composition, nursing education, and many other fields[36]. They also enhance corporate training for mobile personnel[36]. Mobile Technology is becoming a practical and creative element of institutional assistance. They provide distinctively "situated" and "context-aware" learning experiences, and they may also be used to reach distant or inaccessible students and improve conventional education or conventional e-learning in other circumstances[36]. The challenges of applying social norms to mobile learning, by providing information that is useful for mobile devices, in development work, the effects of enabling online mobile learner communities are all being investigated. There is now minimal research that examines how the common e-learning pedagogies might be applied in the mobile environment, and there is also limited work that

looks beyond using technologies that are readily available on the market to ones that are supported by reliable pedagogical theory[36]. Only recently have evaluation specifics and ethical considerations for has mobile learning been considered[36]. Perhaps the best definition of mobile learning is "any educational setting where the only or predominant technologies are handheld or palmtop devices[36]." According to this definition, Mobile phones may be used for mobile learning, cellphones, PDAs, tablet PCs, laptop PCs, and their accessories, but exclude PCs on wheels and similar devices. Maybe both common and commonplace should be included in the definition. industrial technology and unique experimental technologies, and it should also take into account the increasing number of experiments being conducted using specialized mobile devices like game consoles and iPODs[36].

Mobile Application: a program or group of programmes that are installed on mobile devices and "Mobile applications" relate to programmes that the user can employ to carry out specific tasks[37]. Mobile applications are a brand-new and quickly expanding field of information and communication technology[37]. Most mobile devices, even the most affordable and entry-level versions, that can employ user-friendly mobile applications that can be downloaded[37]. Due of the mobile application's extensive features, which include phoning, there are a variety of uses for it, Audio, video, gaming, social network communication, surfing, chatting, and several other activities[37]. Phones come with a variety of pre-installed mobile applications, while others are available for internet users to download and install. publishers of mobile applications are multiplying; Service providers and developers cater to this enormous market for mobile applications[37]. Technically, the different mobile applications can run on a range of managed platforms, Windows, BlackBerry, Android, iPhone, and more platforms. Based on the application industry, there are numerous categories of mobile applications[37]. First; Communication: Social networking, email, and instant messaging clients. Second category; Puzzle/Strategy, Card/Casino, and Adventure/Action Games. Third category; Multimedia,

including viewers for graphics and images, presentations, video players, and audio players. Fourth category; Productivity: Spreadsheets, Word Processors, Notepads, Calculators, Diaries, and Calendars.

Fifth category; Travel: Weather, GPS/Maps, Translators, City Guides, Currency Converters, and Weather. Sixth category; Tools: File manager, Address book, Task manager, Idle screen/Screen saver, Profile manager, and Call Manager[37].

“Technologies: Technology can be broadly categorized into two primary components: the physical aspect, encompassing items such as products, tools, equipment, blueprints, procedures, and processes; and the informational aspect, comprising knowledge in various domains including management, marketing, manufacturing, quality control, reliability, skilled labor, and functional expertise. Some individuals perceive technology as a 'configuration,' emphasizing that the resulting artifact (technology) hinges on a series of actions and outcomes that, although specific, are somewhat arbitrary[38]. Technology always revolves around the attainment of particular objectives, the resolution of specific challenges, and the execution of distinct tasks, all while employing a specific blend of skills, knowledge, and resources[38]. The term "technology" refers to both the technology itself and the knowledge or information about how it is used, applied, and created as well as the method by which the product is created[38]. The original idea of technology as information asserts that it is broadly applicable and simple to duplicate and reuse[38]. Within organizations, technology is mostly a differentiated knowledge about a particular application that is tacit, frequently uncodified, and largely cumulative[38]. Thus, technology is seen as the company's "intangible assets" or "firm-specific" that under special circumstances can include information that is difficult to replicate and transfer[38]. This information is the foundation of a firm's competitiveness. According to this viewpoint, technology is considered to be "firmspecific, tacit knowledge, secrets, or knowledge known by one organization[38]." Because tacit information must be transferred at a slower pace and at a

higher cost than explicit knowledge, technology is one of the company's intangible assets and is difficult to transfer[38]. "Moreover, the process of technological learning plays a crucial role in the assimilation and integration of transferred technology and valuable technological knowledge, constituting an intangible asset for the firm. This knowledge is not easily transferrable between firms and requires a deliberate learning process to effectively incorporate it into the organization's operations[38]."

"When it comes to screen time, there exists a variety of definitions provided by different individuals, leading to challenges in standardization, measurement, and cross-comparison[38]. The Oxford English Dictionary defines screen time as 'the amount of time spent using a device such as a computer, television, or games console,' which highlights the diversity of interpretations surrounding this term. whereas the World Health Organization's most recent guidelines focus on sedentary screen time and defines it as "time spent passively watching screen-based entertainment" (TV, computer, mobile devices). Active video games on screens that require movement or physical effort are not included in this[29]. While one's quality of life might be negatively impacted by the mental health condition of depression, suicidal thoughts are among the symptoms[29]. They range from a lack of interest in formerly joyful and rewarding activities to having a sad mood (feeling gloomy, angry, or empty) or losing interest in activities for the majority of the day, virtually every day, they are all signs of a depressive episode, especially when it lasts at least two weeks[30]. The global prevalence of depression is a significant concern, with estimates from the World Health Organization indicating that more than 300 million people are affected by this condition worldwide[31]. Depression may manifest through various symptoms, including difficulties in maintaining focus, overwhelming feelings of guilt or diminished self-esteem, a pervasive sense of hopelessness regarding the future, contemplation of self-harm or suicide, disruptions in sleep patterns, alterations in dietary habits or weight, and experiencing an unusual and persistent sense of fatigue or low energy[31].

Furthermore, social media stands as a prominent example of interactive technology, facilitating online communication among users who exchange information, ideas, perspectives, and multimedia content through websites and applications[32].

As a result, social media has become ingrained in people's daily lives, providing them with the most up-to-date information from around the world[32].

The first research on emotional intelligence (EI), conducted in 1990, defined it as the capacity to keep track of one's own and other people's feelings and emotions, make distinctions between them, and utilize this knowledge to inform one's decisions and behavior[33]. The "ability model" focuses on ideas that arouse intelligence through emotional comprehension. The "trait model," which measures EI through intrapersonal skills, interpersonal skills, stress management, adaptability, and general mood, was then presented[33]. The "mixed model" of emotional intelligence, also known as the "competency model," depicts a chain of aptitudes and proficiencies encompassing the fundamental ideas of self-awareness, social skills, selfregulation, motivation, and empathy[34].

It views emotional intelligence (EI) as a collection of skills that enable an individual to face interruptions while maintaining the ability to think, empathize, and remain upbeat[34]. As a result, all of these ideas agree that emotional intelligence consists of a combination of four distinct yet related skills: recognizing emotions, using emotions, understanding emotions, and controlling emotions[35]. It makes it possible for someone to identify, express, control, and respond to their own emotions. They can then use this ability to track and control their own emotions and behaviors[35].

Academic Success: This is described as the development of capacities, skill sets, and talents as well as the acquisition of subject knowledge and application success, in line with the objectives of the Nigerian educational system[36]. Academic achievement is significantly influenced by

internal factors like ambition, self-directed learning, and individual mastery as well as external factors like the curriculum, instructional strategies, and the student support system[36].

Emotional Intelligence (EI): This is essential for assisting students in meeting their emotional requirements and achieving academic success, especially in difficult circumstances[37]. By establishing a link between educational accomplishment, effective learning, and learning attempts[37].

EI helps people become more self-aware, which helps them recognize their goals and make changes in their lives by choosing coping mechanisms to reduce stress and anxiety and enhance their mental health[37].

Negative emotions that surface when studying, such as anxiety, boredom, and dissatisfaction, have been acknowledged to be normalized by EI[38]. Students with greater EI are better able to interact with teachers, peers, and family members[39]. These skills overlap with the interpersonal and communication abilities necessary for academic proficiency[39]. Therefore, EI is a crucial skill that students must master to increase their well-being and future professional success, according to educators, researchers, and legislators[39].

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# Chapter Two

## 2.1. Conceptual Review

Depression is a prevalent mental health concern among adolescents, exerting substantial and wide-ranging effects on their well-being[1]. This article discusses the profound impact of depression on adolescents and young adults while emphasizing the need for early recognition and intervention[1]. Depression significantly affects adolescents, with a substantial portion experiencing depressive symptoms during their teenage years[1]. Notably, depression isn't solely a mental health issue; it also influences physical health[1]. Adolescents grappling with depression often exhibit symptoms like altered appetite, sleep disturbances, and fatigue, all of which can have pronounced implications for their overall health[1].

Academic performance can suffer due to depression, as it can hinder concentration, regular attendance, and completion of assignments[2]. These academic setbacks may lead to enduring consequences on educational and vocational pursuits[2]. Depression frequently results in social withdrawal and difficulties in forming and sustaining relationships[2]. Adolescents with depression may isolate themselves, fostering emotions of isolation and detachment[2]. To cope with depression, some adolescents resort to risky behaviors such as substance abuse or self-harm, intensifying their mental health struggles and presenting further risks[2]. The ramifications of adolescent depression often persist as individuals transition into young adulthood, impacting their capacity to establish independence and pursue personal and career goals[2]. Left untreated, adolescent depression heightens the risk of recurrent depressive episodes in adulthood and contributes to the development of other mental health conditions, including anxiety disorders[3]. Depression significantly elevates the risk of suicidal ideation and attempts among adolescents and young adults, underscoring the urgency of identification and support[3].

Timely identification and intervention are crucial in addressing adolescent depression. Ensuring access to mental health services, counseling, and robust support systems can substantially improve well-being and future prospects[3]. A comprehensive approach to tackling adolescent depression involves not only mental health professionals but also educators, parents, and the community[3]. Reducing the stigma around mental health and fostering a supportive environment encourages adolescents to seek help when needed[3].

Depression stands as a prominent factor in adolescent morbidity, its implications extending into young adulthood[3]. Recognizing the signs of depression and offering timely intervention are essential steps in addressing this critical issue and enhancing the overall health and prospects of young individuals. Excessive screen time can significantly impact individuals between the ages of 10 and 18, a demographic primarily comprising adolescents[4]. This age group is particularly susceptible to the consequences of excessive screen time due to their stage of development and lifestyle[4]. Prolonged screen time tends to encourage a sedentary lifestyle, diminishing physical activity levels. Adolescents may spend extended periods sitting, resulting in health issues such as obesity, poor posture, and musculoskeletal problems[4].

Screen use, especially before bedtime, can disrupt sleep patterns. Exposure to the blue light emitted by screens can interfere with the production of melatonin, a hormone vital for regulating sleep, potentially leading to sleep disturbances among adolescents[4]. Excessive screen time has been associated with an increased risk of depression and anxiety among adolescents[5]. Factors contributing to this risk include feelings of isolation, cyberbullying experiences, and exposure to distressing content on social media[5]. Excessive screen time may limit opportunities for face-toface social interactions, which play a crucial role in the development of social skills and emotional intelligence[5]. Adolescents who allocate substantial time to screens may experience reduced academic productivity. This decline can result from distractions, procrastination, and a decreased amount of time dedicated to studying and completing

homework[6]. Excessive screen time can contribute to attention and concentration difficulties in adolescents. Frequent multitasking between screens and other activities may negatively affect cognitive growth[6]. Relying heavily on screens for entertainment and information may restrict opportunities for critical thinking and problem-solving, crucial skills for adolescents' development[6]. Adolescents who spend substantial time online may face a heightened risk of encountering cyberbullying and online harassment, leading to severe emotional and psychological consequences[7]. Exposure to social media can result in persistent social comparison, potentially damaging self-esteem and body image[7]. Parents often express concerns about their children's screen time and the content they access. Monitoring and implementing screen time limits can be challenging yet necessary[7]. Adolescents require guidance on digital literacy and responsible online behavior. They should receive education regarding potential risks associated with excessive screen time and learn how to protect their privacy and well-being while online[7]. Excessive screen time can indeed impact individuals between the ages of 10 and 18 in various aspects of their lives, including physical health, mental health, academic performance, cognitive development, social and emotional well-being, and parental concerns[7]. To mitigate these potential negative consequences, it is crucial for parents, educators, and healthcare professionals to promote a balanced approach to screen time and provide guidance to adolescents on responsible digital usage[7].

Several studies have indicated that excessive screen time during adolescence is correlated with a higher risk of developing symptoms of depression[8]. This risk can be attributed to factors such as cyberbullying, social isolation resulting from excessive screen use, and exposure to distressing content[8]. Adolescence is a critical period of emotional and psychological development. Excessive screen time during this phase may disrupt the development of coping mechanisms and emotional regulation skills, potentially making individuals more vulnerable to depression[8].

The impact of excessive screen time during adolescence may not end with adolescence itself. It can have carryover effects into adulthood[8]. Individuals who experienced depression or mental health challenges during their teenage years may continue to grapple with these issues as adults[8]. Excessive screen time, often involving the consumption of digital content or social media, can serve as a form of escapism for adolescents[8]. They may turn to screens to avoid addressing underlying emotional or psychological challenges, which can reinforce maladaptive coping strategies[8]. Excessive screen time may limit opportunities for face-to-face social interactions. Adolescents who spend more time online may miss out on essential social skill development, making it difficult to form meaningful connections in adulthood[9]. Extended screen time is often associated with a sedentary lifestyle, which can contribute to physical health issues such as obesity and poor sleep[9]. These physical health concerns can indirectly impact mental health and contribute to the chronicity of depression[9].

Excessive screen time can lead to digital addiction, where individuals have an overpowering urge to use screens, even to the detriment of their well-being. Digital addiction can exacerbate mental health issues like depression[9]. Recognizing the potential consequences of excessive screen time, early intervention and support for adolescents experiencing mental health challenges are crucial[9]. Identifying at-risk individuals and providing appropriate interventions can help prevent chronic depression[9]. Excessive screen time during adolescence can indeed contribute to the development and potentially the chronicity of depression in adulthood[9]. This phenomenon underscores the importance of promoting healthy screen time habits, fostering emotional resilience, and providing mental health support to adolescents[10]. Promoting a balanced approach to digital usage and teaching effective coping strategies is crucial, especially for adolescents who may be susceptible to the potential adverse consequences of excessive screen time[10]. Here, it's essential to educate adolescents and their caregivers about recommended daily screen time limits based on age and the potential consequences of excessive screen use[10]. Encourage the creation of areas within homes, such as bedrooms and

dining spaces, where screens are not allowed. This promotes faceto-face interactions and better sleep patterns[11]. Teach adolescents critical thinking skills to evaluate the credibility and potential impact of online content. Discuss the importance of recognizing misinformation and sensationalism[11]. Encourage participation in physical activities, sports, and hobbies that require movement and reduce prolonged screen time[11]. Advocate for real-world social engagements with friends and family. Organize group activities and outings to encourage face-to-face connections[11]. Promote regular breaks from screens, particularly before bedtime. Implement periods of digital detox to unwind and relax without digital distractions[12].

Introduce mindfulness techniques, relaxation exercises, and coping mechanisms to help adolescents manage stress and emotions effectively[12]. Cultivate open and non-judgmental communication between caregivers and adolescents[13]. Encourage them to express concerns and emotions related to screen time and its effects[13]. Adults, including caregivers and educators, should demonstrate responsible screen time behavior. Adolescents are more likely to adopt balanced habits if they observe responsible digital use in adults[13]. Ensure that adolescents have access to mental health resources and counseling services if needed. Emphasize the importance of seeking help when dealing with emotional challenges[13]. Employ parental control features and applications to limit screen time and supervise content for younger adolescents. Gradually grant more autonomy as they demonstrate responsible digital habits[14]. Assist adolescents in discovering and pursuing hobbies and interests that do not involve screens. Engaging in creative activities, reading, or joining clubs can provide fulfillment[14]. Teach adolescents to prioritize schoolwork and other obligations over excessive screen time. Balancing academic commitments and leisure activities is essential[14]. Periodically review screen time habits as a family. Adjust guidelines and strategies based on the evolving needs and challenges faced by adolescents[14]. By advocating for a balanced approach to digital usage and equipping adolescents with effective coping mechanisms, we empower them to make informed decisions

regarding screen time and their mental well-being[15]. Encouraging healthy technology habits and emphasizing real-world connections can help adolescents navigate the digital era with resilience and self-assurance[15]. Encouraging a balanced approach to digital usage and teaching effective coping strategies can mitigate the long-term impact of excessive screen time on mental health[15].

Encouraging mindfulness and meditation practices can aid in reducing stress, enhancing emotional regulation, and bolstering overall well-being[16]. Regular physical exercise, whether through sports, yoga, or outdoor activities, releases endorphins, providing a natural mood boost and helping to reduce screen time[16]. Monitoring screen time is an important step in understanding usage patterns and setting achievable goals for screen time reduction[16]. Cultivating in-person relationships with friends and family offers emotional support and combats the isolation associated with excessive screen time[17]. Encouraging creative pursuits such as art, writing, or musical endeavors can provide a constructive outlet for emotions[17]. Setting clear limits on screen time, particularly before bedtime, can improve sleep quality[17]. Designating regular screen-free intervals or detox days allows individuals to rejuvenate and concentrate on non-screen activities[18]. Employing content filters and parental controls can restrict access to distressing online content[18].

Seeking guidance from mental health professionals is advisable when excessive screen time significantly impacts mental well-being[18]. Creating a structured daily schedule that encompasses academics, physical activity, hobbies, and relaxation contributes to a sense of control and wellbeing[18]. Emphasizing self-compassion and self-care underscores the importance of breaks, prioritizing self-wellness, and seeking assistance when necessary[19]. Developing critical thinking abilities aids in critically evaluating online content, verifying sources, and identifying misinformation[19]. Collaborating with adolescents to establish attainable goals for screen time reduction and monitoring progress together[19].

Parents and caregivers play a pivotal role in assisting adolescents by offering guidance, support, and positive role models[19]. Promoting awareness of the potential consequences of excessive screen time underscores the significance of achieving equilibrium and responsible digital engagement[20]. These effective coping strategies empower individuals to regain command over their screen time habits and alleviate the adverse impact on mental health. Customizing these approaches to individual preferences and requirements is vital, as responses may differ[21]. By advocating for constructive coping mechanisms, we can aid adolescents and young adults in navigating the digital era with resilience and improved mental well-being." Excessive screen time typically affects people between the ages of 10 and 18 and can cause depression to become chronic and more enduring as adults. But because physicians are trained to watch out for adult depression symptoms, which may show differently in young students, depression is significantly underdiagnosed in young individuals[22]. The development of depression is the main factor in adolescent morbidity and has a significant negative impact on the young adult population, particularly those who are still in school[21].

According to the Oxford English Dictionary, social media is "a series of Internet-based application that builds on the theoretical and technological foundations of Web 2.0 and enables the creation and exchange of user-created content," and it can be accessed through mobile devices like smartphones and tablets[26]. The most popular social media platforms, particularly among young people, have altered how individuals engage with one another. Examples include Facebook, Snapchat, Twitter, and Instagram. Additionally, it has been discovered that people who spend more time online display worse depressive symptoms[26]. This demonstrates a connection between screen time and depression in young adults in college.

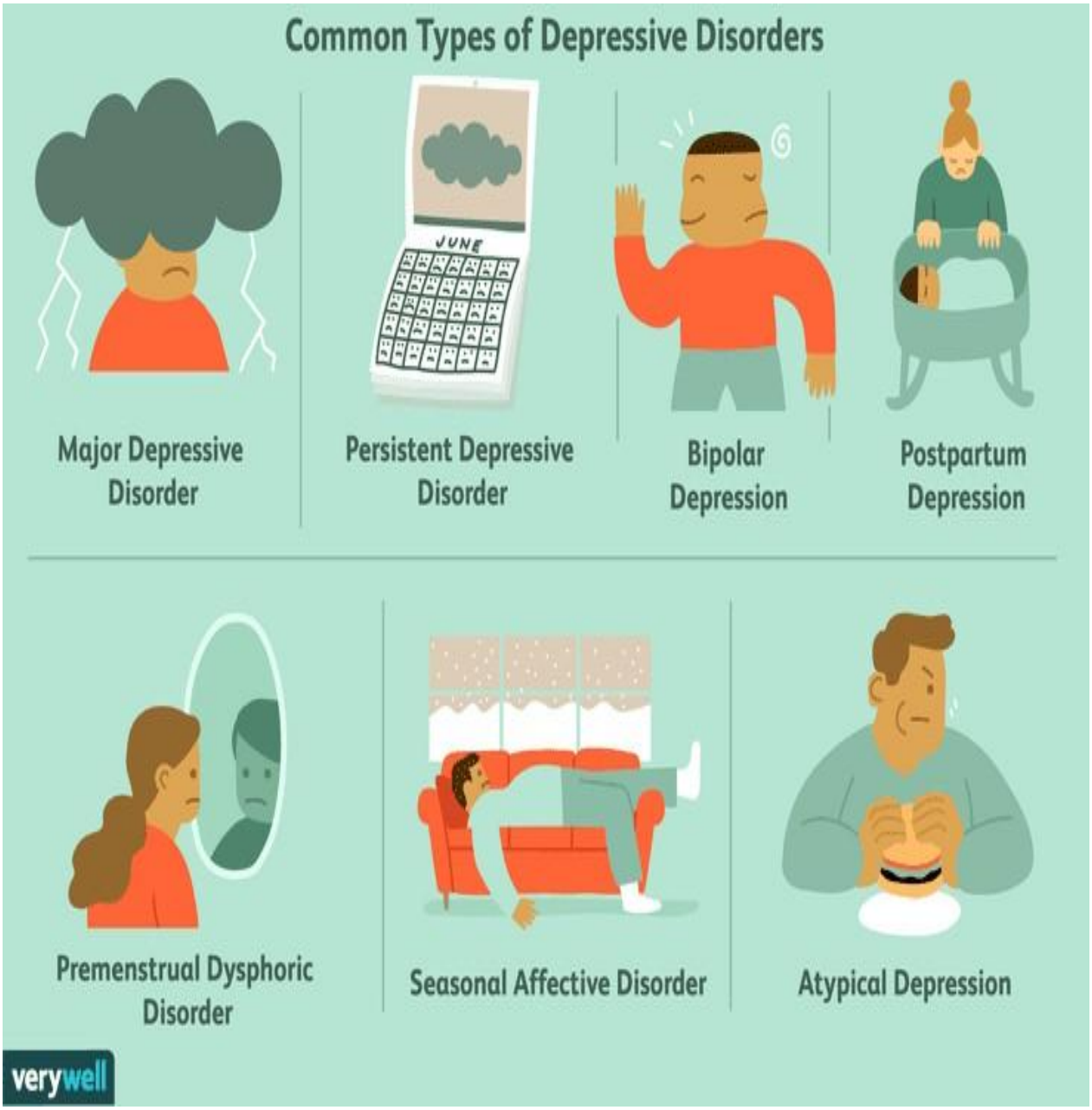



Plate 2.1 7 Common Types of Depression
Source[43]

Major Depressive Disorder (MDD): According to projections by the World Health Organization (WHO), Major Depressive Disorder (MDD) is anticipated to surpass all other diseases by the year 2030, becoming the third-leading cause of global disease burden[44]. When an individual

experiences persistent symptoms such as suicidal ideation, enduring low or depressed mood, anhedonia (the inability to derive pleasure from once-enjoyable activities), feelings of guilt or worthlessness, diminished energy, impaired concentration, alterations in appetite, psychomotor retardation or agitation, sleep disturbances, or any combination thereof, it is imperative to seek prompt medical attention[45].

Depressive disorders encompass a spectrum of conditions, including those previously referred to as dysthymia, persistent depressive disorder, disruptive mood dysregulation disorder, premenstrual dysphoric disorder, substance/medication-induced depressive disorder, depressive disorder arising from another medical condition, and unspecified depressive disorder[45]. A clinical diagnosis, of major depressive disorder, is mostly determined by the patient's clinical history and a mental state evaluation[45]. Along with the symptomatology, the clinical interview must also cover the patient's medical history, family history, social history, and drug use history.[45] A crucial component of psychiatric evaluation is the use of additional information from the patient's friends and relatives[45].

**Persistent Depressive Disorder**

It was previously known as dysthymia and chronic major depression, but the DSM-5 has recently given it a new name: persistent depressive disorder[46]. Due to the complexity and ongoing evolution of the nosology of depressive illnesses, this disorder is poorly understood, and its classification has changed over time[46]. Previously, this illness was thought to be a sad personality state, however, it would probably be more accurate to refer to it as a sickness state rather than a personality disorder (a permanent, pervasive way of approaching the world)[46].

For at least two years, the patient must be depressed, For teenagers, the required amount of time is one year, and the mood can be irritable rather than gloomy before it can be diagnosed[46]. The absence of symptoms cannot last longer than two months for either group[46]. At least two of the

following symptoms must also be present in addition to a depressed or irritated mood.[46]Poor appetite or overeating, hypersomnia or insomnia, low energy/fatigue, low self-esteem, poor concentration/decision making, and hopelessness[46].

**Bipolar Depression**

Individuals diagnosed with bipolar disorder (BD) often encounter substantial clinical challenges when grappling with depression[47]. Even when BD is effectively managed, depression remains the predominant psychopathological feature, and it is associated with heightened levels of morbidity, mortality resulting from concurrent general medical ailments, and an elevated suicide risk[47]. The prevalence of cardiovascular disease, metabolic syndrome, diabetes, and various other medical conditions, along with the corresponding mortality rates, is significantly greater among individuals with BD compared to the general population or those afflicted by other psychiatric disorders[47]. The Standardized Mortality Ratio (SMR) for suicide among individuals with BD is approximately 20 times higher than that of the general population and surpasses the rate observed in individuals with other severe psychiatric disorders. Factors such as hospitalization, duration of depressive episodes, and the presence of mixed (agitated-dysphoric) and depressive phases within BD are strongly correlated with the risk of suicide[47]. Depressive episodes in BD patients must be properly understood, diagnosed promptly, and treated both short and long-term[47]. However, these issues are surprisingly not sufficiently resolved[47]. Strong associations between bipolar depression and overall morbidity, other co-occurring psychiatric diseases (particularly anxiety and substance misuse disorders), disability, and excess mortality, primarily due to suicide in young patients, highlight the clinical relevance of the condition[47].

Patients with BD frequently fear, try to avoid, report, and seek out therapeutic assistance for depression. On the other hand, they might not regard little improvements in mood, vigor,

activity, or libido as clinically significant hypomanic symptoms, and they might even enjoy such states[47]. Without confirming information from a family member or close acquaintance, diagnostic ambiguity is particularly prevalent early in the illness course[47].

**Postpartum Depression**: Following childbirth, certain women experience postpartum depression (PPD), a complex interplay of behavioral, emotional, and physical transformations. PPD is classified as a severe form of depression that manifests within four weeks of giving birth, as stipulated in the DSM-5, a diagnostic manual employed for identifying mental disorders[48]. Diagnosis of postpartum depression hinges on assessing the severity of depressive symptoms and the timeframe between childbirth and the onset of these symptoms[48]. Postpartum depression is intricately linked to chemical, social, and psychological shifts that occur in response to childbirth[48]. This expression encompasses a range of mental and emotional adaptations commonly encountered by new mothers. Effective treatments for PPD include medication and counseling[48].

Detecting symptoms of postpartum depression can prove to be a challenging endeavor[48]. Following childbirth, many women experience these symptoms.[48] They include: Difficulty sleeping, changes in appetite, extreme tiredness, reduced libido, and recurring mood swings[48]. Another area of consideration is Premenstrual symptoms, which are a collection of psychological, behavioral, and physical symptoms that appear in women of reproductive age before menstruation and subsequently subside after the menstrual period[49]. Premenstrual symptoms have been acknowledged for an extended period, but it is only recently that specific diagnostic criteria have been established[49]. The majority of women encounter only mild discomfort, and these symptoms do not disrupt their personal, social, or professional lives.

However, a range of 5 percent to 8 percent of women grapple with moderate-to-severe symptoms that can lead to significant distress and impairment in daily functioning[49].

Historically, premenstrual symptoms were initially described as 'menses moodiness' in the eighteenth century and later as 'premenstrual tension' in the early nineteenth century[49]. Within this context, Premenstrual Syndrome (PMS) encompasses the group of women experiencing symptoms severe enough to hinder their everyday activities, despite the fact that some degree of discomfort before menstruation is quite common[49]. Premenstrual Dysphoric Disorder (PMDD), alternatively recognized as Late Luteal Dysphoric Disorder (LLDD), stands as the most severe manifestation within the spectrum of Premenstrual Syndrome (PMS). It exerts the most substantial impact on the functioning and perceived quality of life among affected women[49]. At present, PMDD is categorized as a distinct condition under Depressive Disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)[49]. It is characterized by the following diagnostic criteria

Criteria A: To meet the diagnostic criteria, at least 5 of the 11 symptoms listed below must be present, including at least 1 of the first 4 symptoms. The symptoms include severe depression, feelings of helplessness, negative self-talk, pronounced anxiety, tension, or a sense of being 'on edge,' significant mood swings, heightened interpersonal conflicts or persistent, noticeable anger, diminished interest in usual activities (e.g., work, school, socializing, hobbies), subjective difficulty concentrating, fatigue, easy exhaustion, or lack of energy, noticeable changes in appetite, overeating, or specific food cravings, sleep disturbances or hypersomnia, and a subjective sense of being overwhelmed or out of control[49]. Additionally, there may be physical symptoms such as weight gain, headaches, muscle or joint pain, breast tenderness, or bloating[49].

Criteria B: Severe symptoms that significantly interfere with social, occupational, sexual, or academic functioning are classified under this criterion[49]. Concerning Criteria C, menstrual symptoms should not only intensify before menstruation but should also differentiate from symptoms of other conditions such as major depressive disorder, panic disorder, dysthymic

disorder, or a personality disorder (even though these symptoms may overlap with those of these disorders)[49].

Criteria D requires confirmation through prospective daily assessments for at least two subsequent symptomatic menstrual cycles. A preliminary diagnosis can be made before this confirmation[49]. Seasonal Affective Disorder Many people experience brief times when they feel depressed or unlike themselves. These mood swings might sometimes start and cease with the change of the seasons[50]. When the days get shorter during fall and winter, people may start to feel "low" (also known as "winter blues"), and they usually start to feel better in spring when there is more daylight hours[50]. These mood swings can sometimes be more severe and have an impact on how people feel, think, and go about their everyday activities[50]. Seasonal affective disorder (SAD), a kind of depression, may be present in you if you frequently observe substantial changes in your mood and behavior[50]. SAD is a form of depression that is not thought of as a distinct condition and is distinguished by its repeating seasonal pattern, with symptoms lasting roughly 4 to 5 months per year[50].

Furthermore, in addition to the hallmark symptoms of severe depression, Seasonal Affective Disorder (SAD) exhibits distinctive features that vary between the winter-pattern and summerpattern types[50]. It's worth noting that not all individuals with SAD will necessarily experience every symptom[50]. Common symptoms of Major Depressive Disorder encompass feeling persistently low (almost daily), loss of interest in previously enjoyed activities, noticeable changes in appetite or body weight, disturbances in sleep patterns, feelings of lethargy or restlessness, a pervasive lack of energy, pervasive feelings of worthlessness or cynicism, difficulty maintaining concentration, and recurrent thoughts of suicide or death[50].

Specific to SAD with a winter pattern, additional symptoms may manifest, including excessive sleep (hypersomnia), increased appetite, particularly for carbohydrate-rich foods, weight gain,

and withdrawal from social interactions, often described as 'hibernating'[50]. Conversely, distinct symptoms associated with summer-pattern SAD encompass difficulties in falling asleep (insomnia), reduced appetite leading to weight loss, irritability, restlessness, heightened anxiety, and episodes of aggressive behavior[50].

**Atypical Depression**

There has been numerous attempts to group depression into subgroups that may be used to predict how well patients would respond to antidepressant therapy[51]. The introduction of atypical depression as a distinct diagnosis was primarily motivated by pharmacological studies that demonstrated these patients responded better to monoamine oxidase inhibitors (MAOIs) than tricyclic antidepressants (TCAs)[51]. The term "atypical depression" entered clinical psychiatry with the release of the Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition in 1994[51]. Atypical features can be used as a specifier for major depressive episodes, bipolar disorder when a major depressive episode is the most recent mood episode, or dysthymic disorder when atypical features prevail during the two most recent years[51]. Examples of atypical depressive symptoms listed by the DSM-IV include sensitivity to mood (i.e., the mood brightens in response to positive events), for at least 2 to 6weeks, at least two of the following characteristics must be present: expanded appetite, greater sleep, leaden apathy (i.e., heavy, leaden feelings in arms or legs), significant social or vocational impairment caused by interpersonal rejection sensitivity (including but not limited to mood disturbance episodes)[51]. If the criteria for melancholic or catatonic depression symptoms are not met, the most frequent type of depression observed in psychiatric outpatient clinics is atypical depression[51].


**Plate 2.2:** Signs and Symptoms of Depression Source[25]

Those with subthreshold depression and elevated levels of depression symptoms are also at risk for present and later psychopathology, there is therefore evidence that depression should be seen as a continuum[92]. For those exhibiting steadily rising degrees of depressive symptoms over time, a similar tendency is also seen[93]. A comprehensive long-term investigation provides an opportunity to gain deeper insights into the origins of depression and how its manifestations may evolve over time[94]. Researchers have undertaken the task of mapping the developmental pathways of depressive symptoms during adolescence, alongside other contributing risk factors[95]. However, it's important to note that these trajectories exhibit significant variations across the population, contingent on factors such as the age of onset, duration, and intensity of symptoms[95]. Previous research has indicated a distinct upswing in depressive mood symptoms during the adolescent phase[93].

The available evidence suggests the existence of several less favorable trajectories in the progression of depressive symptoms. These include individuals with high initial levels of depressive symptoms that persist from childhood (referred to as 'childhood persistent'), those with initially low levels that rise over time during early adulthood ('early-adult onset'), and those with elevated depressive symptoms in early childhood that subsequently decline during adolescence and young adulthood ('childhood limited'). These trajectories have been observed across diverse populations and are frequently linked to more adverse outcomes when compared to adolescents following a trajectory of consistently low symptoms ('stable-low trajectory')[92]. By disentangling the risk factors or combinations thereof associated with these different trajectories, it may be feasible to tailor specialized interventions and therapeutic approaches for specific individuals[92].

Understanding the etiology of depression and enhancing treatment may depend on determining how various risk factors are connected to various depressive mood patterns[94]. Less favorable trajectories of depressive symptoms are significantly influenced by risk factors such as sex,

childhood psychopathology, parental mood, and early-life socioeconomic situation[94]. The evidence is not conclusive, although stronger connections are often seen for chronically elevated or growing trajectories[94]. An association between polygenic risk for depression and a late adolescent onset trajectory was discovered in a study, suggesting that genetic liability may play a significant role in less favorable trajectories at particular stages of development[93]. Although research suggests they may be receptive to more immediate for instance, bullying, which is most prevalent and prominent at specific stages of childhood and adolescent development, is arguably one of the strongest contributors to adolescent and adult depression[92]. As a result, bullying in childhood is likely to have negative effects right away[95]. Bullying has been linked to depression throughout the life cycle, but the direction of this association is unknown, and this raises the possibility that it may potentially be a reflection of a preexisting predisposition[94]. It is therefore unclear if the connection between bullying and depression is temporally specific, reliant on earlier variables, or both[95]. Understanding how bullying impacts the diverse trajectories of depressive symptoms over the course of teenage development may help understand how and when this risk factor takes effect[95].

Additionally, it is yet unknown how various trajectories of depressive symptoms are related to childhood bullying[92]. The etiology of depression symptom trajectory is likely to be extremely complicated, involving both hereditary and environmental factors[93]. This is due to the likelihood that behavioral traits, like depression, do not have only direct hereditary or environmental routes[93]. Instead, it is more plausible that genetic and environmental variables interact, with the contribution of one or the other being greater for complex features (such as depression). For instance, stressful life events may result in more severe depressive symptoms, but it's also likely that genetically susceptible people will experience stressful life events more frequently, making it difficult to discern the direction of effects[94].

Daily tension cannot be avoided. Anyone may experience it, which serves to increase awareness, encourage learning, and improve productivity at work[96]. Due to the need to quickly adapt to shifting physical, emotional, and social context in adolescence which is a developmental stage that lasts from childhood through adulthood, is linked to an increased risk of mental health issues[96]. Among teenagers, stress, anxiety, sadness, and suicide are all prevalent psychological issues[96]. Stress's effects on self-efficacy are just one of the ways that mental health problems in teens can have an impact. Stressed-out female pupils have a low perception of their efficacy[96]. Physical and mental health, as well as self-esteem, which is the success of learning and selfdevelopment can all be negatively impacted by excessive stress[97]. Stress was also found to have an effect on teenage growth at the same time[96]. Children who act aggressively, lack excitement, feel isolated from society, or have suicidal ideas are less likely to pay attention in class[97]. Students in higher education usually deal with a range of stressful circumstances and concerns, such as making their initial impression among their peers in the university and having the freedom to plan their schedule[97]. A whopping 60% of young individuals who are depressed report having suicidal thoughts, and 30% have tried to end their lives[99]. According to the World Health Organization (WHO), depression would account for 6.2 percent of all disorders and have the biggest global disease burden by 2030[99]. (Second by ischemic heart disease). For women between the ages of 15 and 44, depression is the primary factor in years of healthy life loss and depression is one of the main factors contributing to suicide[99].

In addition to meeting academic and social obligations, university students must adjust to a range of psychological changes as they get ready for their future careers[99]. A health survey found that only a small percentage of adolescents between the ages of 12 and 25 experience mental health issues[97]. It was shown that students had greater mental health issues than the general population when students of the same age were compared[97]. The problems included sleep disturbances, stress, anxiety, and depression[98]. Freshmen had mental health issues and these issues were directly linked to lower academic performance[98]. Additionally, because they

are in a transitional stage and encounter many unanticipated situations and problems, freshmen are more likely to experience depression. These findings were revealed in a 2018 study on mental health issues in Belgian college freshmen[99]. When the relationships between depression, anxiety, and stress were examined among Malaysian university students, it was found that older students (20 years and older) and those born in rural regions had significantly higher depression and anxiety scores[99]. On the other hand, compared to students from middle-income households, older students (20 years and older), females, Malays, and those from families with either low or high incomes had much greater levels of stress[99]. Another study discovered that three stressful life events (relocation, the end of a meaningful relationship, and illness) occurred substantially more frequently in women than in men[98]. Males went through a comparable situation without the relationship breakup, whereas females went through a suicide risk, a relationship breakup, illness, and college relocation[98]. Researchers found that female students had a higher level of depression than male students and that the prevalence changes with the number of siblings in the household, with depression being substantially more common among students from rural origins than those from urban backgrounds[96]. Also, the prevalence fluctuates depending on how many siblings a household has[96]. Some researchers reported that female students had higher rates of morbidity and depression than male students, whereas other studies revealed no appreciable differences between the sexes[99].

**Academic Performance** measures how well a student has met short- or long-term learning objectives and academic achievement is crucial because it is closely related to the desired outcomes that we value[23]. Academically competent students who have high levels of socioemotional intelligence are more likely to find stable jobs than students with less schooling and academic achievement. Academic excellence is crucial for good physical, social, psychological, mental, and medical growth as well as for greater social integration[23]. Academically successful students are more likely to have strong self-esteem, lower levels of

sadness and anxiety, and less propensity to abuse alcohol and other drugs[23]. In Nigeria, academic proficiency, credentials, and high-performance levels have been seen as the requirements for hiring, placing, and moving up[23].

The likelihood of academic failure in a student can be affected by depression[24]. For instance, a student with a high neuroticism score tends to be sensitive and will already have a negative response to uncomfortable circumstances, anxiety and hostility tendencies are intensified and whenever the same student responds to an unpleasant stimulus with little to no self-control over his response will make him more susceptible to despair, interfering with his usual routine and functionality, including academics[24]. This learner won't be able to focus while he is being taught since his thoughts and memory are muddled by negativity. His emotions and responses are also triggered by subsequent events, even as low as a lecturer's booming voice implying despair impacts students much more than it does[24]. Hence the need to protect youths from negative content

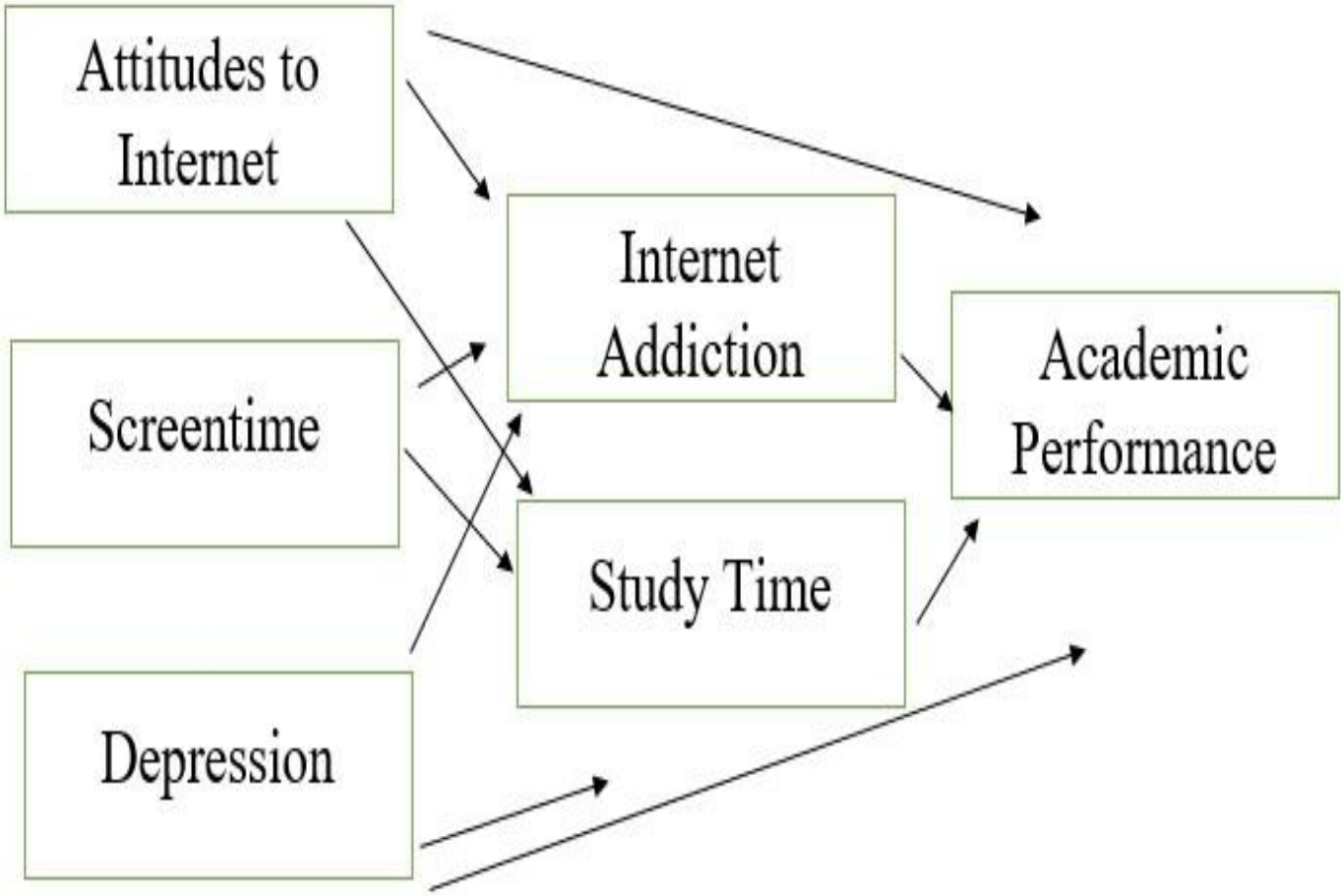



**Fig 2.3:** Conceptual framework of the relationship between internet addiction and academic performance.
Source[167]



Internet-based Opinions

The internet is a global area network that connects computers and offers a variety of information and communication services. For some people, the Internet serves as a complete substitute for life because it is so big, so strong, and so impactful according to Andrew Brown. The Internet has profoundly altered daily life and impacted society during the last few decades. In a number of fields, including health, education, banking, transportation, research, and personal data analysis, internet use has dramatically expanded[53]. Mobile devices are primarily to blame for this sudden rise in Internet usage[53]. The World Wide Web (WWW) is the collective name for all publicly accessible Web sites that are globally connected to the Internet, as well as client devices like computers and mobile phones that can access its content[54]. It has been referred to simply as "the Web" for many years[52]. Despite all these benefits, there are also drawbacks to internet users that have a global impact[53]. The need to learn new things and become knowledgeable led to addiction over time[52]. In general, addiction is a complex disease that is frequently chronic in nature and has an impact on how the body and brain function[53]. Families, relationships, schools, workplaces, and neighborhoods can all suffer severe harm as a result. The most typical signs of addiction are a severe lack of control, continuing to use despite negative effect, and obsession[53].

Internet compulsivity and Internet dependency are other names for internet addiction[54]. Whatever you call it, addiction involves compulsive behavior that fully takes over a person's life[54]. Internet addicts prioritize using the Internet over their families, friends, and studies[54]. The Internet starts to govern how addicts live their life[54]. A person who has a real addiction develops a compulsive need for a certain type of stimulation to the point where getting a consistent supply of that stimulation becomes the only and main goal of their lives. In his quest to stay stimulated, the addict increasingly neglects his education, relationships, and finally even his health [54]. More than most other groups in society, university students are particularly prone to become dependent on the Internet[54]. This can be attributed to several things, such as the

following: Internet overuse, which is a major cause of concern for parents and teachers due to factors like time availability, ease of use, unlimited access, the psychological and developmental characteristics of young adulthood, little to no parental supervision, some courses that rely heavily on the Internet for assignments, projects, and communication with peers and mentors, and the Internet's ability to provide an escape from exam stress[54]. To stop the threat, this health risk requires immediate notice, prevention, and rapid intervention[53]. Children and teenagers are being diagnosed with anxiety and sadness at an increasing rate each year[19]. One of the main issues with undergraduate mental health is depression, and the prevalence of depression among undergraduates is rising[32]. Failure: It has been suggested that failure is a crucial component of undergraduate research experiences that Students use their phones while on the bus, waiting for the elevator, or walking to class[53]. These little intervals, during which individuals can partake in a dizzying assortment of online activities, were not previously accessible[53]. For educators hoping to use spaced learning to enhance student learning outcomes, this can be a huge advantage[52]. However, the constant use of a smartphone can harm interpersonal interactions and academic achievement[52].

One of the many elements of academic achievement is academic performance[17]. Academic achievement is influenced by a variety of variables, including socioeconomic position, student temperament and motivation, peer pressure, and family support[17]. Two of the most frequent challenges that teens and young adults face are anxiety and depression, and this is starting to have a major impact in the classroom[19]. Screen time may aid students in developing some of the most distinctive skills of excellent scientists, such as overcoming obstacles and perseverance[34]. However, failing and the stress and exhaustion that can go along with it may be particularly difficult for students who are depressed[34]. From the above framework, Internet addiction will lead to reduced study time which may lead to failure and worsen or cause depression[27].

For some students, dealing with exclusion or a lack of social support may make their depression worse, higher levels of screen time, especially social media engagements can increase the feeling of lack of support[35].

Academic Situational Stress Level as a Contextual Variable

The transactional model of stress places emphasis on how the individual interacts with the environment and manages the demands that are constantly placed on them by it[100]. According to the subject's (essentially social) evaluation of the environmental requirements, this interaction acquires significance[100]. Using cognitions that have been the subject of unintended learning, such as language acquisition or the internalization of cultural norms, the subject evaluates occurrences[100]. The following schema can be used to summarize the model: environmental requirements and their effects[100]. If this external, situational demand is not significant, it has no impact on the subject and no physical, social, or personal repercussions. It doesn't elicit any strong feelings[101]. However, if it is significant, it causes stress for the subject, causing him or her to pay attention to it and start the process of assessing it and preparing a response for adaptation[101]. The level of personal effort required by each event can therefore be used to categorize academic settings in the classroom, study sessions, or testing under this schema[101]. Objectively, some events cause stress with greater regularity, severity, and length than others, necessitating a more active response[101]. The ability to induce stress, though, is also influenced by mediating personal factors that are involved in how these stimuli are processed[102].

Methods for evaluating a difficult scenario[100]. The subject's appraisal of the circumstance itself, what is involved in terms of risk, a threat to his or her well-being, or even survival, constitutes the fundamental assessment[101]. Whether the scenario is taken into consideration depends on how these two assessments interact[102]. The subject believes that they have the resources necessary to handle the circumstance[102]. When a situation arises, the subject's resources are

mobilized, which leads to emotions of efficacy and accomplishment; yet, when a threat arises, the subject feels threatened and believes that his or her resources are insufficient to handle the situation[102]. The patient experiences clear anxiety reactions, which have an impact on their coping mechanisms[102]. He or she loses effectiveness, and responses ranging from frantic, disorderly activity to plain passivity[102].

Undergraduate students now find it nearly hard to do their work without the Internet because of technological advancements in mobile devices, particularly smartphones with multimedia capabilities[36]. Social media apps are the main way for modern undergraduate students to interact and socialize with classmates and colleagues[36]. Undergraduate students have embraced social media platforms to a large extent, and prove it to be an important tool for facilitating communication in the classroom. It serves as crucial bridges between students and educators[36]. The present generation of undergraduate students, however, can be more easily sidetracked by readily available social media sites[36]. Study Time: Undergraduates should take advantage of the circumstances that allows them to concentrate the best when studying[55]. To determine when and where is most effective for studying, they should pay attention when studying at various times and in various settings[55]. Then, work in the settings that are most conducive to each learning style[55]. Although most people are more focused and productive earlier in the day, many students claim to be most productive at night[55]. It takes a lot of concentration to complete things like reading a book or a journal article, writing a paper, or working on an assignment, and our capacity to focus decreases throughout the course of the day[56]. When scheduling study time, students should be practical (e.g., it is likely unrealistic to schedule study time after 5 hours of lectures or after an 8-hour shift at work) [56]. When studying at home, most students find it easy to become distracted and put off doing their work. Studying away from home is frequently more productive[55]. Some students discover that background noise helps them concentrate, in which case a coffee shop or a group study space in the library, may be the ideal option[55]. Some

students like to study in complete stillness, in which case a quiet or silent study space may be the best option[55]. It is best to avoid distractions like a cell phone and/or laptop during study time by leaving them at home, turning them off, or at the very least, putting them away[56].

Spreading out efforts throughout the course of the semester[56]. Students should learn a lot of material in a short amount of time for each course enrolled[56]. A textbook's worth of knowledge cannot typically be learned in a week or two[56]. Therefore, the best method to absorb the material is to ingest it gradually over the course of the weeks; this encourages better comprehension and retention of the course material[56]. Starting in week 1, it is advised to devote 2-3 hours per credit per week to studies (4 hours per credit per week for math or tough subjects)[56]. For a 3-unit course, this would entail 6–9 hours of weekly study time. This does not include time spent in lectures, tutorials, or laboratories, but rather time spent on whatever is worked on in the course (such as reading, reviewing, preparing for an exam, working on an assignment, writing a paper, etc.) [56]. Study in small bursts of time, like 1-2 hours at a time (taking a break for around five minutes or ten minutes per hour), as it helps to probably be able to concentrate better and retain more of what is studied, and will be less likely to put things off[56].

Students should regularly evaluate and test themselves[56]. Regular review is also crucial for both retaining new material and developing a thorough comprehension of it[56]. Reading over or reducing notes are examples of reviewing[56]. Practice questions and self-tests are among the finest ways to review[56].A smart strategy to utilize review time is to test oneself, because it enables you to identify knowledge gaps. This is a smart idea for all classes, not just those that focus on problem-solving[56]. Advice for studying and taking practice exams It is advisable that within 24 hours of studying the content, and then once a week after that, to review notes from the lectures and readings[56]. Also, by spending at least one hour each week on reviewing (this is a significant portion of the 2-3 hours per credit per week that students are advised to devote to

academics outside of class) [56]. When assessing knowledge, students should force themselves to come up with answers without consulting notes or readings (even if they have to guess), then check their answers[55]. Doing so will improve the memory of the right answers and solutions and enable them to identify the areas where they need to spend more time studying[55]. Returning to prior practice questions learned earlier in the semester when performing the weekly review, and by combining them with questions from previous chapters, you can put yourself to the test[55]. If there aren't any available practice questions, come up with some on your own or ask peers to do so for you[55]. Research actively One is more likely to recall and comprehend the material if one is actively participating in it[55]. Guidelines for active study: Connecting what is being learned to other things learned, considering real-world examples, and considering consequences will aid better absorption and retention of the course material[55]. Summarizing the key ideas from the readings and putting them in one's own words, by using "Cornell notes" to make it simpler to test when completing review[55].

Education is very crucial to a child's life and future. Most parents are aware of this and therefore go through so much rigor in other to get the money to fund their Childs education. Especially in Nigeria where the economy is bad and things are difficult for most people[55]. It will be very unfortunate if a child's screen time affects the ability of such child to achieve academic excellence[55]. As much as there are success stories from youths who were internet trained, a lot of other children ended it all due to depression and blocked their future, therefore rendering the parent's struggles fruitless[55]. If depression is linked to undergraduate screen time, the earlier the fact is known, the earlier measures can be put in place to proffer solutions and thereby save the future leaders of tomorrow[55]. Depression, anxiety, and stress: In terms of age, some research indicates that college students who are 25 years of age or older tend to have fewer mental health issues than younger students, whereas other research reveals that it gets worse as students' progress through their studies and that financial stress significantly increases

depression, anxiety, and suicidal thoughts in college students[58]. While mental health issues are prevalent, college students often tend to underutilize mental health interventions[58]. It is a valid concern to investigate whether the use of digital technology contributes to increased stress levels[58]. In today's world, individuals are exposed to an unprecedented influx of information, much of which can be distressing and challenging. This heightened exposure also means more opportunities for interruptions and distractions[58]. Moreover, modern technology has made it easier to keep a constant check on the activities of friends, foes, and competitors, leading to heightened social pressures and a perceived need to divulge personal information[58].

There's a growing concern that technology is encroaching upon people's lives, imposing social and temporal constraints that may elevate the risk of experiencing the adverse effects of stress on both physical and mental well-being[58]. Stressors can emerge from various sources, including maintaining an extensive list of friends on social media platforms like Facebook, feelings of envy triggered by others' seemingly extravagant and meticulously curated lives, the constant need to respond to text messages, an addiction to the enticing world of Pinterest crafts, the pressure to stay updated with the latest status posts on Twitter, and the pervasive 'fear of missing out' on events in the lives of friends and family. All of these factors can contribute to heightened stress levels[58]. When surveyed, students who were asked about the barriers preventing them from seeking mental health services cited reasons such as a lack of perceived need for assistance, a preference for managing mental health challenges independently or with the support of family and friends, time constraints, financial limitations, and a lack of knowledge regarding available support resources. Students who had never sought out mental health assistance were unsure of their insurance's coverage or had greater doubts about the efficacy of care[60]. Another major obstacle to getting help and using mental health services for students is stigma, which is their perception of receiving psychological treatment for themselves[60]. In terms of race or ethnicity, African-American students were almost half as likely

as white students to report higher levels of stress, anxiety, and depression[61]. In contrast to White pupils, there was no appreciable variation in the odds for Hispanic and Asian students[61]. The chances were higher for upper-class students than lower-class students, indicating a strong relationship between class level and stress and anxiety levels among students. It reported considerably higher anxiety levels in upper-class pupils than in freshmen[61]. It could mean that uncertainty about the future of their education and employment prospects, which would be more of a worry for upper-class students, was one of the biggest stressors for college students even during the COVID-19 pandemic[61].

Gender: Different groups are more prone than others to mental health issues[57]. For instance, female students typically report more mental health problems than male students do[57]. Screentime can be defined as the duration of time spent staring at screen-equipped electronic equipment, like a computer or television[15]. The screen is a representation of our contemporary era, whether it is on a computer, smartphone, tablet, or television[16]. Time spent in front of displays (screen time) is a significant component of modern living for young people, or "digital natives," who have grown up surrounded by digital information and entertainment on screens[16]. Ninety percent of the studies included in a recent review of the literature on studies were examining the relationship between young people's use of screens and sleep and discovered a link between screen use and later bedtimes and/or shorter overall sleep duration[14]. An increase in physiological alertness, psychological stimulation, and light exposure are some of the proposed mechanisms. Another is the shifting of sleep-related time[14]. Regularly, 7 hours or more of sleep is advised; for younger persons (18–45 years), an even larger amount (> 9) is regarded as appropriate[13]. Sleep has a significant impact on cognitive processes, which in turn affect performance[13]. Lack of sleep lowers overall alertness, hinders concentration, and inhibits cognitive processing[13]. Although many people don't get enough sleep, sleep is essential for memory stabilization and integration[40]. Increased forgetfulness is a behavioral effect of poor

sleep after learning[40]. The vulnerability of encoding fresh memories to sleep loss is greatest[40]. To avoid negative screen time effects, 2-4 hours of recreational screen time per day are the maximum, limit daily screen time for academic purposes to no more than 8 hours, establish screen-free times and zones, take frequent screen breaks, and Schedule physical activities[17].

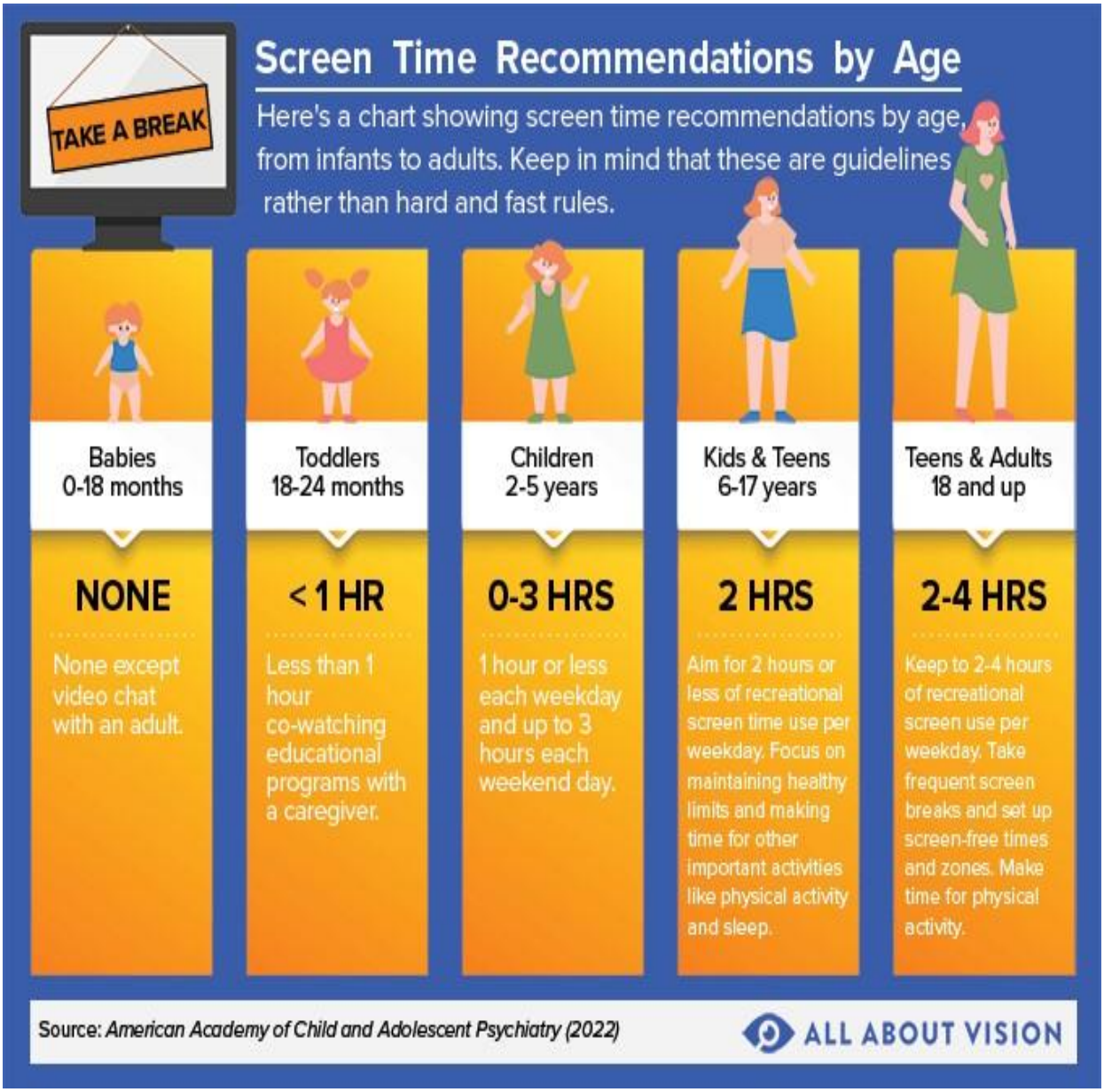



Plate 2.4: Screen time recommendations by age.
Source[169]

The proportion of overweight or obese middle- and high-school-aged youth in the United States is currently over one-third, and by 2030, it is expected to double[103]. Even though moderate to strenuous activities only make up 3% of awake time, physical activity has been a key health behavior studied in the context of lowering youth overweight and obesity occurence[103]. Recent evidence at the population level suggests that extended periods of physical inactivity, distinct from a lack of moderate to vigorous physical exercise, may have detrimental health consequences in addition to the risks associated with insufficient levels of leisure-time or physical activity[140].

Sedentary behaviors, typically involving a seated or reclined posture and often encompassing screen-based activities, do not significantly elevate energy expenditure beyond the resting threshold of 1.0 to 1.5 metabolic equivalents. Research indicates that sedentary activities are associated with increased risks of all-cause mortality, type 2 diabetes, cardiovascular disease, cancer, and the occurrence of overweight and obesity[141]. Within the realm of human behavior, a broad spectrum of actions falls under the umbrella of prosocial conduct. This category encompasses but is not limited to behaviors such as assisting others, sharing resources, volunteering time, and contributing to charitable causes. Engaging in prosocial behavior typically involves some degree of personal cost, which may entail dedicating resources, time, effort, or occasionally even risking physical harm. Examples of prosocial acts include acts of kindness and generosity, like yielding one's seat on public transportation or offering assistance to a beggar. It also extends to more profound forms of self-sacrifice and heroism, such as donating organs to save lives or intervening to aid strangers in need[144].

The underlying motivations for engaging in actions that benefit others, even when they do not directly serve one's self-interest, remain a significant puzzle in various domains of study, despite numerous empirical investigations at different levels[145]. However, many of these inquiries emphasize the role of individual personality traits. Broad personality attributes like

honestyhumility, agreeableness, empathy, and other-orientedness have historically shown associations with prosocial behavior[145]. These personality traits contribute to the establishment and maintenance of positive interpersonal relationships. For instance, honesty-humility reflects a predisposition to treat others with fairness, authenticity, and sincerity, while agreeableness signifies a disposition to treat individuals with respect, consideration, and empathy[146].

Prosocial behaviors stemming from high scores in these personality traits encompass actions such as providing assistance, mediating conflicts, displaying constructive behaviors, and demonstrating accommodation, such as a propensity to forgive. An essential predictor of an individual's engagement in prosocial activities is their social value orientation (SVO). Moreover, given their foundation in moral-based personality traits, agreeableness and notably honestyhumility are correlated with responsible and ethical behaviors across diverse contexts[147]. SVO, technically defined as preferences regarding the allocation of outcomes for oneself and others, is rooted in social decision-making, often distinguishing between prosocial and proself attitudes within a broader framework[147]. Prosocial behavior demonstrates a desire to achieve goals for both oneself and others[120]. A recent comprehensive analysis found that kids who watched more than two hours of TV each day had worsening body composition, elevated metabolic and cardiovascular disease biomarkers, decreased fitness, worse self-esteem and prosocial behavior ratings, and lower academic success[104]. It is becoming increasingly clear that one of the main goals of initiatives to prevent youth obesity is to reduce sedentary behavior[104].

Although sedentary behaviors include incidental (such as car or bus transportation) as well as structured (such as sitting at desks in school) and unstructured (such as leisure TV or computer games) time, in research on youth, "screen time", including TV viewing time is the most frequently used measure of time spent engaged in sedentary behavior[104]. It is not unexpected that there are many possibilities for youth to engage in sedentary behaviors given the quick improvements in communication and entertainment technology and the pervasiveness of screen

devices in young people's life. According to recent research, young people can use screen-based technology including TV, laptops, tablets, cell phones, and up to 11 hours each day[104]. Such excessive screen time can have an impact on weight gain because it is linked to snacking and overeating, and it may even replace physical activity[104].

The American Academy of Pediatrics (AAP) established guidelines in 2001 stating that the daily maximum amount of time spent watching entertainment screens should not exceed two hours[104]. The recommendation was recently amended to state that parents should keep an eye on their children's media use and that children should not have access to the Internet or TV in their bedrooms[103]. In Canada and the United States, government health organizations have made comparable recommendations[103]. These recommendations and the creation of screen-time interventions have mostly been influenced by studies that used a quantitative methodology to clarify the variables influencing screen time[103].

Sociodemographic characteristics (parental earnings and schooling, racial group), access to screen-based media, neighborhood factors, parental behavior, psychosocial (depression, few peers), and family characteristics (parental and sibling behavior and viewing habits), as well as other lifestyle factors (physical activity and dietary behavior), are among the quantitatively derived factors that appear to correlate with sedentary time in youth[104]. Additionally, several screen-time treatments have been carried out, some of which have concentrated on the aforementioned correlates of sedentary time to support behavior change[103]. These strategies have considerable, albeit limited, success in reducing overall youth screen time, according to two recent meta-analyses that investigated this[104]. These findings, however, are not entirely consistent with one another: Another meta-analysis revealed that screen-time treatments had no overall impact on decreasing screen time or body mass index[103].

Plate 2.5: Active vs passive screentime.
Source[31]



Watching television is seen as passive screen time, whilst using smart gadgets for interaction is regarded as active screen time[29]. "Whether it's passive screen time, such as watching TV shows and reading through social media, or mentally active screen time, such as playing computer games or using a computer for enjoyment, teens should have a daily non-academic related screen time limit of fewer than two hours"[28]. According to their online activity, children and adolescents in a Russian sample exhibited substantial disparities in cognitive performance (control, verbal, and visual-spatial skills)[30].

The use of social media by teenagers has grown dramatically, and it has been associated with despair and suicidal thoughts[37]. It was discovered that young people who are suicidal and selfharming use social networking websites as a means of communication and as a way to ask

other users for social support. Due to users getting negative messages encouraging self-harm, imitating other people's self-injurious behavior, and adopting self-harm practices via shared films, online social networking also increases exposure to and engagement in self-harm activity[37]. Greater suicide ideation, unmet need for mental health assistance, and psychological discomfort were all linked to spending more time on social networking sites[37]. In conclusion, young people who are vulnerable are more prone to self-harm and tend to consider suicide if they spend more time on social networking sites[37].

**Depression**

People in Nigeria do not trust social media for accurate and credible information distribution, according to studies[127]. Young people may be misled by social networking since it lacks the same amount of credibility as traditional mass media[127]. Between 2010 and 2015, the number of teenagers in the US with severe depressive symptoms rose by 33%, and the number of young people who died by suicide rose by 31%[3]. There have been reports of rising rates of young people committing suicide and having mental health disorders in several countries[3]. The rising use of screen-based technologies has been cited as a contributing cause in this increase[3]. Despite the potential advantages of the Internet, it can be used excessively and without limits, which can result in addiction. The statistics alone show that social media has absorbed into our life and has mostly become impossible to avoid[119]. Moreover, a Nigerian study generally discovered that university students in Southeast Nigeria spend a tremendous amount of time on "screen-based technologies" (computers, phones, video games, and television), which have developed into an essential aspect of their lives[128]. These students are also well aware of the potential health risks associated with the use of screen-based devices because the majority of them claim to have had some form of health issue as a result of using the gadgets[128].

The relationship between social media and young people's mental health is one aspect of social media's exponential growth that has drawn a lot of attention lately[119]. The body of research demonstrating the connection between social media use and mental health is substantial, and although it is continuously growing, new research has helped to clarify the main effects[119]. Young people's usage of social media as a vehicle for communication needs to be properly examined because it might wind up having a more detrimental effect than we initially thought[119]. The statistics alone show that social networking has incorporated itself into our lives and has mostly become inevitable[119]. Various research and tests have made reference to the so-called "social media addiction." Around 5% of young people are estimated to be affected by social media addiction, which has lately been compared to the addictiveness of alcohol and cigarettes. Its "addictive" qualities result from the extent of compulsive use[119]. The "desire" to feel immediate, fleeting pleasure and dopamine production may both be related to the "need" to check one's social media (the chemical in the brain associated with reward and pleasure). the failure and the craving for a dopamine "high" User may constantly refresh their social media pages out of a craving for a dopamine "hit" and a lack of immediate fulfillment[119].

The risk with this compulsive behavior is that if fulfillment is not felt, the person may internalize ideas that this is because they are "unpopular," "unfunny," etc. A lack of "likes" on a status update may lead to negative self-reflection, which may lead to constant "refreshing" of the page in the hopes of discovering that someone else "enjoyed" the post, so assisting in achieving personal validation[119]. The lack of satisfaction may make one feel more anxious and lonelier, even if these perceptions might not accurately represent how one is perceived by others. For instance, a recent OECD study revealed that people who utilized social media more frequently on average reported lower life satisfaction[119].Users may constantly refresh their social media pages out of a craving for a dopamine "hit" and a lack of immediate fulfillment[119].

This desire for instant gratification is related to the negative consequences that these platforms may have on rest and the quality of that rest. According to data from qualitative study, excessive social media use can disrupt sleep habits, which can have a detrimental effect on young people's academic performance[119]. Young individuals had problems unwinding after using social media at night, which had an impact on their brains' ability to prepare for sleep, according to research from the University of Glasgow. The relationship between sleep loss and mental health is mutually reinforcing; hence, sleep loss caused on by late-night social media use can also lead to worse mental health[119].

Social media can also make users more anxious by making it easier for them to stay current on what their friends are doing[119]. Fear of Missing Out (FOMO), a well-known notion, is "characterized by the urge to stay continuously connected with what others are doing" and refers to "a pervasive worry that others may be having rewarding experiences from which one is absent[119]." FOMO has been connected to heavy social media use and has been linked to depressed mood and lack of life satisfaction[119]. We are more conscious of what we are missing out on thanks to things like seeing pictures of pals having fun while we are away. Through highlighting these activities, "always on" communication technology can bring out emotions of anxiety, loneliness, and inadequacy[119]. By drawing attention to these activities, you can persuade consumers to stay connected and informed out of a fear of missing out[119]. People are social creatures that crave contact in groups, therefore feeling excluded can have negative psychological effects. In fact, research from the USA has discovered a strong correlation between heavy social media use, FOMO, and both melancholy and anxiety[119]. Intensive social media use has been connected to FOMO, which has been linked to lower mood and life satisfaction[119]. From a different perspective, internet platforms may have the power to harm mental health by encouraging exaggerated expectations. Due to the proliferation of image alteration on photo-sharing websites, social media has been associated with low self-esteem and

negative self-image. Particularly for young women's self-esteem and image, the idea of the "idealized body image" has perhaps been damaging[119]. Unrealistic expectations of how young people should act and look are promoted and reinforced by the constant availability of easily altered images. When these expectations are unavoidably not realized, the effect on self-esteem can be detrimental, to the alarming point that, according to a recent study by the Royal Society of Public Health, 9 out of 10 adolescent ladies' express dissatisfaction with their appearance[119].

The emergence of social media has been a fundamentally complex phenomena, with data pointing to its potential role in future events[119]. According to a study conducted in Turkey, everyday Internet use of more than two hours is linked to Internet addiction and mental illnesses[4]. Adolescents are especially vulnerable to Internet addiction because of the mental, emotional, and social changes that occur during this time, which are strongly linked to reduced sleeping time, a tendency to postpone sleep, insomnia, excessive tiredness, anxiety, depression, suicide, and attention deficit hyperactivity disorder[4]. In place of this, the Australian government has established rules limiting school children and adolescents to two hours of screen time every day. In addition, as part of a government drive to combat Internet addiction, the Chinese government has begun to prohibit the creation of new Internet cafes[4]. The COVID-19 pandemic affected people all over the world including transportation through buses, airlines, etc. It also affected schools, universities, numerous social gatherings, employment, and other obligations. As well as a number of other activities came to a standstill. People were forced to stay at home because they had no other option. Schools and colleges ensured their activities were carried on via the internet. The pupils were forced to stay at home for months at a time, with very little meaningful physical social interaction. As a result, students' physical and emotional well-being became a cause of increasing concern. With so few things to do at home, most people were forced to rely on technology like TV, laptops, and, most importantly, mobile phones. In this pandemic, it's critical to understand how screen time escalated over time. And depression is

linked to social isolation and excessive screen time[5]. It is recommended that Educators, Counselors, Psychologists, and Researchers should develop techniques to reduce psychological disorders among students, such as depression, and establish intervention programs to improve students' psychological well-being, which may aid them to improve their academic performance[6].

According to a study, almost a third of university students are likely to be dealing with a depressive condition at any given time, supporting earlier findings[20]. Additionally, it offers crucial proof of the detrimental effects of emotional troubles on pupils' academic achievement[20]. Despite being a more socially privileged demographic, university students often have greater depression rates than the overall population. Depression is associated with poor overall undergraduate academic performance, according to earlier research[32]. In particular, clinical depression is linked to a 0.5 letter grade drop in students' GPA, and 21.6% of undergraduates said that depression had a detrimental impact on their academic performance in the previous year. Students were given a list of academic factors that could be impacted by depression, and they stated that these factors included poorer exam scores, worse course grades, and abandoning or not finishing a course[33].

"The amount of exposure to devices capable of showing video material," which includes "smartphones, tablets, computers, televisions, and video game consoles," is how screen time is defined[8]. There has been concern about the prevalence of technology in the lives of youth even before the COVID-19 worldwide epidemic began, concerns regarding screen time exposure only grew as many students started learning online during quarantine hours[8]. Young people's surveys found that facts such as lack of sleep, irregular eating, inadequate physical activity, and long periods of sedentary time in front of screens exist in their everyday lives with the latter resulting in less real-life social interaction, decreased physical activity, and even self-destructive behavior[7].

The most important digital advancement occurred in 2007, with the release of the smartphone. According to recent studies, human behavior in schools has significantly changed since 2007:

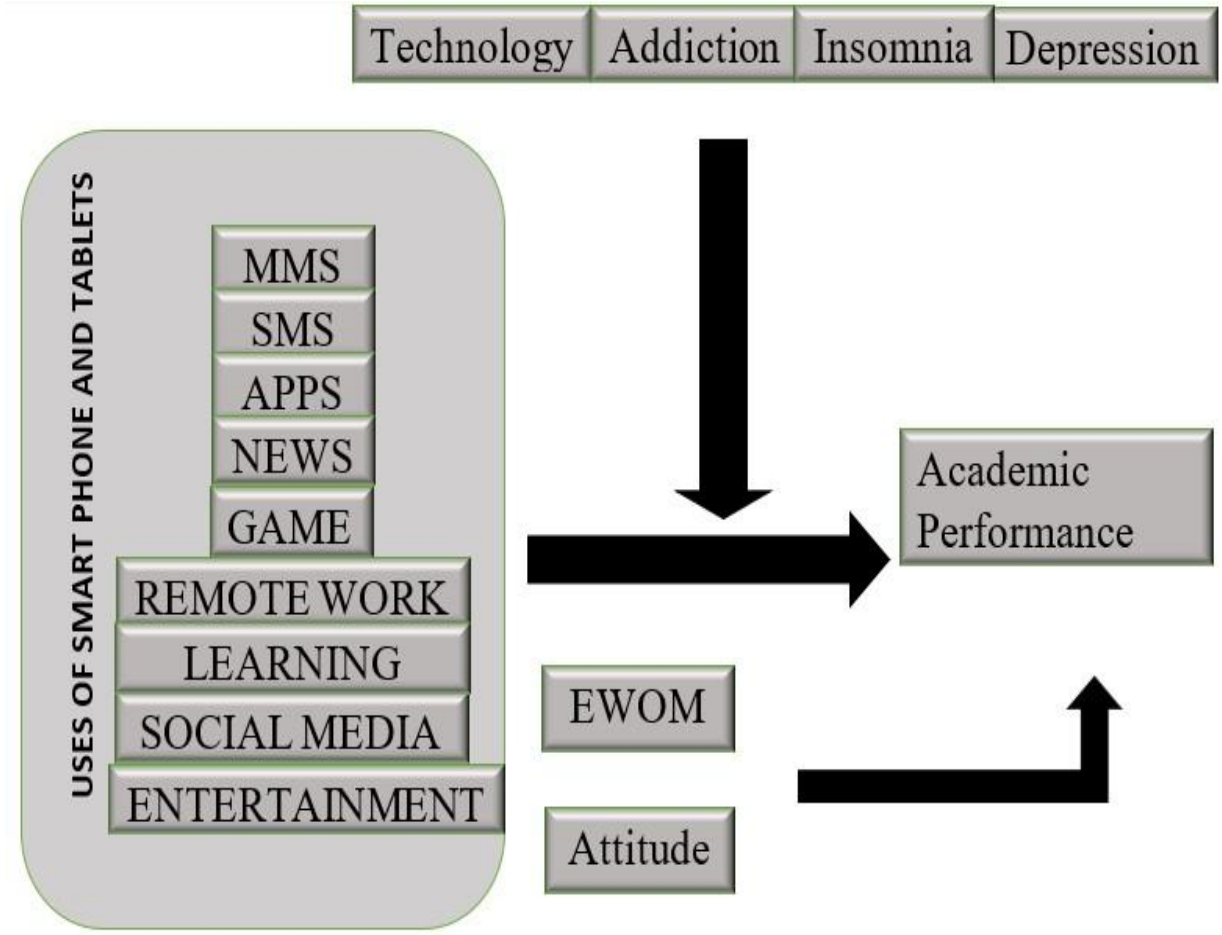
For instance, less dating, less sexual interest, less socializing, and a greater likelihood of feeling lonely[7]. These figures indicate that the smartphone has increased our introversion and sense of isolation, and that more time spent on screens means less time for real-life development[7]. It's critical to keep in mind that humans are impressionable and sensitive at birth. The child is more sensitive the younger they are, and the developmental phase lasts for a very long time[7].

Researchers looked at the relationships between reported well-being and time spent on screenrelated activities, social connections, and other non-screen-related behaviors to see what factors contributed to the measured reduction in well-being[9]. The researchers discovered that adolescents who spent 3–5 hours per week on social media were happier than those who did not use it at all; they were also happier than those who used it for more than 40 hours per week[9]. Internet usage followed the same pattern[10]. Young people who self-reported minimal in-person social contact and high online social contact's data showed the findings of this study which reveal a link between unhappiness and screen time, the findings are correlational and thus do not prove a causal relationship[10]. There is "little clear-cut evidence" that screen time is harmful to adolescents' wellbeing, according to a study focused on the relationship between digital engagement and psychological well-being[11]. There is conflicting evidence that screen usage has a negative influence on health, according to systematic reviews[16]. This may be partially caused by a failure to distinguish between screen time and other sedentary behaviors that involve little physical activity and low energy expenditure[16]. The inability to distinguish between the sedentary aspects of screen time and the information viewed on screens may also be to blame[16]. Others have suggested that the risks of screen-based digital media are exaggerated and that there may be considerable health, social, and cognitive benefits[16]. Recently, a renowned group of scientists claimed that there is just no reliable data or evidence to back claims that screens

are intrinsically dangerous[16]. Others have brought out the fact that the business and education sectors typically promote expanded usage of digital devices as evidence of the harmful impacts of screen time[16].

Youths who self-harm are more engaged on social media than youth who do not, according to statistics. The effect of online social networking on intentional self-harm and suicidality in adolescents was assessed by a systematic review of the literature[37]. Using a combination of MeSH terms, nine papers that satisfied preset inclusion/exclusion criteria were located through a literature search on "PubMed" and "Ovid Medline[37]." It was shown that young individuals who are suicidal and self-harming utilize social networking websites to communicate with one another and to solicit social support from other users.

Another issue is how social media contributes to adolescent girls internalizing the "thin ideal" body image[37]. A study of high school girls using Facebook found that users scored higher on all body image concerns than nonusers, concluding that this social media platform has a significant impact on body image[37]. Teenagers' poor physical and psychological health is a result of the consequent body image dissatisfaction[37].




**Field Survey 2022**

Fig 2.6: Conceptual Framework of the Association between Screentime, Depression, and Academic performance.

Source[168]

This examines how a student's academic performance is impacted by the use of smartphone applications, multimedia messaging service (MMS), short message service (SMS), warp-speed computing, and entertainment[86]. In addition, the impact of attitude and electronic word-ofmouth (EWOM) as mediating factors between exogenous and endogenous variables[86]. To test the impact of moderating variables, technology and addiction were included in a study as moderating variables between independent variables and the outcome variable[86].

**Direct Relationship Hypothesized**

A framework of relationship was created to comprehend the direct hypothesized relationship between exogenous factors and student academic performance in universities, such as multimedia messaging service (MMS), short message service (SMS), mobile applications, warp-speed processing (WSP), and entertainment[86].

Student Performance and Multimedia Messaging Service (MMS)

A more sophisticated kind of text messaging, a multimedia messaging service allows users to transmit text messages along with voice, video, photos, clips, and other multimedia content[86]. There have been numerous studies done on how MMS affects students' academic performance[86]. Students who often send videos and images during lectures have trouble studying, which hurts their performance and technological disruptions cause memory recall interruptions[87].

Thus, traditional media like newspapers, magazines, billboards, and TV have faced a significant challenge with the advent of new capabilities of multimedia message service (MMS), and students' performance has become highly effective in their studies and real-life events[87]. Students use YouTube, specialized educational portals, and the millions of academic websites available thanks to multimedia channels[87]. The cost of educational materials for university students has dramatically decreased because of these new multimedia message service (MMS) channels[87]. Therefore, it is proposed that: Hypothesis 1. The use of multimedia messaging services (MMS) is linked favorably to students' academic achievement[87]. Student Performance and Short Message Service (SMS) Short messaging service, or SMS, is the shorthand for messages transmitted by smartphones or cell phones[87]. Text messages were first conceptualized in the 1980s, but it wasn't until the invention of the cellphone that they gained widespread acceptance as a form of communication[87]. The majority of millennials still use SMS, despite its limitations on the quantity of text, characters, and numbers that can be sent in a single

message[87]. While listening to lectures in class, many students continue to use text services, which has an impact on academic learning[87]. Moreover, it has been observed that students frequently check their cell phones for new messages and reply as soon as they do[87]. This causes mental diversion and makes it harder for them to remember a presentation or the activity carried out in class during that period[87]. The massive surge in smartphone use has made consumers and college students aware of a new, rapid form of communication[88]. For consumers and college students, short message service (SMS) is the most popular medium, which is more common than traditional media[88]. Compared to traditional media, SMS is a more useful, viable, and economical medium[88]. Short message service (SMS) is used by university students for daily issues that are closely related to their academic achievement[88]. The short messaging service (SMS) medium could also be used at any time, making it a more significant and practical tool for students' academic success[88].

Hypothesis 2: There is a poor correlation between SMS usage and pupils' academic achievement[88]

Applications for mobile devices (mobile apps) and student performance: such as smartphones come with a variety of applications that students frequently utilize while learning in class[88]. These programs are efficient teaching tools that raise students' output and academic achievement[88].

Similar to this, using smartphone apps helps student study more effectively and finish tasks, projects, and assignments on time[88]. Apps for smartphones are utilized to distribute academic materials among friends, facilitating the timely completion of their assignments[88]. The ability for students to access targeted and personalized services directly has brought about a huge transformation for customers and students thanks to mobile phone applications[88].

Hypothesis 3. There is a positive correlation between student academic achievement and mobile applications[88]. Processing at Warp Speed (WSP) and Student Performance The speed of cell phones is determined by warp-speed processing, which also enhances smartphone functionality[89]. The fifth-generation era, or 5G as it is more widely called, will have a significant impact on the speed, accessibility, and connection of smartphones[89]. Students who communicated using smartphones were more likely to exhibit superior academic achievement when researching the effects of technology-mediated virtual learning environments on student learning[89]. The researchers discovered that using technology helps students learn and perform better[89]. Processing at warp speed is essential for rich media, like music and video[89]. Academic resources like videos, software, eBooks and other online resources for academic purposes all depend on how quickly you can access the Internet[89]. Warp-speed processing is an important factor that can improve student academic performance because it has been demonstrated that processor speed and speed are crucial for the student information that is downloaded from websites[89]. Hypothesis 4 Warp-speed processing (WSP) is connected with pupils' academic achievement in favorable student performances and entertainment Cellphones are recognized as a significant source of entertainment for the younger generation[89].

However, it has been discovered that social media is negatively connected with academic achievement because of how prevalent smartphones are[89]. Students utilize smartphone apps for amusement while taking notes or doing tasks straining students' cognitive learning capacity and badly affecting their performance[89]. Students at universities have a ton of entertainment options especially social media, which also connects groups[89]. Thus, either side of the academic performance of students may be impacted by this link[90]. Students at universities benefit academically from using YouTube and other video social networks, yet once again[90].

Hypothesis 5. Entertainment has a detrimental impact on student's academic achievement[90]. Relationship Hypothesized to Be Indirect (Mediation) The effect of electronic word of mouth

(EWOM) and attitude is considered in the current study as mediating variables between exogenous and endogenous variables[90]. As a mediator, electronic word-of-mouth (EWOM) social media has a significant impact on interpersonal communication abilities[90]. Electronic word of mouth, or EWOM, is a method of information exchange between sender and receiver that utilizes digital and electronic media[90]. Identified the most widely used platforms for EWOM communication includes: online travel companies, online video games, music, video streaming, online stores, social networks, and whistleblower websites[90]. Because they are in close contact with their friends and receive a prompt response, younger generation considers instant messaging (IM) to be quite appealing[90].

Applications are becoming very popular among young users due to their inventive and unique methods of communication, such as the sharing of contact information, photos, videos, one-tomany messaging, hold-to-talk audio messages, and text messages with friends and coworkers[90]. Students who receive text messages, videos, and audio frequently during class lectures are very distracted because they feel compelled to respond right away[90]. In the end, these diversions cause academic failure and subpar performance[90].

The mediating role of EWOM in various decisions has been established in several studies[90]. Students connect through social media for both amusement and educational purposes[90]. Virtual groups are created to find people with similar interests and academic schedules[91]. These internet forums provide reviews and opinions on academic matters, both positive and bad[91].

EWOM's impact on student's academic performance in universities, as well as teachers' and managers' roles, is the subject of yet another significant research study[91].

Apps: The increasing incidence of depression and the scarcity of treatment options could be addressed through mobile apps[109]. Since most people currently use apps in their daily lives and the threshold for app engagement is presumed to be low, depression sufferers can receive quick,

adaptable, portable, and anonymous treatment[109]. Treatment might be provided to those who would not otherwise be helped, and it could be done in countries with few resources for mental health care[109]. Numerous systematic reviews have demonstrated that apps and other digital interventions improve the symptoms of mental health issues, including depression, with small to high impact sizes[109]. In real-world circumstances where behavior change is most desirable and physicians are unable to assist, apps can be utilized to help[109].

The number of mobile phone applications that concentrate on the diagnosis, treatment, and prevention of depression is also rising[109]. News: Social media's widespread use has made it possible to quickly and widely disseminate news to a sizable populace[110]. Instead of the mainstream media, people now get their news about politics and current events via social media[110]. However, it takes time, effort, and energy to go through the vast amount of information offered by social media to find true and pertinent news. Additionally, the likelihood that people will get news overload increased by news stories emerging frequently[110]. The goal of the current study was to investigate how social media news overload affects social media news avoidance and filtering, as well as the mediating effects of news consumption and media literacy[110].

The study, which is rather important in the current era of social media, which is widely used by the masses, theoretically offers deeper insights for the readers to comprehend the impact of social media news overload[111]. Undoubtedly, when people are overburdened with social media news, their demand for news may suffer because too much information raises anxiety levels in people[111]. The reader would also comprehend the importance of media literacy in avoiding and sifting through the news that is available on social media[111]. Practically speaking, the owners of social media pages would comprehend that overwhelming the audience with a lot of information would have detrimental effects, such as the reduced desire for news, avoidance, and

news filtering[112]. However, increasing media literacy among the general population can assist to mitigate the negative impact of the need to avoid and filter social media[112].

Social media platforms are computer-mediated tools that let people or groups of people create, distribute, and exchange information, pictures, virtual communities, and networks[121]. Social media makes it simple for people to exchange relevant information to progress their ideas, careers, and other interests[121]. Additionally, sending ideas with illustrations works well. A set of web-based apps that build on the theoretical and practical foundations of web 2.0 and permit the production and exchange of user-generated content are referred to as social media. Social media depends on mobile and web-based technologies to establish highly interactive platforms through which people and groups may share, co-create, discuss, and alter user-generated material, according to a description of the topic[121]. They have a large impact on how people connect globally in communities and as individuals[121]. As a result, "social media is recognized as the type of media that offers people a platform to produce, share, and/or exchange information and ideas in groups and networks[121]. An ideological and technological exchange is frequently seen in usergenerated content. This implies that they are the new type of digital communication that enables people to share information with each other through a number of channels, such as social blogs, weblogs, podcasts, the internet, social bookmarking, etc. several social media platforms The following list of social media platforms includes some examples of the various kinds: 2go, Twitter, Facebook, WhatsApp, You Tube, Google+, and more. The most well-known social networking website is Facebook[121]. Users can create their own accounts, which offers a lot of space for sharing photographs, videos, and other types of content[121]. Using laptops, phones, and desktop computers, Facebook users can send and receive electronic messages as long as they are connected to the internet[121]. Twitter: Twitter is one of the most widely used social media sites nowadays. On this website, users can post messages on their walls that are roughly the length of a tweet and receive responses from other users. Users can

follow others by retweeting their tweets. Wikipedia: This free, public encyclopedia enables people to create and contribute documents that may be accessed and used by others[121]. 2go is a social media site that is mostly accessible via mobile internet. Users are able to send and receive messages using it. Additionally shared on this site are images and movies[121]. Its popularity has reduced when compared to WhatsApp which is also a mobile social network that allows users to freely engage with one another and share files like voice memos, videos, and other important information[121]. The use of social media for entertainment, messaging and talking, watching and listening to music and videos online, playing online games, reading blogs with advertisements, and other activities is huge and crucial to the increase of interactivity among people[121]. Traditional mediums of communication can be defined as those that provide consistent messages in a one-way process to a sizable, homogeneous audience that all share a lot of the same traits and interests[121]. It discusses conventional broadcasting, including terrestrial television stations like (NTA, AIT, Channels TV and radio such as TSBS, BBC, UJ Fm etc.) [121]. "Channels or technological devices via which messages are communicated to a vast and varied audience," is how conventional mediums of communication are defined[121]. They serve as the means of sending messages from a source to a significant destination[121]. Traditional media can serve a variety of purposes, including agendasetting, entertainment, cultural transfer, monitoring, and more. Social media and traditional mass communication media differ in certain ways[121]. The following traits could be used to describe the contrasts between social and traditional media: 1. Ease of use: Compared to traditional media, which is frequently produced by corporations and/or the government and sometimes require viewers to pay for what they see, social media platforms are more readily accessible and extremely inexpensive. Social media can even be viewed from a mobile device. 2. Usability: Unlike social media, which only takes a minimal reinterpretation of preexisting skills, traditional media production calls for specialized knowledge and training, but social media production may be used by anyone with access. 3. Response: social media platforms provide immediate input, whilst traditional media provides

delayed feedback. 4. Permanence: Traditional media, such magazine articles that are printed and distributed, cannot be changed; the same piece cannot be changed, but social media can virtually always be changed through comments or editing. 5. Interactivity: Unlike traditional media, which relies on passive consumption and "take it or leave it" characteristics, social media gives consumers the chance to easily connect, create their own content, and tailor their viewing to suit their preferences. 6. Dispersion. With a massive increase in media products of all types that are now a part of daily life, social media, in contrast to conventional media, have grown less centralized and more adaptable to individual choices. 7. Since the introduction of social media, the process of creating media content has changed. Unlike traditional media, where the creation and broadcasting of media content is the exclusive domain of media professionals, social media offers many opportunities for individuals to create their own videos and post them online[121]. Social and traditional mass media can work together effectively, following some complementary roles and functions that social media and conventional media occasionally share: (i) social media and traditional media both have the capacity to reach both small and huge audiences; for instance, a Facebook or Twitter post or a television program may be seen by millions of people[121]. This suggests that a broad audience can be reached using both traditional and social media tools. (ii) Facebook, where online newspapers are posted, illustrates another complementary function of social media and traditional media. This mixes conventional and social media to present a story. (iii) Given that we now have online television, where viewers may go to watch news and other relevant content, it could be argued that conventional media complements new media in this regard. (iv) Another area where social and conventional media's roles overlap is in advertising. Both forms of media are used for advertising. The vanguard, the sun, and other renowned newspapers published in Nigeria are projected on social media, where millions of advertisements are posted for the seeing of the audience. (vi) Entertainment: Entertainment can be found in both traditional and social media. Television shows occasionally include social media addresses or links that viewers can use to respond to

the programs. For responses, social media is employed rather than phone-in programs. For example, Facebook is a very popular medium that is used for feedback in many TV and radio programs[121]. This demonstrates the supportive role social media plays in relation to traditional media. (vii) News: There are many opportunities for audiences to obtain news and information thanks to social media and traditional media. As an illustration, newspaper publishers have websites where they post daily news online[121]. While soft copies can be read online, hard copies are printed and distributed[121]. The aforementioned instances demonstrate the necessity of traditional media for social media[121]. Among other complementary duties, they share entertainment, advertising, news, and information. Despite the fact that social media is here to stay and has advantages over traditional media, there are still some areas where traditional media still has a little advantage[121]. Regulation is lacking in social networking services like Facebook, Twitter, and 2Go. They are mostly unregulated due to their nature of freedom and free speech. Because anyone can post anything at any time as long as they have the means and the knowledge, social media is more vulnerable to bias, Internet crime (fraud), pornography, violence, and racism than conventional media, which is governed by various bodies in various nations[121]. The deterioration of human relationships: As social media has become more prevalent, people's ability to converse in person has decreased[121]. Even during physical events such as meet and greet, most people end up using their phones to engage social media platforms. The erosion of interpersonal relationships: As social media has gotten more prevalent, people are becoming more isolated, losing their ability to connect in person as they spend less time with friends and family and are becoming more dependent on chatting and internet use[121]. The rise of social media has resulted in a reduction in interpersonal relationships. Digital dividing Not everyone has access to social media tools like laptops and smartphones, nor does everyone know how to use them[121]. Due to this circumstance, there is now a digital divide between those who can afford it and those who cannot[121]. As a result, there are now inequities on a national and international scale. The aforementioned factors continue to support the success of

traditional media (radio, television, and newspapers)[121]. "Social media news avoidance" is the practice of regularly avoiding or refraining from social media news. Avoiding the news might be done on accident or purpose[112]. Unintentional news avoidance occurs when users choose other sources of content on social media instead of the news, but intentional news avoidance arises when users start avoiding the news because it makes them feel stressed and anxious[113]. There are four methods for operationalizing news avoidance. The first method uses clustering techniques to establish news exposure groups[113]. The second method emphasizes how news avoiders and searchers differ from one another in terms of how they consume news[113]. The third strategy entails consuming news based on a set schedule (e.g., less than twice a month or less than three days per week) [113]. The fourth strategy for avoiding the news emphasizes labeling people as news avoiders. We have been able to comprehend the dynamics of news avoidance among the general public thanks to these many measures and definitions[114].

Algorithmic filtering is used in social media news filtering to show users only the specific information they need to see[114]. Following classification, association, and filtration of the data, these algorithms offer the information to the users. Confirmation biases are ensured by algorithmic filtering, which delivers news information that aligns with users' political inclinations and orientation[115].

These algorithms typically influence users' social media experiences, although users are typically unaware of them[115]. According to research, 62.5% of Facebook users are unaware that there are such algorithms at work in Facebook's news feed[115]. Additionally, algorithms are used by social media businesses through an automated process, and consumers have no control over these algorithms[116]. Users who dislike social media information overload claim that they need tools to filter out irrelevant content from their feeds since they frequently rely on news stories published by their friends rather than those from news organizations[116].

This shows that social media news filtering benefits consumers, as opposed to the opposite when it causes worry and discontent[116].

As a society, it is becoming more and more crucial that we are able to recognize the skills and abilities that the general public needs in order to use today's information and communication technologies efficiently and safely, as well as to make it easier for them to acquire[122]. There is a lot of discussion about these talents and abilities in regard to the job market, education, the home, leisure, communication environments, and other areas[122]. And frequently, different industries have very different kinds of skills in mind, including very low-level technical skills (typing, setting up a modem and getting an ISP, operating the electronic program device) and very highlevel skills (participating in democratic debate online, critically evaluating open government, and creatively contributing to one's culture) [122]. "The ability to access, analyze, evaluate, and generate messages in a number of contexts" is defined as media literacy[122]. This four-part paradigm has the benefit of being applicable to print, television, and the internet as well[122]. Print and broadcast media are accustomed to this topic, which has been covered in numerous policy initiatives and academic courses. Thus, this may also include online literacy[122]. 1. Obtain Access is not a onetime act of provision; it is a continual, social process. Once initial access is established, growing literacy encourages users to continuously and drastically change the terms of access (updating, upgrading and extending hardware and software applications). Problematically, disparities in access to online information, communication, and engagement will persist given sociodemographic disparities in material, social, and symbolic resources. 2. Review: It has been demonstrated that a variety of analytical skills are necessary for people to engage with both print and audiovisual media[122]. These comprise knowledge of the media agency, categories, technology, languages, representations, and audiences in the audiovisual realm[122]. In order to fully take advantage of online opportunities, the public now lacks both parallel accounts of analytical skills related to the internet and these talents themselves[122].

Information overloads have several negative effects, including tension, anxiety, and loss of control[117]. Aside from making people exhausted and making it harder for them to choose the right information, information overload also makes it difficult for people to comprehend the information[117]. News overload is a sort of information overload; however, it can be difficult to tell the two apart[117]. Theoretically speaking, news overload refers to exposure to a large amount of news, whereas information overload refers to multiple sources of information, such as promotions, advertising, and notifications[117].

Additionally, there is strong empirical support for the relationship between cognitive psychology and information overload in the areas of consumer behavior and marketing research[110]. However, communication researchers have recently looked into news overload. Furthermore, because social media gives its users access to too much information, leaving them fatigued and worried, news overload has forced people to spend their mental and physical resources[111]. Users of social media often feel overloaded and overwhelmed since the vast amount of information they are exposed to while evaluating and analyzing the news tends to exceed their cognitive capacity[112].

People all across the world are inclined to use social media, and they recognize how much more important news has become to the general public[113]. Over time, there has been a progressive change in how young people consume news. Users seek out news from social media channels substantially more than traditional news sources because they believe social media news to be more trustworthy[114]. People virtually very rarely rely on conventional media since they explore the Internet for information and news that is plentiful and easily accessibl[115]. Additionally, researchers have discovered that social media is the preferred and least time-consuming way for people to get information today[116].

People are more likely to utilize social media to find out the latest news and information because they want to keep informed and share that knowledge with others[117]. Social media has also increased people's awareness of the veracity and accessibility of information around them, which has caused their demand for news to rise quickly[116]. The difficulty of evaluating too much information may force them to avoid receiving too much news or to filter it out, which may have an impact on their news consumption habit[115].

Because there is an abundance of information available on the Internet, people must be media literate to assess if the news is reputable and truthful[114].

Smartphones are not always smart, although smart phones have been saving businesses, careers and families in terms of relationship, research, communication, etc. There are possible harms a smartphone can cause: 1. Use of smartphones or other screen devices when driving or operating a machine, according to the national safety council, cellphone use while driving results to 6 million accidents every year.

2. The use of smartphones or other screen devices while it is plugged into a power source

3. Using smart phones or other screen devices when cooking, this can be very dangerous, especially when using a gas cooker, the phone can heat up to a point where there is a short circuit and the small arc of electricity created could result into an explosion if there is a gas leakage.

4. The blue light from smartphones or screen devices could affect the eyes. It makes the brain think it is day time even at night, making the body to stop emitting sleeping hormones at night, which leads to insomnia. The effect of blue light may also contribute to eye strain, heart disease, obesity, cancer and other health conditions especially depression. A Harvard health study in 2020 advised that blue light devices should be avoided at least 2 to 3 hours before bedtime[128].

Also, to comprehend high-quality news, people apply their critical thinking abilities[114]. Media literacy is essential for the populace because people need to use their understanding of media news in real-world situations rather than just learning about it in the context of specific industries and current events[115]. Additionally, media literacy is useful for comprehending the main points of news stories and it aids in preventing the spread of false information by avoiding or filtering it out[115]. People who have a high level of media literacy can spot biases or favoritism, evaluate the quality of news, distinguish between opinions and facts, and communicate well-informed opinions on social media platforms[116].

Additionally, as people see specific information being shared on social media in new contexts, they gradually develop media literacy[117]. At that point, they may decide if the information is trustworthy or not[117]. But analyzing the news and deciding whether or not to share it with others depends heavily on media literacy[117]. Social media platforms have really helped to call out bad government, bad societal behaviors and in generally it has helped to make individuals more accountable due to several reports and evidence of bad behavior released by bloggers. But it has also destroyed some lives, relationships, marriages, careers and many more. In every area they are pros and cons which are all dependent of the type of use and the control of use of social media platforms.

Games have been increasingly common in educational learning assignments during the past few years[106]. Game-based learning settings are thought to improve student engagement, motivation, compliance with rules, and, ultimately, learning outcomes[105].

A game's narrative (storyline), visual aesthetics, game mechanics (such as fundamental actions performed by the player throughout the game), incentives like scores (points), stars, badges, trophies, power-ups, or any other prizes, or audio are all examples of game elements. In general, it is assumed that games and game components are gratifying[105]. For instance, it was discovered

that game components like rewards (winning points) were considered the most pleasurable and significant features of playing video games[105].

Additionally, it has been discovered that using game components like incentives to provide succinct, real-time feedback of actual performance increases learner engagement[108]. As a result, there is already proof that game-based learning settings produce better learning results than traditional educational strategies[108]. There is a general agreement, however, that larger randomized control trials and additional research are required to fully understand the underlying mechanisms behind game-based learning tasks and to reach significant conclusions[108]. Although more studies are looking into the behavioral effects of game-based learning, there are still very few studies looking into how game-based learning settings affect the brain activation patterns that are linked to learning processes[106]. The number line estimation exercise can be utilized in games to train and test children's understanding of fractions, according to behavioral studies. Near-infrared spectroscopy (NIRS) is used to determine whether the addition of game components alters brain activation patterns when completing the number line estimation task[107]. By comparing the relative concentrations of oxygenated and deoxygenated hemoglobin in the outer layer of the cortex, NIRS can assess the hemodynamic response of the brain[107]. Neuronal activity in certain brain regions is frequently associated with a localized vascular response, which leads in an influx of oxygen-rich blood to the active area and its surrounding tissue[105]. According to several studies, playing video games lowers total oxy-Hb levels in frontal brain regions[105]. However, variations in task complexity, cognitive load, degree of skill, or subjective user experience while playing might have made these distinct brain activation patterns worse[106].

The impact of game-based learning settings on brain activity patterns hasn't been thoroughly studied yet[106]. The brain correlates of the computer-based fraction learning game Refraction were investigated in pilot research using NIRS[107]. Refraction requires the player to use their spatial (screen navigation) and mathematics (fractions) skills in order to complete numerous

game stages. Along with the combined math and spatial tasks, the authors also included two control situations in which individuals had to complete either simply arithmetic or only spatial activities[108]. When participants played the combined tasks in refraction as opposed to only spatial or mathematical tasks, they discovered greater activity in the parietal and prefrontal brain regions[108]. They hypothesized that the greater prefrontal activation during refraction play was a result of the game's heightened demands on working memory and attention[108]. Compared to other approaches, NIRS is a non-invasive, portable, simple-to-use, and affordable neurofunctional technique that does not impede participants' natural motions or behavior while executing a task

(e.g., the electroencephalogram -EEG- or functional magnetic resonance imaging -fMRI-).

EEG or fMRI was mostly employed in investigations looking into the neural correlates of gaming. A review article states that research has employed NIRS to look at the neural correlates of gaming. Different game genres, including action games, ego-shooters, puzzle games, strategy games, rule-learning games, and racing games, were used in this NIRS research. As a result, there were a variety of observed alterations in brain activity linked to gaming.

**Approach to Mediating**

The attitudes of students toward using smartphones have been studied in earlier literature, according to study on the relationship between smartphone use by students and academic achievement[91]. According to earlier studies, there are conflicting views among university students about the relationship between smartphone use and academic performance[91].

A considerable impact on students' academic performance in universities was shown to result from supporting academic learning among students through social media and other digital tools of online connectivity[91]. Similar to how those students who don't think highly of social media as a tool for academic work regard it as a source of diversion that also hurts performance[91].

## 2.2 Theoretical Framework

From negative health impacts to screen addiction to diminished attention spans, screen use is thought to have harmful effects. This anxiety is largely based on presumptions regarding screen use rather than facts[38]. When it comes to screen use, it seems like there are new scary stories every day[38]. Screens are occasionally portrayed as having inherent flaws, with higher usage being linked to worsen side effects[38]. Thankfully, scientists are standing their ground and claiming that the evidence for many of these claims are just lacking[38]. According to psychologist Amy Orben, there aren't many studies on the subject of screen time, and those that do exist aren't of high enough quality to address the kinds of concerns we're interested in. Studies that are reported in the news are frequently based on correlational data, such as the finding that teenagers who use screens more frequently are more likely to experience depression[38].

This association might be true even though it's unclear what causes the connection[36]. It can be simply said that despite the fact that depressed teenagers may spend more time in front of screens, we cannot link screen time to sadness[19].

Preconceived notions about what screen time is used for and what it replaces may be the source of our concerns. Screen time may evoke thoughts of idly scrolling through social media, gazing at cute pictures, and engrossing in video games[19]. Parents and educators are aware of the fact that screen time can also be educational and can help youngsters expand their skills and knowledge[36].

This is particularly true given the sophistication of some educational apps, which might vary depending on each child's academic aptitude[38]. Another presumption is that people who use screens are doing so instead of engaging in more stimulating or energetic activities. In reality, students can be using screens when riding the bus or in a car, where it is more difficult to

engage in other exciting activities[38]. Additionally, there is evidence linking screen usage to detrimental psychological and academic results, including higher rates of depression and decreased academic attainment[39].

Researchers discovered that interactive screen time can be both bad and good since it has a negative impact on the majority of outcomes but a positive relationship with educational outcomes[39]. The majority of existing recommendations are mostly ignored when it comes to the possible advantages some forms of screen time may have[39].

Future evidence-based recommendations should concentrate on giving parents and professionals who counsel parents and teens (such as doctors and teachers) information that enables them to weigh the advantages and disadvantages of screen usage. It may be helpful for parents to be aware that content is just as important to take into account as duration when determining screen exposure[39]. When people see depressed undergraduates, they tend to assume the following[41]. They merely seek attention- People who are typically irritated by the dramatically rising tendency of being "depressed" frequently make statements like these. This idea has some validity because some people do act out for attention, but it's mostly untrue. Furthermore, making this assumption is simply incorrect in general because, if the individual in question is truly depressed, it would make them feel much worse. In conclusion, refrain from assuming this because you risk endangering those close to you[41].

They ought to just smile! - People who don't experience depression occasionally fail to realize that, unlike their unhappy moments, happiness isn't always a choice. It's crucial to recognize that until you've experienced depression yourself, you can never fully comprehend the challenges that depressed people go through. Their mental state is practically intolerable, and it is made worse when others feel they can simply solve it. Never forget that nothing is ever that easy[41].

They can't be so depressed if they appear happy, right? - Putting on a smiling face is just one of the numerous things that depressed people undertake to conceal their unhappiness. When someone looks at the obvious and assumes that it means everything, they can say, "She seems fine, so I don't think we need to worry." It's a common error, so don't worry if you've done it. But to be ready for the future, please remember that something could appear to be one thing, but could fact be quite another. If anything, history teaches you that[41]. "All persons who are depressed are introverts."- Although not all, some might be like this. The person may be the happiest, friendliest person you've ever met, but that doesn't always indicate their inner feelings are the same as their outward appearance. Yes, a person alone comes to mind frequently when thinking about despair, but it is only a stereotype. The same as before, outward appearances might be deceptive[41].

"People with depression take drugs." - Like the majority of these presumptions, this assumption is accurate in some situations but not all. If you have severe depression, your doctor might advise medication to help. Clients only need weekly therapy sessions in other situations, though, whether they are severe or not. Depending on the individual, medication may be highly beneficial or not. That, however, does not imply that it is necessary[41]. Mental health illnesses like depression, anxiety disorders, and others exist[42]. Realizing that mental health is just as important as physical health and paying attention to that fact is key[42]. The appropriate course of treatment will be beneficial to the affected person. The psyche of a person may be influenced by a variety of things[42]. It is a widespread fallacy that, as a result of their early experiences, only those of lower socioeconomic strata might develop mental health disorders due to characteristics that can only be determined when the patients have access to help and care, even people from wealthy and affluent homes might develop mental health disorders[42]. Even if we are aware of the word's grammatical meaning, "depressed" also has a medical sense. Depression is a condition where a person feels extremely hopeless and dejected, it differs from feeling depressed Such a state necessitates prompt medical and therapeutic intervention[42]. All across

the world, people with mental health disorders are seen as competent and effective workers but they require the assistance of society and prompt care[42]. People of all ages should keep their mental health under regular scrutiny, just as their physical health. Even more so than adults, youths struggle to express their emotions in a natural way[42]. People with mental illnesses are stigmatized by society as a whole to the point where they feel worthless, inferior, and alone. People with mental health concerns feel considerably more at ease when they have supportive friends, families, and partners[42]. People's mental health concerns frequently go unnoticed as a result of such beliefs, which cause a pervasive social stigma. Mental health needs to be acknowledged and handled with respect if society is to become a healthy place to live. It is past time for us to reject the stigma[42].

Even before the pandemic, education, psychology, and medicine have long investigated the mental health of college students[62]. According to the research, there is a consensus that the number and severity of mental health problems among college students are on the rise[62]. Prior to the pandemic in the academic year 2020, more than one-third of college students nationwide had at least one mental health symptom, according to mental health practitioners[62]. The most common diagnoses were anxiety (27.7 percent) and depression (22.5 percent)[63]. Additionally, the percentage of kids who experience mental health issues is growing. The percentage of students who experience anxiety or depression grew from 2009 to 2015 by 5.9 percent and 3.2 percent, respectively.[63] Similar to this, ratings for depression, general anxiety, and social anxiety among those who visited counseling services on college campuses climbed steadily between 2012 and 2020[64].

Less conclusive data supports the distinction across race or ethnicity, though. There is evidence to suggest that Asian and international students experience fewer mental health issues than White and domestic students, although findings on the disparity between underrepresented racial minority students are conflicting[58].

This may not necessarily imply that students of color have fewer mental health concerns, but it may be a reflection of their cultural reluctance to talking about their mental health problems with others[58]. Age-wise, some research show that college students tend to have fewer mental health concerns than younger students, while other studies show that it gets worse as students get older[58]. Finally, financial stress among college students dramatically heightens depressive, anxious, and suicidal thoughts[58].

The COVID-19 epidemic presents serious difficulties for the world's educational system. Over 1.07 billion students or about 61 percent of the world's student population were affected by nationwide school closures in 111 nations by July 2020, according to the UN Educational, Scientific and Cultural Organization[125]. Traditional brick-and-mortar schools were compelled to become full-time virtual schools in order to continue to educate pupils[125]. Students had to therefore adjust to the shift from in-person instruction to totally online instruction, where synchronous video conferencing, social media, and asynchronous discussion forums serve as the main platforms for knowledge creation and peer contact[125]. The COVID-19 pandemic has raised a number of significant concerns about students' online learning experiences, including issues with internet connections, issues with IT equipment, a lack of opportunities for collaborative learning, a decrease in learning motivation, and an increase in learning burdens[125]. These findings offered insightful information regarding the difficulties students had when learning online, but less was said about their learning environment and expectations for the future[125]. Such data could help educational authorities and organizations better understand students' challenges and perhaps even enhance their online learning experience[125]. The success of online learning for students depends on them having consistent internet access. The concern over the gap in digital readiness and the pedagogical methods used in various nations may have an impact on students' online learning experiences[125]. When compared to Asian nations like China, Western nations like the United States (3rd) fared significantly higher in terms of digital

preparedness[125]. Students from nations with low levels of digital readiness may have additional issues with technology[125]. Only about 13.9% of students in the nation's capital of Egypt had problems with their internet connection, according to a research[125]. While in rural Indonesia, more than two-thirds of pupils Access to the right technological tools, especially a desktop or laptop, is a crucial component for students to successfully adjust to online learning. It is unlikely that all of the pupils will meet this condition, though[125]. It is unlikely that all of the pupils will meet this condition, though[125]. Due to alleged problems with inconsistent internet, inadequate internet data, and incompatible learning devices two-thirds of Indonesian students in remote areas Access to the right technological tools, especially a desktop or laptop, is a crucial component for students to successfully adjust to online learning. It is unlikely that all of the pupils will meet this condition, though. due to alleged problems with inconsistent internet, insufficient internet data, and incompatible learning apparatus. The use of electronic equipment by pupils may also be impacted by technical difficulties[125]. The importance of having a high degree of digital literacy should be stressed to students in order for them to find, use, and interact with relevant information and other people via electronic devices[125]. Students who lack this skill may find it challenging to learn online. In addition to the aforementioned problems, students' experiences may also be impacted by the degree of interaction and collaborative learning opportunities offered by online learning. The need of successful interaction for student learning has long been emphasized in the research on online learning[125]. Two dimensions can be used to provide high-quality interaction: Structure refers to educational tools that direct students' interaction with content or other students, whereas dialogue refers to communication between students, teachers, and other students[125]. The emphasis is often on structure (i.e., pedagogy) that can encourage efficient student-content and studentstudent interaction in order to scale online learning and prevent the development of teaching costs[125]. Media and technology are frequently acknowledged as a means to enhance classroom connection. Media and technology are frequently acknowledged as a means of enhancing pedagogy's impact as

well[125]. Innovative technical advancements, such individualized feedback at scale based on learning analytics, can also enable teachers to improve their relationship with students[125]. The success of students may suffer as a result of the isolation that can result from online education[125]. Therefore, social interaction must be incorporated into online learning pedagogy, especially when students lack interpersonal relationships or are still developing their communication and teamwork skills developed[125].

## 2.3 Review of Empirical Studies

Beginning with Academic Search Ultimate, Applied Science & Technology Full Text (H.W. Wilson), Child Development & Adolescent Studies, Education Full Text (H.W. Wilson), Education Source, ERIC, Health Source - Consumer Edition, APA PsycArticles, APA PsycInfo, and Teacher Reference Center on the EBSCOhost platform, a systematic review of the relevant literature was conducted[66]. The terms "screen time," "active screen time," "educational screen time," "online learning," "online learning environment," "mobile devices," "distance education," "blended learning," "computer use," "computer-assisted learning," "virtual learning," "flipped classroom," "E-learning," "web-based learning," "learning management system," “Depression,” “Anxiety,” and “Stress” was used in the searches[66]. Based on which research included in the literature review, five criteria were established[66]. The research topic served as the basis for the inclusion criteria[66]. and was influenced by previously published systematic reviews[67].

Relevance: Only included studies that closely matched the study topic. This suggested that research must examine the link between the amount of time spent in front of any device and some indicator of student performance. Those where ownership of devices was considered as the independent variable rather than time spent engaging with screens, as well as studies where screen time was a mediating variable and the independent variable was another construct, were

eliminated. Studies that failed to identify the screen time measurement employed were also disregarded.

Participants - Because the primary objective of the study is to close a gap in the body of prior data and to address the problem of screen time affecting academic performance and also havingan impact on depression, it included participants who were undergraduate-aged (16–25 years old). Studies that looked at participant impacts after they passed the undergraduate-age threshold were removed. Studies with participants who had been clinically determined to have special needs, addictions to devices or the internet, or pathological use of the internet and screen time were not included because these populations required specialist interventions and made up a relatively small portion of the student body

Year of Publication - Because technology-related disciplines are extremely dynamic, only studies published after 2018 were considered, making sure this study covered the most recent and up-todate screen-time platforms and media.

Since its introduction in 1954, the idea of a social network has been studied in the fields of contemporary sociology, anthropology, geography, social psychology, organizational studies, and computer science. Stanley Milgram is credited with developing the modern social network concept. Indirect relationships are a way to describe the small-world problem, which he explored[124]. Even though two people X and Y do not know one another personally, they may share a mutual relationship with someone who does. Pool and Kochen developed the theoretical framework for this small-world puzzle, which Milgram used as the foundation for his purely visual investigation[124]. In the Kansas Study and the Nebraska Study, two experiments by Stanley Milgram involved asking a large number of participants from one location to forward a letter to a specific recipient in a distant city[124]. This letter should have only been given to someone who these persons knew by first name[124]. He came to the conclusion that people in the USA form a social network and are connected to this network through "six degrees of

separation" after analyzing the forwarding paths of the letters[124]. In such a network, a message would be delivered by an average of five intermediaries[124]. Kochen affirmed that even if the starter selection criterias are altered, this value is relative[124]. According to Howard, less than three degrees of separation are more likely online but six degrees of separation may be true offline[124]. Social networks have developed into one of the major areas where scientists from various fields hunt for inspiration since 1967. [124] Therefore, social networks and particularly social network analysis (SNA), which is backed by computer science, offer the chance to advance other fields of knowledge[124]. The idea of a social network and social network analysis have been developed in a variety of fields, including the labor market, public health, psychology, networks of business partners (such as law partnerships), networks of scientists or other professionals who collaborate, networks of families, networks of student friends, networks of company directors who engage in sexual activity, and networks of customers[124]. It just became a part of the emerging scientific field known as computational social science[124]. As a result of the expansion of the Internet and the growing acceptance of social and collaborative computing, more commonly referred to as social computing[124], social networks have emerged as a significant and promising topic of research within computer science. Gathering, extracting, accessing, processing, computing, and displaying various forms of social data are some of the actions involved in social computing[124]. The following are the main distinctions between social networks created from interactions between individuals in the real world and those found on the Internet: i. There is simply distance, possibly a very big distance, and no direct physical contactii. Typically, a member's identify in the virtual community and their identity in the outside world have no obvious and consistent relationship. iii. The possibility of simultaneous multimodal communication with many participants; additionally, the possibility of easy channel switching, especially online and offline, for instance, online VoIP and offline text communication. iii. How simple it is to end a relationship or pause a connection. v. The relative ease of communication- or activity-related data collecting and processing. vi. There is a

potential that the user data that is made available online may not be as accurate. Internet users frequently submit false personal information because to privacy concerns[124]. A research identified five categories or forms of screen time based on how the authors defined and quantified screen time. The first sort of screen time involved watching TV while doing nothing physical. This was given the time spent passively watching screens[68].

Playing video games, computer games, or games on portable devices like smartphones or tablets fell under the second category of screen time, which encompassed both physically inactive and physically active behaviors[69]. The third category of screen time was referred to as sociorecreational screen time and included the usage of a computer or mobile device for social networking, chatting, tweeting, casual internet browsing, texting, emailing, and other nonspecific leisure activities[70]. The use of a computer or other portable device for educational activities like schoolwork, studying, or homework fell under the fourth category of screen time, known as educational screen time[67]. The fifth and final screen time type was total screen time, a generic measure created by combining two or more screen time types and assessing their combined connections with psychological, physiological, or educational results[66]. The combined hours or time spent on all screen-based activities, such as watching television, playing video games, using social media, doing homework, texting friends, and any other[66].

The relationships between screen time and depression shrank but remained statistically significant when screen time was viewed as a continuous variable. The link between sedentary behavior and the risk of depression may be explained by a several factors[72]. First, long-term sedentary behavior may result in biological pathway disruptions, such as sleep or arousal disorders in the central nervous system[72]. Second, it has been demonstrated that exercise helps to lessen the symptoms of depression[72]. However, several research revealed that populations who reported high levels of screen time were more likely to be depressed than those who did not, even after controlling for physical population activity and other demographic factors[72].

Another theory focuses on social interaction: protracted sedentary activities, like watching television, may result in social isolation and retreat from interpersonal relationships, which have been associated with elevated emotions of social anxiety[71]. Additionally, these studies revealed a favorable relationship between sedentary behavior and obesity, which is accounted for by how sedentary behavior is linked to snacking and the consumption of calorie-dense foods, and depression has been found to be connected to obesity[71].

Because they do not engage in adequate physical exercise or consume an excessive amount of unbalanced diet, children and adolescents tend to be overweight, which can impact their health and, implicitly, their quality of life[124]. Increased obesity due to lack of regular physical activity and unhealthy nutrition in terms of feed intake and increased calories number is worrying[164]. In order to treat illness and maintain health, foods are categorized by their nutritional content using specific nutrients. As a result, some online platforms make unhealthy meals attractive and therefore, for content viewers, their morphological, functional, and biological development is negatively impacted[124]. Children and adolescents spend too much time in the virtual world (smartphone, video games, social networks, etc.) and audiovisual media and not enough time playing sports or engaging in other physical activity[165]. "Any sort of movement of the body associated with muscular contraction that increases energy expenditure above the resting level" is the definition of physical activity[124]. "Any behavior characterized by energy consumption 1.5 Metabolic Equivalents" is considered sedentary[124]. On a physical, mental, and social level, health is a completely preferred state, not just the absence of illness or incapacity. The human cost of a sedentary lifestyle is intolerable because young people are every nation's future and there is always work to be done, while few things can be achieved from the comfort zone, major impacts in the world requires people to go out and solve problems[124]. Physical inactivity, which is acknowledged as a global epidemic, has a negative impact on public health[124]. Cardiovascular disease is more likely to strike children and teenagers who are physically

inactive[124]. There is little doubt that we need to move around more and live less stationary lives[124]. There is little doubt that we need to move around more and live less stationary lives[124].

Children and teenagers who engage in regular physical activity benefit in a variety of ways, including improved cardiovascular and metabolic health biomarkers, improved body composition, and a decreased risk of depression[124]. Because it reduces the risk of sickness and mortality, regular exercise significantly lengthens and improves the quality of life. This is because exercise reduces the risk cardiovascular disease [124]. There was an urgent need for agreement on the topic of screen time during the COVID-19 pandemic (ST) due to the massively increased level of screen time engagement[65]. Some governments have set daily time limits for online learning in an effort to protect children from the perceived dangers of excessive screen time[65].

Several empirical investigations were reviewed, and the results revealed that the vast majority of the literature shows effect sizes that are too modest to be of practical or therapeutic consequence, and the results especially on educational screen time are ambiguous and significantly underrepresented[65]. These facts drive proposals for a more moderate legislative and practical attitude on limits, together with the clear advantages of online learning in the absence of traditional classroom instruction and the alarming predictions of learning loss caused by a protracted school shutdown[65]. However, all researchers agree that blended learning is an integrated learning experience that is controlled and guided by the instructor whether in the form of face-to-face communication or his virtual presence[123]. The concept of blended learning cannot be defined precisely because different scholars place different content into the term. The range of potential solutions that can be applied to teaching and learning is growing as a result of technological advancement[123]. The range of potential solutions that can be applied to teaching and learning is growing as a result of technological advancemen[123]. Whether we are primarily focused on improving learning experiences, extending access and flexibility, or lowering the

cost of learning, our learning systems will probably offer a combination of face-to-face and computermediated interactions[123]. In the future, differentiation in learning systems will depend more on how they mix than on whether they blend or not. How to integrate is one of the most important things we may consider as we move forward in time[123].

### 2.4 **Framework of the Association Between Screen Time And Depression**

The hypothesis of Displacement

Popular theories to explain the link between adolescent screen use and mental health include the displacement hypothesis[81]. The time spent in front of screens is allegedly taken away from things like activities that promote wellness[81]. Therefore, a teenager's mental health may be significantly impacted by screen use. The claim that technology use, such as watching TV, is bad for mental health is made in article [82]. With this in mind, the current study investigated the idea that screen time may be detrimental to mental health[82]. Teenagers' screen usage eats up time that could be used for other things, like socializing or physical activity[82].

In addition, one factor in poor health outcomes is the substitution of activities with negative consequences on a person's life and health[82]. In other words, neglecting other hobbies like sports, homework, and social contact with family and friends has a bad impact on mental health[82]. Screen time may therefore be detrimental to mental health[82]. When key health-promoting activities are replaced, a detrimental influence develops[82]. The displacement concept is also confirmed by Kraut[83]. According to the author, there is a chance that interpersonal connections could deteriorate from excessive screen time[83]. There is a chance that interpersonal connections could deteriorate from excessive screen time[83].

The notion has a flaw in that it was developed at a period when viewing TV made up the majority of screen time[83]. Since the activities connected to screen time have changed over time

for instance, a smartphone now offers a variety of social interactions different forms of activity are now connected to different screen types. Screen time has also been assessed using a variety of methodologies in past studies, which may have resulted in disparate results. For instance, watching TV is a passive activity, whereas using a smartphone may encourage social contacts[84]. The amount of screen time can vary depending on conception[84].

Diverse contributions are provided, and some studies determine that screen use may be a risk factor for teen mental health issues based on earlier research[84]. It would therefore be intriguing to discover more about the impact of screen time on adolescent mental health[84]. The analysis of each screen type's contribution is the main goal of the current work[84]. Therefore, each of the many screen kinds is examined separately[84]. So, in the current study, screen time will be defined as a TV, computer, and smartphone (including a tablet)[78]. It is proposed that there is a connection between screen time, mental health, and the displacement hypothesis taking into account what is previously known about screen time[84].

It is hypothesized that the three sorts of screens have a deleterious impact on mental health[84]. For instance, physical exercise or social gatherings screentime will be measured and explained as the Interaction with electronic devices that give content largely through screen-based displays over extended periods[78]. Screen time can be measured using mobile devices, although there are numerous screen time tracking tools and applications (or "apps") for cellphones, tablets, PCs, and televisions, but there isn't a single tool or application that can monitor all devices simultaneously to estimate the total screen time[78]. It could be cumbersome and give more information than a participant wants if they are asked to track usage per device via several apps, such as the amount of time spent on social media or specific apps[78].

Additionally, modern television screen time trackers can be very pricey and may need study staff to visit a subject's house for installation[78]. A questionnaire with strong psychometric

properties can be a useful research tool in this case to estimate screen time in a simple, fast, no-cost, and completely anonymous manner[77]. The screen time will be accessed excluding screen time spent on course work[77].The primary activity is defined as the main activity engaged in rather than using a television/another screen in the background while performing another activity such as cooking, exercising, engaging in a lecture, or reading a textbook[79].

Screen use on an average weekday: Thinking of an average weekday (from when a student wakes up until time for sleep), how much time does a student spend using each of the following types of screens primarily? Television, TV-connected devices (e.g. streaming devices, video game consoles), Laptops, computers, and Smartphones[148]. Screen use on an average weeknight Now, thinking of an average weeknight (from when a student returns from class or school until they go to sleep), how much time screen time is spent using each of the types of screen as the primary activity? Screen use on an average weekend day Now, thinking of an average weekend day (Saturday or Sunday), how many hours over the course of the whole day (from when a student wakes up until they go to sleep) is spent using each of the types of screen as the primary activity?

The background screen is defined as the use of a television or another screen near you while performing other activities such as exercising, cooking, and interacting with family/friends[79].

Thinking about a regular weekday (Monday through Friday), on average, how many hours over the course of the whole day (from when a student wakes up until one goes to sleep) is a student exposed to background screen use? Example: If you exercise in the morning for one hour while watching the TV news, you use your smartphone for one hour while eating lunch and an additional 30 minutes while eating dinner, you would estimate that you are exposed to 2 hours and 30 minutes of background screen use per day. Also, background screen use during the evening specifically On average, how many hours per evening (Monday through Friday) are

students exposed to background screen use from when they return from school until they go to sleep?

Example: If you regularly prepare dinner with the television on for one hour, and you keep the television on for an additional hour while using your smartphone for social media use, you can estimate that you are exposed to 2 hours of background screen use every evening

Now addressing background screen use during the weekend[166]. Thinking about a regular weekend day (Saturday or Sunday), on average, how many hours over the course of the whole day (from when a student wakes up until they go to sleep) are they exposed to background screen use? Example: If you have the television on while you do some online shopping for two hours, and you keep the television on when friends come over to visit for an additional two hours, you can estimate that you are exposed to 4 hours of background screen use every evening[79].

A complex phenomenon, the effect of screen use on health may go beyond the potential sedentary behavior brought on by extended sitting[79]. In the past, viewing television has been linked to making bad food choices, in part because of the volume of commercial advertising. Regular smartphone use has been linked to sleep problems that may be brought on by exposure to radiofrequency electromagnetic fields, which can alter brain physiology[79]. It has also been demonstrated that using e-readers in the evening can interfere with sleep by suppressing melatonin secretion and changing the circadian cycle[79]. Long durations of screen time have also been linked to mental health problems, such as depression, which can disrupt the hypothalamus adrenal axis and negatively impact the immune system and metabolism[79].

basic demographic information will also be collected (e.g., age, sex) along with self-reported height, weight, and physical activity levels in the questionnaire[79]. To access depression, a scale,

using the self-report measure of depression will be used while the center for epidemiologic studies short depression scale (CES-D-R-10) will be used[80].

## 2.5 **Summary of Gaps in Literature Reviewed**

The literature review showed fairly strong evidence for links between screen time and increased obesity/adiposity and depressive symptoms, as well as moderate evidence for links between screen time and increased energy intake, poorer quality of food, and a lower quality of life[73]. The associations between screen time and behavioral issues, anxiety, hyperactivity, inattentiveness, lower self-esteem, worsened well-being and psychosocial health, metabolic syndrome, worsened cardiorespiratory fitness, worsened cognitive development, lower educational attainment, and poor sleep outcomes were weakly supported[73]. Screen time was not associated with eating disorders, suicidal thoughts, individual cardiovascular risk factors, asthma prevalence, or pain, or there was insufficient data to support this claim[73].

There was scant support for threshold effects. Weak evidence was found to support the idea that occasional screen time is beneficial and not harmful[73]. There aren't many in-depth empirical analyses of screen time in the literature today, especially in Africa[74]. For university students to fit into the information superhighway and campus tech culture, digital screens and gadgets are becoming necessities[76]. The average college student uses a screen device more than those below average, and they leave it on for more than eight hours per day[76]. 43 percent of college students watch television every day, and 61 percent utilize screen media[76]. A third or more of college students reside in private or shared housing, such as dorms, where television is always on or is on most of the time[76].

Nigeria has unique characteristics, such as the low cost of new and old personal computers, the widespread usage of mobile internet, the prevalence of both legitimate and illegal videogames, the explosion of low-cost mobile devices, and the expansion of affordable satellites[76]. The

prevalence of prolonged screen time exposure has increased as a result of pirated video games, the rise of affordable mobile devices, and the expansion of affordable satellite and digital terrestrial television[76]. This pattern indicates a lack of time for all kinds of productive tasks, such as reading and doing homework, as well as the potential for addiction[76].

According to the Nigerian Report Card on Physical Activity for Children and Youth, which was published in 2013 and 2016 as a result of studies commissioned by the Nigerian Heart Foundation, it showed that a number of children and youth in Nigeria's rural and urban areas use screens more than three hours per day while the bulk of Nigerian children and teenagers' sedentary time is spent watching television and playing video games (60.3% and 90.7%, respectively). The study, which concentrated on Nigeria's North-East, North-Central, and South geopolitical zones, acknowledged a paucity of information from national sources or studies addressing socio-demographic and socio-economic disparities in screen-based sedentary behavior among children and youth[75]. There is currently a knowledge gap about the holistic multiplatform screen time exposure and its impact among Nigerian university students, and there is a lack of complete national statistics to determine what percentage of this population is affected[75]. The current literature fails to answer the following questions[75].

Do university students in Oyo state own or have access to devices with digital screens?

What are the screen activities and duration of the activities by university students in Oyo State?

What proportion of these university students in Oyo state is aware of screen usage guidelines/recommendations?

What proportion of these university students in Oyo state meet the screen usage guidelines/recommendations?

And What impact does screen time have on these university students in Oyo state?

Only a few studies have combined the use of computers, television, videos, and games[79]. Previous research on screen time has largely concentrated on measuring "screen use" as the number of hours spent watching television in a particular week[79]. As a result, the tools available in the health literature designed to evaluate screen time behavior typically only measure the amount of time spent watching television and occasionally using a computer for personal use in addition to other sedentary activities like driving, reading, and socializing[79]. There is currently no instrument that measures the usage of other specialized screen-based devices in addition to the use of computers and televisions[79]. This is a serious flaw in how screen time is assessed since it may be crucial to distinguish between the ways and times that various new gadgets are used alongside more conventional screen-based devices, as well as the range of uses for various screen types (such as dedicated use versus use just as background noise), which might be connected to various sedentary behavior patterns and health effects[79].

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## Chapter Three

### 3.1 Research Design

Undergraduate students in Lead City University Ibadan will be informed about the study and given informed consent forms to sign after which questionnaires will be delivered and used to collect anonymous data from respondents. This will identify depression rate and screen time of undergraduate students in any program at lead city university. Television, social media, video games, and computers are part of the screens to be assessed. Basic demographic information will also be collected (e.g., age, sex, religion, ethnicity, faculty, and academic level).

Data will be gathered using a structured questionnaire, and the study will adopt a probability sampling (cluster sampling) technique. A center for epidemiologic studies short depression scale will be used for the self-report measure of depression (CESD-R10) while a Questionnaire for Screen Time of Adolescents (QueST) will be used to measure the screentime[3]. QueST will measure screen time across five constructs: studying, working/internship-related activities, watching videos, playing video games, and using social media/chat applications[3].

### 3.2 Area of the Study

Nigeria's overall land area, which includes 36 states and the Federal Capital Territory, is approximately 923,768 square kilometers (FCT). According to geographical size, it is the most populous nation in the world and the most populous country in sub-Saharan Africa[7]. Nigeria's population would increase from more than 186 million in 2016 to 392 million in 2050[7]. It will then rank as the world's fourth-most populous country. Nigeria's rapid population growth rate will continue for the foreseeable future thanks to the nation's high birth rate and population momentum[7]. Although the predicted population of 214,028,302 was attained in July 2020, the

rate of population growth has reduced from 3.2% in 2006 to 2.53% in 2020[7]. Urban areas housed

51.2% of the world's population in 2012, up from 2.2% in 2006 and 3.5% in 2012[7], according to statistics. Nigeria has a young population, according to the population's age distribution[7]. According to the National Bureau of Statistics (NBS), the economically active population, or those between the ages of 15 and 64, made up 55% of the population in 2021, while those 65 and older made up 3.3% [7]. Urban areas housed 51.2% of the world's population in 2012, up from 3.5% in 2012 and 2.2% in 2006, according to statistics[8].

Nigeria has a young population, according to the population's age distribution[8]. According to the National Bureau of Statistics (NBS), the economically active population, or those between the ages of 15 and 64, made up 55% of the population in 2021, while those 65 and older made up

3.3%[8]. Additionally, according to the NBS data, 71% of people live in poverty[8].

Ibadan is the capital and largest city of Nigeria's Oyo State.[9] It is the third-largest city in Nigeria by population after Lagos and Kano, with a population of 3,649,000 as of 2021 and more than 6 million people residing in its metropolitan region[9]. It is the largest city in the country in terms of area. In 1960, Ibadan was Africa's second-most populous city after Cairo[9]. It was also the largest and most populated metropolis in Nigeria. Ibadan, a city in southwest Nigeria, located 530 miles (330 kilometers) southwest of Abuja, the country's capital, and 128 miles (80 kilometers) inland from Lagos[9]. It serves as a crucial hub for travel between the country's heartland and coastal districts. Since the early days of British colonial administration, Ibadan had served as the administrative hub of the former Western Region. Today, some of the city's historic protective walls still survive[9].

The study will be carried out in Lead City University, Oba Otudeko Avenue, Toll Gate, Ibadan, Oyo state, Nigeria.

### 3.3 Population of the Study

The study population for this study will consist of Lead city undergraduate students between 16-

24 years studying in the university.

**Inclusion Criteria**

Undergraduate student of Lead City University Ibadan (between 16 – 24 years of age) that give their consent to participate in the study will be included.

Exclusion Criteria

Undergraduate students in Lead City University Ibadan who do not consent to the study will be excluded.

### 3.4 Sample and Sampling Techniques

A probability sampling technique will be used and questionnaires will be given to those interested in being a part of the study.

**Sample size**:

The minimum sample size will be determined using the Cochran formula for finite (known) population testing (Cochran, 1977).

The sample size for this study will be determined considering the following factors:

$$n_0 = \frac{Z^2 p(1-p)}{e^2}$$

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where: e - Is the margin of error 5% z - Confidence level 95% - statistical table score = 1.96 p – The estimated proportion when not known 50% n = (1.96) ^2 * 0.5

(0.05) ^2

n = 384.16

The population of Lead City University undergraduate students = 8647 (Lead City University registration office, accessed 25th August 2022.) n = 384.16/1-384.16/8647 n = 384

Hence, the minimum sample size required is 384. But by considering a 10% non-response rate, the overall sample size is 422.

### 3.5 Description of the Research Instruments

A popular tool for detecting depression in primary care settings is the 10-item Center for the Epidemiological Studies of Depression Short Form (CES-D-10). In community populations, the 10-item measure has proven to have robust psychometric qualities, such as predictive accuracy and good correlations with the original 20-item form[5].

The CES-D-10 is a 10-item Likert scale survey used to evaluate recent depressed symptoms. Three items deal with depressive affect, five deal with somatic symptoms, and two deal with positive affect. Each item has a range of possible answers, from "rarely or never" (a score of 0)

to "all the time" (a score of 3) [5]. Also, The Questionnaire for Screen Time of Adolescents (QueST) was created to measure the habitual amounts of screen time for the teenage population across many variables[3]. The QueST tries to assess screen time across various constructs on weekdays and weekends[3]. Based on research questions about sedentary behavior, five screen time constructs were identified as follows: activities related to study or homework; work-related activities (including internships and non-profit activities); watching videos, such as series, movies, news, and sports; playing video games; and use of social media and chat applications. Because platforms and programs typically provide both services, it was decided to measure the use of chat applications and social media inside a single construct (e.g., it is possible to send direct messages to other users on Facebook, Instagram, and Twitter)[3]. Since some internships and employment entail screen time activities, the work-related construct was included. On weekdays and weekends, the time in hours and minutes can be given for each construct[3].

Lastly, The National Universities Commission (NUC) mandates that all academic programs at a university operate on a semester schedule[6]. Each academic year, two semesters last for a total of eighteen (18) weeks[6]. These weeks are broken down into one (1) week for registration, fifteen (15) weeks of lectures, and two (2) weeks of exams [6]. 40 hours of activities in the classroom and/or a lab make up one week of lectures[6]. Daily teaching and laboratory activities must begin at 8:00 am and end by 5:00 pm, with a break for lunch in the middle [6].

As long as there are no requirements (restrictions), any student may enroll in a course at any level[6]. For instance, a student at the 100 level can provide a course at any level as long as the student possesses the qualifications needed for the course; a 400-level student can still teach a 100-level course if they so want[6]. However, it is typically preferable to take and pass lower-

level basic courses before moving on to higher-level ones [6]. If a student follows the system's rules and regulations, the semester system also enables him to spread out his course load evenly over the semesters[6]. The Lead city university also runs the course credit system by the National Universities Commission's regulations [6]. The equivalent of one credit unit is one hour of lecture or tutorial per week over a semester, which is equal to two hours of seminar or three the hours of Six hours of teaching practice, one week of industrial attachment, clinical experience/practicum, studio practice, or laboratory work[6]. A student can register for a certain number of units per semester, both minimum and maximum. Every semester is as significant to the others. To ensure a high level of success, a prudent student is advised to attempt a manageable number of units[6]. There are ongoing evaluations throughout each semester in addition to the final test. The set of semester examinations for each course consists of these tests at the end of the semester[6]. Various faculties have different cutoff scores for the final mark of 100 percent, but continuous assessment scores must be between 30 to 40 percent of the final 100 percent [6].

The grade point average (GPA) system enables registered courses to be weighted by combining grades (A, B, C, D, E, F) and grade points (5, 4, 3, 2, 1, 0) to the number of credits awarded for a certain course[6]. The cumulative grade point average (CGPA) is a measurement of a student's overall academic performance during their stay at the university[6]. Low-grade points include lowgrade scores such as; (D=2, E=1, F=0). Failing a course implies that the grade point is zero[6]. A students CGPA can be influenced depending on the screen time and the type of screen time engagement.

### 3.6 Validity of Research Instrument

For the instrument validation, articles published in scientific journals about screen time behaviors, academic performance, and depression with psychometrics and validation of used questionnaires were employed. All questionnaires to be used had earlier been referenced by experts who had a doctoral title and were either professors or researchers in universities or research institutes.

### 3.7 Reliability of the Research Instrument

To test the reliability of the (CESD-R10) and (QueST) all undergraduate program university students from the Lead city University of which 422 will be recruited, of those who agree to participate will be asked to answer the questionnaire twice with a seven-day interval between applications and students accessed the electronic link of the questionnaire using their smartphones.

### 3.8 Data Collection

The questionnaire will be delivered online using Google forms to the population of lead city university undergraduate students who wished to take part and they provided greater diversity in terms of age, ethnicity, and socio-economic status. Data collection will be conducted in November 2022. To achieve a high level of data quality, multiple strategies were employed such as attention checks, data validation of the google form and a 'captcha' verification to exclude spam and automated responses.

### 3.9 Data Analysis

Data collected with the questionnaires will be crosschecked for errors and cleaned. Data will be analyzed using the Statistical Package for the Social Sciences (SPSS) version 28.0. Continuous variables will be summarized using descriptive statistics. Categorical variables will be calculated using frequencies and percentages. Pearson's Chi-square test will be used to establish the association between some respondents' factors

### 3.1.0 Ethical Approval

The study will be approved by the Lead city university ethical review board. participants will sign an electronic informed consent form and were then be redirected to the google form where they will be asked about their demographics, Age, sex, current physical activity levels, and they filled questionnaires. At the end of the survey, a completion code will be provided and they will repeat after 7 days using the same code to assess the survey. Afterwards, they will be provided a final code to enter in order to receive a e-copy of the project upon publication.



## Endnotes


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## Chapter Four

### 4.1 Socio-Demographic Characteristics of Participants

A total of 422 undergraduate students at Lead City University Ibadan consented to take part in the study, and filled out the questionnaire. During the data cleaning, it was found that 19 participants had incomplete data and were excluded, leaving a total of 401 participant data entered into the analysis.

Table 4.1: Socio-demographic Characteristics of Participants

| Variable | Frequency (n) = 401 | Percent (%) |
|---|---|---|
| Age | | |
| Mean Age = 21.05 | | |
| Mean ± SD = 21.05 ± 2.104 | | |
| 16 – 19 | 111 | 27.7 |

| | | |
|---|---|---|
| 20 – 21 | 113 | 28.2 |
| 22 – 24 | 177 | 44.1 |
| Sex (n = 404) | | |
| MALE | 208 | 51.9 |
| FEMALE | 193 | 48.1 |
| Ethnicity (n = 404) | | |
| IGBO | 10 | 2.5 |
| YORUBA | 371 | 92.5 |
| HAUSA | 1 | 2 |
| EDO | 7 | 1.7 |
| OTHERS | 12 | 100.0 |
| FACULTY | | |
| Applied Sciences | 63 | 15.7 |
| Arts and Education | 16 | 4.0 |
| Basic Medical Sciences | 94 | 23.4 |
| Clinical Sciences | 36 | 9.0 |
| Communication and Information | 14 | 3.5 |
| Engineering | 49 | 12.2 |
| Environmental Design and Management | 1 | 0.2 |
| Law | 15 | 3.7 |
| Public Health | 11 | 2.7 |
| Social and Management Sciences | 102 | 25.4 |
| Academic Level (n =404) | | |
| 100 | 47 | 11.7 |
| 200 | 104 | 25.9 |
| 300 | 118 | 29.4 |
| 400 | 100 | 24.9 |
| 500 | 32 | 8.0 |

Source: Field Survey 2022

Table 4.1 shows that there were more male students (51.9%) than female students (48.1%). The majority of the respondents were between ages 19 – 24 (90.8%) while only a few of them were between ages 16 – 18 (9.2%). This shows that respondents are described as young people (teenagers and youths) and the mean age of the participants was 21.05 ± 2.104. A total of 10 faculties in Lead City University reflected in respondent entries with Social and Management Sciences having the highest representation (25.4%) and Environmental Design and Management the least (0.2%). Almost all respondents were from the Yoruba tribe (92.5%) while the Hausa tribe was the least (0.2%). Also, 300-level undergraduate students were the most represented

(29.4 %) and 500-level undergraduate students were the least represented (8.0%). 4.1.1

Screen time hours spent performing different activities



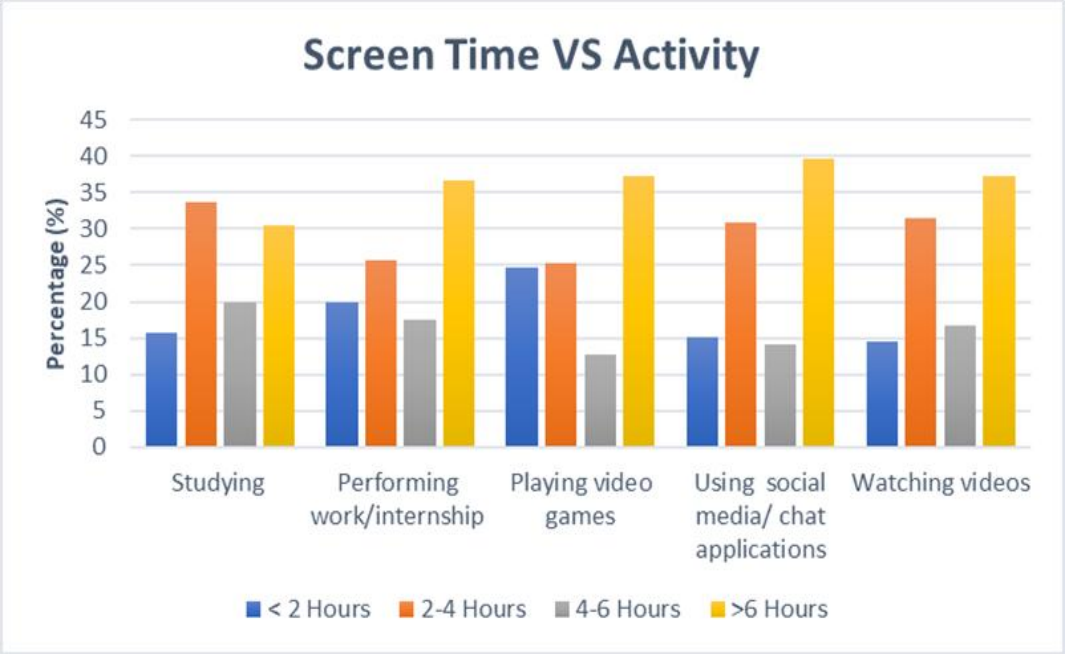


Figure 4.1 Categorized Percentage of Screen time hours spent performing different activities

Figure 4.1 shows the percentage of hours participants spend on 5 different screen time activities on a weekday categorized based on screen time hours. It shows that over 6 hours of the day is

often spent by undergraduate students studying, performing work/internship, playing video games, using social media/ chat applications, and watching video games. Least spent performing work or internship and playing video games but mostly spent studying, using social media/chat applications, and watching videos. Less than 2 hours is mostly spent playing video games and the least spent watching videos.

**4.2 Presentation of Data**

4.2.1 Research Question 1: To Determine the amount of screentime spent by undergraduate students in lead city university Ibadan

Table 4.2 Amount of Screen Time Spent Per Weekday

| Variables | Frequency (n) = 402 | Percent (%) |
|---|---|---|
| < 4 hours | 343 | 85.5 |
| > 4 hours | 57 | 14.2 |
| 0 | 1 | .2 |
| Total | 401 | 100.0 |

Source: Field Survey 2022

Table 4.2 shows that majority of students spent less than 4hours using the screen devices for relaxation or leisure (85.5%) while a few spent above the recommended threshold of 4 hours (14.2%). According to the American academy of child and adolescent psychiatry, children from 6 to 17 years of age should aim for 2 hours or less recreational screentime use per weekday and focus on maintaining healthy limits and making time for other important activities like physical activity and sleep. While adults from 18 years and up should keep 2 to 4 hours of recreational screen use per weekday, they should take frequent screen breaks and set up screen-free times and zones. They should also make time for physical activity.[1]

4.2.2 Research Question 2: To determine the level of depression among undergraduate students

Table 4.3 Depressive Symptoms Among Undergraduate Students in Lead City University Ibadan.

| Variables | Frequency (n) = 401 | Percent (%) |
|---|---|---|
| I was bothered by things that usually don't bother me. | | |
| Rarely or none of the time (less than 1 day) | 180 | 44.9 |
| Some or a little of the time (1-2 days) | 124 | 30.9 |
| Occasionally or a moderate amount of time (3-4 days) | 55 | 13.7 |
| All of the time (5-7 days) | 42 | 10.5 |
| I had trouble keeping my mind on what I was doing. | | |
| Rarely or none of the time (less than 1 day) | 153 | 38.2 |
| Some or a little of the time (1-2 days) | 117 | 29.2 |
| Occasionally or a moderate amount of time (3-4 days) | 95 | 23.7 |
| All of the time (5-7 days) | 36 | 9.0 |
| I felt depressed | | |
| Rarely or none of the time (less than 1 day) | 205 | 51.1 |
| Some or a little of the time (1-2 days) | 125 | 31.2 |

| | | |
|---|---|---|
| Occasionally or a moderate amount of time (3-4 days) | 59 | 14.7 |
| All of the time (5-7 days) | 12 | 3.0 |
| I felt that everything I did was an effort. | | |
| Rarely or none of the time (less than 1 day) | 69 | 17.2 |
| Some or a little of the time (1-2 days) | 113 | 28.2 |
| Occasionally or a moderate amount of time (3-4 days) | 110 | 27.4 |
| All of the time (5-7 days) I felt hopeful about the future | 109 | 27.2 |
| All of the time (5-7 days) | 18 | 4.5 |
| Occasionally or a moderate amount of time (3-4 days) | 56 | 14.0 |
| Some or a little of the time (1-2 days) | 94 | 23.4 |
| Rarely or none of the time (less than 1 day) | 233 | 58.1 |
| I felt fearful | | |
| Rarely or none of the time (less than 1 day) | 177 | 44.1 |
| Some or a little of the time (1-2 days) | 123 | 30.7 |

| | | |
|---|---|---|
| Occasionally or a moderate amount of time (3-4 days) | 69 | 17.2 |
| All of the time (5-7 days) | 32 | 8.0 |
| My sleep was restless | | |
| Rarely or none of the time (less than 1 day) | 172 | 42.9 |
| Some or a little of the time (1-2 days) | 152 | 37.9 |
| Occasionally or a moderate amount of time (3-4 days) | 58 | 14.5 |
| All of the time (5-7 days) | 19 | 4.7 |
| I was happy | | |
| All of the time (5-7 days) | 36 | 9.0 |
| Occasionally or a moderate amount of time (3-4 days) | 83 | 20.7 |
| Some or a little of the time (1-2 days) | 160 | 39.9 |
| Rarely or none of the time (less than 1 day) | 122 | 30.4 |
| I felt lonely | | |
| Rarely or none of the time (less than 1 day) | 115 | 28.7 |
| Some or a little of the time (1-2 days) | 135 | 33.7 |

| | | |
|---|---|---|
| Occasionally or a moderate amount of time (3-4 days) | 101 | 25.2 |
| All of the time (5-7 days) | 50 | 12.5 |
| I could not "get going" | | |
| Rarely or none of the time (less than 1 day) | 209 | 52.1 |
| Some or a little of the time (1-2 days) | 128 | 31.9 |
| Occasionally or a moderate amount of time (3-4 days) | 52 | 13.0 |
| All of the time (5-7 days) | 12 | 3.0 |

Source: Field Survey 2022

Table 4.3 shows the various depressive symptoms among undergraduate students in Lead City University Ibadan; most of the participants were rarely or none of the time (less than 1 day) bothered by things that usually don't bother them (44.9%), could not "get going (52.1%), felt hopeful about the future (58.1%), felt fearful (44.1%), had trouble keeping their mind on what they were doing (38.2%), had restless sleep (42.9%) and felt depressed (51.1%). Most participants occasionally or a moderate amount of time (3-4 days) felt that everything they did was an effort (27.4%) while some or a little of the time was happy (39.9%) and felt lonely (33.7%).

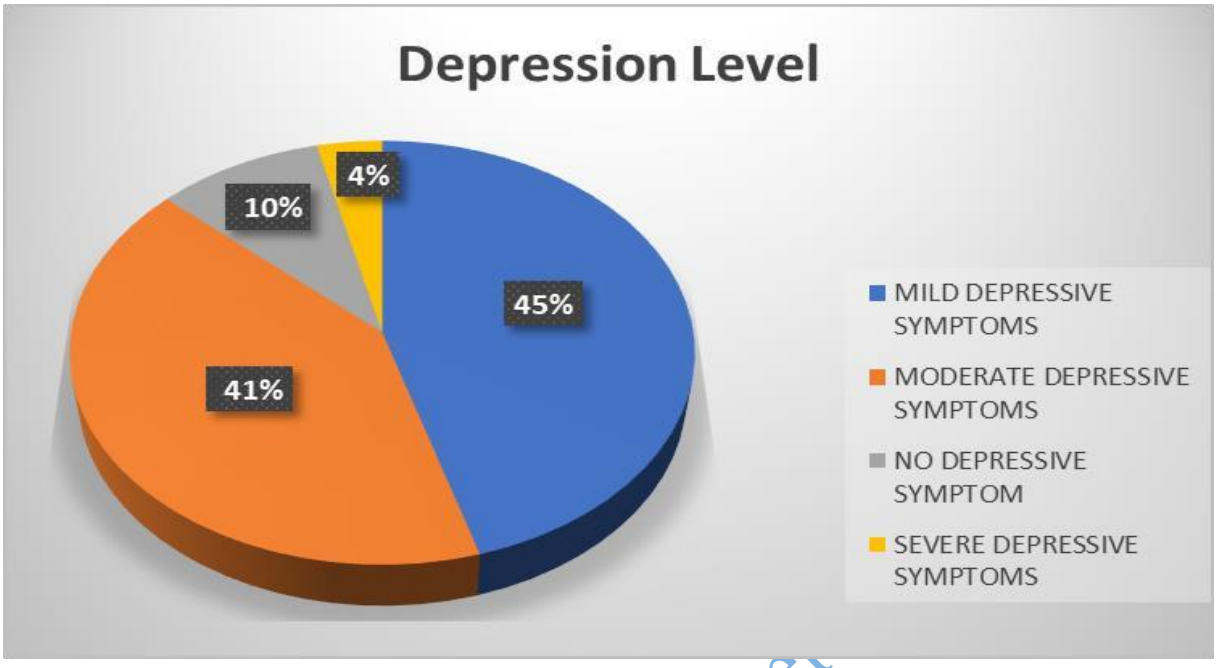


Figure 4.2 Level of Depression among Undergraduate Students at Lead City University Ibadan (n=401)

Source: Field Survey 2022

Figure 4.2 self-administered questionnaire that assesses depression symptoms was used and the depression scale result was categorized to determine the level of depression among undergraduate students at Lead City University Ibadan[5]. 45% of the participants had mild depressive symptoms, 41% of participants had moderate depressive symptoms, 4% of participants had severe depressive symptoms and just 10% of participants recorded no depressive symptom.



4.2.3 Research Question 3: To determine the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Screen Time.

Table 4.4: Association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Screen Time.

| Variable | **≤ 4 Hours Frequency (%)** | **> 4 Hours Frequency (%)** | **$x^2$** | P value |
|---|---|---|---|---|
| Age | | | | |
| 16 | 4(1%) | 4(1%) | 92.945 | <0.00001 |
| 17 | 6(1.5%) | 8(2%) | | |
| 18 | 9(2%) | 6(1.5%) | | |
| 19 | 64(16%) | 10(2.5%) | | |
| 20 | 51(13%) | 7(1.5%) | | |
| 21 | 49(12%) | 6(1.4%) | | |
| 22 | 43(10.7%) | 2(0.4%) | | |
| 23 | 62(15.5%) | 13(3%) | | |
| 24 | 55(13.7%) | 2(0.4%) | | |
| SEX | | | | |
| MALE | 176(44%) | 31(8%) | 1.115211 | <0.572639 |
| FEMALE | 167(42%) | 26(6%) | | |
| TRIBE | | | | |
| IGBO | 8(2%) | 2(0.4%) | 5.589 | <0.693161 |
| YORUBA | 321(80%) | 49(12%) | | |
| HAUSA | 1(0.2%) | 0 | | |
| EDO | 5(1%) | 2(0.5%) | | |

| | | | | |
|---|---|---|---|---|
| OTHERS | 8(2%) | 4(1%) | | |
| FACULTY | | | | |
| Applied Sciences | 38(9%) | 8(2%) | 12.150 | <0.839397 |
| Arts and Education | 88(22%) | 16(4%) | | |
| Basic Medical Sciences | 102(25%) | 16(4%) | | |
| Clinical Sciences | 90(22%) | 10(2%) | | |
| Communication and Information | 25(6%) | 7(2%) | | |
| Engineering | 38(9%) | 8(2%) | | |
| Environmental Design and Management | 88(22%) | 16(4%) | | |
| Law | 102(25%) | 16(4%) | | |
| Public Health | 90(22%) | 10(2%) | | |
| Social and Management Sciences | 25(6%) | 7(2%) | | |

| | | | | |
|---|---|---|---|---|
| ACADEMIC LEVEL | | | | |
| 100 | 38(9%) | 8(2%) | 11.080 | <0.197207 |
| 200 | 88(22%) | 16(4%) | | |
| 300 | 102(25%) | 16(4%) | | |
| 400 | 90(22%) | 10(2%) | | |
| 500 | 25(6%) | 7(2%) | | |

Table 4.4 Shows the number of participants who used screen time to performing activities on a weekday under each socio-demographic variables (age, sex, tribe, faculty & academic level). Based on sex, a p-value of 0.572 was gotten, p-value of 0.00001 was gotten for age, p-value of 0.693 was gotten for tribe, p-value of 0.839 was gotten and for faculty and p-value of 0.197 was gotten for academic level.

4.2.4 Research Question 4: To determine the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Depression.

Table 4.5 To determine the association between the socio-demographic variables (age, sex, tribe, faculty & academic level) and Depression

| Variable | **MILD DEPRESSION Frequency (n) = 402** | **MODERATE DEPRESSION Frequency (n) = 402** | **NO DEPRESSION Frequency (n) = 402** | **SEVERE DEPRESSION Frequency (n) = 402** | $x^2$ | p-value |
|---|---|---|---|---|---|---|
| Age | | | | | | |
| 16 | 3(0.7%) | 3(0.7%) | 1(0.2%) | 1(0.2%) | 50.87 | <0.00001 |
| | | | | | 9 | 7 |
| 17 | 8(2.0%) | 5(1.2%) | 1(0.2%) | 0 | | |
| 18 | 8(2.0%) | 6(1.5%) | 0 | 1(0.2%) | | |
| 19 | 33(8%) | 30(7.4%) | 9(2.2%) | 2(0.5%) | | |
| 20 | 23(5.7%) | 27(6.7%) | 5(1.2%) | 3(0.7%) | | |
| 21 | 23(5.7%) | 26(6.4%) | 5(1.2%) | 1(0.2%) | | |
| 22 | 25(6.2%) | 16(4%) | 2(0.5%) | 2(0.5%) | | |
| 23 | 31(7.7%) | 33(8.2%) | 9(2.2%) | 2(0.5%) | | |
| 24 | 28(6.9%) | 20(5%) | 6(1.5%) | 3(0.7%) | | |
| MALE | 93(23%) | 86(21%) | 23(5.7%) | 6(1.5%) | 0.778 | <0.67773 |
| | | | | | | 4 |
| FEMALE | 89(22%) | 80(20%) | 15(3.7%) | 9(2%) | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| TRIBE | | | | | | |
| IGBO | 5(1.2%) | 5(1.2%) | 0 | 0 | 8.569 | <0.379947 |
| YORUBA | 168(42%) | 154(38%) | 34(8%) | 15(4%) | | |
| HAUSA | 0 | 1(0.2%) | 0 | 0 | | |
| EDO | 3(0.7%) | 3(0.7%) | 1(0.2%) | 0 | | |
| OTHERS | 6(1.5%) | 3(0.7%) | 3(0.7%) | 0 | | |
| FACULTY | | | | | | |
| Applied Sciences | 27(6.7%) | 25(6.2%) | 6(1.5%) | 5(1.2%) | 23.408 | <0.175395 |
| Arts and Education | 11(2.7%) | 3(0.7%) | 2(0.5%) | 0 | | |
| Basic Medical Sciences | 43(10.7%) | 38(9.5%) | 8(2.0%) | 5(1.2%) | | |
| Clinical Sciences | 19(4.7%) | 14(3.5%) | 3(0.7%) | 0 | | |
| Communication and Information | 9(2.2%) | 4(0.9%) | 1(0.2%) | 0 | | |
| Engineering | 26(6.5%) | 18(4.5%) | 4(0.9%) | 1(0.2%) | | |
| Environmental Design and Management | 0 | 1(0.2%) | 0 | 0 | | |
| Law | 7(1.7%) | 7(1.7%) | 1(0.2%) | 0 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Public Health | 5(1.2%) | 4(0.9%) | 2(0.5%) | 0 | | |
| Social and Management Sciences | 35(8.7%) | 52(12.9%) | 11(2.7%) | 4 | | |
| ACADEMIC LEVEL | | | | | | |
| 100 | 18(4,5%) | 17(4.2%) | 12(2.9%) | 0 | 16.376 | <0.037304 |
| 200 | 37(9.2%) | 52(12.9%) | 8(1.9%) | 7(1.7%) | | |
| 300 | 60(14.9%) | 43(10.7%) | 7(1.7%) | 8(2.0%) | | |
| 400 | 50(12.4%) | 41(10.2%) | 9(2.2%) | 0 | | |
| 500 | 17(4.2%) | 13(3.2%) | 2(0.5%) | 0 | | |

Table 4.5 shows the number of participants on each of four levels of depressive symptoms based on their socio-demographic variables (age, sex, tribe, faculty & academic level). Based on sex, a p-value of 0.677 was gotten, p-value of 0.000017 was gotten for age, p-value of 0.379 was gotten for tribe, p-value of 0.175 was gotten and for faculty and p-value of 0.037 was gotten for academic level. They all show no association between the socio-demographic variables sex, faculty & academic level and Depression as each of the p-value is greater than 0.005 at 95% confidence level. But the results for age and tribe is significant.

4.2.5 Research Question: What is the association between screen time and depression among undergraduate students at lead city university Ibadan?

Table 4.6 Association between Screen Time and depression

| Variable | **MILD DEPRESSION Frequency (%)** | **MODERATE DEPRESSION Frequency (%)** | **NO DEPRESSION Frequency (%)** | **SEVERE DEPRESSION Frequency (%)** | $x_2$ | p-value |
|---|---|---|---|---|---|---|
| SCREEN TIME | 156(39) | | | | | |
| < 4 hours | | 142(35) | 32(8) | 13(3) | 0.074 | <0.999332 |
| > 4 hours | 26(6) | 24(6) | 6(1) | 2(0.4) | | |
| TOTAL | 182(48) | 166(41 | 38(9) | 15(3) | | |

Table 4.6 shows indicates that mild depressive symptoms were recorded from 156 participants who had less than 4 hours screen time per weekday, moderate depressive symptoms were recorded from 142 participants who had less than 4 hours screen time per weekday, no depressive symptom was recorded from 32 participants who had less than 4 hours screen time per weekday and severe depressive symptoms were recorded from 13 participants who had less than 4 hours screen time per weekday. Also, Participants who had screen time above the

recommended threshold of 4 hours per weekday recorded lower depressive symptoms. Only 26 of those participants had mild depressive symptoms, 24 of them had moderate depressive symptoms, 6 of them had no depressive symptoms and 2 of them had no depressive symptom. It answers the research question and shows that there is no significant association between Depression and Screen Time with p=0.999

## 4.3 **Discussion of Research Findings**

Results of this research revealed that There were signs of depression among the participants. The depressive symptoms were mild in 45% of the participants, moderate in 41% of the participants, severe in 4% of participants and only 10% of participants had no depressive symptom in 14% of participant leaving only 23% of participants with high depressive symptom. Although depressive symptoms exist among participants, no Among undergraduate students, a link between screen time and depression was discovered in Lead City University. The results of a similar study said that the effect of more screen time on the prevalence of mental health issues in young people is probably minimal or nonexistent. These findings are consistent with a thorough summary of studies looking at the connection between screen usage and internalising signs of mental illness.[2] Also a cohort study by, the Avon Longitudinal Study of Parents and Children, located in the UK. The study looked at links between several forms amount screen time, such as watching television, Texting and computer use are evaluated at 16 years old and completed on both weekdays and weekends with anxiety and depression. Only on weekends, more computer use was associated with a tad increased risk of depression.

The effects of anxiety were diminished but not those of sadness when accounting for some alone time. There was scant evidence of links to texting or television viewing.[3]

Results from a longitudinal cohort based in schools. Baseline Mage age was 14.57 years (N = 2,717. They completed questionnaires at two evaluations separated by a year. Participants provided information on their use of computers, video games, and television as well as levels of four continuous depressive symptom categories. (≥2 h/day; yes vs. no) and the findings revealed that watching television had no relationship in either direction to any feature of depression symptoms. [4].

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# Chapter Five

## 5.1 Summary of Gaps in Literature Reviewed

This investigation explored the association between screen time (excluding time dedicated to coursework) and depression among undergraduates aged 16 to 24 at Lead City University in Ibadan. The study also examined various activities conducted on screen devices and their potential impact on depression in undergraduate students. The research employed a crosssectional survey methodology, involving the recruitment of 422 undergraduate students from Lead City University in Ibadan.

The research instruments utilized for data collection included The Screen Time Questionnaire for

Adolescents (QueST) and the Short Form of the Center for Epidemiology Studies-Depression Scale (CES-D10). Out of the participants, 19 responses were excluded from the analysis, leaving a total of 401 participants. The results of the analysis revealed the following key findings: Approximately 66.1% of the participants reported spending 1-6 hours per day studying with a screen device on weekdays. A significant majority, 85.5% of the participants, used screen devices for relaxation or leisure for less than 4 hours on weekdays, with only 14.2% reporting more than 4 hours of screen use for leisure.

In terms of depressive symptoms, the analysis indicated that 45% of the subjects exhibited mild depressive symptoms, while 41% showed moderate depressive symptoms. Four percent of subjects displayed symptoms indicative of major depression, and 10% of subjects reported no symptoms of depression. These findings suggest a substantial portion of the participants did not exhibit signs of depression. The study's findings did not establish a significant connection between depression and screen device usage. Consequently, the results suggest that increased screen time exposure may not be a major contributing factor to depression among students

## 5.2 Conclusion

In summary, this study found no significant association between screen time and depression among undergraduates at Lead City University in Ibadan. However, it is important to note that a substantial proportion of the students surveyed fell below the recommended screen time threshold. To promote the mental well-being of undergraduate students and minimize the risk of increased depressive symptoms in the future, it is advisable to encourage healthy living habits, including the prudent management of screen time.

In conclusion, this research suggests that, overall, screen time may have a more positive influence on undergraduate students when used in moderation. It underscores the importance of promoting a balanced approach to screen time and fostering healthy behaviors among this demographic.

## 5.3 Recommendations

Based on the findings of this study, several recommendations can be made to promote the mental well-being of undergraduate students:

Depression Awareness Programs: There is a need for the university and relevant stakeholders to create awareness programs focused on preventing and controlling depression among students. These programs can include workshops, seminars, and campaigns that provide information on recognizing depressive symptoms and seeking help when needed.

Screen Time Education: While some screen time can be educational and necessary, it is important to educate students about the potential risks of excessive screen time. Universities can incorporate educational modules on responsible screen time management into their curriculum or offer workshops to raise students' awareness about the importance of moderation.

Addressing Screen Time Addiction: Students should be made aware of the potential dangers of screen time addiction. The university can establish support systems, such as counseling services or support groups, to assist students who may be struggling with screen time addiction. Additionally, guidelines and resources on managing and reducing screen time addiction should be readily available to students.

Promoting Healthy Living: Encouraging a balanced lifestyle that includes physical activity, social interaction, and adequate sleep is essential. The university can promote healthy living habits among students, emphasizing the importance of a well-rounded daily routine that includes both academic and recreational activities.

Monitoring and Research: Continuous research and monitoring of students' screen time habits and mental health should be conducted to assess trends and potential changes over time. This data can inform future interventions and strategies aimed at supporting students' well-being.

By implementing these recommendations, universities can play a proactive role in addressing mental health concerns and promoting responsible screen time management among their undergraduate students.

### 5.4 Contribution to Knowledge

This study has successfully addressed its specific objectives and has yielded valuable insights. The key findings can be summarized as follows:

Low Prevalence of Depressive Symptoms: The research findings indicate that there is a low prevalence of depressive symptoms among undergraduate students at Lead City University Ibadan. This suggests that a significant portion of the student population is not experiencing significant levels of depression.

Screen Time for Educational Purposes: The study reveals that students primarily use screen time for educational purposes, with a significant percentage spending 1-6 hours a day studying with a screen device on weekdays. This indicates that screens are being utilized as valuable tools for learning and knowledge acquisition.

Moderate Recreational Screen Time: While a majority of the participants use screen devices for relaxation or leisure on weekdays, a high percentage (85.5%) spend less than 4 hours on recreational screen time. This suggests that, overall, students are not excessively engaged in recreational screen activities during weekdays.

In conclusion, the study's findings suggest a positive relationship between screen time and education among undergraduate students. It also highlights the low prevalence of depressive symptoms in this population. These insights can inform educational institutions and

policymakers in developing strategies to leverage screen time for educational purposes while promoting balanced and healthy screen time habits among students. Further research and interventions can build upon these findings to support the well-being and academic success of undergraduate students.

### 5.5 Suggested Areas for Future Research

1. Association of academic achievement and screen time among undergraduate students, a few students engaged in screen time above the recommended threshold, it is important to find out if this affects the primary purpose of the student enrollment in the school which is to attain academic success.

2. Causes of depression amongst undergraduate students. Some participants showed pronounced depression symptoms. It is important to know the root cause of this for further prevention and also the solution.



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## Appendix 1

## Informed Consent Form

**Association Between Screen Time and Depression Among Undergraduate Students in Lead City University Ibadan**

**Investigator: Karunwi Oluwafifunmi Evelyn**

Thank you for agreeing to participate in this study.

You have been invited to participate in this study because you are currently undergoing an undergraduate program at lead city university Ibadan.

If this is incorrect, kindly discontinue as your information will not be included in the study.

This form details the purpose of this study, a description of the involvement required, and your rights as a participant.

The purpose of this study is:

- is to investigate the association between screen time and depression among undergraduate students at Lead City University Ibadan The benefit of this research will be to:

- Ensure continued awareness about depression, which will improve mental well-being and the lives of young people.

- The focus of this research is on one of the most contemporary and evolving research problems, few published works exist in this area, especially within Nigeria. Hence it will add to knowledge.

Information gathered from you and other participants will be used in writing a research report, but your name and other identifying information will be kept anonymous.

You have the right to withdraw from the study at any time. In the event you choose to withdraw from the study, all information you provide will be destroyed and omitted from the final paper.

**Participant Selection**

We extend an invitation to all undergraduate student in Lead City University Ibadan, who are currently enrolled for a program.

**Voluntary Participation**

Your involvement in this research is completely voluntary. The decision to participate is entirely up to you. Whether you decide to take part or not, your current undergraduate program in Lead City University will remain unaffected, and there will be no changes. You have the option to change your mind at any point, even if you initially agreed to participate.

**Duration**

This research will span over a period of one month.

**Risks**

There are no known risks associated with participating in this research.

**Benefits**

While there may not be any immediate or direct benefits for you, your participation will significantly contribute to finding answers to the research questions.

**Confidentiality**

We are committed to protecting your identity throughout this research. Any data collected during this research project will be kept strictly confidential. Participants' information will be assigned numerical codes, which will only be accessible to the research team. It will not be shared except when required by relevant stakeholders.

**Sharing of Results**

The sharing of research results will adhere to legal and ethical guidelines. Participants will be informed of the results, after findings are published in academic journals for the benefit of the academic community.

**Contact Information**

If you have any questions or concerns about this study, please feel free to contact us. You can reach us at the following telephone numbers:

Miss Karunwi Oluwafifunmi Evelyn,
Department of Public Health,
Lead City University, Ibadan
Phone: +2349155667235
Email: kevelin4@gmail.com

You are encouraged to ask questions and seek clarification as often as needed. If you wish to speak with someone directly involved in this research study, please contact the detail provided. You will be assisted with information regarding your rights as a research subject, address any concerns you may have, handle complaints related to the research, and ensure that you are not under any pressure to participate or continue your involvement in the study.

When reporting a concern, you are not required to disclose your name unless you choose to do so. Please provide as much detail as possible, including the researcher's name, the Ethics Committee is in Lead City University and you can state specifics about the issue. This information will assist Ethics Committee officials in investigating your concern.

By signing the consent form, I certify that I _____ _____ agree to the terms of this agreement.

_____ _____

( Signature ) (Date

**Association Between Screen Time, Academic Performance, and Depression Among Undergraduate Students in Lead City University Ibadan**

The Department of Public Health,
Faculty Of Basic Medical and Applied Sciences, Lead
City University Ibadan.
Oyo State, Nigeria.



**Questionnaire**

Dear Respondent,

I am Karunwi Oluwafifunmi, a master's student of the above-named institution; this research is in partial fulfillment of the award of Masters (Msc) in Public Health. The purpose of this study is to investigate the association between screen time, academic performance, and depression among undergraduate students in lead city university ibadan. And determine if undergraduates are at risk of depression or poor academic performance with increased screentime. I request your assistance in completing the attached questionnaire with total honesty and I promise that all information obtained will be used strictly for research purposes and treated confidentially.

Your co-operation will be highly appreciated.

Thank you

Yours Faithfully

Karunwi Oluwafifunmi

Researcher

**Section A:** Kindly fill up and underline the appropriate option.

Identification

1. Age_____

2. Faculty _____

3. Race African/Non-African

4. Tribe Igbo/Yoruba/Hausa/Edo/Others

If others, specify_____

5. Country Nigeria/America/Other

If others, specify_____

6. Level 100/200/300/400

**Section B: Screen Time of Adolescents (QueST)**

For each of the questions, Tick the appropriate box and underline the correct option where necessary.

On a typical day, how much time do you spend?

7. Studying on a computer, television, tablet, smartphone, or other electronic device?

On a weekday: Hours; minutes

8. Performing work/internship-related activities on a computer, television, tablet, smartphone, or other electronic device?

On a weekday: Hours; minutes

9. Watching videos, watching TV shows, movies, soap operas, news, sports, programs, or other videos on a computer, television, tablet, smartphone, or other electronic devices?

On a weekday: Hours; minutes

10. Playing video games ...playing video games on a games console, computer, television, tablet, smartphone, or other electronic devices?

On a weekday: Hours; minutes

11. Using social media/ chat applications ...using social media like Facebook, Instagram, Twitter, Snapchat, or chat applications like WhatsApp, Telegram, Messenger on a computer, television, tablet, smartphone, or other electronic devices?

On a weekday: Hours; minutes

**SECTION C:**

Center for Epidemiologic Studies Short Depression Scale (CES-D-R 10):

Below is a list of some of the ways you may have felt or behaved.

Please indicate how often you have felt this way during the past week by checking the appropriate box for each question.

Rarely or none of the time (less than 1 day) Some or a little of the time (1-2 days)
Occasionally or a moderate amount of time (3-4 days) All of the time (5-7 days)

12. I was bothered by things that usually don't bother me. ☐ ☐ ☐ ☐

13. I had trouble keeping my mind on what I was doing. ☐ ☐ ☐ ☐

14. I felt depressed. ☐ ☐ ☐ ☐

13. I felt that everything I did was an effort. ☐ ☐ ☐ ☐

14. I felt hopeful about the future. ☐ ☐ ☐ ☐

15. I felt fearful. ☐ ☐ ☐ ☐

16. My sleep was restless. ☐ ☐ ☐ ☐

17. I was happy. ☐ ☐ ☐ ☐

18. I felt lonely. ☐ ☐ ☐ ☐

19. I could not "get going." ☐ ☐ ☐ ☐

Thank you for your time.

Your participation is greatly appreciated.

**Bio-Data**

**A. Personal Data**

**Name:** Oluwafifunmi Evelyn Karunwi

**Home Address:** Plot 13, Bamidele Ojo Street, Alexander Road, Apata, Ibadan.

**Email Address:** kevelin4@gmail.com

**Phone Number:** 09155667235

**Date of Birth** 27th February, 1998

**Place of Birth:** Ibadan, Nigeria

**Nationality:** Nigerian

**Marital Status: Single** Single

**B. Educational Background with Dates**

**Primary School Leaving Certificate** 2003-2008

All Saints Church School

**West African Senior School Certificate** 2009-2014
Lead City International School.

**Bachelor of Science; (Physiology)** 2015-2019

Bowen University, Iwo

**C. Work Experience with Dates**

Support worker/ Care Worker – Trinity Healthcare (January, 2023 - Till Date)

- Learning about individuals' specific needs and providing help in the most appropriate way
- Assisting with and reporting on medical & welfare needs
- Helping residents to remain as active and independent as possible
- Assisting with medical and welfare needs
- Support residents with personal care, emotional support, physical support and mealtimes.

- Assisting patients with compassion when undertaking normal activities of daily living while ensuring that privacy, dignity, and human rights are respected
- Ensuring that the patient is the prime focus when making decisions about their care and wellbeing.
- Providing routine patient care duties at own discretion in accordance with protocols and guidelines.
- Participating in taking and recording of observations under the direction of the registered Nurse

Public Health Intern – Institute of Infectious Diseases University Teaching Hospital Ibadan (June 2022 – September 2022)

- Assisted in HIV treatment, care and support program concerning Adult ARV, pediatrics, and the prevention of pregnant mother-to-child transmission
- HIV pre-test and post-test counselling
- HIV testing
- Monitored, investigated and diagnosed health hazards in the community
- Mobilized partnerships to solve community problems
- Linked people to personal health services
- Evaluated effectiveness, accessibility and quality of health services.

**Quality Assurance / Control - Alerzo (September 2020 – May 2022)**

- Prepared Health and Safety strategies and developed internal policies in conjunction with the management team. achieving company health and safety goals, with support from the management team.
- Advised the company on a range of Health & Safety areas, e.g., Risk Assessments,

Welfare, fire regulations, COSHH, noise, safeguarding machinery, Working at Height, Electrical Safety, and occupational diseases.

- Carrying out the role of Fire Marshal, including fire safety inspections, fire drills etc.

- Assessing risk and possible safety hazards of all aspects of operations, consider how risks could be reduced. Ensuring hazards & risk are sufficiently detailed within risk assessments, with sufficient controls in place.

- Handling the sourcing, issue, training / fitting, inspection and replacement of PPE

- Focusing on accident & incident prevention by ensuring equipment maintenance and employee training are planned & implemented. Investigating causes of accidents and other unsafe conditions, providing guidance to prevent future accidents. Reporting RIDDOR accidents appropriately with the HSE team.

- Work with the HSC officers to ensure compliance with SON, NAFDAC, FCCPC, and State local agencies in product handling and storing.

D. Awards and Fellowships

Nil

**D.** Membership

Nil

**E.** Publications

Nil

**F.** Major Conferences Attended with Dates

Nigerian International Secondary Schools Model United Nations Conference 2013

| | |
|---|---|
| Students' Physiological Association of Nigeria Conference | 2017 |

Trainings and Seminars Attended

| | |
|---|---|
| Basic Life Support | 2023 |
| Improving Quality Healthcare Service Delivery during Public Health Crisis | 2020 |
| Understanding the Principles of Dimentia | 2023 |
| Excel Fundamentals of Data Analysis | 2023 |

**Referee**:

Mr Olanrewaju Opaleye
Director of Operations
Alerzo Limited
+2349131039175

_____ _____

Signature Date

**The University Compliance**

This document confirms that the thesis authored by Karunwi Oluwafifunmi Evelyn, bearing Matriculation Number LCU/PG/002173 and originating from the Department of Public Health within the Faculty of Basic Medical and Health Sciences at Lead City University in Ibadan, adheres entirely to the prescribed format established by the University.

_____ _____

Signature Date