Chapter One

Introduction

1.1 Background of the Study

The coming to being of the internet has brought about tons of life-made-easy lifestyle. Now, it is easier for people to communicate through a wider range of space and express themselves freely without fear and with a lot of privacy. Lately, adolescents are even able to socialize, communicate and be friends with many people, known or unknown and by that, many relationships have been established through the use of many social media such as Facebook, Instagram, Snapchat among others. However, when there is an excessive use of the internet, it could begin to tend towards Internet Addiction.

Internet Addiction starts to surface when an individual begins to use the social connection spaces (social media) for extended periods of time while leaving other areas of the in their life untended to. Thereby, their families, jobs, suffer neglect. Internet addiction can be said to be an uncontrollable desire for excessive use of the internet, devaluation of time spent without connecting to the internet, intense nervousness and aggression in the case of deprivation and progressive deterioration of social and family life[7]. Asian countries such as China and Korea already recognized Internet addiction as a public health problem and China which is ranked as one of the largest broadband markets in the world has been reported that one in every six internet users may have developed some level of internet addiction. Internet addiction is viewed upon as a social problem in the younger generation as they depend upon it for learning, leisure and social activities and are more susceptible to media influences and appear to be less self-regulative[41].

In relations to Internet Addiction, research referred to as Facebook Disorder was done. The researches done shows that using social media platforms, could either increase or decrease. An individual's self-esteem and the well-being. This means that if the feeds gotten

by the individual is positive, then the self-esteem will be increased and if vice versa, the self-esteem would be decreased and thus, it would affect the social and personal relationships of the individual.

Internet Addiction has several contributing factors ranging from environmental factors, to genetic factors, structural brain changes and other underlying mental health conditions[24]. In addition, it is also said that addictions can be linked to our genetic makeup[24]. For instance, some individuals are addicted to the internet because of the deficiency of dopamine and serotonin[24]. Thus, just to achieve pleasure, they get to engage in risky behaviours.

Internet addiction is a type of addiction that runs through all ages. This could be caused by the psychological factors and environmental factors that is attached to the lives of university students or any level of students at all and in turn may cause them to be affected by Internet addiction[15]. University students may face a variety of life challenges or problems, ranging from meeting their immediate needs such as, nutrition, health, accommodation, and may even be a wants than a need, such as the need for self-confidence, or participating in a social group, adapting and developing close relationships with their surrounding[39]. It could also be the case that, the individual is separated from his or her parents, for the first time, and emotional support becomes a big need, not easy to get, family contact becomes limited, and the individual finds the difficulty, having to develop a whole new set of relationships[38]. Also, the majority of students who come to the university, are from different social, cultural and physical environments and backgrounds and they step into a new and transitional period in their lives and experience a temporary sense of loneliness due to their being in a different environment[37]. In addition, in terms of their daily lives, the schedules of University life, provides them with a lot of flexibility and free time, thus, it could result in the flexibility to stay on various Internet applications. Also, university students have easy access through

direct Internet connections in every area of the institutions ranging from their hostels, classrooms, libraries, and computer laboratories and many more[41].

Lonliness is one of the factors that has been identified to affect internetaddiction[2, 22, 25, 30]. This refers to the state of being alone in solitude and thus isolating from the real world which in turn deprives them the sense of belonging and connection with real world. There are events that can affect an individual, such as leaving family and friends for college, the breakup of a romantic relationship, having issues with friends, roommates, and also having difficulties with work, these may create a discrepancy between actual and desired interpersonal relationships, which could lead to loneliness[6]. Loneliness does not come just from being alone but through lack of certain set of relationships that are clearly important to an individual[7]. This goes without saying that, it is possible to have in existence a default in intimate connections, every form of friendships, or social bonds. Loneliness, is not just a form of emotion in individuals. Instead, it is seen as a phenomenon different from just being alone and could be coupled with an unexplained fear, problem, or hopelessness that can be seen, sometimes, for a short while and could also go for longer periods[8,9]. In the same vein, loneliness could also be exhibited as an unwanted and unpleasant experience accompanied by a feeling different from other individuals and with traits of sadness anxiety, anger and other . It seems to be the case that lonliness is more intense in adolescents and young adults[11]. Although it seems to exist as a feeling that can be seen in almost every sphere of human life[11]. One of the defence strategies developed to face and cope with loneliness is spending time on the Internet. It could be accompanied with impulse eating, impulsive and compulsive buying, continuous TV watching (without making a choice), window shopping[12]. They may also be alienated as a function of an inability to establish, maintain, and terminate relationships appropriately and interrupts real life relationships. Internet could be seen attractive due to its ability to establish relationships that could not happen in real life. In addition, is being able to communicate risk-free with other people, expressing one's thoughts and feelings freely, while

masking or showing one's identity in the way the individual wants to be perceived (that is, being able to hide one's true identity) and being able to get in contact as the individual desires[22]. Lone individuals are more likely to use the Internet[23,24,25.] It is also likely that they get an opportunity to decrease their loneliness by setting up social relationships[30,31].

Several components of loneliness can be distinguished. This brings about a differentiation between the positive and negative forms of loneliness. The positive type of loneliness is has to do with voluntary withdrawal from the daily activities of life and is aimed toward attaining higher goals such as reflection, meditation, and communication with God. In recent times, the positive loneliness is frequently referred to by a separate concept commonly known as Privacy. Privacy, is voluntary and it concerns a freely chosen situation of absence of contacts with other people (which may and may not be temporary). The negative loneliness is deals with an unpleasant or inadmissible lack of personal relationships and contacts with other people especially those important to them, as formulated in the definitions given. This negative concept of loneliness is, in recent times, used in theories and research. Moreover, it is the type of loneliness that best fits the everyday idea of loneliness. Weiss distinguished between the emotional type of loneliness, which stems from the absence of an intimate figure or a close emotional attachment [for example a partner, a best friend), and social loneliness which refers to the absence of a broader group of contacts, or an engaging social network (such as friends, colleagues, and people in the neighbourhood). Emotional loneliness could happen, when a partner relationship dissolves through loved one's death or divorce or separation. It is characterized by intense feelings of emptiness, abandonment. This form of loneliness is only alleviated by starting new intimate relationships. Social support from family and friends would in this situation, not compensate for the loss of the attachment figure. The social type of loneliness has to do with the absence of a wider group of friends with common interests. According to Weiss, social loneliness is usually common among young homemakers, who have been situated in spaces where they are

newcomers. Their spouses, however supportive and intimate they try to be, cannot fill the gap caused by the absence of a group of friends and others with whom they usually would socialize. The distinction between social and emotional loneliness has again been gaining attention. Recently, researchers have used the two types of lonliness to better understand and explain the determinants and expressions of loneliness. The De Jong and the Social and Emotional Loneliness Scale for Adults (SELSA) proved to be valid and reliable forms of measuring instruments for emotional and social loneliness.

Loneliness is seen to be especially common among university student. This is seen in a study that estimated that 30% of university students reported loneliness as a problem[21]. In a similar study of university freshmen, 75% of the students reported some level of loneliness in the first 2 weeks of school, with 47% of these students being classified as having moderate to severe loneliness. After 7 months, 25% still reported feelings of loneliness[6].

Thus, as the internet addiction increases the loneliness decreases[11]. This could be explained by the fact that individuals who cannot develop relationships with the people around them can develop Internet addiction to replace their interpersonal needs and create in the process, alternative social channels[32]. Individuals who experience obstacles in their social relations, and experience the anxiety of being obstructed, often tend to find solace in the internet. This is to regenerate and maintain their personal relationships, and often to also replace internet with face-to-face communication[34,33]. This implies that the internet is a tool for socializing and thus reducing loneliness among young people. It is possible to discover in literature, results both supporting and not supporting this. For example, research conducted also found negative correlation between loneliness and Internet addiction, in which students addicted to the Internet have significantly lower rates of loneliness[35]. On the flip side, it is safe to note that internet addiction may not increasingly influence the level of loneliness and that internet addiction could emerge as a result of loneliness[36]. In contrast to these results, there are many studies that shows that the loneliness scores of individuals with pathological

Internet use are significantly higher[37,24,18.] For example, in a survey of 277 undergraduate internet users, it was found that lonely participants use the Internet to gain emotional support and are more likely to describe disruption in their lives as consequences of Internet use[38]. Lonely subjects tended to self-disclose more and share more intimate details, which in turn helped them to feel more accepted on the Internet when compared with non-lonely subjects[39]. Also, it was seen that high school students who experienced high level of loneliness have the Internet to compensate for these feelings, and in this context, the feeling of loneliness can make students become Internet addicts[40]. Many studies which point to meaningful relationships between Internet addiction and loneliness phenomenon have highlighted the strong influence that loneliness has over Internet addiction on the entire population, regardless of if the individual in question is a child, adolescent, or young adult[41,42,43]. This difference between the study results may be due to the socioeconomic and sociocultural differences of the sample.

Shyness is another factor that may affect an individual with internet addiction[49,50]. Shyness is referred to as a state of discomfort experienced in social situations, which is usually followed by inhibition or frustration that considerably affects an individual's capability to achieve his or her goals or their willingness to actively take part in social events[13]. In simpler terms, shyness could be said as the difficulty of an individual dealing with people, especially in social situations. For such people, the internet could be an easy way to escape this reality or as a way to communicate with others without having to worry about the social consequences. Thus, this could make such a person withdraw and not be able to relate with individuals around them. The internet equips them with the mask and other tools for them to be brave, to which they do not have in real life. It appears, therefore, that the internet offers shy individuals a way through which they communicate with the world around them. Hence, their online behavior may be tagged as "problematic". The more frequent their Internet use becomes the more prevalent Internet Addiction will be seen. Many publications

have been made as regards the relationships between Internet Addiction and social problems such as anxiety and depression, but it is difficult to find relationships between shyness and Internet Addiction. The internet use does not have an age limit and many adolescents have unlimited access to the internet. Adolescents are said to be going through many changes, both physically and emotionally and generally, it is considered a very awkward age, especially when it comes to the aspect of communicating with others. We could be right to state that this level of awkwardness is likely what will make them susceptible to shyness and thus ending up with the problem of Internet Addiction. Shyness is a common factor found in approximately 40% of individuals and with which females are more likely to be susceptible to being shy[44]. Shyness is a "distinct" personality characteristic that can lead to a range of social problems[44].

The inability to control the use the internet, which could in turn cause social or psychological difficulties which emerges as a result of an deep hearted need to express emotions and feeling to get social support[45]. Thus, it includes activities such as online chats and e-mails with no exact purpose. The shared contact and support that is found online often results in a fantasy and victims would want to remain in such artificial social life[46]. This intense desire is more prominent in shy individuals. This is because they may feel awkward, worried, and tense in social interactions, especially with people they do not seem to be familiar with. Most people feel shy at least occasionally but the level of shyness in some people is so intense which keeps them away from interacting with others and this suppression of desires leads to problems[48].

From a research conducted in Hong Kong city, which is home base for shy individuals, it was discussed and affirmed that computer mediated medium is the best for them[49]. This was after the study had been conducted on a population of 722 internet users. Hence, by using this medium, they fulfil the feeling that they are controlling the situation.

This finding perfectly sits with the theory which suggested that social factors, in this case, shyness, contribute to making people crave internet use[49].

Through studies, impulsivity has also been identified as a factor associated with Addictions with Internet Addiction Disorder.[14] Impulsive individuals have problems in managing their actions. Impulsivity has definitions that include lack of planning or forethought, reduced perseverance, and seeking enjoyable experience[15] Simply speaking, it is the inability to delay gratification or the inverse of self-control. . Impulsivity is a trait that has often been related to addictive behavior in some researches carried. For example, With regard to impulsivity in Internet addiction, a relationship was established between impulsivity and Internet addiction among Chinese adolescents[16]. The authors showed that the Internet addiction group was more impulsive than the control group, as measured by both the Barratt Impulsiveness Scale 11 (BIS-11) and the Go-Stop impulsivity paradigm, supporting the classification of Internet addiction as an impulse control disorder.[16]

There have been numerous attempts to explain the concepts surrounding impulsive behavior. This is ranging from illiteracy to the influence of diabolic forces[51]. Decades of experimentation have been tried and none has tried to come up with other empirically based interpretations for this concept[51]. One of the earliest was the inadequate evaluation of the consequences of some immediate behaviors. Animal experimental research developed several behavioral and neuro-chemical models to explain the causes of different forms of impulsivity[51]. The animal models, in the study of impulsivity, however, has a down turn to it. This is that they usually forget the converse of impulsivity. This means self-control, due to the cognitive limits of this population[51]. Self-report measures in humans have registered the use of self-control mechanisms such as control of attention, which has to do with attending to something else than the desired object, which is not attending to the desired object, or control of emotions[52]. Furthermore, the relationship between attentional control and impulsivity has been studied in samples through the effects of alcohol. In relation to self-control, a

biopsychosocial perspective, indicates that people often act against their self-interest even when they have full knowledge of their actions[53]. For instance, even knowing the wrong turn to drug use, the drug addict is likely to consume again if given the availability. According to biopsychosocial view, the problem is the inability to interpret thoughts into actions. That is, people engage in behaviors, when in a deprived state, that they may later regret. The capacity of refraining from acting impulsively may be influenced by the degree of scarcity. Just as stated in the example, the drug addict craves the substance; the reaction shown by the craving, influences the individual to make sure to obtain it at any cost even at the expense of his life and wrong effect of the drug. However, the weakness of this theory is that it only speaks on impulsive behavior during abstinence/craving states[51]. In general, this theory portrays strong emotions/motivations that can be seen as intervening variables that always react between cognition and action leading to behavior that can be assessed as more or less impulsive or self-controlled. In a cognitive-behavioral context, the relationship between impulsivity and information processing has been given focus[54]. Subjects who are identified as being more impulsive prone showed significantly greater response latencies than less impulsive individuals in a choice task. Furthermore, the degree of impulsivity positively influenced the response selection stage but not the perceptual stage. This study indicated ome empirical evidence to the concept of impulsivity which js the unexplored interaction between knowledge and action[53].

1.2 Statement of Problem

Internet Addiction has become a significant problem among undergraduate students with damaging impacts on their mental wellbeing, social relationships and academic performance[52].

The fear of missing out and constant notifications are some of the factors associated with internet addiction, that may lead to stress and anxiety among young people. Alongside,

giving up real life relationships for virtual life relationships has up scaled depression and loneliness rom. There is also the problem of sleep deprivation and fatigue caused from excessive overnight browsing and gaming. A study has also shown that excessive internet use was associated with increased symptoms of depression and anxiety in college students. For example, a college freshman named Sarah, was said to be addicted to the social media that she would, more than frequently, check her phone, even in class. She eventually developed anxiety and had to take a break from social media for several months and afterwards died[55].

In addition to mental health concerns, internet addiction can also have detrimental effects on social relationships. Undergraduate students may neglect face-to-face interactions with family and friends, leading to social isolation. Excessive internet use can also lead to conflicts with roommates and partners, as well as cause students to miss important social events and activities. Research published in the Journal of Social and Clinical Psychology found that excessive social media use was linked to decreased face-to-face social skills and increased feelings of loneliness in college students. A student named Jake spent so much time playing online games that he neglected his relationships with his family and friends. He eventually lost his girlfriend and had to rebuild his relationships with his loved ones[56].

Academic performance is another area where internet addiction can have a significant impact. Poor grades and academic underachievement can result from distraction and procrastination. Excessive online browsing can lead to incomplete assignments and missed deadlines, as well as decreased attention span and difficulty concentrating in class. Research in the Journal of College Student Retention found that internet addiction was a significant predictor of academic probation and dropout among college students. A college student named Rachel became so addicted to online shopping that she would spend hours browsing and buying things she didn't need. She eventually had to take out a student loan to pay off her debt and had to cut back on her spending habits[57].

Moreover, internet addiction can have physical health consequences, including carpal tunnel syndrome, eye strain, and poor posture. Financial issues can also arise from online shopping and subscription services. Finally, internet addiction can lead to decreased productivity and missed opportunities for personal growth and development.

These instances highlight the potential negative consequences of internet addiction on undergraduate students' overall well-being, emphasizing the need for awareness, education, and intervention strategies to promote healthy internet use habits.

Despite growing research, the underlying psychological and neuro-scientific factors contributing to this concept, within this population, remains inadequately understood[52].

Research has found that undergraduates are particularly susceptible to internet addiction with an estimate of 35%[53]. This could be due to their increased access to technology, academic pressures, and social transitions[53].

Despite the social nature of the university environment, it has been found that quite a number of undergraduates experience high levels of loneliness, shyness and impulsivity, which an significantly impair their academic performance, mental health, and social relationships[19,28,54].

Thus, this study aims to find the underlying causes, consequences and possible interventions for loneliness, shyness ad impulsivity as it affects internet addiction among students of tertiary institutions, so as to promote a university system that is supportive and inclusive and fosters academic success, social connections and the overall wellbeing of the student.

1.3Aim and Objectives of the Study

The major aim of this study is to identify and dissect variables that are associated with internet addiction while shedding light on the complex interplay between loneliness,

impulsivity and shyness with its influence on Internet addiction among youths in the Oyo State metropolis.

Specifically, the objectives of the study include:

i. To examine if loneliness would have positive influence on the severity of Internet Addiction Disorder among youths in Oyo state.

ii. If shyness would have positive influence on the severity of Internet Addiction Disorder among youths in Oyo state.

iii. To examine if impulsivity would have positive influence on the severity of Internet Addiction Disorder among youths in Oyo state.

iv. To investigate if lonliness, shyness, impulsivity would jointly and significantly influence the severity of Internet Addiction Disorder among youths in Oyo state.

v. If it follows that gender, educational qualification, marital status, environmental factors, social status and ethnicity would significantly influence the severity of Internet Addiction Disorder among youths in Oyo state.

1.4 Research Questions

The following questions would this research questions:

i. Would loneliness significantly influence the severity level of Internet Addiction Disorder among youths in Oyo state?

ii. Would shyness significantly influence the severity level of Internet Addiction Disorder among youths in Oyo state?

iii. Would impulsivity significantly influence the severity level of Internet Addiction Disorder among youths in Oyo state?

iv. Would loneliness, shyness and impulsivity jointly and significantly influence the severity level of Internet Addiction Disorder among youths in Oyo state?

v. Would gender, educational qualification, religion, marital status, environmental factors, social status and ethnicity significantly influence the level of Internet Addiction Disorder severity in Oyo state?

1.5 Research Hypotheses

The following hypotheses are to be tested in the study:

H1. Loneliness will significantly influence the severity of Internet Addiction among youths in Oyo state.

H2. Shyness level will significantly influence the severity of Internet Addiction among youths in Oyo state.

H3. Impulsivity will significantly influence the severity of Internet Addiction among youths in Oyo state.

H4. Lonliness, Shyness, Impulsivity will jointly and significantly influence the severity of Internet Addiction Disorder among youths in, Oyo state.

H5. Gender, educational qualification, religion, marital status, environmental factors, social status and ethnicity will also significantly influence the level of Internet Addiction Disorder severity among youths in Oyo state

1.6 Significance of the Study

This study holds significant relevance as it has potential to shed light on the psychological factors that may influence internet addiction and its impact on mental well-being of youths. Internet Addiction Disorder is a common psychological phenomenon that affects a substantial portion of the population worldwide, leading to significant physical and emotional distress. Therefore, understanding the psychological factors associated internet Addicts can offer valuable insights for health care professionals, clinical psychologists, policymakers, and researchers alike, thus giving a better view to treatment.

Specifically, the following are the purpose of the study. Firstly, is the identification of intervention support. The understanding that will be extracted from examining the relationships between variables of interest, would aid in providing proper, well structured, and empirical-based interventions and support for individuals with various severity levels of Internet Addiction Disorder.

Also, is its contribution to literature. Empirical Literature on the impact of factors affecting internet addiction among youths in Oyo State does not seem to exist, hence the findings of this present study will contribute to a body of scientific literature on Internet Addiction in Oyo State. It may lead to further investigations and studies, refining the understanding of the relationship between factors that may seem to influence internet addiction in Oyo State.

This, in turn, can pave the way for new discoveries and treatment modalities in the field of Addiction Psychotherapies.

1.7 Scope of the Study

This study speaks about Loneliness, Shyness and Impulsivity and how they are related and cause Internet Addiction. This study focuses primarily on how students view Internet Addiction as a problem, how they feel about their lonely, shy or impulsive state. It also tests to see how psychotherapy could be improved to help individuals with Internet Addiction Disorder (IAD)

1.8 Limitation of the Study

This study is restricted to tertiary students within Oyo State. The research method is also within the boundary of making effort to figure out the loneliness, shyness and impulsivity as individual or joint factors that may cause Internet Addiction Among Tertiary students within Oyo State only.

1.9 Operational Definition of Terms

Loneliness: In this study, this refers to the state of being alone in solitude and thus isolating from the real world which in turn deprives them the sense of belonging and connection with real world. Measured by the UCLA Loneliness Scale, which was developed

by Russell, D , Peplau, L. A.. & Ferguson, M. L. It is a 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation and was developed in 1978.

Impulsivity: In this study, this refers to lack of planning or forethought, reduced perseverance, and seeking enjoyable experience. In clearer terms, it is simply the inability to delay gratification or the inverse of self-control. Measured by the Impulsive Behaviour Short Scale 8 was developed by Groskurth K, Nießen D, Rammstedt B, Lechner CM. It is a 8-item scale that assesses the psyychological construct of impulsivity with four sub scales comprising two items each.

Shyness: In this study, shyness refers to the difficulty of an individual dealing with people in social situations. Measured by the Revised Cheek and Buss Scale questionnaire which was was developed by Cheek in 1983. It is a 13-item scale that measures shyness, social anxiety and related construct.

Internet Addction: In this study, it refers to an uncontrollable desire for or excessive use of the internet, devaluation of time spent without connecting to the internet, intense nervousness and aggression in the case of deprivation and progressive deterioration of social and family life. Measured by The Internet Addiction Test (IAT) which was developed by Kim Young. It is a20 items scale that is used to measure online behaviors linked with uncontrollable internet use, including escapism, dependency, and compulsive behaviours.

Endnotes

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Chapter Two

Literature Review

2.1 Conceptual Review

2.1.0 Internet Addiction

The internet has become an integral part of the daily routines of individuals. This is as a result of the growing level of digitization and fast rising technological development. Internet Addiction (IA) is one of the most obvious consequences of technological advancement, and it is a major research topic in the current research world. This could be attributed to its potential and relevant effects on the health and habits of internet users (which is basically, every human in the world). The excessive use of the Internet has projected comorbidity with many psychological symptoms and psychiatric disorders, as well as the impairments in the running and discipline of our daily lives, the types relationships we keep and level of emotional stability. Although, academic literature on Internet Addiction is innumerable, with most of the publications being made within the last 30 years. However yet, there is still a lack of agreement among scholars and researchers alike, about its conceptualization. Some researchers have raised the issue of the definitions of Internet

Addiction as a singular entity, stating that because the internet gives room to a wide range of cyber activities, including recreation (for example, online gaming, gambling), socializing (for instance, social network sites, dating sites), entertainment (movies, music), work related (like, accessing online resources, sending emails), and many other forms.

In relations, Ryding highlighted that the internet does provide individuals with so many versions of "virtual spaces", each with the aim of accomplishing various goals. This thus, indicates a form of questionable consistency in the concept Internet Addiction. In line with this claim, Grifths proposed there be a distinguishing between general internet addiction (that is, when a person spends an excessively large amount of time in more than one activity and in the process, disregarding all the major and key parts of their life) from specific internet addictions (which is when a person spends an excessively large time in only one activity, such as gaming or gambling, without putting to mind all the key aspects of their own life). This is also indicating that individuals who are addicted to online sex, online gaming, online gambling, or online shopping are actually likely addicted to the same act as they are "cyber-ly" addicted to. For example, an individual who is addicted to cybersex, online gaming, online gambling or online shopping is actually addicted to sex, gaming, gambling, or shopping in itself rather than the internet. The lack of specific criteria for recognizing and diagnosing internet addiction, adds to the debate. The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), American Psychiatric Association, definitely included Internet Gaming Disorder (IGD) – a related but quote different Condition from Internet Addiction. This was situated in Appendix III as a phenomenon that requires further research before being tagged a formal disorder.

Despite these debates in content in addition to unclear and overlapping definitions, Internet Addiction is majorly referred to as the uncontrolled time-consuming use of the internet, in relations to an impairment in people's ability to manage time and could thereafter result in reduced interests and skills in dealing with other aspects of life. As found by a recent

meta-analysis and review, the rate of Internet Addiction geographically varies from 40% to 50% in Eastern countries, 10% to 30% in America, 2% to 8% in Europe, with a graphical fall in Australia and New Zealand. However, these unequal differences, could be attributed to gap in common diagnostic criteria, as well as the different scales used. For instance, in Asian countries, parents believe that any use of the internet that is not related to academic purposes is problematic. Also, in meta-analytic studies, it is reported that there is a significant difference in the level of Internet Addiction within the same country (being China), pointing out the issue of comparison of fndings. Thus, the infuence of geographic area on Internet Addiction is apparent

Along with the intense, high rise and rapid development of information technology industry, the internet has in a rise become a glaring part of our daily lives. As at June 30, 2020, more than half (62.0%) of the world's population and an estimate of 59.3% of Chinese people, used the internet. This is a big increase of 1239 and 3696% since 2000, respectively[56]. Recent data from the China Internet Network Information Center (CNNIC) indicated that 940 million people operate online, of which about a fifth of them are teenagers below 19 years of age. With this, it is impossible to deny that the internet gives college students an added advantage in learning opportunities[56].

Internet addiction takes place when an individual loses control of their internet use and thus has a negative impact on the psychological, social, education or work aspects of said individuals. Internet addiction can also be described through its problematic internet use, playing games excessively and using the internet beyond the level where it causes any harm to the mental wellbeing.

The concept of internet addiction, however, was brought to light by Young in 1998 through the criteria of pathological gambling. Internet addiction is said to be able to contribute to negative impacts in terms of physical health and causing family, academic, work and psychological problems. Physical problems could be as a result of an individual

who is addicted to the internet has the habit of excessive lack of food but instead resorts to eating snacks, lack of sleep and lack of movement from one space to another[56]. Some of the consequences of this on the outlook is obesity, weak vision and backache. Family problems could occur due to the absence of a relationship with the family as the individual is being too busy with the internet, could be having an affair or having other relationships with people on the internet, and hiding bills or things purchased on the internet[56]. In academics and work life, internet addiction could come to be, as a person's performance is drastically reduced due to the extensive use of the internet[55]. Some therapies exist to set right the concepts of internet addiction. These include, cognitive behavior therapy (CBT), family therapy. CBT enables the patients to control their thoughts and feelings so as to trigger the impulse to leave the virtual world. Family therapy can be used for adolescents, by improving the level of relationships and communication with families so that these teens can be excluded from the grasp of the internet.

However, when there is an excessive internet use, there could be serious negative impacts on the individual's health. High interest use may also lead to physical problems, including less exercise ability, carpal tunnel syndrome, musculoskeletal pain, dry eyes, fatigue and poor sleep quality, and even self-harm/suicidal behavior amongst a host of other problems. Problematic internet use exists alongside various psychological disorders, such as loneliness, low self-esteem, depression and anxiety. Excessive internet use has been found to have a close relationship with attention-deficit hyperactivity disorder (ADHD), thus, resulting in poor academic performance.

A clinically recognized disorder that may arise as a result internet overuse, is internet addiction, proposed by Young in 1996. However, internet addiction has been listed as a putative non-substance addiction in an appendix of the most revised version of the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5). A recent research breakdown made up of 70 studies, which assessed the prevalence of internet addiction in Chinese college

students reported a pooled high level of 11.3%, with a wide range of prevalence from 1.9 to 49.41%. This reflects the fact that internet addiction has become a serious issue that threatens college students' physical and mental health, and this phenomenon needs greater attention.

Students' psychological characteristics are likely to play an important role in internet addiction and may have lasting harmful effects. Personality traits are one of the important intrinsic factors of addictive behavior, and impulsivity may play a key role in the formation and maintenance of addictive behavior. Internet addiction has been associated with impulse control disorder, and individuals with internet addiction are more impulsive than those without. In addition, in a neuroscience study of 20 males, Park found that 11 internet users had altered resting state glucose metabolism in the orbitofrontal cortex and other brain regions, most of which were implicated in impulse control. All these results support the hypothesis that the high internet addiction group may have higher impulsivity than those in the low internet addiction group.

Internet addiction is also linked to dissociative symptoms, which are associated with important interpersonal impairments. Study also indicates that young people use the internet more frequently than the elderly and need more social inclusion and support from peers. Social support is considered to be a predisposing factor that determines a person's core characteristics. It is a basic psychological need that contributes to personal health. And social support has been found to be associated with students' mental distress and problematic behaviors. A qualitative study of massively multiplayer online games players shows that people often play different roles in the games, which enables young people to obtain social support and meet various emotional needs that are not available in real life. These observations support the hypothesis that the lack of social support may jack up the level of susceptibility to internet addiction.

In the present world, most people connect to the virtual for recreational, academic, social business and/or leisure time activities. An added problem, however, is that one can

also become enveloped in the virtual world with its activities as company. This is because mobile devices allows individuals to stay connected wherever and whenever they wish. Some people have found themselves being totally captured with virtual activities, many of which, only rely on Internet technology. Over time, many individuals find themselves, being unconsciously drawn into Internet addiction lifestyle. Thus, making it and influencing to be a widely recognized disorder or problem. Numerous terms have been used to understand the concept internet addiction in literature. It has been described as Internet Overuse, Internet Addiction Disorder, Problematic Internet Use, Maladaptive Internet use, Pathologic Internet Use, Compulsive Internet Use, Internet Usage Disorder. K. Young portrayed pathologic Internet use as a problem of Impulse control (Impulse Control Disorder), which does not involve investing or being an intoxicant. Internet use is reported to be pathological when it starts to affect life functioning areas of such. Examples are in the area of the individual's relationships, occupation, school, mental or physical health. The essential factor of this disorder is said to be the inability to perform an act that is harmful to oneself or others. On the contrary, the pathologic Internet use is a kind of mental illness related to individuals surfing online with no exact aim of any sort. Extreme Internet use, on the other hand, is accepted to be the cause of Pathologic Internet Use or stays one step behind Pathologic Internet use.

The growing obsession with smart gadgets has led to a shift in humans having more interaction with technology than with other people and due to the current statistics on its usage warrants closer examination especially considering the staggering statistics on smartphone usage. By 2018, the number of smartphone users in India alone, was approximately 339.95 million and was predicted to reach 442.5 million by 2022[73]. The decreasing price of smartphones at that time, also increased its accessibility among young people and as such is now seen as an integral part of their life. With easy access to online platforms and applications like Facebook and WhatsApp, smartphones have become an

integral part of everyday activities. Some of the attractions of smartphones reported in the literature include information gathering, developing social relationships, relaxation, entertainment, self-enhancement and monetary gain. Any pleasurable activity performed in excess and having some negative consequences would constitute an addiction[74]. Addiction is an 'overwhelming involvement with any pursuit whatsoever that is harmful to the addicted person and his or her society[75]. American Society of Addiction Medicine has defined addiction as impairment in behavioural control, craving and diminished recognition of significant problems with one's behaviour and interpersonal relationships[76]. Rosenberg and Feder described behavioural addictions as a means to 'produce pleasure, provide escape from emotional or physical discomfort and are characterized by powerlessness (i.e. an inability to control the behaviour) and unmanageability (i.e. significant negative consequences resulting from the behaviour)'[73].

The excessive reliance on smartphones could lead to exhibiting addictive behaviors[77]. This is characterized by a loss of control over one's actions despite the detrimental consequences it might have on them, some of such are seeking pleasure, pain relief and stress mitigation through smartphone use[77]. This behavior reaches a critical juncture, and is commonly referred to as an inflection point, where smartphone's everyday use experiences a shift from being a pleasurable activity to an addictive state, marked by obsessive preoccupation with one's device[74]. Bianchi and Phillips conceptualized excessive smartphone use as a form of behavioral addiction as it results in the inability to control device use despite the significant harmful consequences[77].

Smartphone addiction, could in turn, be defined as an addiction-like behavior leading to compulsive cell phone use, although researchers disagree on its validity as a specific sub-category of behavioral addiction.

In literature, problematic use, habitual use and compulsive use are used interchangeably in place of addiction. Problematic smartphone use can be characterized as

dangerous, inappropriate, or excessive, and is often conceptualized as a behavioral addiction, exhibiting seven common symptoms, ranging from salience, to tolerance, conflict, withdrawal, mood modification, problems, and relapse[78]. As earlier stated, problematic internet use belongs to the behavior addiction category. This is due to the components of addiction which are considered:

- Preoccupation with a specific behavior (the smartphone use), in order to escape reality or create a feeling of euphoria;
- Continued behaviour as tolerance develops, and when the behaviour is abstained or interfered with, withdrawal symptoms begin to occur (may be seen as feelings of anxiousness, depression or irritability);
- As a result of the continuous behaviour, interpersonal problems occur, and individual experiences relapse against one's will.

Adolescents are the most vulnerable group to develop self-control over smartphone usage, particularly when parents are absent or not monitoring device use[66]. Smartphone addiction is increasing at an alarming rate, with a significant percentage of individuals, especially those aged 18-24, sleeping with their phones beside them, and many are unable to imagine life without their devices being within their reach. A day without their smartphones will be awkward. The first thing when they get up is about their smartphones, with a large per cent, never disconnecting smartphones use or switching it off when going to bed, in the comfort room, on vacation or even while driving. Research shows that even medical students in India, use their phones in restricted areas and times, highlighting the pervasive nature of smartphone use in daily life, which can affect academic performance by disrupting concentration.

Unlike drug addiction, smartphone or internet addiction does not involve direct substance consumption but is linked to psychopathological and behavioral symptoms, and

can be categorized as generalized or specific depending on the domain of problematic use (like video gaming, shopping, social networking etc.)[13].

This study considers aspects of addiction, where a user is obsessed with their smartphone for performing any activity regardless of time, place, or situation (while driving, having meals and during lessons), and starts and ends the day with their device. Activities that can be performed without smartphones, such as face-to-face interaction (chatting with friends or strangers) and outdoor sports, are less preferred by youth, who consider internet devices, especially the smartphone, a convenient ally[8].

Most studies on internet addiction employ Dr. Young's Internet Addiction scale. Tsai and Lin's article "Internet Addiction of Adolescents in Taiwan: An Interview study" followed up on research conducted earlier on Taiwanese students suspected of having internet addiction, identified using Young's scale. The study found that the students spent excessive time using the computer, indicating a problem[80].

Another study using Young's scale is by Johansson and Gotestam. This paper discusses other studies conducted in Australia, China, Taiwan, and the United States. Johansson et al. state that all the studies, including theirs in Finland, showed that internet addiction was prevalent in 8-10% of the participants[81]. They also note that this type of internet dependence shares commonalities with gambling addiction[82].

In clinical and psychiatric literature, problematic smartphone use is regarded as an addictive behavior, with cellphone addiction being considered one of the greatest addictions of our time. This behavioural addiction comes with an increasing number of individuals suffering from it. However, there is a deficiency of studies on smartphone addiction in Asian countries, despite the large number of users in India, and no consensus on the causes and consequences of smartphone addiction, highlighting the need for further research to help shed light on this always evolving and explorative field.

Studies suggest that the sociocultural setting is also an important element by which we can further understand smartphone addiction[83]. Hence, an understanding of the propensity to smartphone addiction is critical looking at its cause, consequences while developing an appropriate control mechanism and effective therapeutic interventions. This study evaluates family, interpersonal conflicts, and poor academic performances as resultant negative consequences of smartphone addiction among adolescents below 21 years of age, aiming to create awareness and recognize it as a behavioral addiction requiring immediate attention. Additionally, it offers insight for increasing effective-interventions to address smartphone addiction amongst adolescents.

According to Wallace, internet addiction is a pervasive issue among young individuals across middle schools, high schools, and university campuses, where access to laptops, computers, and computer labs is readily available. This phenomenon has been identified as a global concern, with a prevalence of 1% among the general population and 4% among young people, leading to significant dysfunction in daily life activities. Internet addiction has been recognized as a substantial mental health issue worldwide, akin to substance abuse, and can be classified as a behavioral control problem or impulse control disorder. The American Psychiatric Association has acknowledged "Internet Use Disorder" as a noteworthy condition, recommending further research in Section III of the DSM-5. Excessive internet use has been linked to social and emotional dysfunction in various aspects of daily activities, with some studies suggesting it poses a health risk. Suler's concept of cyberspace addiction refers to a compulsive disorder characterized by excessive gaming, competition, and social interaction, or an extension of work-related compulsions. Shotton's findings indicate that computer addicts are often already socially isolated individuals, rather than computers causing loneliness. While some studies support this finding, others argue that loneliness leads to internet addiction. For instance, Loytsker and Aiello suggest that loneliness causes internet addiction, whereas Morahan-Martin argues that excessive internet

use predicts loneliness. However, Morahan-Martin and Schumacher later claimed that the direction of the association between loneliness and internet use is complex and recursive. Recent research concurs, indicating that both implications are valid. Sinkkonen et al suggest that an individual's loneliness and isolation can facilitate heavy internet use, while Kim et al. identify loneliness as both a cause and effect of problematic internet use.

Research on internet addiction has been extensive, beginning with Dr. Young's Internet Addiction Scale. A recent study conducted in Nigeria among 1448 students found that 14% of the participants exhibited severe cases of internet addiction disorder, with males scoring higher than females[7].

2.1.1 Internet Addiction and Loneliness

Over time, research has established a link between internet addiction and various psychological manifestations, including loneliness, shame, anxiety, depression, and interpersonal relationship difficulties. Loneliness, in particular, plays a crucial role in the development of internet addiction, necessitating further investigation into this phenomenon. A review of qualitative studies on internet addiction from 1996 to 2006 revealed that loneliness was a primary antecedent, alongside feelings of isolation, low self-confidence, and low self-esteem. Some authors have identified loneliness as a robust predictor of internet addiction[2], highlighting the need for further empirical research into this relationship. Despite the limited research, previous studies suggest that loneliness may be a consequence of internet addiction, while more recent studies have shed light on the complex relationship between internet addiction and loneliness. One of the primary motivations for internet use is to alleviate psychological symptoms such as loneliness and depression, which are often linked to deficits in social skills and compulsive internet use.

Loneliness and internet addiction have been increasingly recognized as interconnected issues in recent years. Research has shown that individuals experiencing loneliness are more likely to engage in excessive internet use as a coping mechanism[74]. This excessive internet use can lead to a vicious cycle, exacerbating feelings of loneliness and social isolation.

Studies have identified several factors contributing to this relationship. Social media platforms, in particular, can create a false sense of connection, leading individuals to feel more isolated and disconnected from others. Furthermore, the instant gratification and constant availability of online content can activate the brain's reward system, releasing dopamine and creating a dependence on internet use.

Loneliness is linked directly with shortfalls in social skills, preference for network interaction and compulsive internet use[9].University students, particularly those in leadership positions, are vulnerable to loneliness, with a study indicating that up to 75% of students experience some degree of loneliness, which can persist over time. 47% of these students were classified as having moderate to severe loneliness. After 7 months, 25% still reported feelings of loneliness. According to the study by McWhirter, loneliness seems to be especially prevalent among university students. In McWhirter's study with an estimated 30% of university students reporting loneliness as a problem. Loneliness is a fundamental human experience that can be temporary or persistent, resulting from a perceived weakness in interpersonal relationships and leading to dissatisfaction with social relationships.

The essence of humanity is intrinsically social, and those unable to establish and maintain satisfactory relationships may experience a feeling of deprivation, manifesting as loneliness. Loneliness may be obstinate or temporary[70]. Loneliness is often a situational and normal experience and the constant feeling of loneliness is disturbing. Loneliness can be seen as a perceived weakness in interpersonal relationships that leads to dissatisfaction with social relationships[70].Loneliness is a negative emotion resulting from communication conflicts or a lack of interpersonal relationships, leading to feelings of intimacy with others [70].

Research has defined loneliness as an individual's cognitive awareness of the weakness of their personal and social relationships, leading to sadness, absurdity, or regret. Loneliness is not synonymous with physical being alone but is related to an individual's sense of lack of interpersonal intimacy, and its duration is not a determining factor in the experience of loneliness[70]. When the findings of these studies are considered, it is clear that internet use purposes significantly determine the distinction between healthy and unhealthy internet users. Loneliness is a perceived gap between an individual's intended and actual relationships, and early researchers considered it a single dimension, later introducing two dimensions: social loneliness and emotional loneliness. Loneliness is a serious problem in school and university campuses, arising from relocation to a new environment and lack of close friends, resulting in feelings of discomfort, anxiety, anger, hopelessness, sadness, and depression. The internet serves as a means for individuals to compensate for feelings of loneliness and emotional emptiness, particularly in the context of family relationships.

Conceptualization of loneliness vary, yet most definitions converge on three fundamental premises:

1) Loneliness is understood to arise from a perceived deficiency in interpersonal connections.

2) Loneliness is characterized as a subjective mental state rather than an objective circumstance and,

3) Loneliness is typically experienced as an aversive and melancholic emotional state.

These assumptions underscore the complex and multifaceted nature of loneliness, highlighting the importance of examining its psychological undertones. The experience of loneliness is characterized by a subjective sense of emotional isolation, which differentiates it from voluntary social withdrawal or solitude. Hughes et al believed that, loneliness is not solely defined by physical isolation, but also by the perceived absence of meaningful social connections and emotional intimacy. The length of time an individual experiences loneliness

does not necessarily influence the intensity or quality of their subjective experience of loneliness. Conversely, the perceived threat of separation and the quality of attachment, particularly in individuals with insecure attachment styles, significantly contribute to the experience of loneliness. In essence, the mental anguish stemming from a perceived lack of intimate emotional attachment with a significant other has a more profound effect on an individual's sense of loneliness than the mere presence of others. As a result, loneliness frequently arises in response to sudden and rapid changes, and should not be misconstrued as incompatibility or a personality flaw. However, when loneliness persists and interferes with an individual's ability to function normally, it can have deleterious consequences for emotional well-being, social relationships, and even physical health. In such cases, loneliness poses a significant threat to mental health and psychosocial functioning, highlighting the need for effective interventions and support strategies.

The results of these studies indicate that the purpose of Internet use serves as a crucial factor in differentiating between healthy and problematic Internet users, with the latter group exhibiting a preference for using the Internet for entertainment, socializing, and interactive gaming, whereas the former group primarily utilizes the Internet for informational purposes.

Loneliness arises from the perceived discrepancy between an individual's desired and actual social connections and relationships.

The presence of others alone does not alleviate loneliness; rather, it is the existence of a supportive and empathetic relationship, characterized by mutual trust, open communication, and a sense of being valued and cared for, that mitigates feelings of loneliness. Initially, researchers like Russell, conceptualized loneliness as a unidimensional construct, but later expanded this understanding by identifying two distinct dimensions: social loneliness, resulting from a lack of intimate and genuine relationships, and emotional loneliness, stemming from a dearth of meaningful interactions within social circles.

Loneliness poses a significant problem in educational settings, including schools and universities, where students often experience social and emotional challenges. Social loneliness can result from transitioning to a new environment, while emotional loneliness stems from a lack of close friendships, leading to a range of negative emotions, including discomfort, anxiety, anger, hopelessness, sadness, and depression. Bian and Leung discovered a correlation between loneliness and timidity, suggesting that individuals who experience loneliness may also exhibit timid behaviors. Similarly, Bhardwaj and Ashok identified a significant association between addiction and loneliness, highlighting the potential for loneliness to contribute to the development of addictive behaviors.

The experiences of loneliness, boredom, anxiety, depression, and stress often drive individuals to seek comfort in smartphone use, which may provide a sense of connection and community, temporary relief, and an escape from negative emotions, thereby perpetuating a cycle of dependence. Oulasvirta et al.'s research suggested that smartphone addiction results from a complex interplay of biological, psychological, and social factors, emphasizing the multifaceted nature of this issue. Those who experience social isolation or have limited social connections are more susceptible to addiction, as they may seek alternative sources of comfort and connection. Over time, individuals may develop a pattern of repetitive smartphone use as a coping mechanism for emotional regulation, leading to increased psychological dependence as this behavior is reinforced through repeated use.

Loneliness is a universal human experience, and it is common for individuals to encounter it at some point in their lives, with varying intensity and duration. Loneliness transcends demographic boundaries, affecting individuals across different age groups, genders, races, economic statuses, and social contexts. Consequently, individuals experiencing loneliness often struggle to form and maintain meaningful relationships due to negative thought patterns, difficult circumstances, and inadequate communication skills, which hinder their ability to engage in productive dialogue and foster close connections.

Individuals experiencing loneliness are often highly sensitive to social interactions, anxious, and self-aware, which can lead to a fear of rejection and a reluctance to form new relationships or deepen existing ones. These individuals encounter challenges when attempting to form friendships, engage in social activities, participate in group settings, enjoy social gatherings, and navigate their environment, which can exacerbate their feelings of loneliness. Furthermore, individuals experiencing loneliness often hold negative self-perceptions, viewing themselves as inferior, unworthy, and socially unacceptable, which can contribute to lower self-esteem and a diminished sense of self-worth. Studies employing the SELSA scale among Internet users have revealed an inverse relationship between Internet use and loneliness, suggesting that online activities may serve as a substitute for social interaction and temporarily alleviate feelings of loneliness. Equally, excessive Internet use has been linked to increased emotional loneliness, potentially due to the displacement of face-to-face interactions with online activities, leading to a decline in meaningful social connections and deepened feelings of emotional isolation. Conversely, studies have revealed a positive and significant correlation between loneliness and Internet use among university students, with this association being more pronounced among males than females[70]. Moreover, the findings indicated a dose-response relationship, where increased Internet use was associated with higher levels of loneliness, suggesting a potential exacerbating effect of Internet use on feelings of loneliness[70].

Hughes notes that research among students has revealed a nuanced relationship between internet use and loneliness, with excessive use being only slightly more prevalent among those experiencing loneliness compared to moderate users. Moreover, the beneficial uses of the internet did not mitigate loneliness over time, whereas psychological dependence on the internet did. This suggests that the internet itself is a neutral tool, but the compulsive or rigid requirements of online engagement can be indicative of a separate issue, such as internet addiction. Indeed, research has shown that individuals experiencing loneliness are

more likely to use the internet for entertainment purposes, such as accessing information about the entertainment world. Furthermore, offline loneliness does not necessarily predict online social interaction, and excessive internet use can actually displace real social communication, leading to increased feelings of loneliness and potentially contributing to depression. The Internet can be seen as a contributing factor to loneliness, as users often prioritize online relationships over real-life connections, which can lead to a decline in social activity and a preference for virtual communication over face-to-face interaction. Excessive Internet use can also lead to a devaluation of family relationships and a decrease in importance placed on family values. Furthermore, individuals who struggle with interpersonal relationships and communication skills may be more likely to rely on the Internet as a means of coping with feelings of loneliness and emotional emptiness.

Research has shown that individuals with a larger social network and friend group are more likely to use the Internet extensively. Therefore, the Internet can be seen as a tool for coping with family-related loneliness and emotional emptiness, rather than social loneliness. The rapid growth of Internet users, from 2.7 billion in March 2007 to 3.2 billion in 2015, highlights the importance of exploring the psychological implications of this technology on social interactions and loneliness[70]. Hamburger and Artzi applied the personality theory to investigate the relationship between loneliness and Internet use, focusing on the personal and emotional characteristics of Internet users. Their survey findings indicated that specific traits like introversion and loneliness contribute to excessive Internet use, leading to the development of the alternative model, the Kerut et al. model. According to this model, individuals are more likely to engage in extreme Internet use due to their extensive online social networks and modified communication patterns.

In contrast, the loneliness model posits that individuals experiencing loneliness struggle with social interactions due to negative expectations and predictions. Combining these models suggests that the Internet provides an ideal social environment for individuals

experiencing loneliness, offering online anonymity, control over social interactions, and reduced social anxiety. Internet communication facilitates self-disclosure, intimacy, and self-provision, allowing individuals to present themselves in a more idealized manner. Moreover, some individuals use the Internet as an escape mechanism to cope with the stress and negative emotions associated with loneliness. Recent research has confirmed a model wherein lonely individuals tend to use the Internet excessively, leading to problems such as compromised mental health, diminished social relationships, neglected responsibilities, and negative impacts on family, work, and education.

Loneliness is rousingly recognised as the next critical public health issue[72]. A reason for this concern could be related to new societal trends affecting the way we relate, communicate, and function in our social environment. In 2006, a prominent review of the clinical significance of loneliness was published. However, there has not been a sufficient and comprehensive update on known and emerging risk factors and correlates of loneliness since then[72]. In addtion, there is no model that has been developed to better account for the complexity of loneliness and to inform the development of evidence-based solutions as we challenge the issues of the twenty-first centuto[72].

Loneliness is a significant predictor of internet addiction, particularly among individuals who live alone or have limited social interactions[71]. These individuals experience loneliness not only due to physical isolation but also because of a decline in social rewards[71]. When social rewards decrease, individuals with loneliness struggle to meet their personal and social needs[71]. Loneliness can be categorized into emotional loneliness (the absence of a loved one) and social loneliness (the absence of social connections). A study conducted among students from diverse backgrounds in a residential setting found that they often engage in excessive internet use as a coping mechanism for homesickness, adjustment issues, and the void left by leaving their comfort zone. The study revealed that undergraduate students who were new to the environment had higher internet use and were less aware of the

consequences of excessive internet use, whereas postgraduate students were more experienced and aware of the potential negative effects. In addition, the relationship between loneliness and internet addiction is complex and multifaceted. Research has consistently shown that loneliness is a significant predictor of internet addiction, and that excessive internet use can exacerbate feelings of loneliness and social isolation. Understanding this relationship is crucial for developing effective interventions and treatments for internet addiction, particularly among vulnerable populations. Future research should continue to explore the nuances of this relationship and develop strategies for promoting healthy internet use and social connections.

In conclusion, a positive correlation exists between internet addiction and loneliness, with each influencing the other reciprocally. When individuals experience loneliness, they may turn to the internet as a means of coping, engaging in activities such as gaming, social networking, entertainment, and online dating. However, excessive internet use can also have negative consequences, including depression, social isolation, and impulsivity. Two hypotheses have been proposed to explain the relationship between loneliness and internet use: firstly, excessive internet use leads to loneliness, and secondly, individuals who are already lonely are more likely to engage in excessive internet use. Despite numerous studies on the impact of loneliness on internet usage, researchers have paid insufficient attention to the multidimensional nature of loneliness, and further research in this area is needed. Additionally, studies in Iran have found a significant negative relationship between loneliness and internet chat use, but the predictive relationship between the two remains under explored.

2.1.2 Internet Addiction and Shyness

Shyness is characterized as a state of discomfort or anxiety experienced in social situations, often accompanied by inhibition or frustration, which significantly impairs an individual's ability to achieve their goals or actively participate in social events[13]. In simpler

terms, shyness can be defined as difficulty interacting with people in social situations. The internet may serve as an escape from reality or a means of communication without social consequences, leading individuals to withdraw and struggle to relate to others around them. The internet provides shy individuals with a mask and tools to be brave, which they may lack in real life. Therefore, the internet offers shy individuals a medium to communicate with the world around them, which may be viewed as "problematic" internet behavior. As internet use becomes more frequent and widespread, internet addiction is likely to become more prevalent. Numerous studies have explored the relationships between internet addiction and social problems like anxiety and depression, but few have examined the link between shyness and internet addiction. The internet is accessible to individuals of all ages, and many adolescents have unlimited access, making them vulnerable to internet addiction. Adolescence is a period of significant physical and emotional change, making it an awkward stage, especially when it comes to communication with others. It is reasonable to suggest that this awkwardness may make adolescents susceptible to shyness and, subsequently, internet addiction. Shyness is a common trait, found in approximately 40% of individuals, with females more likely to experience shyness[44]. Shyness is a distinct personality characteristic that can lead to various social problems[44].

The inability to control internet use, leading to social or psychological difficulties, stems from an innate need to express emotions and seek social support[45]. This includes activities like online chats and emails without a specific purpose. The shared contact and support online result in a fantasy, and individuals may desire to maintain this artificial social life[46]. This intense desire is more pronounced in shy individuals, who feel awkward, worried, and tense in social interactions, especially with unfamiliar people[47]. Most people experience shyness occasionally, but intense shyness in some individuals keeps them from interacting with others, leading to suppressed desires and problems[48]. Research has identified a significant link between shyness and internet addiction, with shy individuals more likely to

engage in excessive internet use as a means of social compensation. The anonymity and social distance provided by the internet can create a comfortable environment for shy individuals to interact and connect with others (Caplan, 2010). However, this excessive internet use can lead to a vicious cycle, exacerbating social isolation and reducing face-to-face social skills

Both studies discuss the implications of internet addiction but do not mention shyness as a contributing factor. However, a study by Scealy, Phillips, and Stevenson explores shyness and anxiety as predictors of internet usage patterns.

A study conducted on 722 internet users from Hong Kong city found that computer-mediated medium is the best environment for shy individuals. By using this medium, they feel in control of the situation. This finding aligns with the theory that social factors, such as shyness, contribute to the desire for internet use[49].

Research has been conducted on the relationship between internet addiction and shyness. Using the Social Reticence Scale and a Trait Anxiety Inventory, a study found that shy and anxious individuals did not use the internet more than others without social problems. Although the study did not conclude that shyness was a major contributing factor to internet addiction[8]. It was predicted that with the increase in internet use and its facilitation of relationships, both online and offline, internet use may be detrimental to those with difficulties in offline aspects and cause social isolation for those with high levels of shyness[8]. The study by Scealy, Phillips, and Stevenson employed the Cheek and Buss shyness scale when appraising participants. It is essential to note that internet addiction is not a cultural phenomenon. Although Scealy, Phillips, and Stevenson's article did not find shyness to be a contributing factor to internet abuse, they hypothesized that shyness would contribute to excessive internet use for communication. As internet use becomes more widespread, it may contribute to the isolation of the socially unskilled.

Shyness is an emotion that may serve as a behavioral regulator of social relationships in collectivistic cultures. For instance, social shyness is perceived positively in collectivistic cultures, unlike individualistic cultures where it is perceived negatively. In Eastern cultures, shyness-inhibition in school-aged children is viewed as a positive trait, and those who exhibit these traits are seen as capable by their peers and teachers. According to Rubin, shy individuals in the Eastern demographic, are often considered to have leadership status in school, as they are seen as polite, respectful, and thoughtful. Elihu Katz introduced the 'Uses and Gratification theory' while examining why people tend to use the radio to listen to quiz programs. The Uses and Gratification theory emphasizes the psychological and social needs of people that create expectations and urges to mass media. The theory explains how internet use meets individuals' social needs and discusses the dependence on particular media and its consequences.

Moreover, the theory focuses on social factors, such as ineffective or dysfunctional peer relationships, which lead people to use internet-medium to fulfill their socialization needs. Hence, there is an association between socio-psychological variables and problematic internet use. Furthermore, numerous studies claim that Problematic Internet Use results from stressful life events. For example, an East Asian study found that participants who failed to cope with their visible problems tended to see the imaginary world of the internet as a spring of escape.

This study aimed to explore the variables of problematic internet use, shyness, and psychological well-being.

It also aimed to investigate the relationship between these variables and evaluate the impact of shyness and psychological well-being on problematic internet use. Lastly, the study aimed to assess the impact of gender on the study variables.

In conclusion, the relationship between shyness and internet addiction is complex and multifaceted. Understanding this relationship is crucial for developing effective interventions

and treatments for internet addiction, particularly among vulnerable populations. Future research should continue to explore the nuances of this relationship and develop strategies for promoting healthy internet use and social connections.

2.1.3 Internet Addiction and Impulsivity

Impulsivity is a trait that has often been related to addictive behavior in some researches carried. For example, with regard to impulsivity in Internet addiction, a relationship was established between impulsivity and Internet addiction among Chinese adolescents16. The authors showed that the Internet addiction group was more impulsive than the control group, as measured by both the Barratt Impulsiveness Scale 11 (BIS-11) and the Go-Stop impulsivity paradigm, supporting the classification of Internet addiction as an impulse control disorder.[16]

There have been various endeavors to illuminate impulsive behavior stretching from the lack of knowledge to the impact of diabolic forces[51]. The concept of impulsivity has been extensively explored, with various theories attempting to explain its underlying mechanisms. One early interpretation suggested that impulsivity arises from inadequate evaluation of immediate behaviors' consequences. Animal studies have developed behavioral and neurochemical models to explain impulsivity's causes, but these models often neglect self-control, the converse of impulsivity, due to cognitive limitations[51]. Human self-report measures have identified self-control mechanisms like attentional control and emotional regulation[52]. The relationship between attentional control and impulsivity has also been examined in individuals under alcohol's influence. From a biopsychosocial perspective, self-control issues can lead individuals to act against their self-interest despite full knowledge of their actions' consequences[53]. For example, drug addicts may consume again despite knowing the negative consequences. This theory posits that the problem lies in the inability to translate cognitions into actions, leading to impulsive behaviors when in a deprived state, which may

be influenced by the degree of scarcity. This idea is supported by research on delay discounting, which shows that individuals tend to prioritize immediate rewards over future consequences[54]. Furthermore, studies on neural mechanisms underlying impulsivity have identified alterations in brain regions involved in reward processing, executive function, and emotional regulation[55]. These findings highlight the complex interplay between cognitive, affective, and environmental factors contributing to impulsive behaviors. Moreover, research on mindfulness-based interventions has shown promise in reducing impulsivity by increasing self-awareness and self-regulation[56]. By exploring the multifaceted nature of impulsivity, we can develop more effective strategies for addressing addictive behaviors and promoting mental health.

Research has consistently shown a significant link between impulsivity and internet addiction, with impulsive individuals more likely to engage in excessive and compulsive internet uses. Impulsivity, characterized by a lack of self-control and impulsive decision-making, can lead to a tendency to seek out novel and exciting online content, contributing to the development of internet addiction.

Studies have identified several factors contributing to the relationship between impulsivity and internet addiction. For instance, the instant gratification and constant availability of online content can activate the brain's reward system, releasing dopamine and creating a dependence on internet use. Furthermore, impulsive individuals may be more susceptible to online temptations and distractions, leading to a decrease in productivity and an increase in internet use.

The example of the drug addict illustrates how craving can drive impulsive behavior, but this theory is limited in that it only explains impulsivity during abstinence or craving states[51]. A more comprehensive understanding of impulsivity recognizes that strong emotions and motivations can intervene between cognition and action, leading to behaviors that may be

assessed as impulsive or self-controlled. In a cognitive-behavioral context, research has explored the relationship between impulsivity and information processing, finding that more impulsive individuals exhibit longer response latencies and impaired response selection in decision-making tasks[54]. This supports the concept of impulsivity as a disconnect between knowledge and action[53].

Impulsivity has a natural trait of showing up at every addiction possible as it is one of the pathological factors. Every impulsive action has two important factors. They are an impulse (an urge, motivation, or desire to act in some way), and a lack of inhibition, restraint, or control of that impulse. These can be clearly seen in internet addiction. This study has only been done by a handful of people and mostly not in Nigeria. Using the DSM-IV criteria, it is believed that Internet addiction is an impulse disorder or at least related to impulse control. Research into impulsivity found that pathological gambling, drug addiction, and alcohol abuse have similarities in neuropsychology and personality characteristic. If Internet addiction is related to impulsivity, research is likely to demonstrate that neuropsychological characteristics may be similar to other disorders[10]. Previous studies regarding adolescent Internet addiction have been related to other pathologies but impulsivity. Thus, one of the main objectives of the study. This study aims to address this gap by examining the relationship between impulsivity and Internet addiction among adolescents in Nigeria. By investigating the neuropsychological and personality characteristics of Internet addiction, this research seeks to contribute to the understanding of impulsivity's role in the development and maintenance of Internet addiction. Furthermore, this study will explore the similarities and differences between Internet addiction and other impulse control disorders, such as pathological gambling, drug addiction, and alcohol abuse. By doing so, this research hopes to provide insights into the underlying mechanisms of impulsivity and its contribution to the development of addictive behaviors. Ultimately, this study aims to inform the development of

effective interventions and prevention strategies for Internet addiction, particularly among adolescents, who are vulnerable to the negative consequences of excessive Internet use.

In conclusion, the relationship between impulsivity and internet addiction is complex and multifaceted. Understanding this relationship is crucial for developing effective interventions and treatments for internet addiction, particularly among vulnerable populations. Future research should continue to explore the nuances of this relationship and develop strategies for promoting healthy internet use and self-regulation.

2.2 Theoretical Review

2.2.0 Social Learning Theory

Social learning theory posits that human behavior is the outcome of a dynamic interaction between the individual and their social environment, with a strong emphasis on environmental or situational factors. Behavior is seen as the result of a continuous interplay between personal and environmental variables, including cognitive factors (such as competencies and intellectual abilities), cognitive strategies (like attention and information organization), expectations (about behavior consequences), values, self-imposed standards, rules, and morals. Environmental variables include the influence of others and the interaction between individuals and situations. The theory proposes two types of expectations about oneself:

(i) outcome expectations, which involve estimating the outcomes of a given behavior, and

(ii) efficacy expectations (or self-efficacy), which refer to the belief in one's ability to execute the behavior required to produce desired outcomes.

Self-efficacy plays a crucial role in regulating human functioning through four main processes: cognitive and motivational (related to purposive behavior), affective (stress and depression in difficult situations), and selection (of environment and avoidance of activities

believed to exceed coping capabilities)[15]. Self-efficacy is relevant to all stages and aspects of human development, including family environment, school, career development, and health-promoting behavior. The theory was later expanded into the Social Cognitive Theory[16], which emphasizes the need to shift the paradigm of psychological theories to conceptualize individuals as agents of change who affect both themselves and their social environment. The core agentic features of social cognitive theory are:

i. Intentionality, which involves representing a future course of action to achieve desired outcomes (outcome expectancies). However, some actions may produce unintended or unwanted outcomes.

ii. Forethought, which enables individuals to motivate themselves and guide their actions in anticipation of future events. When applied over an extended period, forethought provides direction, coherence, and meaning to one's life, with outcome expectancies playing a crucial role.

iii. Self-reactiveness, which requires an agent to be not only a planner and forethinker but also a motivator and self-regulator, exercising self-control and self-regulation.

iv. Self-reflectiveness, which involves the metacognitive ability to reflect on oneself, assessing the adequacy of one's thoughts and actions. Self-efficacy is the foundational concept underlying this feature, enabling individuals to evaluate their capabilities and adjust their actions accordingly. These agentic features emphasize the proactive and self-regulative aspects of human behavior, highlighting individuals' capacity for intentional action, planning, self-motivation, and self-reflection.

According to social learning theory, our observations of other people engaging in addictive behavior can lead to the development of addiction. When we observe the behavior and reactions of other people using addictive substances (or activities) we may wish to repeat what we saw. For instance, suppose we observed an agitated, frazzled parent coming home

from work. She drinks a few drinks, then becomes relaxed and fun to be around. We would start to believe that alcohol is a good way of coping with stress.

Vygotsky's version of social learning theory emphasizes the role of social interactions and cultural surroundings in shaping learning and development. He introduced the concept of the "Zone of Proximal Development," where optimal learning occurs when individuals receive appropriate challenge and support. This, he expounded as the alteration between what can be self-done and what can be done with a little help. Vygotsky also coined the term "scaffolding," where guidance is gradually removed as individuals become more independent. Thus, as an individual strives to get better, the support starts to recede gradually (like removing the scaffolding from a building when it's strong enough to stand independently).

John Krumboltz, a Stanford University professor, applied social learning theory to career development. He identified four key factors influencing career decisions: self-awareness (Knowing Ourselves), understanding the world of work (seeing the world), developing skills (how to work), and learning from experience (learning from doing). John Krumboltz's social learning theory emphasizes the importance of self-awareness, understanding the world of work, developing skills, and learning from experiences in shaping career choices. He believes in the adaptability of individuals and the need to continuously learn, adapt, and change with new experiences. The theory highlights the significance of observing others, learning from interactions, and embracing change.

This theory comes with its strengths and weaknesses as other theorists have seen its downhill sides. One of the key characteristics of social learning theory is its adaptability in explaining the different ways in a person's behaviour. For instance, if a person's environment changes, the theory believed that so may the person's conduct. Another strength is that it facilitates several modes of learning. A person might learn through direct encounters or just by watching. Although much of your fundamental personality develops in early childhood, social learning theory supports the idea that the brain is elastic and an individual is always

learning and growing. It also allows for a natural learning process (aligns with human social instincts, making learning more engaging and relatable). Better retention: Learning through social interaction leads to better retention and solidification of information. Resource efficiency: Utilizes existing social networks and communities, reducing training costs. Diverse perspectives: Collaborating with diverse groups fosters a broader understanding and innovative problem-solving. Immediate feedback: Accelerates learning by addressing misunderstandings and refining skills in real-time.

Collaborative learning environments can foster motivation and engagement, as peer pressure and the desire to contribute positively create a sense of accountability, encouraging learners to remain invested in the learning process. This collective approach not only promotes teamwork and collaboration but also enables individuals to learn from one another, thereby enhancing the group's collective intelligence. Through social interaction, learners can adapt their approaches by incorporating their peers' experiences and insights, refining their problem-solving abilities and critical thinking skills. Social learning is a lifelong process that extends beyond formal education, encouraging continuous learning and adaptation in response to new information, experiences, and evolving perspectives.

Where the theory is dented is in its disregard for the significance of accountability in one's conduct. By only paying attention to the environment, the idea implies that society dedicates one's behaviour and actions rather than how a person handles information or thinks. The social learning paradigm also disregards normal developmental stages. Although infants don't mature at the same rate, some typical developmental stages occur regardless of the environment. The theory also doesn't account for all types of behaviour, most importantly, when there is no main model citizen for the observer to mimic.

Social learning environments can precipitate internal conflicts, as individuals may experience pressure to conform to dominant opinions or behaviors, potentially compromising their autonomy and authenticity. This conformity can result in the suppression of unique

perspectives and ideas, as individuals prioritize social acceptance over critical thinking and innovation. Group dynamics in social learning settings can foster a culture of homogeneity, limiting the exploration of novel concepts and hindering the development of creative solutions. The desire for social acceptance can lead to peer pressure, prompting individuals to conform to avoid conflict or criticism, even if their opinions diverge. This phenomenon, known as "groupthink," can culminate in uncritical thinking and the perpetuation of misinformation. Moreover, the informal exchange of information in social learning environments can lead to the spread of inaccurate knowledge and the misinterpretation of concepts, resulting in suboptimal learning outcomes. Furthermore, the fear of judgment or negative feedback from peers can generate psychological stress, undermining the learning experience and potentially compromising individual well-being. Finally, while social learning processes may be cost-effective, they can be time-consuming, potentially impacting efficiency in fast-paced professional settings where time is a critical factor.

While collaborative learning offers numerous benefits, it can also compromise individual autonomy, as some learners may prefer independent learning or have unique learning styles that are not fully accommodated in group settings. Moreover, the quality of shared information in social learning environments can vary significantly, with not all contributions being accurate or well-researched, potentially leading to gaps in understanding and learning. Additionally, dominant personalities or influential individuals within a group can limit the contributions of others and hinder the emergence of diverse viewpoints.

Regarding Internet Addiction, while social learning theory may provide some insights, as a well-developed theory. However, it could not be fully rational to state that an individual is addicted to the internet because the individual sees other people being stuck to it and wants to feel among. The internet Addiction disorder is not a phenomenon that one learns by just socially interacting with others. One could even pose the question that could bring about confusion. This is that "if I could learn internet addiction just by social interaction, then is the

society then actually addicted to the internet?". Though, the social learning theory is a good fitt, but due to its inability to fully explain internet addiction, we would study the Behaviourist Theory.

2.2.1Behaviourist Theory

Behaviorist models of addiction focus on observable actions and their consequences, emphasizing the role of reinforcement in maintaining behavior. One group of behaviorists concentrates on the fact that behavior is sustained or increased by its consequences, which serve as reinforcers. Drug self-administration is a prime example of instrumental behavior, where individuals or animals engage in actions to obtain the desired consequences (the drug's effects).

Research with animal subjects has consistently shown that drug-naive animals will self-administer drugs when available, often to excess. This observation has led to the development of the drug self-administration model, which highlights the reinforcing properties of drugs. Drugs can be reinforcing in two ways: through their direct effects on the brain's reinforcement system or through their effects on other reinforcers (such as social or sexual reinforcers) or behavioral effects (such as increased attention).

Animal research has replicated the finding that animals will self-administer most drugs in instrumental paradigms, across various species and routes of administration. By controlling for the history of use (learning) and current environmental conditions (cues), researchers have shown that both factors are crucial in the development of persistent drug use or abuse. These findings support another group of behaviorist theories, which focus on classical conditioning. Classical conditioning plays a significant role in the development and maintenance of addictive behaviors, as cue exposure theory suggests. According to this theory, cues previously associated with drug administration can elicit a conditioned response (cue reactivity), underlying craving. This explains why individuals who have been abstinent

for a period may experience strong cravings upon exposure to cues associated with their previous addiction. The number of potential cues associated with addictive behaviors is vast, making classical conditioning a crucial factor in understanding addiction.

Exteroceptive cues, which occur prior to substance use, include sensory stimuli such as the smell of alcohol, the sight of a needle, or the time of day when drugs are typically consumed. Interoceptive cues, on the other hand, involve internal experiences such as the effects of a drug on brain receptors, mood cues like depressants affecting cognitions, and beliefs about drug effects. Responses to these cues can be autonomic (e.g., changes in heart rate, temperature, and salivation), behavioral (e.g., increased likelihood of drug use), or symbolic-expressive (e.g., self-reported drug craving and urges to use drugs).

In essence, this can be attributed to the Dopamine Reward System, specifically the mesolimbic-fronto cortical dopamine system, which is a crucial pathway in brain reward processing. Dopamine plays a significant role in the reinforcing effects of addiction, leading to direct stimulation and indirect increases in dopamine levels. All these stems at making the internet addicted individual be a cause for his own problems which the study is not trying to focus on.

Behaviorism in general provided us much influence in the field of education and psychology. The fact can not be denied, that some of our beliefs and approaches to life are rooted in this body of knowledge. In the end, one could say that no any single theory could ever explain fully how we behave and learn in the context of a changing environment. Other theories were purposively developed because proponents did find significance. It is now for us, to go out of the box, incorporate and synthesize the impacts of these many theories.

Behaviorism's focus on observable behaviors facilitates the quantification and collection of data, making it an attractive approach for research and experimentation. Early behaviorists prioritized the study of observable behaviors over unobservable phenomena like unconsciousness and repressed desires, which underpin psychodynamic theory. Behaviorism

has also led to effective therapeutic techniques like intensive behavioral intervention, behavior analysis, token economies, and discrete trial training, which can change maladaptive behaviors in children and adults. The value of reinforcements like rewards, punishments, and the Premack principle in facilitating learning is well established. However, critics argue that behaviorism oversimplifies human behavior, neglecting internal influences like moods, thoughts, and feelings, and fails to account for free will and other types of learning that occur without reinforcement and punishment.

Behaviorism can be seen as "superficial" or shallow, only considering observable and measurable aspects of behavior and learning, while ignoring vital unseen aspects of an individual's personality and learning capabilities. Additionally, behaviorism attributes human behavior and learning primarily to external factors like reinforcers and punishers, neglecting the role of internal influences and the ability to adapt behavior in response to new information. However, as Albert Bandura and others have argued, people and animals can modify their behavior when new circumstances offer new information, even if previous behavior patterns were established through reinforcement. This is evident in the process of extinction, where learned behaviors can be modified or changed over time. As we continue to live and learn, we encounter numerous opportunities for growth and development.

Behaviorism falls short in explaining alternative forms of learning, particularly those that occur independently of reinforcement and punishment. As evident from the theory, human behavior and learning abilities are largely attributed to the impact of external factors that serve as reinforcers or punishers. However, as critics like Albert Bandura argue, not all behavior can be solely attributed to external influences. There are various other factors at play, and behaviorism oversimplifies the complexity of human learning by neglecting these alternative explanations.

In other words, behaviorism provides an incomplete understanding of human learning, as it primarily focuses on external factors like reinforcement and punishment, while ignoring

other significant influences on behavior and learning. This limited perspective overlooks the diversity of human experiences and the multiple factors that shape our behavior and learning abilities.

Both humans and animals possess the capacity to adapt their behavior in response to new information, even if a previous behavior pattern has been established through reinforcement. This adaptability enables individuals to modify or change their behavior when new circumstances present new information, regardless of their prior learning history. This concept is supported by the process of extinction, which demonstrates that previously learned behaviors can be modified or eliminated in response to new experiences. As we continue to navigate life, we will encounter numerous opportunities for learning and growth, allowing us to refine and adapt our behaviors accordingly.

2.2.2 Cognitive theories

Cognitive theory is an approach to psychology that attempts to explain human behavior by understanding the thought processes. Cognitive psychology, a scientific discipline, investigates mental processes such as attention, language usage, memory, perception, problem-solving, creativity, and reasoning. For example, a therapist is using principles of cognitive theory when they teach you how to identify maladaptive thought patterns and transform them into constructive ones. The assumption of cognitive theory is that thoughts are the primary determinants of emotions and behavior. Information processing is a common description of this mental process. Theorists compare the way the human mind functions to a computer.

Cognitive psychology emerged in the 1960s as a departure from behaviorism, which dominated the field from the 1920s to the 1950s and dismissed unobservable mental processes as beyond the scope of empirical science. This shift was driven by researchers in linguistics, cybernetics, and applied psychology, who utilized models of mental processing to

explain human behavior. The findings and principles derived from cognitive psychology have been integrated into various branches of psychology and other modern disciplines, including cognitive science, linguistics, and economics. Notably, cognitive psychology shares a significant overlap with cognitive science, which adopts a more interdisciplinary approach, encompassing studies of non-human subjects and artificial intelligence.

The fundamental principle of cognitive theory is the idea that children are born with a limited cognitive ability that must develop over time. As the baby grows into a toddler, then a child, then a teenager, their cognitive ability also increases due to their life experiences. Cognitive theorists believe that with the development of cognitive ability comes the development of language.

Contemporary perspectives in cognitive psychology often adopt a dual-process theory, as notably articulated by Daniel Kahneman. Kahneman distinguished between two modes of processing: intuition (lets call this system 1) and reasoning (call this system 2). Intuition, akin to associative reasoning, is characterized by rapid, automatic processing, often accompanied by strong emotional associations. This type of reasoning is rooted in habits and is resistant to change. In contrast, reasoning (System 2) is slower, more volatile, and subject to conscious judgment and attitudes.

As cognitive psychology evolved into a distinct movement in the 1970s, its complexities and diverse phenomena led to a loss of cohesion within the field. Observers have noted that cognitive psychology encompasses numerous varieties and lacks a clear consensus on its domain. This fragmentation has led to competing models and critiques of information-processing approaches to cognitive functioning, such as decision-making and behavioral sciences.

In summary, cognitive theory posits that cognitive abilities develop over time, and language development is closely tied to this process. Dual-process theory, popularized by Kahneman, differentiates between intuitive and reasoning processes. However, the field of

cognitive psychology has become increasingly diverse and fragmented, leading to competing models and critiques of its core approaches.

Cognitive theory encompasses various subsets, including social cognitive theory, which is utilized in therapy to address phobias and other psychological disorders. Social cognitive theory emphasizes the processes by which we learn to model the behavior of others.

Cognitive Learning Theory, another subset, focuses on the active engagement of individuals in thinking and problem-solving during the learning process. This approach posits that people learn most effectively when they utilize their cognitive abilities to construct meaning and acquire skills, rather than relying solely on memorization and repetition.

Cognitive theory has contributed significantly to the development of various therapeutic techniques, including Cognitive Restructuring, which is a crucial component of effective treatment plans for anxiety disorders. This technique, developed by prominent cognitive theorist Christine A. Padesky, involves a collaborative process between the therapist and individual, comprising four primary steps:

1. Identifying and examining negative self-talk patterns associated with anxiety
2. Empathetically exploring and challenging the validity of these thoughts
3. Summarizing key points and insights from the session
4. Encouraging individuals to engage in self-reflection and questioning

Through this process, individuals can develop a deeper understanding of their anxiety and learn to reframe maladaptive thoughts, promoting more adaptive coping strategies and improved mental health outcomes.

Exposure therapy involves confronting the source of one's fear or anxiety, wherein individuals are gradually exposed to the feared stimuli during treatment. Concurrently, they learn relaxation techniques and coping skills to manage their anxiety responses.

Behavioral experiments are a crucial component of cognitive therapy, allowing individuals to test the validity of their negative thoughts and beliefs in a controlled

environment. Through these planned activities, individuals are exposed to anxiety-provoking situations, enabling them to assess the accuracy of their beliefs and evaluate the effectiveness of new coping skills and thought patterns.

Historically, behaviorist critics argued that the cognitive psychology's empiricist approach was incompatible with the concept of internal mental states. However, advancements in cognitive neuroscience have consistently demonstrated direct correlations between physiological brain activity and mental states, substantiating the foundation of cognitive psychology. This empirical evidence has reconciled the once-divergent fields of behaviorism and cognitive psychology, further solidifying the legitimacy of cognitive therapy approaches.

A longstanding debate exists between neuropsychologists and cognitive psychologists, with cognitive psychology producing models of cognition that are not entirely supported by contemporary brain science. Proponents of different cognitive models often engage in a dialectical relationship, influencing empirical research and leading researchers to align with their preferred theory. For instance, advocates of mental model theory have sought to demonstrate that deductive reasoning relies on image thinking, while proponents of mental logic theory have attempted to prove that it is based on verbal thinking, resulting in a fragmented understanding of brain imaging and lesion study findings.

When theoretical biases are set aside, the evidence suggests that interaction depends on the specific task being tested, whether visuospatial or linguistic in nature, and that there is an aspect of reasoning not accounted for by either theory. Similarly, neurolinguistics has found that brain imaging studies are more comprehensible when theoretical assumptions are not prioritized.

In language cognition research, generative grammar posits that language operates within a private cognitive module, while Cognitive Linguistics argues that language is not an independent function but rather relies on general cognitive capacities like visual processing

and motor skills. Neuropsychology, however, takes a middle ground, recognizing language as a specialized function that overlaps and interacts with visual processing. Despite this, research in language cognition remains divided along the lines of generative grammar and Cognitive Linguistics, impacting adjacent fields like language development and acquisition.

One of the main criticisms of cognitive theory is that it discusses cognitive processes that aren't directly observable. It becomes increasingly difficult to find clear links between language acquisition and intellectual development as a child gets older. Piaget's cognitive theory has been criticized as it fails to recognize other external factors that have been shown to affect development. Vygotsky and Bruner, cognitive development theorists, note that Piaget's work failed to account for social and cultural settings and stated that his experiments were too culturally bound.

Both Bruner and Vygotsky place a lot more emphasis on a child's social environment than Piaget and state that adults should play an active role in developing children's cognitive ability and language acquisition. Additionally, Vygotsky and Bruner reject the idea of cognitive development happening in stages and prefer to view development as one big continuous process.

There are a number of theories that explain dependence in terms of cognitive context. One theory proposes that self-regulation is an important factor in the development of dependence problems. Self-regulation has been described as taking planful action designed to change the course of one's behavior the executive (i.e. non-automatic) capacity to plan, guide and monitor one's behaviour flexibly, according to changing circumstances Self-regulation involves planning, taking into account social and physical factors as well as one's own goals, and acting appropriately. Addictive behaviours are seen as the result of having an excessive reliance on external structures – in the case of drug dependence, excessive reliance on substance use -to maintain a physical and psychological balance.

One of the significant strengths of the cognitive approach is its practical applications. For instance, Baron-Cohen et al.'s study on theory of mind in autism led to the development of a new test for Theory of Mind, enabling the identification of autism and informing strategies for accommodating individuals with autism or Asperger's syndrome in educational and work settings. Additionally, studies like Loftus and Palmer's experiment on leading questions have significantly impacted forensic psychology and eyewitness testimony, demonstrating the cognitive approach's valuable contributions to psychology and society.

The cognitive approach predominantly employs experiments as its primary research methodology. Experiments offer the advantage of determining cause-and-effect relationships and allowing for high control over confounding variables, thereby ensuring internal validity. Examples of experiments in cognitive psychology include Loftus and Palmer's study on leading questions and memory, Baron-Cohen et al.'s investigation into theory of mind, and Fisher et al.'s field experiment on cognitive interviewing techniques.

However, the cognitive approach has limitations. Firstly, it relies heavily on inference, as cognitive processes cannot be directly observed. Critics have argued that this subjective interpretation of findings may lead to self-fulfilling prophecies and compromise internal validity. For instance, Loftus and Palmer's leading questions experiment has been criticized for assuming changes in memory without directly observing memories.

Another weakness of the cognitive approach is its reductionist tendency, neglecting other factors that influence behavior. For example, Palmer and Hollin's study on moral reasoning and decision-making in criminals oversimplified the explanation by attributing differences solely to cognitive decision-making processes. Other studies have demonstrated that biological and environmental factors, such as upbringing, also play a significant role in shaping behavior.

While reductionism can be a strength in terms of simplifying complex phenomena and enabling broader applications, it can also lead to an oversimplification of the complexities of

human behavior. In conclusion, the cognitive approach, while valuable in understanding cognitive processes, should be complemented by other approaches that consider the multifaceted nature of human behavior.

2.2.3 Personality theories

The Big Five personality theory, also known as the Five Factor Model (FFM), is a trait-based approach to understanding personality. Building on Eysenck's personality theory, McCrae and Costa developed the Big Five, which encompasses five broad dimensions of personality: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN).

Each dimension represents a unique aspect of personality: Openness reflects an individual's receptivity to new ideas and experiences; Conscientiousness relates to their discipline and rule-following tendencies; Extraversion encompasses their comfort with social interaction and relationships; Agreeableness pertains to their inclination towards kindness and cooperation; and Neuroticism involves their emotional stability and propensity for negative emotions.

Some researchers propose that certain individuals may be more susceptible to addiction due to an "addictive personality." Eysenck's psychological resource model suggests that drug use becomes a habit when it fulfills a specific purpose aligned with an individual's personality profile, despite potential negative consequences. Eysenck's theory also posits three primary and independent personality dimensions: Psychoticism (P), Neuroticism (N), and Extraversion (E).

The Psychoticism dimension represents a continuum from altruistic to schizophrenic tendencies, characterized by traits such as aggression, coldness, and impulsivity. Neuroticism, on the other hand, is marked by emotional instability, moodiness, and anxiety. Genetic factors are thought to play a significant role in shaping these personality dimensions.

The Big Five personality theory has been influential in understanding individual differences in personality, while Eysenck's work has contributed to the understanding of addiction and personality. However, it is important to note that the concept of an "addictive personality" remains a topic of debate among researchers.

Research has consistently shown that the major personality dimensions have a significant genetic component, with heritability estimates ranging from 40% to 60%. The relationship between drug dependence and these personality dimensions has been extensively investigated, with inconsistent findings regarding Extraversion and drug dependence. However, numerous studies have demonstrated that individuals with substance use disorders, including alcohol, heroin, benzodiazepines, and nicotine, tend to exhibit higher levels of Neuroticism, characterized by increased moodiness, irritability, and anxiety.

While correlational studies suggest a link between Neuroticism and substance use problems, the nature of this relationship remains unclear. It is possible that individuals who develop problematic drug use may become more irritable, moody, or aggressive as a result of their drug use, rather than their personality traits predisposing them to addiction. Furthermore, research on the genetic contributions to personality suggests that dimensions like Neuroticism may indicate a general vulnerability to psychopathology, rather than a specific tendency towards addiction.

Longitudinal studies of children have identified personality attributes that predict substance use later in life, including rebelliousness and nonconventional attitudes. Additionally, research on internet addiction has found no significant correlation with Openness, Extraversion, and Conscientiousness, but a significant negative correlation with Agreeableness and Neuroticism (emotional stability). These findings suggest that maintaining mental health and managing stress may be effective in reducing the risk of internet addiction, as individuals often use the internet as a coping mechanism for stress.

Overall, the relationship between personality dimensions and substance use disorders is complex, and further research is needed to fully understand the underlying mechanisms. However, it is clear that addressing mental health and stress management may be an important strategy in preventing and treating addiction.

2.2.4 Rational Choice Theories

This group of theories seeks to explain why individuals voluntarily engage in self-destructive behavior, a phenomenon exemplified by drug dependence. A hallmark of drug dependence is the impaired control individuals exhibit over their substance use, manifesting in continued use despite a desire to reduce or cease use, using greater amounts or for longer periods than intended. This difficulty may be exacerbated in certain contexts, such as an alcohol-dependent individual encountering a bar after a period of abstinence. Some theorists interpret this as a manifestation of "weakness of will," suggesting that addiction represents a failure to act in accordance with one's own best interests.

From this perspective, drug-dependent individuals face a choice between two options, each with evaluatable future consequences. Despite recognizing the superiority of one option, they may choose the alternative, exemplified by an individual accepting a drink despite having previously decided to stop drinking. Rational choice theory, originating from Adam Smith's work in the 18th century, offers a framework for understanding economic and social behavior. This theory posits that individuals conduct cost-benefit analyses to determine the suitability of options and assumes self-driven rational actions that ultimately benefit the economy.

Rational choice theory encompasses three key concepts: rational actors, self-interest, and the invisible hand. Moreover, the assumption of rationality can be applied to understanding individual behavior in various contexts beyond economics, providing insights into the complexities of human decision-making and action.

Rational choice theory posits that the collective decisions of individual actors will culminate in aggregate social behavior. This theory assumes that individuals possess well-defined preferences among available options, which are characterized by completeness and transitivity. Completeness implies that individuals can compare and rank their preferences, while transitivity ensures that their preferences are consistent and logical. Rational actors will then conduct a cost-benefit analysis, utilizing various criteria to make an optimal choice that aligns with their self-determined goals.

Instrumental rationality, a variant of rationality, involves achieving a goal through the most efficient means possible, without questioning the goal's inherent value. Notably, these goals can encompass not only self-interested, materialistic, and selfish motivations but also altruistic, other-regarding, and ideational objectives, as emphasized by Duncan Snidal.

Rational choice theory aims to predict the outcomes and patterns of choice, rather than describing the decision-making process itself. Consequently, it assumes individuals act in their self-interest, embodying the concept of homo economicus. Proponents of this approach, particularly those affiliated with the Chicago school of economics, acknowledge that the assumptions underlying these models may not accurately reflect reality. Instead, they argue that the value of a theory lies in its ability to generate testable, falsifiable hypotheses. The success of a hypothesis is then determined by empirical testing, as exemplified by Milton Friedman's analogy of a theory explaining the behavior of tree leaves through rationality, which would be considered successful if it passes empirical scrutiny.

The rationality assumption underlying rational choice theory may be difficult to empirically test or falsify without explicitly defining the individual's goals or preferences. However, specific versions of the theory, such as expected utility theory, generate testable predictions. In recent years, the findings of behavioral economics have challenged these predictions, prompting economists to draw on insights from fields like psychology to refine their theories of human decision-making.

Rational choice theory posits that human action involves two outcomes: firstly, selecting a feasible region from all possible actions, and secondly, choosing an option within that region based on constraints such as financial, legal, social, physical, or emotional limitations. The chosen option is then determined by the individual's preference order. It is important to note that the concept of rationality in rational choice theory differs from its colloquial and philosophical uses, where "rational" often connotes "sensible," "predictable," or "thoughtful." In contrast, rational choice theory employs a narrower definition of rationality, requiring behavior to be reflective and consistent across time and different choice situations. Specifically, behavior is considered irrational only if it is logically incoherent or self-contradictory.

Early neoclassical economists, such as William Stanley Jevons, posited that agents make consumption choices to maximize their utility or happiness. In contrast, contemporary rational choice theory is grounded in a set of choice axioms that require consistent preference rankings, without specifying the origin of goals or preferences. Individuals select the optimal action based on their personal preferences and constraints. The fundamental premise of rational choice theory is that individual decisions aggregate to form collective social behavior.

At the individual level, the theory suggests that agents choose the action or outcome that maximizes their preferences. When evaluating actions or outcomes in terms of costs and benefits, rational individuals select the option with the highest net benefit. Rational behavior is not solely motivated by monetary gain, but can also be driven by emotional motives. The theory applies to various contexts beyond cost-benefit analysis, encompassing general decision-making scenarios. Rational decision-making involves selecting the most preferred alternative from available options, which can be actions or objects. In the case of actions, individuals are concerned with the outcomes resulting from each possible action, using actions as a means to achieve desired outcomes.

However, a challenge arises in determining whether an individual knew at the time of acceptance that their chosen action was less preferred. They may have made a considered decision beforehand and later regretted it, but it is difficult to ascertain their thoughts at the time of acceptance.

Research in behavioral psychology has largely discredited the validity of Rational Choice Theory, leading to the development of alternative theories such as Prospect Theory. This new perspective can be seen as a revision or alternative to Rational Choice Theory, but also as a fundamental critique that challenges the underlying assumptions of the theory. Specifically, the concept of homo economicus, which posits that humans behave rationally, is disputed by the findings of behavioral psychology, which suggest that humans do not always act rationally, even according to a narrow definition of rationality.

Daniel Kahneman's work has been built upon by researchers such as Jonathan Haidt, who have further explored the limitations of Rational Choice Theory. Nevertheless, this theory remains the foundation of neoliberal economic theory, as it provides a philosophical justification for the autonomous rational agent and the free-market paradigm. Without this basis, the ethical and pragmatic arguments for maintaining the dominant economic model would collapse.

In contrast, some theorists argue that individuals with drug dependence do make rational choices in their continued drug use. These theories aim to explain how rational individuals can become trapped in a suboptimal consumption pattern and continue to act against their own best interests. Several attempts to explain this paradox have focused on individuals' ability to weigh present and future benefits, including their ability to consider immediate rewards versus longer-term benefits. One approach suggests that individuals have a limited ability to consider future benefits, known as "cognitive myopia," which makes the choice to use drugs at a particular time rational given the available options. Two other

approaches propose that individuals do consider a range of future benefits but differentially weight present and future benefits, giving greater weight to the present.

2.2.5 Psychodynamic Theory

Although Freud himself did not write about loneliness, several others following in the psychodynamic tradition did. In the first psychodynamic publishing, the first psychological analysis of loneliness was portrayed. It distinguished being lonesome from being lonely. Being lonesome is a "normal" and transient state of mind" resulting from missing somebody specific. Loneliness is an overwhelming, persistent experience. No matter what one does, loneliness is an "inner worm" that gnaws at the heart. Loneliness reflects basic traits of narcissism, megalo mania, and hostility. The lonely person retains infantile feelings of personal omnipotence, is egocentric, and wants to show off before an audience in order to "show others up." "The lonely individual seldom fails to display an ill-disguised or open hatred" directed either inward or outward toward others.

The theorytraces the origins of loneliness to the crib. The infant learns the joys of being loved and admired, plus the shock of being a small, weak creature having to wait for others to gratify its needs. This implies that we have the quintessence of what later becomes a narcissistic orientation

Here is the nucleus of hostility, hatred, and impotent aggression of the lonely. Psychodynamics also saw the roots of adult loneliness in childhood. The theory postulated a driving need for human intimacy. This need first appears in the infant's desire for contact. In preadolescence, it takes the form of needing a chum, someone with whom to exchange intimate information. Youngsters who lack social skills because of faulty interaction with their parents during childhood are apt to have difficulty forming a friendship. This inability to satisfy the preadolescent need for intimacy can lead to fully-blown loneliness. Fromm- article is probably the most widely cited, early paper on loneliness. She acknowledged Sullivan's

contribution to her thinking, and agreed with his view that loneliness is an “exceedingly unpleasant and driving experience.” Based on her work with schizophrenics, Fromm Reichmannclaimed that loneliness is an extreme state. The kind of loneliness beingdiscussed is non-constructive [and it] leads ultimately to the development of psychotic states. It renders people emotionally paralyzed and helpless. Some scholars also noted the harmful consequences of "premature weaning from mothering tenderness."

In terms of our three comparative concerns, the position of psychodynamic theorists is clear. Their observations on loneliness stemmed largely from their work in clinical settings. Perhaps because of this, they are prone to see loneliness as pathological. Probably more so than any other group, psycho dynamically oriented theorists attribute loneliness to early influences. While these early experiences may have been interpersonal in nature, the focus of this tradition is on how factors within the individual (i.e., traits and intra psychic conflicts) lead to loneliness.

Within the psychodynamic approach, psychoanalytic theory posits that unconscious psychological conflicts govern human behavior. Sigmund Freud, the founder of psychoanalysis, developed these concepts based on his extensive clinical observations of patients with neuroses and psychoanalytic sessions. Freud identified three levels of consciousness: the conscious, subconscious, and unconscious, which describe the accessibility of mental processes to awareness. He believed that the most significant psychic events occur in the unconscious, which is instinctive and detached from reality.

Freud’s theory of human personality comprises three structural components: the ID, EGO, and SUPEREGO. The ID, the instinctive core of personality, is primitive, impulsive, and driven by the pleasure principle. It employs reflex reactions and primary processes to achieve immediate gratification of instinctual impulses. The EGO, the rational aspect of personality, operates according to the reality principle, developing action plans to satisfy the ID’s requirements within the constraints of the social world and individual consciousness.

The EGO resolves conflicts through secondary processes. The SUPEREGO, the moral component of personality, emerges later in development and consists of two structures: the conscience and Ego ideal.

Also, when the underlying psychological issues are addressed, the addiction will cease to exist. For example, one who is addicted to taking sweet things could have the craving coming from basis of sickness or even a triggering of actions (behaviourist theory) thus making the individual crave the sweets. However, if the cause of the Addiction could be found our and dealt with, this could bring about wholeness in the individual. Individuals in themselves, do not love their state of addictions. Thus I'd loneliness or shyness or impulsivity could be sought out, it will be easy to sort out the internet addiction disorder (IAD).

2.2.6 Attachment Theory

Attachment theory posits that interpersonal relationships and bonds, particularly those of a long-term nature, are a fundamental aspect of human development and functioning. This theoretical framework seeks to elucidate the psychological mechanisms underlying the formation and maintenance of emotional bonds between individuals, including parent-child and romantic relationships. According to attachment theory, humans are born with an innate propensity to form attachments with caregivers, which serves as a crucial adaptive function in early childhood. These initial attachments play a significant role in shaping subsequent attachment patterns throughout the lifespan, influencing relationships and bonding experiences in adulthood.

John Bowlby, a British psychologist, is credited as the pioneer of attachment theory, defining attachment as a lasting psychological connectedness between human beings. Bowlby's work focused on understanding the distress and anxiety experienced by children during separation from their primary caregivers, a phenomenon that had been previously attributed to pleasure-based attachment theories. These theories suggested that infants form

attachments to their caregivers due to the fulfillment of oral needs, as described in the oral stage of development.

In contrast, however, early behavioral theories posited that attachment is a learned behavior, resulting from the feeding relationship between the child and caregiver. According to this standpoint, the caregiver's provision of nourishment leads to the child's attachment. Nevertheless, Bowlby's attachment theory challenged these earlier views, proposing a more complex and multifaceted understanding of attachment as an evolutionary adaptation crucial for survival and development.

Mary Ainsworth's seminal research in the 1970s built upon Bowlby's foundational work, significantly advancing our understanding of attachment. Her innovative "strange situation" study, which observed children aged 12-18 months responding to brief separations and reunions with their mothers, revealed the profound impact of attachment on behavioral patterns. Ainsworth's study identified three primary attachment styles: secure attachment, ambivalent-insecure attachment, and avoidant-insecure attachment. Subsequent research by Main and Solomon expanded upon this framework, introducing a fourth attachment style, disorganized-insecure attachment, characterized by disoriented and disorganized behavior in response to separation and reunion. These attachment styles have since been widely recognized as fundamental to understanding human attachment and development.

Bowlby's work marked a significant shift in understanding attachment, highlighting the importance of the child-caregiver relationship and its impact on subsequent development. His theory has since been extensively researched and expanded upon, shaping our understanding of attachment and its role in human relationships.

Attachment is a profound emotional bond that forms between individuals, with the earliest relationships between children and their caregivers having a lasting impact across the lifespan. According to Bowlby, attachment serves a critical function in ensuring the infant's

proximity to the mother, thereby enhancing the child's chances of survival. This perspective posits that attachment is an evolutionary adaptation, shaped by natural selection to promote survival and development.

As a form of critique to behavioral theorists that suggest attachment is a learned process, Bowlby and other attachment theorists propose that children are born with an innate drive to form attachments with caregivers. Throughout human history, children who maintained proximity to an attachment figure were more likely to receive comfort, protection, and nourishment, thereby increasing their likelihood of survival to adulthood. Through this process of natural selection, a complex motivational system evolved to regulate attachment, influencing the formation and maintenance of emotional bonds across the lifespan. Successful attachment is determined by a complex array of factors, with behaviorists initially proposing that the provision of food was the primary driver of attachment behavior. However, Bowlby and other attachment theorists challenged this view, demonstrating that nurturance and responsiveness are the key determinants of attachment. Specifically, the quality of the caregiver's response to the child's needs, including their sensitivity, warmth, and consistency, plays a crucial role in shaping the attachment bond. This attachment bond, in turn, has a profound impact on the child's emotional and social development, influencing their ability to form healthy relationships and regulate their emotions throughout life.

Through research, Schaffer and Emerson charted four distinctive stages of attachment. Firstly is the pre-attachment stage, which spans from birth to three months. In this stage, infants do not exhibit a specific attachment to a particular caregiver, instead, they rely on innate signals, such as crying and fussing, to attract the attention of caregivers. The infant's positive responses, like smiling and cooing, reinforce the caregiver's presence, fostering a rudimentary connection. As infants progress to the indiscriminate attachment phase, typically between six weeks and seven months, they begin to display preferences for primary and secondary caregivers. This marks the onset of trust development, as infants learn to rely on

their caregivers to respond to their needs. Although they still accept care from others, infants start to differentiate between familiar and unfamiliar individuals, exhibiting more positive responses to their primary caregiver. This phase lays the groundwork for the formation of attachment relationships. Then comes the discriminate attachment (7-11 months), during which infants exhibit a pronounced attachment to a specific individual, characterized by a strong preference for this primary attachment figure. This attachment is accompanied by separation anxiety, manifested in protests and distress when separated from the primary caregiver. Additionally, infants begin to display stranger anxiety, demonstrating wariness and apprehension around unfamiliar individuals. After about 9 months, as infants develop, they form additional strong emotional bonds with other caregivers beyond the primary attachment figure. This stag is called Multiple Attachments Stage. This expansion of attachment relationships typically includes secondary caregivers such as a second parent, older siblings, and grandparents. This phase marks a significant milestone in attachment development, as children learn to navigate and form meaningful connections with multiple individuals.

Four distinct patterns of attachment have been identified, each characterized by unique behavioral and emotional responses.

1. Ambivalent Attachment (7-15%): Characterized by extreme distress upon parental departure, ambivalent attachment results from inconsistent or unreliable caregiving, leading to uncertainty and insecurity.
2. Avoidant Attachment: Children with an avoidant attachment style tend to eschew social interaction, exhibiting no preference between familiar caregivers and strangers. This may stem from punitive or neglectful caregiving, conditioning children to avoid seeking support.
3. Disorganized Attachment: Marked by a confusing array of behaviors, disorganized attachment is characterized by disorientation, daze, or confusion. Inconsistent

caregiver behavior may lead to a lack of clear attachment patterns, causing children to experience fear and uncertainty.

4. Secure Attachment (most common): Securely attached children exhibit distress upon separation and joy upon reunion, trusting in their caregiver's return. When frightened, they comfortably seek reassurance from caregivers, exemplifying a healthy attachment dynamic.

These attachment styles significantly impact children's emotional and social development, influencing their relationships and coping mechanisms throughout life. With its only strength being direct observation, Bowlby was able to directly observe parental separation's harm in evacuating children from bombing during WWII, thus, strengthening his hospital research indicating it profoundly impacts children's emotional and behavioral development. There was a lot of critique given to Bowlby's theory. Ranging from Limited data (the supporting evidence that Bowlby provided was in the form of clinical interviews of, and retrospective data on, those who had and had not been separated from their primary caregiver), to weakness of correlational data (meaning it only showed a relationship between the variables. It failed to show a cause-and-effect relationship between separation from the mother and the development of affectionless psychopathy). There was also the problem of Researcher bias as the study was vulnerable to researcher bias. Bowlby conducted the psychiatric assessments himself and made the diagnosis of Affectionless Psychopathy. He knew whether the children were in the 'theft group' or the control group. Consequently, his findings may have been unconsciously influenced by his own expectations. This potentially undermines their validity.

Attachment theory posits that early relationships with care givers shape attachment styles, influencing adult relationships and behaviors. Insecure attachment styles, such as anxious or avoidant attachment, can increase the risk of Internet Addiction. Loneliness, a

common correlate of Internet Addiction, can be linked to attachment theory through the concept of attachment avoidance. Individuals with attachment avoidance tend to shy away from social interactions and intimacy, leading to increased feelings of loneliness. This loneliness may drive them to seek comfort and connection through excessive internet use, potentially leading to addiction. Shyness, another precursor to Internet Addiction, can be connected to attachment theory through the lens of social anxiety. Individuals with anxious attachment styles may experience heightened social anxiety, leading to shyness and avoidance of social interactions. The internet may provide a sense of comfort and security for these individuals, leading to excessive use and potential addiction. Impulsivity, a key factor in Internet Addiction, can be linked to attachment theory through the concept of attachment dysregulation. Individuals with insecure attachment styles may struggle with emotional regulation, leading to impulsive behaviors. The instant gratification and constant novelty of the internet may activate the brain's reward system, reinforcing impulsive behaviors and potentially leading to addiction.

In summary, attachment theory provides a framework for understanding how loneliness, shyness, and impulsivity can contribute to Internet Addiction. Insecure attachment styles, such as attachment avoidance and anxious attachment, can increase the risk of Internet Addiction by driving individuals to seek comfort and connection through excessive internet use, and by leading to impulsive behaviors and emotional dysregulation.

2.3 Empirical Review

2.3.0 Factors causing Internet Addiction Disorder and Prevalence

Internet addiction is a growing mental health issue worldwide, affecting a significant portion of the population. Any addiction that stems from uncontrolled motivation will always involve a loss of control, leading to engrossment and continuous usage, which can create behavioral problems. The continuous evolution of technology in mass media can have

unintended psychological effects, potentially impacting work and study performance. The increasing duration of internet use is a significant contributing factor to ancillary problems. While most people acknowledge the internet as an efficient tool that can benefit users, addiction is a lesser-recognized consequence. Excessive usage, however, can have severe negative effects.

Currently, more than 47% of the global population uses the internet, up from 43% in 2016. In India, approximately 323 million people access the internet via mobile phones, a number expected to rise to 524.5 million (37.4% of the total population) by 2021. Globally, 55.1% of the population uses the internet, with China having the highest number of internet users (746 million) and India having the second-highest (391 million). Most internet users are male, aged between 16 and 45 years. Excessive internet use can lead to aggressive behavior (including hunger and loss of control), social isolation, and negative impacts on daily life, relationships, and productivity, potentially resulting in marital failure, academic underachievement, job loss, and financial difficulties.

A research study revealed that 86.6% of teenagers in Saudi Arabia have used the internet. Regarding internet addiction among teenagers, the study found that 0.9% were severely addicted, 45.3% were moderately addicted, and 47.7% were mildly addicted. The study employed a questionnaire based on Widyanto's Revised Edition, which adapted the cultural structure of Young's Diagnostic Test (YDQ) to assess internet addiction. A later version of this measurement, called the Internet Addiction Test (IAT), was used to evaluate the factors resulting from excessive internet use. Although the IAT has been used for 2-3 decades, its relevance persists in understanding the causal factors of internet addiction. This measurement is also useful in examining the relationship between internet use and psychological diseases, including the severity of internet addiction.

The measurement test utilizes a Likert Scale to assess problematic internet use, building confidence in the dimension and its application in behavioral science research. The

tools employed include the Problematic Internet Use Questionnaire (IAT) by Young and the Pathological Gambling Questionnaire. The specificity of these tools enables the measurement of internet addiction from three angles: engrossment with online usage, negative effects resulting from online usage (including social interaction), and online cognitive scales. The Turkish Style Scale, comprising 36 items, evaluates transactions using a 7-score Likert Scale measurement. Minority aspects, such as reduced motivation control, are also assessed, including statements like: "I have used the internet more than I should" (loneliness/melancholy), "I feel so bored with myself that I can't stop using the internet" (feeling of social safety), "When I have online usage, I feel free" (deviation of interest), and "I will always use the internet to avoid doing other things that won't make me happy" (level of internet addiction). The Cronbach's Alpha value of 0.91 demonstrates the reliability of this measurement form.

The Pathological Internet Use Scale (PIUS), developed by Morahan-Martin and Schumacher, is a 13-item measurement tool that assesses the negative consequences of internet use, including its impact on study results, personal and social behavior, psychological effects, and other aspects. Additionally, the Generalised Problematic Internet Use Scale, developed by Caplan, evaluates seven key dimensions, including emotional regulation, social benefits, negative consequences, duplicate usage, excessive online time, separation, and social control. These measurements have been employed in various research studies examining internet use and addiction across different regions and social groups. While internet addiction is a widely recognized issue, each research study has highlighted specific topics or problems, such as the impact of internet use on mental health, social relationships, and productivity, among others.

Despite the growing body of research exploring the relationship between Internet addiction (IA) and quality of life, a systematic review and meta-analysis have been notably absent, to the best of the authors' knowledge[53]. The first study investigating IA and quality of

life was published in 2013, and since then, numerous studies have examined the association between IA and sleep over the past seven years. This cumulative evidence warrants a comprehensive summary. This review addresses this gap by conducting the first meta-analysis to explore the relationship between IA and quality of life, utilizing empirical evidence from the past seven years. Following the PRISMA guidelines, 18 studies with a total of 11,097 participants were included in this meta-analysis. The high analytical power for each dimension of quality of life suggests that the results were not significantly impacted by heterogeneity, potentially due to the large sample size. The meta-analysis reveals significant differences in quality of life based on Internet usage patterns. Specifically, individuals with high IA tend to score lower on quality of life measures compared to those with normal Internet use (OR: 2.45). This finding aligns with previous studies in the field, suggesting that IA is independently correlated with all aspects of quality of life, even after controlling for background variables that influence quality of life.

The meta-analysis of 11 studies reveals a significant association between Internet addiction (IA) and a decline in overall quality of life (OR: 0.39; $p < 0.001$). This finding is consistent across most studies, with the exception of one. The included studies encompass a diverse range of populations, with sample sizes varying from 60 (India) to 1447 (Philippines), and were conducted across 11 countries, primarily in Asia (n = 11), followed by Europe (n = 5) and the USA (n = 2). Notably, no publication bias was detected using the Egger and Begg tests. The methodological quality of the studies, assessed using the STROBE checklist and standard measurement tools, was moderate to high, minimizing potential concerns.

The results indicate a significant negative relationship between IA and quality of life in both psychological (OR = 0.56; $p < 0.001$) and physical dimensions (OR = 0.58; $p < 0.001$). However, inconsistent findings are reported across studies examining the impact of IA on quality of life dimensions. For instance, some studies found that IA decreased physical quality of life, while others reported reductions in psychological, social, and environmental

aspects. These discrepancies may be attributed to the limited number of cross-sectional studies, which hinder causal inferences, as well as differences in contexts and the neglect of underlying factors influencing quality of life dimensions, such as unemployment, chronic diseases, and mental health disorders (e.g., depression, negative feelings, and stress).

In contrast, a study conducted in Taiwan found that three specific manifestations of Internet addiction (IA) – compulsive, interpersonal, health, and time management problems – were associated with reduced physical dimensions of quality of life (QOL) among college students. This may be attributed to the fact that individuals with higher compulsivity may have impaired control over Internet use, leading to the development of other IA problems, such as unhealthy lifestyles (e.g., poor diet and sleep deprivation), which can negatively impact physical QOL. Furthermore, compulsive Internet use may also contribute to poor mental health (e.g., depression, loneliness, anxiety, and stress), which can harm psychological health-related QOL. A longitudinal study in Hong Kong found that time management problems (e.g., staying online longer than intended) were the most common among participants during the study period. These findings highlight the need for IA intervention programs focused on time management, self-regulation, and self-efficacy to prevent the deterioration of IA-related physical health and overall QOL.

According to a study by Diotaiuti et al., a significant proportion of young adults (one-third of the sample) were in the addiction phase, while another third exhibited Internet abuse behavior. This suggests a lack of control over Internet use among the young adults surveyed. However, it's important to note that the classification of "abuse" might be overestimated due to the instrument being developed in 2005, when Internet and social media use were less prevalent. Over time, Internet use has increased significantly, especially among young people, due to expanded connectivity and natural behavioral evolution. Additionally, messaging for social interactions has become more widespread.

It's crucial to consider that the UADI measure doesn't distinguish between various forms of addiction (smartphone, social media, cybersex, game addiction), instead measuring general prevalence. Given current developments, it's essential to provide adequate distinctions between different types of addiction and affected areas.

Considering the survey was conducted after the peak of the COVID-19 pandemic in Italy, which imposed prolonged isolation and reduced direct contacts, it's likely that these percentages are influenced by social isolation and compensatory Internet use. The results align with Salarvand et al.'s study among university students.

Literature from the COVID-19 lockdown period reveals increased rates of general addiction compared to pre-COVID times. For instance, Burkauskas, found a 1.6-fold increase in Internet Gaming Disorder (IGD) and a 1.5-fold increase in Problematic Internet Use (PIU). Similarly, PIU increased 1.6 times during the pandemic among both adults and young people. This surge is particularly concerning among young adults, as noted in studies like Zhao estimation of 28.4% PIU prevalence among university students and Mohler-Kuo finding of 21.3% PIU prevalence among young adults in Switzerland.

A recent meta-analysis sheds light on the varying incidence of specific Internet addiction modes, drawing from 504 studies across 64 countries conducted before November 2021. The study reveals prevalence estimates of:

- 26.99% (95% CI, 22.73–31.73) for smartphone addiction
- 17.42% (95% CI, 12.42–23.89) for social media addiction
- 14.22% (95% CI, 12.90–15.65) for Internet addiction
- 8.23% (95% CI, 5.75–11.66) for cybersex addiction
- 6.04% (95% CI, 4.80–7.57) for game addiction

It is important to note that differences in prevalence estimates among studies may be attributed to the instruments used. In our case, the UADI-2 results may be subject to overestimation due to the lack of classificatory articulation and normative update.

However, the enforced isolation during the pandemic has created a vicious cycle, driving individuals to seek comfort, entertainment, distraction, and relief on the Internet, thereby avoiding real-life discomforts that remain unresolved. The Internet serves as a deterrent and escape route for people struggling with socialization, particularly those with character traits like shyness or experiencing social isolation. New technologies and social networks offer an intense and satisfying emotional experience, albeit in virtual dimensions. This can lead to an illusory and gratifying world, enabling individuals to overcome difficulties and inhibitions in real interactions, thereby triggering pathological mechanisms that severely impact social relationships, financial situations, and mental health.

Internet addictions are more prevalent among individuals with underlying emotional vulnerabilities[66]. They often affect people already experiencing psychological difficulties, such as depression, obsessive-compulsive disorders, and anxiety disorders. Excessive and improper mobile phone and Internet use can lead to social isolation, relational insecurities, fear of rejection, feelings of inadequacy, and a need for external support. Additionally, ludopathy, or addiction to games and gambling, is another form of Internet addiction, to which mobile devices significantly contribute.

The findings highlighted a male predominance in Internet addiction, consistent with other studies from the same period. Literature suggests that men are more drawn to sex sites and online games, while women engage more in chat room flirting. Men prefer visual stimuli and focus on sexual experiences, whereas women prioritize relationships and interactions. These characteristics align with our findings on gender differences in UADI-2 addiction scale components. Males scored significantly higher on the dissociation scale, linked to increased gaming, and on the identity and sexuality scale, related to searching for sexually oriented content or masking one's identity in chat rooms or role-playing games. Although no gender differences were found in specific addiction symptoms, the negative impact on daily life (work, study, social relationships, general wellbeing) was more pronounced among males.

The results of a study done on Croatian students showed that 3.4% of high school students reported high levels of internet addiction, while 35.4% of respondents reported some signs of addiction. Three-factor structure of IAT was obtained with dimensions: Emotional and cognitive internet preoccupation, then Neglecting work and lack of self-control and the last one is Social problems. Although the first factor has the most significant role in internet addiction risk, gender differences were found only in the last two factors, where boys have higher scores on Social Problems, while girls have higher scores on Neglecting work and lack of self-control.

The advent of technology has led to a significant issue of Internet and smartphone addiction, particularly among adolescents and young adults. Our study revealed that working girls exhibited higher levels of loneliness and smartphone addiction, which may be attributed to their greater need for emotional and social support compared to boys. Literature suggests that girls tend to have higher addiction levels, while boys experience higher loneliness levels.

A supportive family environment is crucial for children's well-being, where they feel loved, secure, and have their needs met. Research indicates that children lacking parental, peer, and environmental support, or those with poor relationships, are more likely to exhibit addictive behaviors and experience loneliness. Similarly, our study found that young individuals who have lost a parent or have weak peer relationships tend to exhibit addictive behaviors and feel lonely.

The purposes of Internet and smartphone use among working youth can influence their dependency behaviors. Previous studies have shown that adolescents who spend time on social media and game sites have higher addiction levels. Online activities can increase the use of these websites over time, and studies have linked children's online activities to loneliness and poor interpersonal relationships. However, it is unclear whether loneliness is a cause or result. It was found, in a study, that working youth interact mainly with adults, making them the only young person in their workplace. This may lead to loneliness and

inadequate peer relationships, forcing them to use the Internet and smartphones more frequently. In this case, loneliness and inadequate peer relationships can be considered causes rather than results. School life is a critical period for social interaction, and children with social environment problems can be affected psychologically and behaviorally. Current studies have shown that children and adolescents exhibit Internet and smartphone addiction behaviors, which may be related to poor peer relationships and loneliness.

The rapid physical, mental, psychological, and social changes that occur during puberty may be disrupted when children enter the workforce, potentially hindering their psychosocial development. Research suggests that Internet use can perpetuate a vicious cycle of loneliness, noting that loneliness fosters computer/Internet use, which in turn exacerbates loneliness. Studies have consistently shown that excessive Internet use is linked to increased loneliness and poorer social skills, as seen in Ghassemzadeh study of high school students. Additionally, Ni et al.'s research found that freshmen college students who are away from home are more likely to become Internet addicts, possibly due to homesickness and unfamiliarity with their new environment, as well as a lack of parental monitoring.

Caplan's model suggests that a preference for online social interaction can lead to obsessive Internet use, resulting in negative outcomes such as decreased family communication and a reduced social circle. Excessive Internet use has also been shown to decrease interaction with family members and diminish social circles, while increasing loneliness. However, Young and Rodgers argue that the Internet's interactive facilities can make users feel connected, potentially preventing feelings of loneliness. Nevertheless, Yao and Zhong note that online social contacts cannot replace offline interactions. Research has also found that dependent Internet users prefer using the Internet for social and interactive purposes, while non-dependent users utilize it more for information gathering (Young). Prisbell warns that lonely individuals may struggle to initiate face-to-face interactions or may be less willing to do so.

2.3.1 Lonliness and Internet Addiction

A small-medium positive association between loneliness and PIU has been reported in several cross-sectional studies. However, the association becomes weaker when other variable s are controlled for. Longitudinal studies suggest a dynamic relationship between PIU and loneliness. There is ample evidence that PIU and loneliness are positively associated, but care should be taken to control for other related variables. Over time, PIU and loneliness seem to be linked in a vicious cycle, with PIU as a possible starting point.

A recent study aimed to investigate the relationship between loneliness, Internet addiction, and demographic variables among college students. The study, conducted at a public university in Turkey, collected data from 489 students using the UCLA Loneliness Scale and Internet Addiction Test. The results showed that younger students experienced more loneliness than older students, and those in lower academic classes felt more isolated than their peers in upper classes. Furthermore, frequent computer, smartphone, and social media use was linked to increased Internet addiction. The study found significant correlations between loneliness, Internet addiction, age, and Cumulative Grade Point Average (CGPA), with loneliness and CGPA emerging as significant predictors of Internet addiction.

This study's findings are crucial in understanding the psychological factors contributing to the growing issue of technology addiction among young people. By identifying the impact of loneliness on Internet addiction, we can develop effective strategies to prevent and address this problem.

A study conducted by at the University of Shkodra yielded intriguing results[13]. The findings revealed no significant difference in internet addiction levels between male and female students ($t(149) = 0.6$, $p = 0.5$, $p > a$). Notably, only a small percentage (2%) of students were classified as internet addicts, while 16.6% were identified as problematic internet users. This rate is comparable to previous studies.[7,17] However, a study among

university students found a significantly higher rate of internet addiction (30%), which contrasts with the present study's findings.

Moreover, the results showed no significant difference in loneliness levels between students ($t(149) = 0.2$, $p = 0.8$, $p > a$). This suggests that University of Shkodra students do not exhibit significant internet addiction or loneliness. This may be attributed to the fact that many students are enrolled in social sciences programs, which emphasize self-help and social skills. The study's second objective was to explore the relationship between internet addiction and loneliness among university students. The results revealed a mild negative correlation ($r(151) = -0.2$, $p < 0.025$) between the two variables. This indicates that excessive internet use is associated with lower levels of loneliness among university students. This may be due to the fact that frequent internet users have opportunities to form online relationships, which can reduce feelings of social loneliness. Previous research has consistently found links between high internet use, internet addiction, and loneliness, although a study of 96 adults found that internet addicts experienced emotional loneliness but not social loneliness.

This study also explored gender differences in internet addiction and loneliness levels. While male students ($M=36.26$, $p>0.05$) showed a slightly higher prevalence of internet addiction compared to female students ($M=34.49$, $p>0.05$), the results were not significant, indicating a small and insignificant difference in internet addiction between genders. This finding is consistent with some studies that found no gender difference in problematic internet use. However, other studies have reported conflicting results, with some finding higher problematic internet use among females and others among males.

Similarly, male students ($M=22.97$, $p>0.05$) experienced slightly higher loneliness levels than female students ($M=22.60$, $p>0.05$), but again, the difference was not significant. This suggests that male students may be experiencing slightly higher levels of loneliness and internet addiction, but the difference is minimal and not statistically significant.

This study aimed to investigate the internet addiction and loneliness levels among college students, as well as the relationship between these variables, Cumulative Grade Point Average (CGPA), and age. A total of 489 college students from a public university in the Mediterranean region of Turkey participated in the study. Contrary to some previous findings, gender did not significantly affect internet addiction levels among college students. While some studies have reported that males are more likely to be internet addicts, others have found no significant gender difference. The current study supports the latter finding, suggesting that gender does not play a significant role in internet addiction among college students.

Besides internet addiction, the current study's findings revealed that gender did not significantly impact the loneliness levels of college students, consistent with Muusses et al.'s findings of no correlation between gender, happiness, and loneliness. Notably, only a small number of participants reported feeling lonely, while the majority did not. Interestingly, students under 21 years old experienced significantly higher loneliness levels compared to their older peers, possibly due to adapting to the university environment. As freshmen, they may not have formed strong friendships yet, but this may change over time as they make new connections and feel less lonely.

Likewise, the study found that social media, PC, and smartphone usage did not significantly influence loneliness levels. This might be because participants could maintain contact with friends and family through social media, reducing feelings of loneliness. However, social media, mobile phone, and PC usage did significantly impact internet addiction levels. As researchers have argued, people don't become addicted to a specific medium, but rather to specific activities like online gambling, social applications (online chatting and social networking sites), which can lead to addictive behaviors.

A study investigated the levels of loneliness and internet addiction among college students, as well as the relationships between these variables, academic performance (CGPA),

and age. The study surveyed 489 college students from a public university in Turkey, and found that: Gender did not significantly impact internet addiction levels, contradicting some previous studies that suggested males are more likely to be internet addicts; Gender also did not affect loneliness levels, consistent with previous findings; Only a small number of participants reported feeling lonely, with students under 21 experiencing significantly higher loneliness levels, possibly due to adapting to university life; Social media, PC, and smartphone usage did not significantly impact loneliness levels, but did significantly impact internet addiction levels and; The study supports the idea that people don't become addicted to a specific medium, but rather to specific activities like online gambling, social applications, and online shopping.

Overall, the study provides insights into the relationships between loneliness, internet addiction, academic performance, and age among college students, highlighting the need for further research and potential interventions to address these issues.

A study explored the relationship between loneliness and internet addiction levels (non-addicted, exposed, and addicted). The findings revealed a significant link between loneliness and internet addiction. Ghasemi et al.'s study highlighted the importance of satisfying needs in explaining internet addiction. Salimi et al.'s research showed that friends and social networks drive internet use, suggesting that the internet serves as a coping mechanism for family loneliness and emotional emptiness, rather than loneliness itself. Booth's study found that the internet provides a welcoming social environment for individuals feeling lonely, offering anonymity and control over social interactions. Hughes' research similarly found that high internet use is associated with low loneliness, indicating that internet use meets social needs. However, internet addiction can exacerbate emotional loneliness due to reduced face-to-face communication. Humberger's study emphasized individual differences in internet use and addiction, suggesting varied effects on mental health.

Considering the research findings, it is recommended to design experimental studies to investigate the causes of internet addiction and communication breakdown among addicted individuals. This could help reduce excessive internet use and address the loss of important relationships. Future research should also explore the predictive relationship between loneliness and internet addiction.

Internet addiction could tend to increase as grade level rises[2]. However, no significant link was found between internet addiction and gender, living arrangements, purpose of internet use, or recreational activities. This may be due to the specific characteristics of the students in the study or the way the independent variables were selected[1]. On the other hand, demographic factors like gender, age, and internet usage frequency may play a crucial role in internet addiction. Notably, it was identified that loneliness could be attributed to being a significant predictor of internet addiction, revealing a negative correlation between the two. As internet addiction increases, loneliness decreases. This finding can be explained by the fact that individuals struggling to form relationships with those around them may turn to internet addiction to meet interpersonal needs and create alternative social connections. Those experiencing difficulties in their social relationships may use the internet to rebuild and maintain relationships, often substituting online communication for face-to-face interaction. This result suggests that the internet serves as a tool for socialization and reducing loneliness among young people. While some studies support this finding, others, like Hamburger and Ben-Artzi's research, have found that internet addiction does not increase loneliness and may even emerge as a result of loneliness.

An additional study aimed to explore the relationship between loneliness and internet addiction in adolescents, as well as the impact of educational qualification on these variables. The results revealed a significant positive correlation between internet addiction and loneliness among university students, indicating that higher internet addiction is associated with higher loneliness, and vice versa[71]. This finding supports the hypothesis of a positive

correlation between loneliness and internet addiction, consistent with previous studies. Internet addiction can lead to feelings of exhaustion, boredom, loneliness, depression, social anxiety, and social deprivation, causing individuals to isolate themselves from the real world and seek alternative connections online.

Loneliness occurs when there is a gap between desired and current relationships, leading to low self-esteem, self-doubt, and sensitivity to emotional conditions. To cope with these feelings, individuals may avoid social interactions and turn to the internet as a defense mechanism, eventually becoming addicted. The study found statistically significant results at the 0.05 level for internet addiction, but no significant difference in loneliness by qualification. However, undergraduates were found to be more addicted to the internet than postgraduates, possibly due to their relatively lower maturity and experience.

In contrast to the previous findings, numerous studies have revealed that individuals with pathological internet use exhibit significantly higher loneliness scores. For instance, Morahan-Martin and Schumacher's survey of 277 undergraduate internet users found that lonely participants relied on the internet for emotional support and were more likely to experience disruptions in their lives due to internet use. Lonely individuals tended to share more personal information, felt more accepted online, and self-disclosed more frequently compared to non-lonely individuals. Similarly, Pawlak found that high school students experiencing high levels of loneliness may turn to the internet to alleviate these feelings, potentially leading to internet addiction. Many studies highlighting the significant relationship between internet addiction and loneliness have emphasized the profound impact of loneliness on internet addiction across various age groups, including children, adolescents, and young adults. The discrepancy in study results may be attributed to socio-economic and socio-cultural differences within the sample populations.

2.3.2 Shyness and Internet Addiction

Shyness is the fear to meet people owing to the reason of being judged and evaluated wrongly. Shyness gives birth to a withdrawn personality. Shyness prevents people to mix up with others. They feel it problematic to meet people face to face. The root cause of this fear is the anxiety of being rejected by the people. Shyness linked with undue monitoring of behavior takes the shape of hesitation; shy personality avoids interaction with people, and as a result, they undergo many advantages as compared to other people. Studies have investigated the divergent viewpoints about shyness and the internet conflict. The first one is that the internet reduces the opportunity of shy individuals to lead a social life. It creates avoidant behavior among them and they avoid real-life situations and interaction with people. The second viewpoint is that the internet promotes healthy social relationships. It minimizes the level of shyness, makes shy individual powerful and allow them to communicate and lead a balanced life in society

Shyness is an anxious preoccupation with imagined and real social situations. There is evidence that parental psychological control has been found to be positively associated with child shyness in China[69]. Moreover, a study performed in Canada has observed that psychological control is related to greater peer exclusion in shy girl. Finnish researchers have shown that psychological control can lead to shy children increasingly internalizing problems[69].

Increasing numbers of studies have observed that shyness can positively predict smartphone and internet addiction[69]. The online disinhibition effect indicated that online social exchange is more attractive for shy persons because it allows for invisibility and anonymity. In this regard, online social exchange is a useful coping strategy for shy persons, resulting in increasing time on smartphones and the internet. In addition, the theory of use and need can explain the associations between shyness and addiction behaviors surrounding the internet and smartphones.

Research has explored the connection between internet addiction and shyness, yielding intriguing findings. Scealy et al.'s study, which surveyed 177 participants using the Internet Use Survey, Social Reticence Scale, and Trait Anxiety Inventory, didn't establish shyness as a direct contributor to internet addiction. However, it revealed that shy and anxious individuals didn't spend more time online than others, but their online activities could lead to isolation. The study predicted that the internet's growing popularity and facilitation of online relationships might exacerbate social isolation for those with high shyness levels, particularly those struggling with offline interactions.

These studies are crucial to our research development. Notably, all studies employed Young's scale to measure internet addiction, while Scealy, Phillips, and Stevenson used the Cheek and Buss shyness scale. Additionally, Johansson and Gotestam's discussion (2002) highlighted that internet addiction is not a culturally specific phenomenon. Although Scealy et al.'s study didn't find shyness to be a direct contributor to internet abuse, it proposed that shyness might lead to excessive internet use for communication, potentially contributing to the isolation of socially inept individuals as the internet becomes more widespread.

A survey of 59 middle school students revealed a gender distribution of 45.3% male and 54.7% female, with 3.8% identified as internet addicts. Among 159 post-secondary students, 34.3% were male and 65.7% were female, with 5.7% classified as internet addicts. Pearson's correlation analysis was conducted to examine the relationships between internet usage, shyness, and internet addiction among both middle and post-secondary school students.

The results indicated a significant positive correlation between shyness and internet addiction ($r=0.344$, $p<0.05$), suggesting that the higher the level of shyness, the more likely an individual is to develop internet addiction. Additionally, middle school students tend to be more publicly withdrawn, making shyness a more influential factor in their internet habits. In contrast, among post-secondary students, the amount of time spent on the internet was the

primary factor influencing internet addiction ($r=0.223$, $p<0.05$), with shyness playing a less significant role.

In a study exploring the relationship between shyness and problematic internet use among students in Pakistan, the following findings emerged. The research team assessed the psychometric accuracy of the tools used by analyzing descriptive statistics and internal consistency levels for all scales. The results showed that the skewness values of all scales fell within an acceptable range, indicating that the study's variables approximated a normal distribution. Additionally, reliability estimates were computed to check the internal consistency of problematic internet use (PIU), shyness, and psychological well-being (PWB). The analysis revealed satisfactory internal consistency, with reliability coefficients of 0.70 for PWB and PIU and 0.80 for shyness.

The study's findings revealed a significant correlation between shyness, PWB, and PIU. Specifically, a positive relationship was found between shyness and PIU, consistent with existing literature. The researchers explained that shy individuals may use the internet to compensate for perceived social deficits in their real-life networks, forming virtual friendships online to alleviate feelings of loneliness and depression. This suggests that the internet provides a medium for shy individuals to communicate with others, which may be viewed as "problematic" according to some psychological measures.

This study's results revealed a significant negative correlation between psychological well-being (PWB) and problematic internet use (PIU), consistent with previous research. Additionally, a significant negative correlation was found between PWB and shyness, aligning with existing literature. A previous study of 50 university students found a negative relationship between PWB and shyness, with gender differences also emerging). Notably, the current study found a higher prevalence of PIU among men, mirroring findings from other Asian countries.

Interestingly, women in this study scored significantly higher in PWB compared to men, supporting previous research (Sharma and Sharma, 2018) that individuals with higher PIU levels tend to have lower PWB. Regression analysis also confirmed the research hypothesis, revealing that shyness positively predicts PIU. This aligns with literature suggesting a link between shyness and PIU in adults. Chak and Leung's study of 722 internet users in Hong Kong found shyness to be a significant predictor of PIU. They also concluded that computer-mediated communication provides an ideal environment for shy individuals, allowing them to feel in control. This supports the Uses and Gratifications (UG) theory, which posits that social factors like shyness contribute to individuals' desire for internet use.

The current study's findings suggest that psychological well-being (PWB) predicts problematic internet use (PIU), with a negative direction indicating that high PWB is associated with low PIU, and vice versa. This aligns with Sharma and Sharma's (2018) findings that PWB negatively predicts internet addiction. Additionally, the results show that gender significantly predicts PIU, with male students being more prone to PIU than female students. This is consistent with previous research indicating that men are more likely to use computers and have favorable attitudes towards computer usage, with more computer experience and knowledge than women.

The study's findings also suggest that social discomfort associated with shyness leads individuals to use the internet to socialize and express emotional needs unmet in offline networks. While the internet offers convenience, it can also lead to problems like PIU, which is more common among male participants in this study. This may be attributed to cultural norms in Pakistan, where men are discouraged from expressing emotions, leading to lower PWB.

The study has significant implications for research and practice, contributing to clinical and counseling psychology by highlighting that individuals with high PIU may be unaware of their problematic internet use. This can lead to dangerous effects like replacing

face-to-face interaction with digital communication, potentially resulting in the loss of significant relationships and self-identity. The study extends knowledge on factors influencing internet addiction in young adulthood, an area with scarce literature.

This pioneering study explores how personality factors and psychological health influence internet addiction in the context of Pakistani culture, yielding valuable insights for clinical and counseling psychology. The findings highlight the crucial role of psychological well-being and shyness in problematic internet use (PIU), enabling clinicians to address underlying conditions like social anxiety and shyness to improve individuals' well-being.

However, some limitations should be acknowledged. The cross-sectional design precludes causal inferences, and the single-university sample may not be representative of all Pakistani students. Self-report measures may have introduced common method variance, compromising construct validity. Additionally, the study focused on general internet use rather than specific domains like social media or gaming addiction.

Future research should address these limitations by:

i. Employing larger, probabilistic samples to enhance external validity.
ii. Using longitudinal designs to establish causal relationships between predictors and internet addiction.
iii. Examining specific domains of problematic internet use, such as social media or gaming addiction.
iv. Incorporating additional variables and models to further understand internet addiction.
v. Investigating differences between day scholars and hostelites regarding personality traits, wellbeing, and internet use.
vi. Exploring the impact of family systems on PIU and developing effective treatments.

By addressing these limitations and suggestions, future research can build upon this groundbreaking study and provide a more comprehensive understanding of internet addiction in Pakistani culture.

2.3.3 Impulsivity and Internet Addiction

Impulsivity is defined as a predisposition that leads to the tendency to behave prematurely and without foresight in ways that are undesirably dangerous or unsuitable to the situation. Impulsivity is often associated with the inhibitory control systems due to an immature frontal lobe that causes adolescents to be at particularly high risk for Internet addiction. Previous studies have revealed that the high level of Internet addiction among adults is positively associated with impulsivity, and adolescents with Internet addiction exhibit increased impulsivity and reduced inhibitory control capacity compared with controls. Many researchers have emphasized the key role of impulsivity in Internet addiction and have argued that impulsivity is an important risk factor for developing Internet addiction and a marker of susceptibility to Internet addiction. Research has consistently shown that impulsivity is a significant risk factor for internet addiction, with studies demonstrating a positive correlation between the two. Impulsivity is defined as the inability to delay gratification or exercise self-control, leading to poorly conceived and risky actions that can result in negative consequences[67].

The American Psychiatric Association defines impulsivity as the failure to resist harmful impulses, drives, or temptations. This trait has been implicated in various behavioral disorders, including gaming addiction and internet addiction. Studies have shown that higher levels of impulsivity predict problematic gaming and other addictive behaviors, such as gambling and substance use. Additionally, research has found that impulsive individuals exhibit difficulties controlling their internet use, leading to a higher risk of internet addiction[67].

Some studies have found a strong positive correlation between internet addiction and impulsivity, while others have found no significant link. However, the majority of research suggests that impulsivity is a significant predictive factor for internet addiction, with high

levels of impulsivity being a good predictor of problematic internet use. Overall, impulsivity plays a crucial role in the development and maintenance of internet addiction, and understanding this relationship is essential for developing effective prevention and treatment strategies[67].

According to impulsiveness theory, students with lower restraint are more likely to prioritize short-term entertainment over long-term goals, increasing their risk of internet addiction[64]. For instance, they might choose to watch internet videos instead of studying for a test. However, not all internet use is harmful; students can use the internet to research topics like nutrition and diets. Students with lower restraint tend to make decisions based on short-term benefits, potentially leading to repeated internet use and addiction. Some researchers argue that these decisions may not be impulsive, suggesting that self-control is unrelated to internet addiction[64].

Previous studies on self-control and internet addiction have yielded mixed results. To clarify this relationship, a meta-analysis of 83 primary studies with 80,681 participants examined whether students with lower self-control had greater internet addiction, and whether age, culture, gender, internet addiction measures, or year moderated these relations. The results showed a positive link between impulsivity and internet addiction ($r = 0.371$, 95% CI = [0.311, 0.427]) and a negative link between restraint and internet addiction ($r = -0.362$, 95% CI = [−0.414, −0.307]). The moderation analysis revealed that the correlation between impulsivity indicators and greater internet addiction was stronger among undergraduates (18–22 years old) than among adolescents (10–17 years old). Additionally, the negative link between a restraint indicator and internet addiction was greater among students in East Asia than those in Western Europe/North America, and among males than females.

These results support Ainslie's theory of impulsiveness[64], suggesting that students with more self-control are less impulsive and less likely to engage in short-term behaviors that can lead to internet addiction. The findings indicate a positive link between impulsivity

and internet addiction, moderated by age, culture, gender, and internet addiction measure[64]. This meta-analysis suggests that self-control is a crucial component of a comprehensive theory of internet addiction[65]. Furthermore, the results imply a potential intervention: future studies can investigate whether interventions aimed at enhancing students' self-control can reduce their internet addiction. The internet addiction severity averaged 39.530 (SD = 13.215), and the BIS-11 mean score was 65.310 ± 11.110.

Zhang et al.'s study conducted a correlation analysis, revealing that motor impulsiveness and nonplanning impulsiveness were positively correlated with internet addiction, while cognitive impulsiveness showed no correlation. This finding suggests that specific impulsivity traits may be crucial in identifying male freshmen at high risk for internet addiction. The BIS-11 assesses the multidimensional personality traits of impulsivity, including motor impulsiveness (reckless behavior and attraction to external stimuli), cognitive impulsiveness (difficulty concentrating), and nonplanning impulsiveness (lack of future planning). High impulsivity males may be more prone to short-sighted decision-making, prioritizing immediate pleasure over long-term consequences, leading to excessive internet use and addiction. Additionally, the drive to succeed in online games and activities may contribute to internet addiction among ambitious male students. Neuroimaging studies have shown that high-impulsive individuals exhibit reduced activity in brain regions responsible for cognitive control, decision-making, and emotional regulation, making it more challenging for them to control online behaviors and increasing their susceptibility to internet addiction.

The collected data indicated a positive correlation between impulsivity and internet addiction, with impulsivity scores increasing as internet addiction severity rose among male college freshmen. This research supports the notion that high internet addiction groups exhibit higher impulsivity than low internet addiction groups, consistent with previous studies. Individuals with internet addiction tend to display elevated impulsivity traits compared to

those without internet addiction[56]. However, a case-control study found no significant association between impulsivity and internet addiction in Chinese male freshmen, which may be attributed to methodological differences, such as the use of the Chinese College Student Mental Health Scale (CCSMHS) versus the BIS.

A study examining the predictive roles of impulsivity and codependency on internet addiction among young adult university students (n = 481) employed hierarchical regression analysis. Participants completed the UADI-2, BIS-11, and SFCDS assessments. Results showed that 38% of participants exhibited internet dependency, while 37.7% demonstrated internet abuse behavior. The findings confirmed impulsivity (β = 0.312) as a predictor of internet addiction and highlighted the significant contribution of relational codependency (β = 0.275), gender (β = 0.174), and age (β = 0.196). Specifically, male participants tended to be more dependent, impulsive, and codependent, with increasing age (18-30) being a significant factor. This study underscores the importance of addressing internet addiction among young adults and suggests that targeted awareness programs and interventions promoting emotional control and balanced relationship management are crucial.

This study investigated the predictive roles of impulsivity and codependency on internet addiction among young adult university students using hierarchical regression analysis. The results confirmed impulsivity's role in internet use problems and highlighted the relative importance of gender and age. The study aimed to evaluate internet abuse and dependence among young adults, clarifying the influences of impulsivity, gender, age, and codependency on internet addiction.

The bivariate correlation analysis confirmed the association between impulsiveness, codependency, and internet addiction. The hierarchical regression analysis supported the study's hypothesis, with impulsivity (β = 0.312) emerging as the primary predictor, consistent with most literature. However, codependency (β = 0.275) also played a significant role, supporting the notion that impulsive individuals may struggle with controlling their internet

use. This finding aligns with studies by Tolulope et al. In Nigeria, Kawa & Sharfi in India, Zhang et al., and Burnay et al., which all highlighted the significant influence of impulsivity on internet addiction. However, it's important to note that Yucens & Uzer's study found no significant relationship between internet addiction severity and impulsivity.

The analysis also revealed a significant prediction of self-esteem on internet addiction (Beta = 0.241; t = 3.912, $p < 0.05$), with self-esteem accounting for approximately 5.8% of the observed variance in internet addiction ($R2 = 0.58$, $p < 0.05$). This suggests that individuals with lower self-esteem may be more susceptible to internet addiction.

2.4 Conceptual Framework

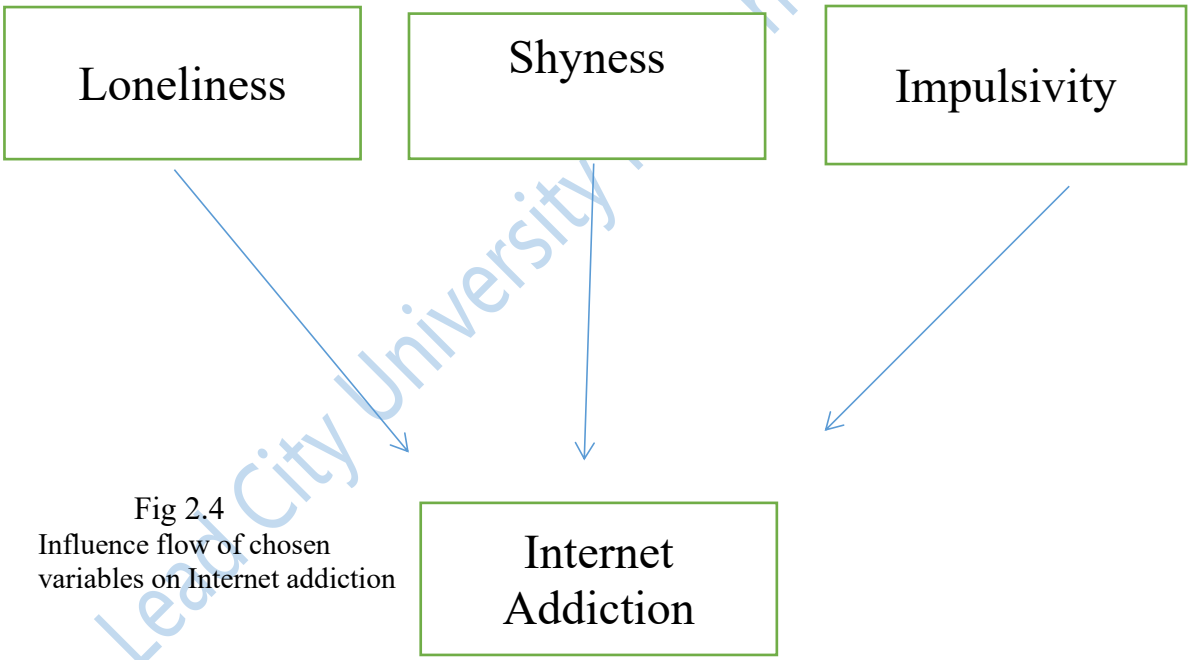

Fig 2.4
Influence flow of chosen variables on Internet addiction

Source: Researcher's Fieldwork, 2024

Internet addiction, characterized by excessive and compulsive internet use, has become a growing concern in today's digital age. This conceptual framework proposes three distinct traits – loneliness, impulsivity, and shyness – as direct pathways to internet addiction. Understanding these pathways is crucial for developing effective prevention and intervention

strategies. Consistent with the extent of literature, internet addiction is a complex phenomenon influenced by an array of factors. As illustrated in Fig 2.4.1, loneliness, shyness and impulsivity emerge as significant predictors of internet use, potentially operating individually or in conjunction to shape an individual's online behaviour. This conceptual framework suggests that this trait may contribute to the development and maintenance of internet addiction, underscoring the importance of considering their roles in the assessment and treatment of this phenomenon

Pathway 1: Loneliness → Internet Addiction.

Loneliness, a pervasive and debilitating emotion, can drive individuals to seek social connection and escape from negative emotions through excessive internet use. Online communities, social media, and virtual relationships may provide a sense of belonging and temporary relief from loneliness. However, excessive internet use can perpetuate loneliness by replacing meaningful face-to-face interactions with digital connections.

Pathway 2: Impulsivity → Internet Addiction

Impulsivity, characterized by a lack of self-control and novelty-seeking behavior, can lead to compulsive internet use. Impulsive individuals may engage in excessive internet use due to the instant gratification and pleasure it provides. The constant availability and accessibility of the internet can trigger impulsive behavior, making it challenging to disengage from excessive use.

Pathway 3: Shyness → Internet Addiction

Shyness, a personality trait marked by social anxiety and fear of social interactions, can lead to excessive internet use as a means to cope with social anxiety. Online communication may provide a sense of comfort and security for shy individuals, allowing them to express themselves more easily. However, excessive internet use can exacerbate social anxiety by reinforcing avoidance of face-to-face interactions.

This conceptual framework highlights the complexity of internet addiction, emphasizing that distinct traits can contribute to its development. By understanding these pathways, researchers and practitioners can develop targeted interventions and prevention programs to address the underlying causes of internet addiction.

Implications:

i. Personalized interventions: Addressing loneliness, impulsivity, and shyness through tailored treatments may lead to more effective outcomes.

ii. Prevention programs: Building social skills, self-regulation, and healthy coping mechanisms can help individuals develop resilience against internet addiction.

iii. Technology design: Developing digital tools and platforms that promote healthy internet use, social connection, and self-control can reduce the likelihood of internet addiction.

By exploring these pathways and their implications, we can work towards mitigating the risks of internet addiction and promoting healthy digital behaviors.

2.5 Summary of Gaps in Literature

After going through literature, Internet Addiction is seen as a problem all over the world and is caused by series of reasons ranging from self-esteem, depression amongst others.

Even in Nigeria, it is one of the major psychological problems or disorders amongst students. Based on the Behaviourist Theory, Internet addiction could be explained as an action that an individual begins and continues to find solace in just to cover up their excesses. However, the issue of loneliness, impulsivity and shyness are not spoken of in the Nigerian context. Although, it could be said that in the Nigerian society, these concepts are not so popular as the social interactions amongst Nigerians is seen to be quite high. However, the study brings to play the interplay between variables and how they influence one another and influence Internet Addiction.

Research on internet addiction has identified loneliness, shyness, and impulsivity as significant risk factors, but there are still notable gaps in the literature. Firstly, while loneliness and shyness have been linked to internet addiction, the underlying mechanisms are not well understood. Further research is needed to explore how these traits contribute to the development and maintenance of internet addiction.

Secondly, impulsivity has been consistently identified as a predictor of internet addiction, but the specific aspects of impulsivity (e.g., motor, cognitive, or non-planning) that contribute to this relationship are unclear. Future studies should aim to clarify the role of different impulsivity facets in internet addiction.

Thirdly, the majority of studies have focused on the individual-level factors, with limited research exploring the interplay between loneliness, shyness, and impulsivity in the context of internet addiction. Investigating the interactions between these traits could provide a more comprehensive understanding of internet addiction.

Lastly, longitudinal designs are necessary to establish the temporal relationships between loneliness, shyness, impulsivity, and internet addiction. This would help determine whether these traits are precursors to internet addiction or consequences of excessive internet use.

Addressing these gaps in the literature could provide a more nuanced understanding of the complex relationships between loneliness, shyness, impulsivity, and internet addiction, ultimately informing effective prevention and intervention strategies.

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Chapter Three

Methodology

3.1 Research Design

The cross-sectional survey research design was used in this study. The survey design was employed because data was collected from different individuals across a particular group at a particular point in time. This design was suitable to enable the researcher to examine the relationship between Shyness, Loneliness, Impulsivity and their relatability to Internet Addiction. While we have Internet Addiction as the Dependent variable, Shyness, Loneliness and Impulsivity are independent variables,

3.2 Research Setting

The study investigated the variables of interest among youths (majorly academic environment), hence the research used Tertiary Institutions in Oyo State such as University of Ibadan, The Polytechnic, Lead City University and Ladoke Akintola University of Technology (LAUTECH) for its research setting. The research also employed the use of google forms, an internet-based platform, to get through to participants who could not be physically present.

3.3 Sampling procedure

The study employed a multi-stage sampling technique to represent sample from the target population. Firstly, the purposive sampling technique was used to select the type of tertiary institutions to be used such as Federal Universities, Private Universities, State Universities and Polytechnics. This is because the view of these chosen clusters will be specific to their world views and rationale. Secondly, the convenience sampling technique was used to select the institutions based on proximity to the research location. Hence, the

institutions, University of Ibadan, Lead City University, Ladoke Akintola University of Technology and The Polytechnic, Ibadan, represented the federal, private, state and polytechnic institutions respectively. Lastly, the purposive sampling technique was employed to interact specifically with students of these institutions. The final sample size consisted of 416 participants with 216 being male and 199 being females.

3.4 Sampling size and participants

The target population for this study comprised students in Tertiary Institutions within Oyo State, Nigeria. With an estimated net population size of 100,000(an addition of undergraduate students in University of Ibadan, Lead City University, The Polytechnic Ibadan and Ladoke Akintola University of Technology), a sample size of 500 was initially calculated using the Krejcie and Morgan table which has a confidence level of 95% and an error margin of ±5%. The population was derived as University of Ibadan has an approximate total of 35,000 undergraduate students, Lead City University has an approximate of 25,000 (twenty-five thousand) undergraduate students, LAUTECH has an approximate of 28,000 (twenty-eight thousand) undergraduate students, and The Polytechnic, Ibadan, has an approximate total of 28,000 (twenty- thousand) students. However, due to response rate limitations, the final sample cons isted of 416 participants. Despite this slight deviation from the initial target, the achieved sample size remains sufficient for drawing reliable conclusions and generalizing findings to the larger population[1].

3.5 Instruments

The research also used the following scales to measure its variables of interest

Section A: Demographic Variable

This section of the questionnaire contains items measuring the demographic information of the participants which include; Age, Gender, Religion and Educational Institutions.

Section B: Internet Addiction Test

The Internet Addiction Test (IAT) is a widely utilized research instrument developed by Dr. Kimberly Young in 1998 to assess the severity of internet addiction or problematic internet use. This self-report measure comprises 20 items, rated on a 5-point Likert scale, and is divided into five categories: salience, withdrawal, tolerance, loss of control, and negative consequences. Total scores range from 20 to 100, with categorizations of normal internet use (20-39), mild internet addiction (40-59), moderate internet addiction (60-79), and severe internet addiction (80-100). The IAT has demonstrated high internal consistency (Cronbach's alpha = 0.90) and test-retest reliability (r = 0.82), as well as construct validity through correlations with other measures of internet addiction and psychological distress.

According to Griffiths' addiction component model, the six-item Internet Addiction Test articulated better psychometrics compared with the original scale and the 12-item internet addiction test. Thus, it may be consistently used to make for a prompt capturing of Internet Addiction in research and clinical practice. Its brevity may support comprehensive assessments by allowing test sequences to include more measures, which may promote efforts for reducing comorbidities and in the long run enhancing recovery.

Section C: Cheek and Buss Shyness scale

The Cheek and Buss Shyness Scale (CBSS) is a widely employed psychological assessment instrument developed by Cheek and Buss to measure individual differences in shyness, characterized by feelings of apprehension, anxiety, and avoidance in social situations.

The CBSS consists of 13 items, each rated on a 5-point Likert scale, and is designed to assess various facets of shyness, including fear of social disapproval, social avoidance, and discomfort in social interactions. Total scores range from 13 to 65, with higher scores indicating greater levels of shyness.

The CBSS has demonstrated high internal consistency (Cronbach's alpha = 0.90) and test-retest reliability (r = 0.83), providing evidence of its reliability and stability. Construct validity has been established through correlations with other measures of shyness and social anxiety, supporting its ability to measure the intended construct.

Factor analysis has revealed two subscales: Social Fear (7 items) and Social Avoidance (6 items), which provide a more nuanced understanding of shyness. The CBSS has been widely used in research and clinical settings to assess shyness and social anxiety in diverse populations, including children, adolescents, and adults.

Generally, the CBSS is a valuable tool to understand individual differences in shyness and social anxiety, and its applications continue to expand our knowledge of these complex psychological constructs.

Section D: RULS-6 Lonliness Scale

The RULS-6 Loneliness Scale is a brief, 6-item self-report measure developed to assess feelings of loneliness and social isolation. This scale is a condensed version of the original 20-item Revised UCLA Loneliness Scale, which was designed to capture the complex and multifaceted nature of loneliness.

The RULS-6 consists of 6 items, each rated on a 4-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often), which assess various aspects of loneliness, including feelings of isolation, disconnection, and emptiness. Total scores range from 6 to 24, with higher scores indicating greater levels of loneliness.

The RULS-6 has demonstrated adequate internal consistency (Cronbach's alpha = 0.85) and test-retest reliability (r = 0.73), supporting its reliability and stability. Construct validity has been established through correlations with other measures of loneliness and social isolation, as well as its ability to distinguish between individuals with varying levels of social connection.

The RULS-6 is a convenient and efficient tool to assess loneliness in various populations, including adults and adolescents. Its brevity and ease of administration make it an attractive option for large-scale studies and clinical settings, where time and resources may be limited.

Section E: Barratt Impulsiveness Scale (BIS-11)

The Barratt Impulsiveness Scale (BIS) is a widely used psychological assessment tool developed by Thomas D. Barratt to measure impulsivity, a multifaceted construct characterized by impulsive thoughts, feelings, and behaviors.

The BIS-11 consists of 25 items, each rated on a 4-point Likert scale (1 = Rarely, 2 = Occasionally, 3 = Often, 4 = Almost Always), which assess various aspects of impulsivity,

including motor impulsivity, cognitive impulsivity, and non-planning impulsivity. Total scores range from 30 to 120, with higher scores indicating greater levels of impulsivity.

The BIS has demonstrated adequate internal consistency (Cronbach's alpha = 0.87) and test-retest reliability (r = 0.83), supporting its reliability and stability. Construct validity has been established through correlations with other measures of impulsivity, as well as its ability to differentiate between individuals with varying levels of impulsive tendencies.

Factor analysis has revealed three subscales: Motor Impulsivity (12 items), Cognitive Impulsivity (8 items), and Non-Planning Impulsivity (10 items), which provide a more nuanced understanding of impulsivity. The BIS has been widely used in research and clinical settings to assess impulsivity in various populations, including adults, adolescents, and children. Overall, the BIS is a valuable tool to understand individual differences in impulsivity and its relationship with various psychological constructs, such as personality traits, cognitive functioning, and mental health outcomes.

The Barratt Impulsiveness Scale was designed to assess the impulsivity construct in three dimensions: attentional, motor and unplanned. The scale has been applied to patients with different diagnoses in which the impulsivity symptoms are characteristic. The BIS is the most widely used self-report measure of impulsive personality traits. As of June 2008, Web of Knowledge (an academic citation indexing and search service) tallied 457 journal citations of the 1995 article which defined the factor structure of the 11th version of the Barratt Impulsiveness Scale. Initially developed in the United States, the BIS-11 has been administered around the world. BIS-1, was released in 1959. The current version, the BIS-11, was released in 1995. However, short versions of the BIS-11 have been developed, its reliability has not been given a firm stand. The BIS-15 developed by Spinella includes 15 of the original 30-item BIS-11 and has been used in several other languages. The BIS-Brief includes eight items of the original 30-item BIS-11.

The BIS-11 scale of 25 items is used to measure both personality and behavioural traits of impulsivity.

3.6. Ethical consideration

The front page of the questionnaire included a consent form that outlined the rights of the participant. It was stated that participation was voluntary and information given would be confidential. Participation in the study was voluntary and participants were free to pull out at any time while filling the questionnaire. Demographics that could trace a participant to his/her response like name, phone number, address, etc., were avoided and intentionally left out. Only the principal investigator had access to the filled questionnaire during the analysis and no response can be traced to any person.

3.7 Research Procedure

Participants were provided with a brief introduction of the research and brief summary of what the research entails and their rights as participants. Interested candidates gave their consent by appending their signatures on the consent form given to them. Those who were willing to participate and gave their consent were administered a survey questionnaire. A total of Five Hundred questionnaires was to be administered across four different Tertiary Institutions in Ibadan but after all the procedures, a total of 416 (four hundred and sixteen) were administered. The data collated was processed by analysis.

3.8 Method of Data Collection

Data was gathered during the working days (Monday to Friday) from students in the Tertiary Institutions. Four research assistants who also doubled as students of the four institutions were also employed to collect data from the students. Students, while at leisure periods, were contacted and told of the brief basis of the study and its benefits and given the

questionnaires to fill. Some of the participants who weren't willing to do the pen-to-paper questionnaire were given a Microsoft Form to fill to which was converted and analyzed.

3.9 Data Analysis

The stated hypotheses i, ii, iii and iv were tested using T-Test while hypothesis v is tested using 2x2 Analysis of Variance (ANOVA). These statistical tools are suitable for testing the stated hypotheses because the researcher wants to predict the value of dependent variable (which is Internet Addiction) based on the value of the three other independent variables (Loneliness, Shyness and Impulsivity). Data collected was analyzed using Statistical Package for the Social Sciences (SPSS) 24 Software.

Endnote

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CHAPTER FOUR

Results and Discussion of Findings

This chapter is the presentation of the findings of the study after statistical analysis of stated hypotheses. Five hypotheses were tested and the results are presented below.

4.1: Demographic Data Analysis

The total number of participants in this study were 416, 216 females (51.9%) and 199 males (47.8%), only 1 (0.2%) did not indicates his or her gender. Their age range was 14 to 38 years (M= 21.39, SD = 3.42). In terms of religious practice 321 (77.2%) of the respondents were Christians, 86 (20.7%) were Muslims, 4 (1.0%) were traditionalist, and 5 (1.2%) while did not indicate their religion. The frequency analysis of institution shows that 122 (29.3%) of the participants were Lead City University students, 120 (28.8%) were university of Ibadan students, 74 (17.8%) were students of the Polytechnics of Ibadan, 97 (23.3%) were LAUTEC students, while 3 (0.7%) did not indicate their institution. Analysis of level of study shows that 74 (17.8%) were in 100 level, 74 (17.8%) were in 200 level, 67 (16.1%) were in 300 level, 96 (23.1%) were in 400 level, 25 (6.9%) were in 500 level, 21 (5.0%) were in ND I, 31 (7.5%) were in ND II, 13 (7.5%) were in HND I, 7 (1.7%) were in HND II and 8 (1.9%) did not indicate their level of study.

Table 4.1 Demographic Profile of Respondents by age, gender, religion, institution, and level of study

Demographic Profile(N=416)	M	(SD)	Range	No	%
Age	21.39	3.42	14 -38		
Gender					
Male				216	51.9
Female				199	47.8
No response				1	0.2
Religion					
Christian				321	77.2
Islam				86	20.7
Traditionalist				4	1.0
No response				5	1.2
Institution					
Lead City University				122	29.3
University of Ibadan				120	28.8
The Polytechnic, Ibadan				74	17.8
LAUTECH				97	23.3
No response				3	0.7
Level of Study					
100				74	17.8
200				74	17.8
300				67	16.1
400				96	23.1
500				25	6.9
ND I				21	5.0
ND II				31	7.5
HND I				13	3.1
HND II				7	1.7
No response				8	1.9

Source: Researcher's Fieldwork, 2024

4.2 Test of Hypotheses

Hypothesis one stated that loneliness would significantly influence internet addiction disorder among youths in Oyo State was analyzed using linear regression analysis as shown in Table 4.1.

Table 4.2: Summary of linear regression analysis showing influence of loneliness on internet addiction disorder

Model	SS	Df	MS	R^2	F	Sig.
Regression	61.098	1	61.098	.007	3.108	079
Residual	8137.816	414	19.657			
Total	8198.913	415				

Source: Researcher's Fieldwork, 2024

The results in Table 4.1 shows no significant influence of loneliness on internet addiction disorder (R2 = .007; F (1,414) = 3.11; p > .05), this implies that loneliness accounted for less than 1% variance on internet addiction disorder other factors not captured in the model accounted for larger part of internet addiction disorder, hypothesis one is not supported.

Hypothesis two stated that shyness would significantly influence internet addiction disorder among youths in Oyo State was analyzed using linear regression analysis as shown in Table 4.2.

Table 4.3: Summary of linear regression analysis showing influence of shyness on internet addiction disorder

Model	SS	Df	MS	R^2	F	Sig.
Regression	307.712	1	307.712	.038	16.144	.000[b]
Residual	7891.201	414	19.061			
Total	8198.913	415				

Source: Researcher's Fieldwork, 2024

The results in Table 4.2 shows significant influence of shyness on internet addiction disorder (R2 = .038; F (1,414) = 16.14; p < .01), this implies that shyness accounted for 3.8% variance on internet addiction disorder, other factors not captured in the model accounted for larger part of internet addiction disorder, hypothesis two is confirmed.

Hypothesis three stated that impulsivity would significantly influence internet addiction disorder among youths in Oyo State was analyzed using linear regression analysis as shown in Table 4.3.

Table 4.4: Summary of linear regression analysis showing influence of impulsivity on internet addiction disorder

Model	SS	Df	MS	R^2	F	Sig.
Regression	12.651	1	12.651	.002	.640	.424[b]
Residual	8186.262	414	19.774			
Total	8198.913	415				

Source: Researcher's Fieldwork, 2024

The results in Table 4.2 shows no significant influence of loneliness on internet addiction disorder (R2 = .002; F (1,414) = .64; p > .05), this implies that impulsivity accounted for less 0.1% variance on internet addiction disorder other factors not captured in the model accounted for larger part of internet addiction disorder, hypothesis one is not supported.

Hypothesis four stated that loneliness, shyness, and impulsivity would have significant joint influence on internet addiction disorder among youths in Oyo State was analyzed using multiple regression analysis as shown in Table 4.4.

Table 4.5: Summary of multiple regression analysis showing influence of loneliness, shyness, and impulsivity on internet addiction disorder

Predictors	β	T	P	R	R^2	F	P
Loneliness	-.018	-.336	>.05				
Shyness	.188	3 557	<.01	.199[a]	.040	5.677	<.01
Impulsivity	.046	.943	>.05				

Source: Researcher's Fieldwork, 2024

The results in Table 4.4 reveal that there is significant joint influence of loneliness, shyness, and impulsivity on internet addiction disorder (R2 = .40; F (3, 412) = 5.68; p < .01), this implies that loneliness, shyness, and impulsivity accounted for 40% variance on internet addiction disorder. Also, shyness (= .188; t = 3.557, p < .01) has significant independent influence on internet addiction, however, loneliness (= -.018; t = -.336, p > .05) and impulsivity (= .046; t = .943, p > .05) have no significant influence on internet addiction disorder. Hypothesis four is confirmed.

Hypothesis five stated that age, gender, and level of study would significantly influence internet addiction disorder among youths in Oyo State was analyzed using appropriate analysis. The results are presented as follow.

Table 4.6: Summary of linear regression analysis showing influence of age on internet addiction disorder

Model	SS	Df	MS	R 2	F	Sig.
Regression	47.639	1	47.639	.006	2.480	.116[b]

Residual	7684.839	400	19.212
Total	7732.478	401	

Source: Researcher's Fieldwork, 2024

The results in Table 4.5.1 shows that age has no significant influence on internet addiction disorder (R2 = .01; F (1, 400) = 2.48; p > .05). This shows that age of the respondents has no influence on internet addiction disorder.

Table 4.7: Summary of t-test of independent samples showing the differences between male and female on internet addiction disorder

Gender	N	Mean	SD	Df	T	p
Male	216	20.29	4.13	413	-.493	>.05
Female	199	20.51	4.77			

Source: Researcher's Fieldwork, 2024

The results in Table 4.5.2 indicates that there is no significant difference between male respondents ($x\bar{}$ = 4.13) and female respondents ($x\bar{}$ = 4.77) on internet addiction disorder (t (413) = -.493, p > .05).

Table 4.8: Summary Table of One-way Analysis of Variance (ANOVA) showing difference in level of study on internet addiction disorder

	SS	Df	MS	F	Sig.
Between Groups	265.687	8	33.211	1.718	.092
Within Groups	7714.107	399	19.334		
Total	7979.794	407			

Source: Researcher's Fieldwork, 2024

The result from table 4.5.3 shows that there was no significant difference among level of study on internet addiction disorder (F(8, 399) = 1.72, p > .05).

4.3 Discussion of Findings

The first hypothesis stated that loneliness would significantly influence internet addiction disorder among youths in Oyo State was not confirmed. According to the findings of this study, loneliness has no influence on internet addiction disorder. This result is contrary to previous research findings which demonstrated that problematic internet users lack social skills and assistance. Social media use was also greater among problematic internet users, indicating a social desire to communicate with others. Internet addicts' propensity for virtual relationships, on the other hand, could be linked to a lack of social skills, low self-esteem, and loneliness. Another research concluded that with increasing levels of loneliness, adolescent internet addiction develops. Teenagers who felt mild loneliness had a low level of internet addiction. Loneliness and internet use are mutually advantageous in the sense that loneliness drives people to spend more time online, just as the internet promotes people to spend more time online. As a result, it is argued that when teenagers perceive they are unable to meet their social demands, they resort to digital means to easily meet these needs. This is one of many reasons why the digital world has grown in importance for adolescents over time, to the point that it has become a cause of dependency and addiction. The main reason why the finding of this study may not be confirmed is due to other factors being responsible for internet addiction which may seal of young ones to explore rather than being lonely. Majority of youths nowadays catch more fun on internet, being the reason, they are so active on social media.

The second hypothesis stated that shyness would significantly influence internet addiction disorder among youths in Oyo State was confirmed. The findings from this study indicated that shyness influence internet addiction. The result is supported by previous

studies, that this is likely explained by the fact that shy people may prefer online interactions which in turn, may place them at an increased risk for problematic internet use. , Indeed, shy people tend to feel nervous, anxious and experience some physiological symptoms during social interactions, and may lack social resources and support, prompting them to seek alternative ways to interact with others.4, As they begin to meet their social needs online, it's possible these communication behaviours become reinforced through a process akin to operant conditioning. This suggests that shy people tend to be more prone to feelings of depression and engage in internet use to avoid this feeling. In this way, internet use, whether to gain social interactions or avoid negative feelings, acts as a reward reinforcing problematic patterns of internet use. Furthermore, other studies have demonstrated that shy people have low levels of self-control and self-regulation skills, which are also known risk factors for problematic internet use.

Hypothesis three stated that impulsivity would significantly influence internet addiction disorder among youths in Oyo State was not confirmed. The result is supported by previous studies, that this is likely explained by the fact that shy people may prefer online interactions which in turn, may place them at an increased risk for problematic internet use.[4,5] While the finding of this study is also contrary to the previous studies reporting that a higher impulsivity trait is more likely to engage in impulsive internet use. , Therefore, Internet addiction might be considered an impulse control disorder. This finding is in line with a study that found no significant relationship between the severity of Internet addiction and impulsivity.[11] Also, the research done by Zhang et al. indicated that individuals who have high self-esteem have internal characteristics to the level that enables them resist addiction. This is more than people who have high leaning on impulsivity. It was given that impulsivity, on its own, may not predict totally predict Internet addiction. They highlighted other factors such as meaning of life and boredom, which may serve as mediating factors.[12] The scientists implied that Internet addiction was not characterized by impulsivity, making it dissimilar to

other addictions. However, it is worth noting that Kawa &Sharfi uncovered a significant positive relationship between Internet addiction and impulsivity among undergraduates in India. Therefore, impulsivity may be a risk factor for Internet addiction because impulsive people exhibit more difficulties when attempting to control their Internet use.

Hypothesis four, which stated that loneliness, shyness, and impulsivity would have significant joint influence on internet addiction disorder among youths in Oyo State was confirmed This finding is similar and consistent with a study by Yucens&Uzer who found no significant relationship between the severity of Internet addiction and impulsivity.[11] Also, another study reported that individuals who have high self-esteem have internal characteristics to an extent that helps them resist addiction more than people who are high on impulsivity.[12] Suggest that impulsivity alone may not predict Internet addiction; other factors such as meaning of life and boredom may serve as mediating factors.

Hypothesis five stated that age, gender, and level of study would significantly influence internet addiction disorder among youths in Oyo State was not confirmed. Findings from the result indicated no significant statistical difference between male and female on internet addiction. This finding is similar and consistent with the studies by authors who discovered no gender difference in Internet addiction rates in their study. This is contrary to other large-scale studies, such as the study carried out by the study that revealed that males use the Internet more, especially for accessing pornography and playing games, while females use the social networking features of the Internet. Also, this finding negated the studies that reported that males were more likely to report higher rates of Internet addiction.[17]

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Chapter Five

Conclusion

5.1 Summary of Findings

The study aimed to investigate the influence of loneliness, shyness, impulsivity, on internet addiction disorder among youths in Oyo State. The results revealed interesting insights as loneliness was not found to significantly influence internet addiction disorder among youths. Although this contradicts previous research suggesting that loneliness may drive individuals to seek social connections online, potentially leading to internet addiction. The discrepancy in findings may be attributed to other factors influencing internet addiction among youths, such as the enjoyment of online activities and social media interactions.

Impulsivity was not found to significantly influence internet addiction disorder among youths which also contradict previous research suggesting that impulsivity may be a risk factor for impulsive internet use and addiction. However, other studies have suggested that impulsivity alone may not predict internet addiction, and additional factors such as self-esteem and meaning of life may mediate this relationship.

The result revealed that shyness does influence internet addiction disorder among youths. This finding aligns with previous studies suggesting that shy individuals may prefer online interactions as an alternative to face-to-face interactions, potentially leading to problematic internet use. The result reveal that loneliness, shyness, and impulsivity jointly influence internet addiction disorder among youths. This finding underscores the complexity of internet addiction and suggests that multiple factors, rather than individual traits alone, may contribute to internet addiction disorder among youths.

5.2 Conclusion

This study aimed to explore the influence of loneliness, shyness, and impulsivity on internet addiction disorder among youths in Oyo State. Through the analysis of data and hypotheses testing, numerous key findings emerged. Firstly, while loneliness was hypothesized to significantly influence internet addiction disorder, the results did not confirm this hypothesis. Contrary to expectations, loneliness was not found to have a significant impact on internet addiction disorder in this population. These finding challenges previous research suggesting a direct link between loneliness and problematic internet use. It suggests that other factors may be more influential in driving internet addiction among youths in Oyo State.

Secondly, the hypothesis regarding the influence of shyness on internet addiction disorder was confirmed. The study revealed that shy individuals were more likely to experience internet addiction. This aligns with previous research indicating that shy people may prefer online interactions and lack social resources, leading them to seek alternative ways to interact with others online. Thus, shyness emerges as a significant risk factor for internet addiction in this population.

However, the hypothesis concerning impulsivity and its influence on internet addiction disorder was not confirmed. Despite previous studies suggesting a higher likelihood of impulsive internet use, this study found no significant relationship between impulsivity and internet addiction disorder among youths in Oyo State. This highlights the complexity of internet addiction and suggests that impulsivity alone may not predict problematic internet use. Other factors such as the meaning of life and boredom may play mediating roles in this relationship.

Furthermore, the study confirmed the joint influence of loneliness, shyness, and impulsivity on internet addiction disorder. While each factor individually may not have a significant impact, their combined effect was found to contribute to internet addiction among youths in Oyo State. This underscores the importance of considering multiple psychological factors in understanding and addressing internet addiction in this population. Finally, the analysis of demographic factors revealed no significant differences in internet addiction between genders.

5.3 Recommendations

Based on the findings and conclusions of the study on internet addiction disorder among youths in Oyo State, the following recommendations are proposed.

I. Implement awareness and education programs targeting youths, parents, educators, and healthcare professionals to increase understanding of internet addiction disorder and its associated risk factors. These programs should emphasize the potential negative impacts of excessive internet use on mental health and well-being.

II. Develop early intervention strategies aimed at identifying and addressing internet addiction among youths. This may include screening tools for assessing internet addiction risk and referral pathways to appropriate support services such as counseling, therapy, or support groups.

III. Provide accessible and culturally sensitive psychosocial support services for youths experiencing loneliness, shyness, or impulsivity, as these factors were identified as contributing to internet addiction disorder. Counseling, peer support groups, and social skills training programs may be beneficial in addressing underlying psychological vulnerabilities.

IV. Educate parents and caregivers on the importance of monitoring their children's internet use and promoting healthy screen time habits. Encourage open

communication between parents and children about internet use, setting boundaries, and modeling positive offline behaviours.

V. Integrate internet addiction awareness and prevention initiatives into school curricula and extracurricular activities. Schools can promote digital literacy skills, responsible online behaviour, and healthy coping strategies for managing stress and emotions without relying on excessive internet use.

VI. Advocate for the development and implementation of policies and regulations aimed at promoting responsible internet use and protecting vulnerable populations, especially youths, from the harms of internet addiction. This may include guidelines for internet service providers, social media platforms, and online gaming companies to promote user safety and well-being.

VII. Continuously monitor and evaluate the effectiveness of interventions and strategies implemented to address internet addiction disorder among youths in Oyo State. Adapt approaches based on emerging evidence and feedback from stakeholders to optimize outcomes and maximize impact.

5.4 Contribution to Knowledge

The study on internet addiction disorder among youths in Oyo State makes several contributions to knowledge in the field of psychology.

I. By examining the influence of loneliness, shyness, and impulsivity on internet addiction disorder, the study adds to our understanding of the psychological factors

contributing to problematic internet use among youths. It sheds light on the complex interplay of these factors and their combined effects on internet addiction.

II. By focusing on youths in Oyo State, the study provides contextual insights into internet addiction patterns and risk factors within a specific demographic and cultural context. This localized perspective enhances our understanding of internet addiction and informs tailored interventions and policies for addressing this issue in the region.

III. The study identifies shy individuals as a particularly vulnerable group at risk for internet addiction. This finding highlights the importance of targeting interventions and support services towards shy individuals to prevent and address internet addiction disorder in this population.

IV. The study's findings have practical implications for the development of intervention and prevention strategies targeting internet addiction among youths. By identifying key risk factors and vulnerable groups, stakeholders can design targeted programs and initiatives to promote healthy internet use and reduce the prevalence of internet addiction disorder.

V. The study contributes to the evidence base informing policy development related to internet addiction and youth mental health. Policymakers can use the findings to advocate for the implementation of regulations, guidelines, and support services aimed at addressing internet addiction and promoting digital well-being among youths in Oyo State.

VI. The study lays the foundation for future research endeavours exploring internet addiction and its determinants. Researchers can build upon the study's findings by conducting longitudinal studies, qualitative inquiries, or intervention trials to further investigate the underlying mechanisms and develop effective strategies for prevention and intervention.

5.5 Suggested Areas for Further Research

Based on the findings and limitations of the study on internet addiction disorder among youths, several areas for further research are suggested.

I. Other research can investigate the influence of cultural factors on internet addiction among youths in Oyo State. Explore cultural norms, values, and social dynamics that may shape attitudes towards internet use, perceptions of addiction, and help-seeking behaviours within the local context.

II. Examine the role of family dynamics, including parental supervision, communication patterns, and family cohesion, in shaping internet addiction risk among youths in Oyo State. Investigate how family factors interact with individual characteristics to influence internet use behaviours and addiction outcomes.

III. Explore the influence of peer relationships, social networks, and peer norms on internet addiction among youths in Oyo State. Investigate how peer interactions, social comparison, and peer pressure may contribute to excessive internet use and addiction risk.

IV. Evaluate existing policies and prevention efforts aimed at addressing internet addiction among youths in Oyo State. Assess the implementation, effectiveness, and accessibility of interventions, and identify areas for improvement or expansion.

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