

## The Vicious Cycle of Internet Addiction: Analyzing Theories and Correlations with Adolescent Well-being

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### ABSTRACT

The essence of digital transformation and its vicious cycle impacting on the well-being of adolescents is evident in the current time. The criticality of internet induced addiction and its consequences can lead to significant accumulation of stress in adolescents. The study here would relate the internet addiction levels while analyzing the existing set of research frameworks that can be associated with it. A mixed method approach is undertaken where secondary sources from current literature and 500 adolescents in the age group of 14 to 18 years from India are taken. The results exhibit the commonly used theoretical frameworks in this domain and find a significant correlation between internet addiction, mental health and general well-being of adolescents. There are implications for the future provided with association of these results with the common theoretical frameworks extracted from literature.

**Keywords:** Internet; Addiction; Mental; Health; Adolescents

### 1. INTRODUCTION

Good mental health is essential to overall health and wellbeing, and it affects social and economic consequences at all stages of life. It is essential to have a solid foundation for healthy development and mental wellness during childhood and adolescence. Concerns about the rising prevalence of mental health issues in this demographic are becoming more widespread worldwide (Kubo et al., 2023). The health and well-being of adolescents have gained prominence in global public health debates. The governments of the United States and the country have implemented a number of policies and programmes to safeguard and address the health needs of the teenage generation, in recognition of their critical role in society (Azlee et al., 2023).

Ensuring adolescents' psychological wellbeing is a sociopsychological necessity because it is a critical stage in human development when life goals, values, direction, and purpose are created. Adolescents' psychological wellbeing is defined as their level of contentment with life and their understanding of an abundance of positive emotions, when combined with the absence of psychopathology, being linked to the greatest academic function, social skills and support, and physical health (Zhou et al., 2024). Adolescence is a crucial stage of life during which many of the elements that contribute to long-term well-being are either acquired or not cemented. At the same time, adolescent well-being is a personal and societal good in and of itself (Utomo & Marianta, 2023).

The digital revolution has irrevocably transformed our world, weaving the internet into the very fabric of modern society. For adolescents, this virtual environment holds immense potential for connection, learning, and exploration. However, excessive internet use can morph into a complex issue, blurring the lines between engagement and addiction, and potentially impacting their mental well-being (Zaidi, 2022). Global internet user statistics paint a staggering picture: over 3.1 billion individuals are online, with a significant 32.8% being teenagers (GII, 2023). As Peterson (2004) aptly defines, adolescence is a crucial stage of physical, emotional, and psychological development, encompassing ages 12-18. This transformative period, where young individuals navigate the complexities of identity formation, coincides with their growing susceptibility to internet dependence.

The study here would relate the internet addiction levels while analysing the existing set of research frameworks that can be associated with it. Thereby, leading to the generation of the first research question:

RQ1: What are the existing theories in literature that can be associated with the derivation of adolescents' well-being in an era of internet addiction?

The study here considers the essence of digital transformation and attempts to understand how its vicious cycle impacts on the well-being of adolescents. The criticality of the internet has induced addiction and its consequences can lead to significant accumulation of stress in adolescents. Hence, the study here attempts to answer the following question.

RQ2: How do internet addiction levels in adolescents correlate with their overall well-being?

Before moving on to the data analysis section, a background understanding on the topic is provided below.

## 2. REVIEW OF LITERATURE

The internet, a ubiquitous tool of the modern era, holds immense potential for connection, information, and entertainment. However, its pervasive influence raises concerns about its impact on mental well-being, particularly its relationship with depression. This paper explores the intricate and multifaceted relationship between internet use and depression, moving beyond simplistic cause-and-effect narratives.

While studies like Neverkovich et al. (2018) and Kurniasanti et al. (2019) suggest a correlation between increased internet use and depression, claiming direct causation remains challenging. According to recent studies on the use of new technology, older individuals who use the internet are generally more efficient in the following areas: quality of life, mood, positive psychological well-being, and the expenses to both the individual and the community of providing care for them. However, there isn't much scientific data that directly addresses the relationship between older persons' internet use and depression levels (Lai et al., 2023). A bidirectional relationship is more likely, with both depression driving internet use for escapism and prolonged online engagement exacerbating depressive symptoms.

The youth of today are growing up in a world where digital technology is pervasive and permeates almost every element of daily life. An increasing number of fundamental human activities, such as learning, socializing, and recreation, take place on digital platforms, giving rise to new kinds of interaction (Mu et al., 2023). Adolescents, with their evolving identities and heightened social pressures, seem particularly susceptible to this complex interplay. As technology becomes increasingly integrated into their lives (Starcevic, 2013; Griffiths et al., 2016), the internet becomes a double-edged sword — a source of connection and self-expression but also a potential breeding ground for isolation and negative social comparison.

The misconception that only "addicted" individuals experience negative mental health consequences from internet use needs to be dispelled. In our digital age, using technology and cellular/Internet services has become a necessity for the majority of individuals. It has numerous advantages for both individuals and organizations, including ease of buying, learning, and working, relationships with others, and information sharing (Chemnad et al., 2023). Organizational benefits include productivity, sales, communication, training, and service. Nevertheless, there are drawbacks to these tools and services as well. Griffiths (2019) argues for a nuanced understanding of problematic internet use, recognizing that even moderate engagement can contribute to loneliness and depression if it displaces real-world interactions. Young (1998) highlights the danger of substituting virtual relationships for genuine connections, which can worsen depressive symptoms. Studies suggest that individuals with pre-existing mental health conditions, including depression, may be more prone to such substitution (Kuss & Griffiths, 2017).

The "give-up" spiral described by Young (1998) underscores the need for intervention. Addressing underlying factors like low self-esteem and social isolation, alongside promoting healthy internet habits and real-world social connections, can help break this negative cycle. The relationship between internet use and depression is far from linear. Recognizing the complex interplay of factors like age, individual vulnerabilities, and internet usage patterns is crucial for developing effective prevention and intervention strategies. Moving beyond simplistic narratives and focusing on promoting healthy digital habits, coupled with addressing underlying mental health concerns, can help individuals navigate the web without getting tangled in its darker threads.

Breaking free from the grip of internet addiction requires a multi-pronged approach. Recognizing the underlying factors that drive online escapism is crucial. Cultivating healthy coping mechanisms, building supportive relationships, and engaging in real-world activities can help individuals reclaim control. Prioritizing sleep hygiene, physical exercise, and mindful practices can further mitigate stress and promote overall well-being.

The internet remains a valuable tool for communication, information, and entertainment. However, its potential for addiction cannot be ignored. By understanding the complex interplay between internet use, stress, and well-being, we can empower individuals to navigate the digital landscape responsibly and prioritize their physical, mental, and social health.

The term "well-being" refers to the accumulation of many benefits (Sharma, 2002). It is not the absence of illness that defines a healthy person; rather, it is the presence of a fit body, unclouded feelings, and uncluttered thinking (Jain, et al., 2007).

When you take into consideration all of these different aspects, the concept of well-being becomes quite convoluted. The equilibrium point between a person's resource pool and the pressures they must overcome is at the center of a revised definition of well-being.

In this, the see-saw notice shows the drive of a man or woman to go back to a fixed point of well-being (Brickman and Campbell, 1971; heady and wearing 1989, 1991, 1992). A person's mental, social, and physical assets should strive to meet the demands of their particular psychological, social, and physical problems in order to maintain a state of stable well-being. When a person is confronted with extra difficult circumstances, their resources experience a noticeable decline, which is mirrored in a decline in their well-being, and vice versa. Research suggests a complex interplay between internet addiction and stress. Individuals struggling with anxiety, depression, or low self-esteem may initially turn to the internet as a coping mechanism. The constant stimulation and social validation offered by online platforms can provide temporary relief, but this escape ultimately proves detrimental. Studies by Van Rooij & Prause (2014) and Cash et al. (2012) link excessive internet use to insomnia, fatigue, blurred vision, and cognitive impairments like attention deficit and incomplete tasks. This further fuels stress, creating a vicious cycle of dependence. The consequences of internet addiction extend far beyond the digital realm. JinJeong et al. (2020) observed a correlation between high internet usage for social purposes and an increased risk of divorce, family conflicts, and academic failure. This aligns with the notion that excessive online engagement can fragment real-world relationships and hinder responsibilities. Furthermore, the constant barrage of information and stimuli can lead to attention fatigue, making it difficult to focus on tasks requiring sustained effort.

Internet addiction manifests in various ways, from compulsive checking of emails and messages at night to using it as the first action upon waking. This detachment from reality can lead to depression, anxiety, sleep issues, constant stress when offline, social isolation, and occupational dysfunction. Studies link participation in online programs to worsening mental health, potentially fueling feelings of helplessness and anxiety due to their addictive nature.

Addiction to the internet significantly impacts mental health. Depression, low self-esteem, and subjective unhappiness are prominent effects, alongside anxiety, irritation, and stress. These addictive behaviors contribute to mental health problems like depression and anxiety.

The internet has become an indispensable aspect of daily life, facilitating communication and tasks across various sectors. While its ubiquity is undeniable, internet addiction poses a significant threat to mental wellbeing. Individuals who favor online interactions over real-life ones are at higher risk. Those with a history of negative emotions like hopelessness and anxiety are particularly vulnerable, as internet usage can exacerbate these emotions and lead to isolation and low self-esteem.

This study aims to address the lack of research on the rising prevalence of internet addiction and its impact on mental health, particularly in secondary school students. Investigating this crucial issue will inform strategies to combat internet addiction and promote mental well-being among young people.

### 3. RESEARCH METHODOLOGY

The study would fulfil the two research questions with the use of a mixed method. Both qualitative and quantitative methods would be applied here. The first research question involves a qualitative approach where secondary sources of data are utilized for evaluating the existing theories to be correlated to internet addiction. For this purpose, a systematic approach has been led where journal articles, books and reports are used. The process involves abstract screening followed by reviewing the complete articles for drawing relevant associations.

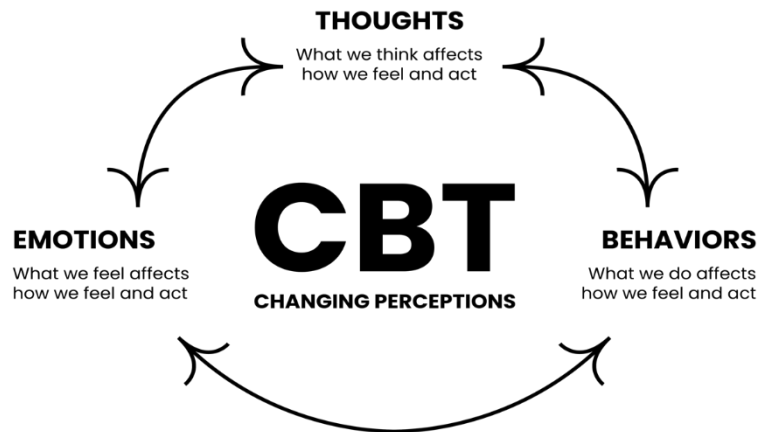
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### 4. DATA ANALYSIS

The thorough review of literature for the first research question showed a total of three theories that can be highly related to the situation in hand.

#### 4.1 RESOLVING RESEARCH QUESTION 1

There are several research frameworks that are used in existing studies to depict the difficulty levels of internet addiction. Firstly, the cognitive behavioral model (CBM) is widely used in research where different analysis associated with the role of one's thought process during addiction is required. It is based on understanding the thoughts, beliefs and expectations of the respondents.



**Figure 1 - Cognitive Behavioral Model Framework**

The CBM is a psychological framework which is designed to explore the relationship between cognitive processes, behavioral patterns, and emotional responses. As evident from the visual representation above, it showcases how an individual's thoughts (cognitions) can directly influence their emotions and behaviors. While understanding the model in terms of addiction, it suggests that maladaptive thought patterns can lead to compulsive behaviors, which in turn reinforce the problematic thoughts, creating a dangerous cycle of addiction. The model has emerged from cognitive-behavioral therapy (CBT), which was developed by Aaron Beck in the 1960s. CBT is based on the idea that cognitive distortions—unrealistic or irrational thoughts—contribute to the development and persistence of psychological disorders, including addiction.

In the literature, its use is found in different forms of addiction such as substance disorders including drugs or alcohol dependency and it is also applied in case of behavioral disorders such as gambling or internet addiction (Xu et al., 2021). The main areas of focus in such studies are on cognitive aspects such as beliefs, attitude, expectation etc. The studies using this model suggest that due to distorted cognitive processes, individuals with internet addiction have different beliefs about the benefits and consequences of internet use. They may believe that online interactions are more fulfilling than face-to-face interactions, or that the internet is the only source of social support or entertainment. Further, their negative thoughts often overpower the positive aspects. The thoughts of needing to go online to make themselves feel better or generating a fear of missing out if they are not on the internet can be common. They develop cognitive schemas around their minds that makes them believe that they are only valued online. These thought processes make the addiction levels rise.

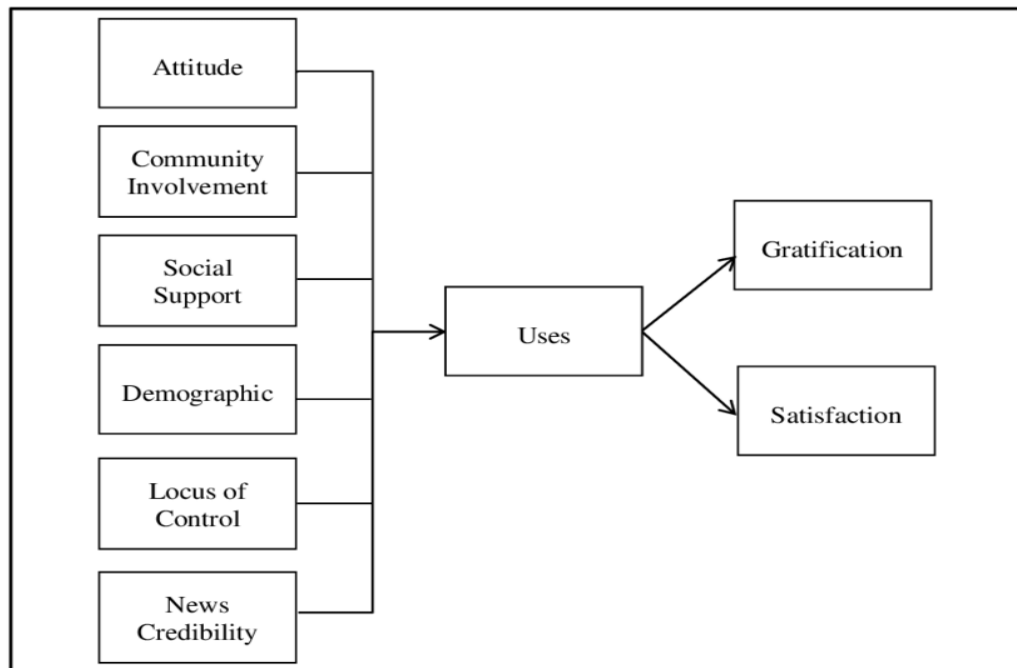
The impact on mental-health is suggested by researchers in the field with cognitive processes being distorted creating anxiety, depression, social isolation and development of lower self-esteem in the victims (Du et al., 2010; Zhang et al., 2019). CBT is one of the most widely used and effective treatments for internet addiction. It involves helping individuals identify and challenge their cognitive distortions, develop healthier thought patterns, and replace maladaptive behaviors with positive coping strategies. Further, cognitive restructuring can help in the process of overcoming addiction where individuals are taught to recognize and reframe their negative automatic thoughts, replacing them with more realistic and positive thoughts. There can be behavioural interventions included in the process where strategies to reduce internet use, such as setting time limits, increasing offline activities, and developing alternative coping mechanisms for dealing with stress and negative emotions can be evaluated. CBT also focuses on equipping individuals with skills to prevent relapse, such as identifying triggers, developing problem-solving skills, and building a support network.

The application of this theory is quite effective when dealing with internet addiction and through their interventions, its impact on the recovering process from addiction is highly eventful.

The second theory which is widely applied in understanding addiction including that of internet addiction is Uses and Gratifications Theory (UGT). It is a communication based theory that explores how individuals actively seek out media and content to satisfy specific needs and desires. It was developed in the 1940s and 1950s, and further refined in the 1970s by researchers such as Elihu Katz, Jay G. Blumler, and Michael Gurevitch. The purpose of UGT is to shift the focus from the effects of media on passive audiences to the agency of individuals in choosing media that fulfills their personal needs. It is based on the consideration that media users are active participants who have specific goals in mind when they consume media. It is either based on meeting their psychological or social needs. Based on the same, they tend to select the media sources that best meet their considered requirements. These needs can include entertainment, information, social interaction, escapism, and identity formation, among others.

The diagram shown below is the conceptual model designed by (Sutrisno et al., 2021) while using UGT for understanding

ICT facility usage pattern among the university students. Due to the growing dependency on the ICT facilities, its use among the students are highly intertwined with their curriculum activities. From factors such as credibility to social support and demographics, the association with use and gratification is highly diverse.



**Figure 2 – Application of UGT in the study by (Sutrisno et al., 2021)**

UGT helps to identify the specific gratifications that individuals seek from internet use, which can contribute to the development of internet addiction (Camilleri & Falzon, 2021; Wei et al., 2024). These include requirements such as entertainment where there are endless sources of entertainment, from streaming videos and music to online gaming. Individuals who seek constant entertainment may develop compulsive internet use as they rely on the internet to alleviate boredom or escape from reality. The internet offers a means of escaping from the stresses and pressures of real life. Individuals who use the internet to avoid dealing with personal problems, emotional pain, or stressful situations are at a higher risk of developing internet addiction. It applies when the user seeks social interactions through social media platforms. Social media platforms and online communities offer opportunities for social interaction, connection, and validation. Individuals who find it difficult to connect with others offline may turn to the internet to fulfill their social needs, leading to excessive use. Online environments allow individuals to explore different aspects of their identity, experiment with new personas, and seek validation from others. For some, this can become a primary means of self-expression, leading to over-reliance on the internet.

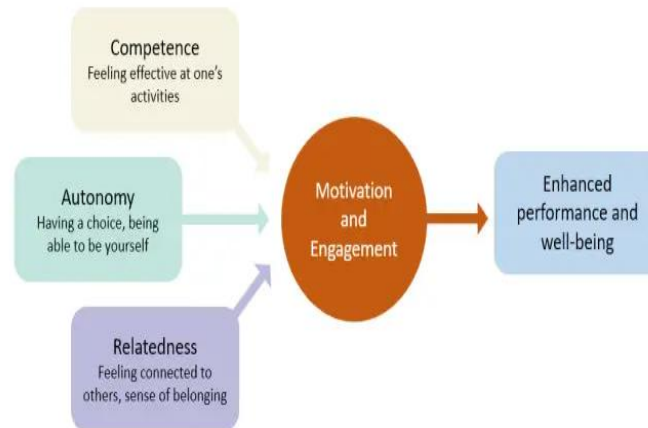
This theory is particularly helpful as it offers a powerful framework for understanding the motivations behind internet use and how these motivations can lead to addiction. By focusing on the active role of users in seeking out media to fulfill specific needs, UGT provides valuable insights into the psychological and social factors that contribute to internet addiction. This understanding is crucial for developing targeted interventions that address the root causes of addiction and help individuals achieve healthier, more balanced media consumption.

The next model which also finds high levels of applicability in the domain of addiction and addresses the internet addiction levels as well include the Self-determination theory (SDT). It is basically a motivational theory which makes use of personality, social processes and development to understand how differences in

these aspects leads to a diverse range of motivation towards a particular behaviour (Deci & Ryan, 2015)



## Self-determination Theory (Ryan & Deci, 2017)



**Figure 3 – Major Components of SDT**

As evident from the diagram above, it includes the factors of competence, autonomy and relatedness that drives motivation engagement leading towards enhanced performance and overall well-being. Autonomy refers to the need to feel in control of one's own behavior and goals; competence measures the need to gain mastery of tasks and learn different skills and relatedness is the need to feel a sense of belonging and connection with others.

In the context of addiction, the theory provides a framework for understanding how the fulfillment or frustration of basic psychological needs can contribute to the development of addictive behavior (Mills & Allen, 2020; Park & Kim, 2011). Addiction is seen as a maladaptive way of attempting to meet these needs. For example, someone might engage in substance use or compulsive behaviors, such as excessive internet use, to cope with feelings of incompetence or social isolation. It suggests that addictive behaviors may initially serve as a way to satisfy unmet needs, but over time, they can become self-perpetuating cycles that further challenge the fulfillment of these needs. The theory also highlights the importance of developing intrinsic motivation and supporting autonomy in addiction treatment. With the three major elements of SDT, internet addiction can be handled efficiently. The use of autonomy can provide the users with a sense of control and freedom, allowing them to explore various identities, create content, and engage in activities of their choosing. Competence is in the form of online platforms offering opportunities for users to develop skills, gain knowledge, and receive feedback, which can enhance their sense of competence. Social media enhances relatedness by providing opportunities to connect and providing a sense of belongingness and social inclusion.

Self-Determination Theory provides a holistic framework for understanding the psychological motivations of internet addiction. By focusing on the fulfillment or frustration of basic psychological needs—autonomy, competence, and relatedness—SDT offers valuable insights into why individuals may develop addictive patterns of internet use and how these patterns can be addressed through targeted interventions. As internet addiction continues to be a growing concern, SDT's emphasis on intrinsic motivation and need fulfillment will play a crucial role in guiding both research and treatment efforts in this area.

Although these theories have been widely used in the context of internet addiction, its increasing impact requires more researchers to take a comprehensive approach towards understanding the situation.

### 4.2 RESOLVING RESEARCH QUESTION 2

For the second research question, the three aspects of adolescents are enquired – their internet addiction levels, mental health and general well-being.

The internet addiction is measured using 20 items which is based on a rating from 0 to 5 where 0 represents not applicable and 5 represents always. The highest score that can be achieved by any individual is 100 which states that the internet addiction is the highest. The higher the score, the more serious is the internet addiction level. Based on the investigation, 49.8% represent Moderate Level of Internet Addiction, 41.8% show Mild Level of Internet Addiction and 8.4% show Normal Level of Internet Usage.

Mental health scale holds 54 items and scores from 0 to 4. A total score of 140 & above is considered good mental health, 120 to 139 as moderate and below 120 is considered poor. The investigation shows 33.4% each for moderate and the remaining respondents are found to fall in the poor mental health category. No respondent is seen to have good mental health levels which is quite alarming.

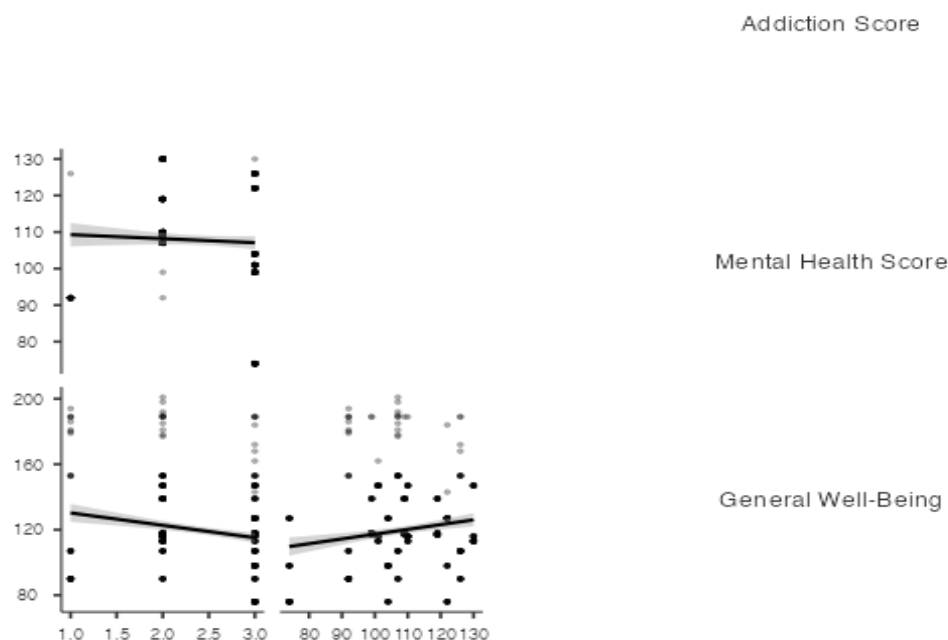
The general well-being scale has 55 items with scoring range from 1 to 5 where 1 represents strongly disagree and 5 represents strongly agree. A total score of below 167 shows low level of general well-being, between 168 to 230 show average levels and 231 to 275 show high levels. Interestingly, 94.6% show low general well-being while 5.4% have average well-being levels.

The estimation of the three scales among the adolescents show low levels of mental health and general well-being while having moderate to mild levels of internet addiction.

In order to understand the relationship between the three, a correlation analysis is conducted and is shown below.

**Table 1- Correlation Matrix**

		Addiction Score	Mental Score	Health	General Well-Being
Addiction Score	Pearson's r	—			
	p-value	—			
Mental Health Score	Pearson's r	-0.247	—		
	p-value	0.027	—		
General Well-Being	Pearson's r	-0.186	0.168	—	
	p-value	< .001	< .001	—	



**Figure 4 – Correlation Matrix**

Evidently with p-values of less than 0.001 for all the three correlations, the three aspects are seen to be statistically significantly correlated. The coefficient of correlation shows both positive and negative associations. General well-being and mental health are positively correlated with a coefficient of 0.168 while internet addiction is negatively correlated with the

two states. This shows that rise in internet addiction levels can significantly reduce the mental health state and general well-being levels.

## 5. DISCUSSION

The theories highlighted in the beginning of the chapter which dominates the literature in addiction can be associated with the results drawn from the study here. The findings clearly show a significant negative impact of internet addiction on mental health and general well-being among adolescents. This can be interpreted through these theoretical lenses as follows. For instance, the three components of SDT can help in drawing an association. Adolescents may feel a lack of control in their daily lives due to academic pressures, parental expectations, or social challenges. The internet, particularly social media and online gaming, offers a sense of control and freedom that they may not experience elsewhere. This perceived autonomy in the virtual world can lead to excessive internet use as adolescents seek to escape from the constraints of their real-world obligations. Many adolescents also struggle with self-esteem and feelings of inadequacy, particularly in highly competitive environments like schools. The pressure of matching with the expectations of their parents or the capability of their peers makes them lose their self-esteem. The internet through the social media platforms allows them to showcase their skills, receive positive feedback, or achieve success in virtual games, providing a sense of competence that they may lack in their offline lives. They tend to get the sense of accomplishment using the internet based validation that brings a sense of peace to them. This sense of competence, although gratifying in the short term, can become addictive as adolescents increasingly rely on the internet for validation. The findings indicate that adolescents may use the internet to fulfil their need for social connection, especially when they feel isolated or disconnected in their real-world interactions. Online communities, social media platforms, and multiplayer games offer a sense of belonging and acceptance, which can be particularly appealing to adolescents who struggle with peer relationships. However, this reliance on online relationships can lead to further social withdrawal and reinforce internet addiction. These aspects of using the internet as a place of validation for adolescents can become addictive resulting in long-term difficulties to find its application in the real world.

In terms of UGT and the results, adolescents may use the internet to cope with negative emotions, such as loneliness, anxiety, or boredom. The study shows that many adolescents believe life would be "boring, empty, and joyless" without the internet, indicating that they rely on online activities to manage their emotional states. This emotional dependence on the internet can lead to a cycle where adolescents increasingly turn to the internet to escape from negative emotions, further deepening their addiction. Along with emotional gratification, the social and cognitive gratification in the theory also comprehends the lives of the adolescents. The findings highlight that adolescents, particularly females, are more likely to develop internet addiction, possibly due to their greater need for social validation. Online platforms allow them to connect with peers, share experiences, and receive immediate feedback, which can be highly reinforcing and contribute to habitual internet use. Adolescents are in a critical phase of exploring their identities and developing their cognitive skills. The internet offers a vast array of information, entertainment, and opportunities for self-expression, which can be intellectually stimulating and gratifying. The study suggests that adolescents use the internet to satisfy their curiosity and cognitive needs, but this can also lead to excessive use as they seek to continuously engage with new content and ideas. The gratification level in case of either scenario can become quite critical and lead to a significant impact on their psychological well-being in the long run.

The findings suggest that certain cognitive processes, such as distorted beliefs about the internet's importance, contribute to the persistence of internet addiction and its negative impact on mental health. It is seen that many adolescents believe life would be meaningless without the internet, which is a cognitive distortion where they overestimate the internet's role in their happiness and well-being. This distorted thinking can lead to excessive internet use as adolescents come to view the internet as essential to their daily lives, despite the negative consequences on their mental health and general well-being. The preference for online activities over real-world interactions, as seen in the study, reflects maladaptive behavioral patterns where the internet becomes a primary coping mechanism. These behaviors are reinforced by the immediate gratification and rewards provided by online platforms, making it difficult for adolescents to break the cycle of addiction. The study's findings indicate that these maladaptive behaviors are strongly associated with poor mental health and general well-being, highlighting the need for interventions that address these patterns. The CBM can explain how the internet can reinforce these maladaptive behaviors by providing immediate rewards, such as social approval, entertainment, or escape from stress. This reinforcement strengthens the cognitive distortions and behaviors that contribute to internet addiction. The study shows that adolescents with higher levels of internet addiction are more likely to experience negative mental health outcomes, suggesting that the reinforcing nature of the internet plays a significant role in the persistence of their addiction.

However, one aspect to consider is that the interventions that can be facilitated by frameworks such as these can also help the adolescents to shape their behaviour and limit their addiction levels. Working on cognitive reinforcement using positive feelings of self-esteem generation through real life motivations can help handle the situation better.

## 6. CONCLUSION

The use of the internet is unavoidable in the current context. One requires it to use due to different requirements. Although its use cannot be removed completely among adolescents, its usage behaviour can be tamed to avoid any damages occurring



from it. Educators at school and parents should encourage positive online behaviors, such as using the internet for educational purposes, connecting with family and friends, and participating in constructive online communities. Teaching adolescents to use the internet in ways that support their growth and well-being can mitigate the risks of addiction. The integration of mental health awareness programs at the school level can help adolescents understand about the severity of such implications of addiction. The need for such early interventions among individuals are essential especially due to the intense levels of addiction affecting mental health and general well-being exhibited through this study.

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