The impact of impulsivity and attachment style on level of internet addiction

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Declaration

I hereby declare that I wrote this thesis individually based on literature and resources stated in references section.

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# Table of Contents

Abstract .......................................................................................................................... 8

Introduction

Definition of variables ................................................................................................. 10

The link between internet addiction and impulsivity .................................................. 12

The link between internet addiction and attachment style ......................................... 12

Rationale and hypotheses ............................................................................................ 13

Implications of this study ............................................................................................. 14

Literature Review

Addiction ......................................................................................................................... 15

What is internet addiction? ............................................................................................ 15

Alternative explanations to internet addiction ............................................................. 18

Prevalence of internet addiction .................................................................................. 20

Predictors of internet addiction ................................................................................... 21

The link between internet addiction and negative factors ........................................... 22

Impulsivity ..................................................................................................................... 24

The link between impulsivity and negative factors ..................................................... 28

The link between internet addiction and impulsivity ................................................... 31

Attachment theory ....................................................................................................... 33
Attachment in adulthood ................................................................. 35
Different types of attachment styles ................................................. 37
Attachment styles and early life experiences ................................. 39
The link between attachment style and negative factors .................. 41
The link between internet addiction and attachment style ............... 44

Method
Research design ............................................................................. 48
Participants ..................................................................................... 48
Procedure ....................................................................................... 49
Measures ......................................................................................... 49
Statistical Analysis ......................................................................... 54

Results
The aim of this section ................................................................. 55
Statistical method ......................................................................... 55
Descriptive statistics ..................................................................... 55
Assessment of normality ............................................................... 59
Testing of Hypothesis 1 ................................................................. 82
Testing of Hypothesis 2 ................................................................. 96

Discussion
Main findings related to the first hypothesis ................................. 109
Abstract

Due to the current prevalent use of the internet, it is therefore beneficial to conduct research regarding the risk factors associated with internet addiction. Previous studies have found that impulsivity and an insecure attachment style positively and significantly predict internet addiction. This study therefore aimed to investigate the impact of impulsivity and attachment style on the level of internet addiction. Based on the results of previous studies, it was therefore hypothesized that impulsivity facets (namely Negative Urgency, Lack of Perseverance, Lack of Premeditation and Sensation Seeking and Positive Urgency) will positively and significantly predict internet addiction over and above demographic variables (namely gender, age, nationality and number of caretakers when growing up). The second hypothesis on the other hand, was that the insecure attachment style will positively and significantly predict internet addiction over and above demographic variables. 152 participants were voluntarily recruited via survey exchange groups on ‘Facebook’. They then completed three questionnaires: Short UPPS-P Impulsive Behavior scale (which measures impulsivity), Adult Attachment Questionnaire (which measures attachment style) and the short version of the Internet Addiction test (which measures their level of internet addiction). Results showed that impulsivity facets improved the prediction of internet addiction over and above demographic variables. Specifically, the impulsivity facet of Positive Urgency positively and significantly predicted internet addiction. Age has also been found to be a statistically significant predictor of internet addiction; younger age predicted a higher level of internet addiction. Results also showed that both secure and insecure attachment styles positively and significantly predicted internet addiction over and above demographic variables. However, the insecure attachment style was observed to be a stronger predictor of internet addiction compared to the secure attachment style. Moreover, it was also discovered that of all the types of insecure attachment styles (preoccupied, dismissing and fearful attachment style), only the preoccupied attachment
style positively and significantly predicted internet addiction. The implications of the findings as well as suggestions for future research were also considered.


**Introduction**

*Definition of variables*

*Internet addiction.* Internet addiction is generally characterized as using the internet in a manner which is excessive, involves unmanageable preoccupation, activities and urges that may produce life difficulties and distress (Weinstein et al., 2014). Each participant’s level of internet addiction will be assessed in this study using the short version of the Internet Addiction Test based on the extent that he or she experiences subjective problem in everyday life over the period of using the internet in a superfluous manner (Pawlikowski et al., 2013). The test has also been developed based on the diagnostic criteria of pathological gambling. The short version of the internet addiction test involves two main factors related to internet addiction. The first is “loss of control/time management” which comprises of actions such as abandoning everyday life practices due to internet use. The second factor is “craving/social problems” which comprises of experiences of withdrawal symptoms and problems within one’s social setting as a result of excessive use of the internet.

*Attachment style.* Attachment style can be characterized in many forms; they can represent the particular ‘states of mind’ that an individual possess with regards to the phenomenon of attachment, or a cluster of behaviors, emotional expressions and attitudes that an individual engages in within a relationship with a closed one (Hunter et al., 2016). The attachment style of each participant in this study will be measured through the Adult Attachment Questionnaire (AAQ) which underlies two primary dimensions of attachment (Simpson et al., 1996).

The first dimension assesses as to whether an individual possesses a high or a low degree of attachment avoidance; this refers to the extent that he or she holds a negative perception regarding others and therefore attempts to refrain and disengage from being close
to others in a close affiliation (Simpson et al., 1996). People who possess high levels of attachment avoidance therefore consider self-reliance and independence to be essential (Hunter et al., 2016). They also have a tendency to restrain themselves from expressing any form of vulnerability so as to protect themselves against experiencing shame for their helplessness and dependence on others.

The second dimension measures an individual’s level of attachment anxiety; this reflects the extent to which an individual experiences conflicted emotions and thoughts as to whether or not other people can be relied on in a close affiliation (Simpson et al., 1996). These individuals prefer to be close to others who would bring them a sense of secure base and safe heaven and therefore excessively try to have them in close proximity; this is largely due to the distressing feelings they would experience upon having to deal with difficult situations on their own (Hunter et al., 2016).

Individuals who obtained low scores on both of these factors of attachment anxiety and avoidance would be considered to have the secure attachment style; they less frequently experience the issues related to the avoidant and anxious attachment styles (Simpson et al., 1996). Their adaptation capacity corresponds with the requirements of stressful situations, they are fully confident in their ability to function effectively when they are on their own while feeling comfortable requesting and gaining help from others when they are in need of it.

**Impulsivity.** The level of each participant’s impulsivity will be measured using the short version of the UPPS-P scale (Cyders et al., 2014). The scale assesses five facets of impulsive behavior. The first is ‘sensation seeking’ referring to the inclination to engage in novel and exhilarating experiences. The second is ‘lack of deliberation’ referring to the inclination to take an action before deliberating on the consequences of such action. The third is ‘lack of persistence’ referring to the lack of capacity to sustain concentration upon completing a certain assignment. The fourth is ‘negative urgency’ referring to the inclination to take a rash action
in times of experiencing extreme negative feelings. The last dimension is ‘positive urgency’ referring to the inclination to take a rash action in times of experiencing extreme positive feelings (Lynam et al., 2006).

**The link between internet addiction and impulsivity**

The relation between impulsivity and internet addiction has been previously established in several research studies. Zhou et al. (2014) found that variables such as impulsivity, deficiencies in the executive functioning, as well as working memory existed within those who had an addiction to the internet, as well as those who were dependent on alcohol. This finding is further supported by Kawa and Shafī (2015), who conducted a study among undergraduate students and discovered a significant positive relationship between internet addiction and impulsivity. Another study conducted by Zhang et al. (2015) discovered that impulsivity had a significant impact on an individual’s level of internet addiction. Moreover, Choi et al. (2014) found that those who had an addiction to the internet displayed greater degrees of trait impulsivity in comparison to healthy controls. Finally, Li et al. (2019) investigated the link between impulsivity and internet addiction from a gender perspective and found that impulsivity predicts internet addiction in both boys and girls.

**The link between internet addiction and attachment style**

Several studies have found a significant association between problematic internet use and attachment style. For example, a recent study by Eichenberg et al. (2017) found that subjects, who had an insecure attachment style, particularly the ambivalent attachment style, displayed a greater inclination towards pathological internet use in comparison to those, who had a secure attachment style. Furthermore, Odacı and Çıkırkı (2014) identified a weak but positive significant relation between the dismissive and preoccupied attachment style and
problematic internet use; they also discovered that university students, who reported to have a secure attachment styles, obtained lower scores in problematic internet use in comparison with students reporting to have an insecure attachment style.

The above-mentioned findings are further supported by Ceyhan et al. (2019), who suggested that individuals with the preoccupied attachment style and fearful attachment style had a higher likelihood of using the internet in a pathological manner. Moreover, they also found that the inclination towards social avoidance appears to act as a protective tool against pathological internet use; this conclusion was made based on the observation of individuals with the avoidant attachment style being less likely to use problematic regulation tactics online. D’Arienzo et al. (2019) on the other hand conducted a systematic review that investigated the evidence regarding the link between attachment style and social media or internet addiction. They included 32 articles that had been published between the year 2000 and 2018. Their results indicated that there was a significant positive relationship between the anxious and avoidant attachment styles and a problematic use of social media and internet.

**Rationale and hypotheses**

It has been observed that although various studies have investigated the impact of impulsivity on an individual’s level of internet addiction, as well as, the impact of attachment style on an individual’s level of internet addiction, no study thus far has investigated the combined impact of both impulsivity and attachment style on an individual’s level of internet addiction. Therefore, this study seeks to contribute to the current literature by investigating the impact of impulsivity and attachment style on an individual’s level of internet addiction. Moreover, previous studies that investigated the link between impulsivity and internet addiction have used the Barratt Impulsiveness Scale Version 11 in order to measure
impulsivity. Therefore, this study seeks to contribute to the current literature by using the UPPS-P Impulsive Behavior Scale instead, as a means of measuring impulsivity.

Based on the findings of previous research, it is therefore hypothesized that the impulsivity facets (namely Negative Urgency, Lack of Perseverance, Lack of Premeditation and Sensation Seeking and Positive Urgency) will positively and significantly predict internet addiction over and above gender, age, nationality and number of caretakers when growing up. The second hypothesis on the other hand, is that the insecure attachment style will positively and significantly predict internet addiction over and above gender, age, nationality and number of caretakers when growing up.

**Implications of this study**

This research would be of benefit to mental health professionals and the public as the findings would further inform them of certain risk factors related to internet addiction. They would then be aware of the factors that have significantly contributed to their problems related to internet addiction. Interventions could then potentially be geared towards targeting or avoiding these factors, so as to reduce the risk of being addicted to the internet.
Literature Review

Addiction

According to the American Society of Addiction Medicine (2015), ‘Addiction’ is defined as a medical affliction that is chronic, curable and includes several factors such as genetics, brain circuitry, environmental influences and life events interacting with each other in an intricate manner. Individuals who suffer from addiction problems consume or behave in ways that are uncontrollable and would persist in doing so in spite of negative consequences. The DSM-5 in particular, stated that there are nine forms of substance addictions listed in the domain of “Substance-Related and Addictive Disorders”, namely: tobacco, anxiolytics, caffeine, hallucinogens, cannabis, opioids, sedatives, inhalants, hypnotics and stimulants (American Psychiatric Association, 2013). Due to the evidence supporting various parallels between gambling disorder and substance use disorder, gambling disorder has therefore been added into this category as well (Grant et al., 2010). On the other hand, other forms of behavior such as pathological internet use, compulsive buying and excessive sexual behavior have not been added into the domain of “Substance-Related and Addictive Disorders” as evidence related to such behaviors are deemed as inadequate (Grant & Chamberlain, 2016).

What is internet addiction?

Typically, internet addiction is defined as the use of the internet in a manner that is disproportionate, involves uncontrollable preoccupation, actions and urges which could generate distress and life impairment (Weinstein et al., 2014). Majority of studies conducted regarding internet addiction used the research of Young (1998a) as its basis as she was one of the first researchers to provide its definition. Young (1998a) investigated with regards to whether or not internet addiction exists and defined it as an impulse-control disorder without the engagement of any intoxicant. Young (1998a) saw it as most similar to the diagnosis of
pathological gambling that is included in the DSM-IV as a diagnosis. Young (1998a) therefore adopted the diagnostic criteria of pathological gambling in an attempt to further incite greater research regarding its phenomenon and to facilitate support in clinical environments with regards to internet addiction.

In addition to Young, Griffiths (2000) is also one of the first investigators to provide a definition of internet addiction. He posited that a behavior is to be defined as addictive if it involves all of the main elements of an addiction. Therefore, he defined internet addiction as a type of behavior that meets the following six criteria. The first criterion is salience; this refers to the phenomenon whereby the use of internet has become the most central action in an individual’s life and that the individual is preoccupied with it mentally, emotionally and behaviorally. The second criterion is mood modification, referring to using the internet as a coping tactic as a result of positive subjective experiences such as feelings of evading unpleasant aspects of reality. The third criterion is tolerance, which is defined in terms of an individual’s need to raise the frequency of internet use in order to attain the former positive effects on their mood. The fourth criterion is withdrawal symptoms; this refers to the negative feelings or sensations that emerge when an individual attempts to stop or decrease the use of internet. The fifth criterion is conflict, corresponding with the individual experience of conflicts with the people around them due to internet use. The conflict may also occur with other activities such as his or her job, interests or internally when they subjectively feel out of control. The sixth criterion is relapse, referring to the phenomenon whereby an individual returns to his or her previous pattern of internet use after attempting to abstain or manage its use.

Tao et al. (2010) proposed the diagnostic criteria for internet addiction after exploring the qualities of in an extensive study done on Chinese patients who had been observed and concluded as to be addicted to the internet. The exclusion criteria included individuals with bipolar I disorder or psychotic disorders. The study then posited that both preoccupation with
internet use and withdrawal symptoms resulting from lack of internet use need to be present. Additionally, one or more of the following criteria need to present: the use of internet to evade or appease an unpleasant mood like anxiety or guilt, no longer having any interest in engaging in previous hobbies due to the use of the internet, a state of tolerance, the continual engagement of the internet despite being aware of the physical and psychological ramifications, and the desire and/or failed efforts to stop or decrease the use of the internet. Additionally, the use of the internet must have impaired an individual’s functioning, which may include losing important relationships, work or educational opportunities. The addiction would have to occur for a duration of at least three months or the individual would have to engage in an irrelevant use of internet for at least six hours a day.

Gmel et al. (2017) on the other hand attempted to provide a working definition of internet addiction and recognized 7 criteria that would give an individual an internet addiction diagnosis. They stated that internet addiction happens when an individual uses the internet recurrently and persistently in a manner that steers towards clinically significant distress. The individual will be displaying four of the 7 criteria of internet addiction for a minimal period of 3 months: The first criterion involves being absorbed with the internet to the degree that the individual thinks about using the internet even during moments of being away from it. Additionally, such thoughts would occur disproportionately throughout the entire day. The thoughts of the individual would revolve around their internet activities that they recently engaged in or the next time they will be online. The second criterion involves symptoms of withdrawal in the form of boredom, anxiety, sadness, dysphoric mood or irritability. Such symptoms would be experienced when an individual is unable to engage in Internet use for a certain duration or when he or she is deliberately attempting to cease the use of the internet. The third criterion involves the experience of tolerance whereby the individual feels that in order to feel fulfilled, he or she will need to use the internet to a higher degree. The individual
may also feel less satisfied when engaging in internet use. The fourth criterion involves having the insistent desire to govern, reduce or stop the use of internet but failing in such attempts. This may also involve periods of relapse. The fifth criterion involves proceeding with the disproportionate use of internet in spite of knowing the repeated and persistent psychological, social and physical ramifications of doing so. Such ramifications may involve the abandonment of important roles, adverse effects on health, compromised or loss of significant career prospects, important relationships and educational opportunities. The use of internet may also act as a hindrance to such prospects. The sixth criterion involves the addicted individual losing interest in engaging in entertainment and hobbies that he or she previously enjoyed. This may also occur due to the direct effect of internet use, which steers the individual towards being socially isolated, lonely and having limited social connections. Finally, the seventh criterion involves using the internet in a way that allows the individual to evade or alleviate negative feelings such as anxiety or guilt; these negative feelings exist from personal experiences that are unrelated to the use of internet. The disproportionate use of the internet also needs to not be better explained as a symptom to other mental disorders.

**Alternative explanations to internet addiction**

However, Gmel et al. (2017) also claimed that it remains open to discussion regarding whether or not Internet addiction truly exists, or there are other core disorders that exist underneath it such as mood disorders wherein the internet addiction is merely secondary. It may also be the case that these addictions are in fact behavioral in nature; for example, it may be that the individual suffers from gaming addiction, which would perpetuate even without the internet or that the internet is simply used as the platform of choice to satisfy such behavioral addictions. Moreover, some researchers refute that there is the existence of an internet addiction
and claim that there is only the use of internet, which is problematic and may generate unpleasant ramifications.

Gmel et al. (2017) therefore attempts to provide working definitions, which differentiate between internet addiction and problematic internet use. Firstly, it was stated that when internet addiction is diagnosed, problematic internet use is not to be used. Problematic internet use involves the capacity to happen on its own, or as a part of other primary mental health difficulties. It may also involve using the internet as a platform to fulfill addictions which are behavioral in nature. Furthermore, problematic internet use is defined as a pattern of being cognitively preoccupied with the internet in a way that leads to negative consequences occurring at work, school or home setting. It may also involve the inability to control the use of the internet, the experience of withdrawal symptoms or tolerance. However, the most central component of problematic internet use is the development of negative ramifications due to internet use. It is also viewed as an entity that is dimensional in nature; therefore, its severity rises in a continuous way instead of as a diagnosis with a clear cut-off point as is the case for internet addiction. It may be present underneath behavioral addictions such as gaming or online shopping or other disorders wherein the internet simply acts as the platform of choice for such addictions. It may also be that problematic internet use manifests itself simply as a symptom, but internet addiction diagnosis is not met. Additionally, while assessing an individual’s level of problematic internet use, only internet use that involves inessential content (ones unrelated to work or studies) need to be assessed.

Kardefelt-Winther (2014) on the other hand suggests that instead of viewing internet addiction as pathological and compulsive in nature, it would be better understood as a manner of coping that relieves negative emotions arising due to negative events in life. It is therefore seen as a compensatory tool used in reaction to unfavorable life circumstances. An example of this phenomenon would be that if an individual lacks social interaction in his or her real life,
the internet will then be used to allow him or her to interact with people through social media or gaming websites. This then yields both negative and positive results: it is positive as it provides relief to the individual from negative emotions. At the same time, it is negative as it enables the individual to make no attempt to socialize in the real world. This could potentially lead to a form of dependency on the internet to provide an individual with such social stimulation. This behavior may be viewed as a form of internet addiction when seen from a pathological standpoint even though it involves no compulsive engagement of the internet. Instead, it is rooted in an understandable motivation to use the internet as a compensatory tool for the lack of something in an individual’s life. As a result, this may generate negative ramifications, as well as, a set of criteria that resembles an addiction because of the degree of compensation needed to relieve undesirable emotions.

**Prevalence of internet addiction**

Rumpf et al. (2014) conducted a telephone survey on a sample of 14,022 participants, who were of the age of 14 to 64 and found that the prevalence of probable internet addiction among the entire sample was 1 %. However, it was prevalent at a rate of 2.4 % among 14 to 24 year old participants and 4 % among 14 to 16 year old participants. On the other hand, Pontes et al., (2015) conducted a review of the clinical psychology of internet addiction using 12 studies, which were published between January 2014 and February 2015 and stated that the prevalence rate varied from 1 % to 18.7 %.

Moreover, Cheng and Li (2014) conducted a meta-analysis among 31 nations and discovered that there was a prevalence of approximately 6 % among the global population. It was also found that the prevalence rate was highest among the Middle Eastern population (10.9 % prevalence rate) and lowest among Northern and Western European population (2.6 % prevalence rate). Additionally, internet addiction prevalence was observed to be greater among
countries that had higher pollution, life dissatisfaction and traffic time consumption. The latest study conducted on the prevalence of internet addiction was done by Poli (2017), who discovered that it tended to largely vary from 0.7% to 27.7%. However, it was eventually concluded that Internet addiction was prevalent at a rate of around 2% among the adult population in general.

Predictors of internet addiction

Several studies have discovered certain predictors to internet addiction. For example, Anderson et al. (2017) conducted a systematic review on 29 studies that investigated patterns surrounding problematic internet use and internet use among young adults and adolescents. They found that majority of the studies focused on individual qualities that are linked to internet use or problematic internet use. Based on the reviewed studies, some predictors of problematic internet encounter psychopathological factors such as depression, social anxiety, psychological stress, anxiety, ADHD, Autism Spectrum disorder. Some of these factors (add which ones) have also been detected as a repercussion of problematic internet use. They also concluded that males were at a larger risk of engaging in problematic internet use compared to their female counterparts. They further discovered that personal traits including higher levels of neuroticism and extroversion and lower levels of self-control and impulsivity were associated with higher levels of problematic internet use. Moreover, hostility was found to predict problematic internet use across people of various cultures and that development of adolescents that was positive and greater life fulfillment were correlated with decreased engagement in problematic internet use. They also showed certain social factors that were related to problematic internet use; for example, parenting and positive family qualities act as protective factors against problematic internet use. On the other hand, family qualities that were more dysfunctional predicted higher engagement in problematic internet use.
Another study conducted by Kuss et al., (2014) systematically reviewed the epidemiological research studies regarding internet addiction across the last decade. They found that among the adolescent population, factors associated with internet addiction include the need to manage mood, high levels of loneliness, adverse life events, having lack of supportive friends, preference in communicating with people online to communicating with people in the real world, the tendency to seek newness, the tendency to evade harm, having low levels of fulfillment in life, decreased sense of well-being, low levels of frustration tolerance, low levels of self-esteem, low levels of rewards dependence, low agreeableness, low conscientiousness, low social adjustment, poor academic performance and school involvement, high levels of introversion, leisure boredom, perceived parental supervision, lack of fulfillment with one’s family, having family members or friends who drink alcohol and parent’s positive attitude towards substance use.

Among the adult population on the other hand, factors that were detected to be significantly associated with internet addiction were found to be high levels of impulsivity, high levels of loneliness, high levels of fun-seeking behaviors, the tendency to escape unpleasant events and negative feelings, the insecure attachment style, experiencing negative treatment in childhood, missing home, engaging in social practices that were maladaptive, being susceptible to social threats and the tendency to skip eating breakfast in the morning. Additionally, adults that possessed low levels of agreeableness, low levels of emotional stability, lacked social support, felt unfulfilled with one’s academic achievement, had a negative self-image and experienced a deprivation of affection from family members were also found to be significantly related with internet addiction.

*The link between internet addiction and negative factors*
The phenomenon of internet addiction has been linked to various adverse effects. Cheng and Li (2014) conducted a meta-analysis which included 80 reports and subjects from 31 nations. It was found that internet addiction is negatively correlated with quality of life; this includes both objective life quality involving attributes such as the quality of the environmental circumstances, as well as, subjective life quality, which assess attributes such as the individual’s perception of his or her life satisfaction.

Some studies also found a relationship between internet addiction and low academic performance. For example, Khan et al. (2016) found that the internet addiction scores obtained by medical students were inversely associated with academic performance. Hence, it was concluded that using the internet excessively can render an individual addicted to it, which eventually negatively impacts their academic grades. Moreover, Singh and Barmola (2015) found that school students, who were severely addicted to the internet experienced certain negative effects on their mental health and the level of academic achievement compared to those, who were only moderately addicted to the internet. Ambad et al. (2017) further supported this finding with their discovery of a negative relationship between internet addiction and students’ level of academic achievement. They also stated that internet addiction is correlated negatively with a student’s emotional stability. This then may lead to a worse academic performance.

Additionally, based on a systematic review of prospective and longitudinal studies, internet addiction was found to have an adverse impact on the mental health of adolescents (Lam, 2014). Sleep difficulties were found to be one of the adverse effects of internet addiction. For example, it was found among 3000 university students from Turkey, who were 18 to 25 years old that internet addiction was positively correlated with unhealthy diets, fatigue and difficulties with sleep (Bener, et al., 2019). Furthermore, Kim et al. (2017) appears to support such finding when they discovered that individuals, who were addicted
to internet displayed more impairments in their daytime functioning, had greater difficulty falling and staying asleep, had poorer sleep quality and frequently slept for more than 10 hours compared to individuals without internet addiction.

Finally, internet addiction has also been linked to various forms of family dysfunction. For example, Wu et al. (2016) found that adolescents, who were addicted to the internet were at a greater risk to experience conflict, low-income, divorce and severe dysfunction in their family. Additionally, adolescents with internet addiction or used the internet problematically have been found to be more dissatisfied with their family, came from families, which were unorganized or inflexible, experienced more conflict in the family, viewed their parents as being less supportive and more punishing in comparison to adolescents, who were not addicted to the internet (Li et al., 2014). These addicted adolescents were also more likely to be an only child living with a single parent, or more likely to have had parents, who were divorced compared.

Impulsivity

The term impulsivity refers to actions that have been poorly considered, lack appropriateness to the current situation, involves risks and are hastily expressed (Daruna & Barnes, 1993). Moreover, it has also been described as a construct that is multidimensional (Whiteside & Lynam, 2001; White et al., 1994). Evenden (1999) also posited that instead of there being only one form of impulsive behavior, there are many various types of impulsive behavior. Such behavior might also be contributed by different underlying biological processes making it challenging to unravel its single biological cause. Evenden (1999) also stated that there is evidence provided by many psychological research studies on personality
factors that impulsivity consists of several independent dimensions that give expression to different forms of behavior.

Enticott and Ogloff (2006) proposed a three-tiered conceptualization with regards to impulsivity. The concept of impulsivity is herein divided into three main levels of inquiry namely: the individual level, the expression level and the causal level. In the individual level, the primary focus is upon the population groups that are labeled as impulsive. Majority of such groups belong to the clinical population but the non-clinical population (who are labelled impulsive) are also included. Some of these groups possess trait impulsivity; the form of trait impulsivity may be clinically significant or clinically insignificant. The other groups on the other hand do not possess any form of trait impulsivity; they may be impulsive due to some manner of neurological damage or due to being intoxicated. These groups are very different from each other despite being given the label ‘impulsive’. The nature of impulsivity may be stable over time, transitory such as one acquired from intoxication, specific such as one included in ICD NEC (Not Elsewhere Classified) or general such as trait impulsivity. It also may be related to a disorder, named as one of the criteria in the diagnosis of a disorder or appear as the primary quality of a disorder.

In the expression level, Enticott and Ogloff (2006) detected certain perceivable behaviors that are considered as impulsive. After searching the literature, they found that these behaviors appear as the inability to hold back a particular action until the right time and swift responses. They also appear as behaviors that had been executed negatively due to a lack of preparation and involve risks and dangerous situations. Certain behaviors express themselves in certain psychiatric diagnoses such as ADHD and antisocial personality disorder. Although these behaviors are expressed differently, there are some common underlying patterns shared between them: they are unusual, contains swift and poorly
planned responses and are possibly dysfunctional. Moreover, although the behaviors appear alike in character, they are not to be perceived as identical.

In the causal level, Enticott and Ogloff (2006) claimed that it is the most clinically important aspect of impulsivity; they have recognized certain underlying explanations to the different types of impulsive behaviors according to the current literature. Such explanations include inhibitory dysregulation, deficits in planning, a dislike of delaying, and a higher autonomic stimulation. However, such causal explanations to various impulsive behaviors are often difficult to comprehend and involve significant overlaps. Researchers also held disputes as to the processes that generate impulsive behavior and perceive them as identical and capable of being interchanged with each other.

Moeller et al. (2001) on the other hand proposed that impulsivity would fill the missing space between research and clinical work. They claimed that the definition of impulsivity needs to incorporate three distinct components: a reduced awareness of the adverse ramifications of one’s behavior, swift and poorly planned responses before the full processing of stimuli and the absence of consideration of long-term difficulties. Impulsivity is also regarded as an innate inclination and an aspect of a pattern of behavior instead of one particular action. It involves rapid and poorly planned action that happens before any conscious consideration of its consequences is exercised. This quality is distinct from behaviors that are compulsively conducted or compromised judgments, during which conscious consideration is exercised before the act. Impulsivity has also been stated to involve risk-taking but is not necessarily the outcome of the forms of risk associated with sensation seeking.

Based on the five-factor model of personality and the multidimensional model of impulsivity, Whiteside and Lynam (2001) proposed a four-factor model of impulsivity
consisting of negative urgency, lack of premeditation, lack of perseverance and sensation seeking. Negative urgency refers to a behavior that is impulsive and poorly considered in times of stress. It may also involve the incapacity to persevere when experiencing cravings, overconsumption, and acting impetuously when dealing with negative emotions. Lack of premeditation refers to behaving in the moment without reflecting on the ramifications of such behavior. Such dimension encapsulates the traditional characterization of impulsivity. It also may be related to several mental disorders that include deficiencies in executive functioning. Lack of perseverance on the other hand refers to the incapacity to sustain concentration and overlook distractions during challenging or boredom-inducing undertakings. Finally, sensation seeking refers to the pursuit of risky and exhilarating activities. Whiteside and Lynam (2001) also found that the negative urgency facet of impulsivity was correlated with the neuroticism dimension of the Five-Factor model of Personality. Lack of premeditation on the other hand was correlated with a low deliberation aspect of the conscientiousness dimension while lack of perseverance was correlated with the low self-discipline aspect of the conscientiousness dimension. Finally, they found that sensation seeking was correlated with the aspect of the extraversion dimension related to the pursuit of excitement.

Additionally, impulsivity has been found to be associated with a variety of factors. Paulsen and Johnson (1980) asserted that is it a common feature among children who display various problematic behaviors such being hyperactive and hyperkinetic, learning disabilities, deficits in problem solving skills, lower scores in intelligent tests as well as conduct issues.

In conclusion, it could be suggested that impulsivity and a diverse construct which makes it imperative to operationalize it prior to conducting research related to it.
The link between impulsivity and negative factors

Various studies have found a positive association between impulsivity and a lower level of intelligence. For example, Vigil-Coleţ and Morales-Vives (2005) found that there was a negative relationship between impulsivity and intelligence, especially crystalized intelligence (the capacity to put into use previously learned information and experience). Moreover, they also discovered a positive association between impulsivity and poor academic performance. They further suggested that impulsivity may function as a moderator between a person’s intelligence level and academic accomplishments.

Furthermore, Russo et al. (2008) claimed to have found a negative relationship between impulsivity and mental aptitude. A high degree of impulsivity was seen to be linked with a decrease in cognitive performance in intelligence tests. They speculated that this could be due to the fact that individuals with high impulsivity possessed a lesser capacity to ignore information that were irrelevant to the task at hand. Therefore, impulsivity serves as a disadvantage on task performances such as an intelligence test performance requiring sustained focus and attention.

Another study conducted by Lozano et al. (2014) among 174 university students found that impulsivity was negatively associated with both intelligence and academic achievement. They also added that impulsivity and an individual’s level of intelligence significantly predicted level of academic achievement.

Several studies also found a significant relationship between impulsivity and risky sexual behavior. Dir et al. (2014) conducted a meta-analytic review and found a slight yet significant positive correlation between impulsivity and engaging in sexual behavior in a risky way among adolescents. Additionally, it was detected that female adolescents demonstrated a stronger relationship between impulsivity and risky sexual behavior.
compared to male adolescents, indicating that impulsivity serves as a stronger risk factor for risky sexual behavior among female adolescents.

Birhrong and Latzman (2014) on the other hand found that an inclination towards impulsivity in a situation where strong emotions are present behaves as a risk factor for various forms of risky sexual behaviors. They therefore concluded that impulsivity renders an individual more susceptible to engaging in risky sexual behaviors with the lower-order aspects of impulsivity acting as greater risk factors for certain forms of risky sexual behaviors.

Moreover, Derefiniko et al. (2014) found that aspects of impulsivity such as risk-taking behaviors and sensation seeking acted as predictors to the number of sexual partners that a young man may have. This therefore indicates that among young men, having new sexual partners is related to the urge to find reward, excitement, and the eagerness to engage in risky behaviors in order to satisfy such urges. It was also found that sensation seeking and risk-taking behaviors are associated with engaging in a sexual behavior with a stranger. Additionally, regression analysis that they conducted also revealed that young men who acted impulsively in a situation where negative feelings were involved were more likely to be neglectful of the use of condoms.

Several studies have also suggested a link between impulsivity and various forms of eating disorder. For example, Lavender and Mitchell (2015) found that individuals suffering from bulimic-spectrum disorders manifested higher levels of impulsive inclinations as opposed to individuals in control groups or suffering from restrictive eating disorders. The main facet of impulsivity that had the strongest correlation with symptoms of bulimia was negative urgency; this refers to the inclination to become less constrained upon experiencing negative emotions.
Another study conducted by Meule and Platte (2015) found that motor as well as attentional impulsivity acted as positive predictors to binge eating and general eating disorders while non-planning impulsivity acted as a negative predictor to such eating disorder variables. Additionally, motor as well as attentional impulsivity acted as predictors to body fat percentage and the amount of subjective and objective episodes related to binge eating. It was also found that motor and attentional impulsivity were related positively with binge eating and body mass. Non-planning impulsivity on the other hand seemed to be unassociated with such variables among female participants. Therefore, it was concluded that higher degrees of motor and attentional impulsivity in an individual pose as a risk factor to being overweight and involved in binge eating.

In support of Meule and Platte’s (2015) findings, Murphy et al. (2014) found that impulsivity was indirectly related to body mass index through its correlation with consuming food in an addictive way. Specifically, the impulsivity aspects of negative urgency and lack of perseverance were positively correlated with being addicted to food. This correlation then acts a contributing factor to the positive relationship between impulsivity and BMI. They thus concluded that having a predisposition to impulsivity might behave as a significant risk factor to consuming food in an addictive way.

**The link between internet addiction and impulsivity**

Several studies have found a relationship between impulsivity and internet addiction. For example, Zhou et al. (2014) found that variables such as impulsivity, deficiencies in the executive functioning, as well as, working memory existed within individuals who were addicted to the internet, as well as those who were dependent on alcohol. Therefore, it was concluded that individuals who were addicted to the internet were similar to alcohol-
dependent individuals in the way that they both had high levels of impulsivity as well as some deficiencies in their executive functioning.

Chandiramani (2014) on the other hand found a significant association between overall impulsivity and certain facets of internet addiction among adolescents, indicating the psychopathological aspect of internet addiction. The study also found that the relation between these two variables was stronger among adolescents, who were 13 to 15 years of age in comparison to adolescents, who were 16 to 18 years of age. This finding is further supported by Kawa and Shafi (2015), who conducted a study among undergraduate students and found a significant positive relationship between internet addiction and impulsivity.

Another study conducted by Zhang et al. (2015) discovered that impulsivity had a significant effect on an individual’s level of internet addiction. The relationship between impulsivity and level of internet addiction was mediated by meaning of life and self-esteem. This implies individuals, who were impulsive, lacked meaning in their lives and had low level of self-esteem, would be more vulnerable towards engaging in problematic behaviors including being addicted to the internet. This also implies that having a sense of meaning in one’s life, as well as a healthy level of self-esteem could potentially be protective factors against high levels of internet addiction, particularly for highly impulsive individuals.

Moreover, Choi et al. (2014) found that individuals, who were highly addicted to the internet displayed higher levels of trait impulsivity compared to healthy controls when they were observed to attain lower scores in a computer-based test that assessed an individual’s level of impulsivity and inhibitory functioning. Li et al. (2019) investigated the link between impulsivity and internet addiction from a gender perspective and found that impulsivity predicts internet addiction in both boys and girls. They postulated that young people pursue internet in order to gain the easily accessible rewards that it has to offer; adolescent boys,
who are highly impulsive would therefore easily be susceptible to internet addiction as these readily available rewards (such as online gaming) perpetuate their internet habits. Adolescent girls on the other hand, who are highly impulsive and more aversive to negative stimuli (such as being punished or scolded by other people) are susceptible to being addicted to the internet because it enables them to feel less lonely and a part of a group (Park et al., 2013, as cited by Li et al., 2019).

Moreover, Koo and Kwon (2014) conducted a meta-analysis using 95 research articles with a sample size of 59,283 Korean participants and found that intrapersonal variables such as stress or personality traits, were observed to have a greater impact on the level of internet addiction than variables that were interpersonal such as relationship difficulties. They also found that some of the variables with a significant medium to strong relationship with internet addiction were low self-control, poor emotional regulation and attention problems. They therefore concluded that working towards improving the addicted individual’s level of self-control would be an effective intervention technique at reducing their internet use.

Furthermore, Burnay et al. (2015) found a significant positive relationship between internet addiction and specific facets of impulsivity namely urgency and lack of perseverance. Urgency is characterized as an individual’s inclination to behave hastily in times he or she is dealing with negative feelings. Therefore, it was suggested that in circumstances whereby an individual is experiencing negative emotions, they would act in a rash manner and engage in internet use in an uncontrollable way. Lack of perseverance on the other hand is characterized as an individual’s lack of capacity to sustain concentration during challenging activities. Therefore, it was suggested that a potential reason as to there being a relationship between internet addiction and lack of perseverance is that an individual
may attempt to use the internet as a way to cope with or decrease inessential or intrusive thoughts. Another potential explanation could be that his or her tendency to experience intrusive thoughts and attention vacillation may perpetuate the internet addiction; for example, he or she may ruminate on thoughts surrounding the next moment he or she may use the internet.

On the other hand, Şimşek et al. (2019) discovered that there was no significant relationship between total scores of internet addiction and total scores of impulsivity. Based on a regression analysis, they found that overall impulsivity, motor, non-planning and attentional impulsivity explained 25.4% of internet addiction. They therefore concluded that impulsivity has a significant effect on internet addiction even without this direct relation.

**Attachment theory**

According to Bowlby (1969), the term ‘attachment’ is defined as the inclination that exists within young infants to pursue closeness with caretakers who are consistently available during periods of distress, worry or vulnerability and seeking comfort from such closeness. This theory of attachment was drawn deeply from evolutionary theory, which suggests that such behaviors have developed due to natural selection in order to optimize reproduction and survival.

Therefore, it has been further postulated that children have an inborn mechanism called the attachment behavioral system that drives them towards searching for closeness with key individuals who are supportive as a form of self-protection against psychological disturbance or physical danger; this then would enable them to attain greater well-being, facilitate emotional regulation and enhance their sense of self-competence (Bowlby, 1982). In spite of the fact that such inborn attachment behavioral system is most significant in the
early phase of an individual’s life, it is still operating throughout his or her whole life and contributes to the development and sustenance of adult relationships (Bowlby, 1988).

Additionally, Bowlby (1969) suggested that there is a cognitive element involved in the formation of the attachment behavioral system known as the internal working model. This model largely operates subconsciously and refers to mental representations of the self, others and attachment figures that have been organized primarily through life experiences. This model also enables the individual to predict what is to occur in the future and choose particular behaviors related to attachment that are to be employed with a particular person in a certain setting. These specific behaviors may involve conveying the message to the caretaker that the child wishes to be closer to him or her such as pursuing and following the adult or smiling and laughing. Some other behaviors such as crying may imply that the child is under distress and motivate the adult to lessen it.

Furthermore, according to Bowlby (1973), the internal working model is characterized as having two primary aspects. The first aspect involves looking towards the external environment; it forms a cluster of expectations with regards to what is considered as distressing in the environment and what an individual may most likely expect from their attachment figures in times of distress. These expectations have been internalized through firsthand experiences in significant relationships over the course of an individual’s lifetime. The second aspect of the internal working model acts as an internal compass as to the way an individual would respond in times of distress. It would involve a specific set of behaviors that an individual would consistently and predictably engage in during the times that they are threatened in a way that activates their attachment behavioral system.

When the key caretakers of an individual in their early years were essentially available during periods of urgency, supportive and empathetic to requests for closeness and
care, this will then create a steady formation of the attachment security and lead to the positive perception of the individual’s self, as well as, that of others (Bowlby, 1973). But when such key caretakers were experienced as being generally unhelpful and unavailable, pursuits of closeness did not alleviate affliction, the individual’s sense of safety will be compromised. This will then lead to the formation of negative perception of self and others, and an insecure attachment style towards the key caretakers in early life and towards closed ones in later adult relationships (Bowlby, 1973).

According to Belsky (2002), it was observed that with regards to individual differences in attachment styles, there appears to be two primary theoretical frameworks. The first framework is based on the concept that attachment style mirrors and impacts an individual’s internal working model and therefore molds the manner in which the individual perceives themselves, others and relationships as a whole; attachment style of an individual therefore functions as a type of internal guide assessing his or her experiences in life, especially experiences with others. This then forms the way he or she acts in relationships with closed ones. The second framework is based on the concept that individual differences in attachment style and internal working model are products of life experiences, primarily experiences during the early stages of an individual’s life.

**Attachment in adulthood**

Bowlby (1979) also asserted that the tendency towards finding such attachment figures who give a sense of safety and forming emotional bonds to them can also be observed in romantic relationships in adulthood. This is due to the fact that a romantic relationship
with a partner includes the formation of an emotional bond that is akin to the emotional connection that exists between a child and his or her key caretaker (Shaver et al, 1988). For example, the relationship with a significant other in both childhood and adulthood include physical touch and closeness, a need to be supported and comforted in periods of stress, feeling upset over imagined or real separation with the significant other and feeling happy during moments of reconciliation. Shaver et al., (1988) therefore asserted that due to many similarities between a child’s relationship with a caretaker and an adult’s relationship with a romantic partner, such relationships share the same basic attachment mechanism.

Bowlby (1982) described certain qualities of that an individual should possess in order to be considered as an ‘attachment figure’ to someone in form of a partner or caregiver. Firstly, the attachment figure will be sought after for closeness. It is suggested that human beings across all ages have a tendency to pursue and be pleased with being near to their attachment figure during stressful periods and to feel some sense of distress when they have to part with their attachment figure. Secondly, an individual’s attachment figure will have to be a source of emotional and physical safety; they decrease the individual’s discomfort and provide help and ease during turbulent times. Thirdly, an individual’s attachment figure will also act as his or her secure base; this is a platform from which he or she is able to discover and acquire knowledge about the world and cultivate individualistic qualities and talents. Fourthly, the imagined or real loss of the attachment figure will produce intense feelings of distress.

Furthermore, Hunter et al., (2016) summarized that the different types of adult attachment can be perceived in various forms; as ‘states of mind’ regarding the phenomenon of attachment, or as groups of behaviors, attitudes and emotional expressions within a relationship with closed ones. They further described that there exist two dimensions of
insecure attachment style, namely attachment avoidance and attachment anxiety; this eventually produce five different types of attachment style. In this classification system, one dimension which is the attachment anxiety can be marked along the X-axis; this dimension refers to the extent of distress that an individual may feel upon having to separate from their attachment figure. Another dimension, which is attachment avoidance can be marked along the Y-axis; this refers to the degree that an individual feels discomfort upon being crowded by or close with another person. Since every individual possesses a particular attachment style, each of these styles exists on a specific location within this two-dimensional grid, according to the extent that he or she is susceptible to experiencing attachment avoidance and attachment anxiety.

**Different types of attachment styles**

According to Hunter et al., (2016) an attachment style which exists near the point of origin within the grid indicates that individuals with that particular attachment style is content with being close to another person and feels a low level of separation anxiety within a relationship. This style is called a ‘secure attachment style’ and individuals with this attachment style have the ability to adjust fittingly to stressful events; they are confident in their capacity to function efficiently on their own but are also comfortable with requesting for assistance and receiving assistance from others should there come a time that they require it.

Furthermore, farther along the X-axis, there exists the position for the preoccupied attachment style; individuals with this particular attachment style have a tendency to experience a high degree of separation anxiety. They have a strong preference towards closeness with individuals who provide them with a safe haven and secure base and they
would excessively attempt to have those individuals near them due to the distress that they would experience when they are left on their own during difficult circumstances. Some techniques which are often employed in order to achieve this would be clinging, weeping or gestures of needing another (Hunter et al., 2016).

Further upwards along the Y-axis would lie the position for the dismissing attachment style; individuals with this particular attachment style consider being self-reliant and independent to be important. They also tend to suppress expressions of vulnerability in order to prevent themselves from being humiliated for their dependency and appearing helpless (Hunter et al., 2016).

On the other hand, individuals who possess an attachment style characterized by high levels of both attachment avoidance and attachment anxiety are considered to have a fearful attachment style; they struggle with feeling apprehensive about being on their own but also feeling mistrustful and wary about being close to others. This in turn would often leave them in a state of great anguish; they would however be reluctant about making any effort into seeking others for support despite their distress (Hunter et al., 2016).

The four attachment styles described above namely: secure attachment style, preoccupied attachment style, dismissing attachment style and fearful attachment style are characterized as organized styles of attachment. In any case where an individual encounters a situation that jeopardizes his or her sense of safety, he or she will automatically mobilize the same set of secure or insecure behavioral responses each time depending on his or her attachment style. Therefore, it can be said that these four forms of attachment styles act as a steady and reliable attachment approach in regards to relating to other people in close relationships (Hunter et al., 2016).
The last form of attachment style that will be described is the disorganized attachment style; it appears to be dissimilar from the other four organized styles of attachment. This is due to the fact that the disorganized attachment style is suggested to be a result of childhood experiences that involve fear without any possibility of escape or solution. The caretaker who was supposed to provide safety and support ended up being the source of fear or was incapable of providing sufficient solace during threatening situations (Lyons-Ruth & Jacobvitz, 2008, as cited in Hunter et al., 2016). Some characteristics of individuals with the disorganized attachment style include engaging in certain contradictory behaviors towards attachment figures; this may involve simultaneously belittling and identifying with an aggressive or incapable caretaker, vacillating between employing dismissive and preoccupied attachment strategies and frequently presenting incoherency in their narratives (Hunter et al., 2016).

**Attachment styles and early life experiences**

An individual with a secure attachment style has most likely experienced their caretaker as being dependable, receptive and sensitive to their needs. This then brings forth the formation of an internal working model that involves perceiving others in one’s social environment as being dependable, supportive and receptive to one’s needs. The internal working model of the secure attachment style consists of a set of flexible behavioral strategies; it involves both pursuing closeness and intimacy from others, yet feeling content with being independent, depending on the situation one is faced with (Hunter et al., 2016).

An individual with a preoccupied attachment style on the other hand will have an internal working model that has been organized in a circumstance of unreliable exchanges with an attachment figure, who might have been mentally or emotionally unstable or preoccupied as well. Hence, an individual with a preoccupied attachment style will hold
expectations that others will be inconsistent in their support and responses towards him or her. Moreover, the individual will also constantly engage in behaviors that imply a sense of helplessness and neediness with the objective of ensuring that the attachment figure is near him or her. These behaviors can include seeking proximity through following or clinging to the attachment figure (Hunter et al., 2016).

An individual with the dismissing attachment style on the other hand has discovered through experiences with a caretaker that he or she must not display any sense of helplessness or despair. His or her internal working model therefore consists of the belief that the most effective manner of sustaining bonds with closed ones is to appear free of requiring anything from them. The model also consists of the expectation that his or her attachment figure will be inconsistent and insufficient in providing support or will humiliate him or her upon displays of distress. He or she therefore has developed behavioral tendencies, which are inclined towards self-support and independence. The individual would also attempt to restrain any demonstrations of discomfort or pain in order to effectively communicate the message that he or she requires no help in times of distress. There may also be cases where the individual would view any inquiry regarding his or her welfare as undesirable (Hunter et al., 2016).

Moreover, an individual with a fearful attachment style was likely to have experienced his or her caretaker as being invasive or abusive. He or she has developed an internal working model, which consists of the expectation that the giving of support from his or her caretaker will be unavailable; he or she will then consequentially attempt to persevere alone in times of distress due to the fear of requesting for any support. This will therefore result in contradictory behaviors in which the individual will vacillate between displaying acts of neediness and detachment from others by retreating into solitude or being aggressive towards others (Hunter et al., 2016).
Finally, an individual with a disorganized attachment style most likely have had a childhood environment where there was inescapable fear. This may have been due to the caretaker being characterized as threatening or fearful themselves that they became incapable of giving any sense of security and support (Lyons-Ruth and Jacobvitz, 2008, as cited in Hunter et al., 2016). It may also be that the infant’s feelings of distress were not fully alleviated by the caretaker and these feelings turned overwhelming. Therefore, the internal working model of someone with a disorganized attachment style would not result in any consistent set of behaviors; he or she would be engaging in both dismissing and preoccupied manner of behaving and be unable to articulate his or her wishes to others effectively. This then would most likely result in pushing those, who may wish to support them away, due to feeling distressed by the contradictory and extreme set of behaviors (Hunter et al., 2016).

The statements mentioned above appear to be supported by current research. For example, Gleeson and Fitzgerald (2014) found that individuals with a secure attachment style used more positive words when giving a description of their parents’ characteristics and the relationship between their mother and father. They claimed that their mother had a great confidence in herself and was empathetic, whereas their father gave them ample attention and understood them well. Individuals who had a more avoidant and fearful attachment style on the other hand used more negative terms when giving a description of their parents and the relationship between their parents. For example, they would state that their mother was unreliable and erratic whereas their father was indifferent and problematic. Their parents’ relationship on the other hand was said to be filled with dissatisfaction.

**The link between attachment style and negative factors**
An individual’s attachment style has been observed to play a huge role in his or her mental well-being. Various research studies have found relationships between different attachment styles and negative psychopathological outcomes. For example, Woodhouse et al. (2015) conducted a meta-analysis investigating the correlation between the different attachment styles and symptoms of post-traumatic stress disorder using 46 research studies. They then discovered that there was a moderate relationship between the secure attachment style and lesser symptoms of post-traumatic stress disorder. Moreover, they also found a moderate relationship between the insecure attachment style and greater symptoms of post-traumatic stress disorder; the fearful attachment style had the strongest relationship. The dismissing attachment style on the other hand was found to have no significant relationship with symptoms of post-traumatic stress disorder.

Additionally, Tasca and Balfour (2014) conducted a review examining all studies investigating the link between attachment style and eating disorders since 2000 and extracted 50 significant studies. They then concluded that individuals with eating disorders were more insecure in their attachment style compared to the control group; the anxious attachment style in particular was correlated with severe symptoms of eating disorder although this association was mediated by other factors such as perfectionism and emotional regulation tactics.

Korver-Nieberg et al. (2015) on the other hand found links between the different forms of attachment style and dimensions of psychopathology among a huge group of patients suffering from psychosis across Israel, Netherlands and United Kingdom. They found that there was a relationship between attachment anxiety and both affective and psychotic symptoms in regard to psychosis. Attachment avoidance on the other hand was linked to hallucinations and positive symptoms of paranoia. Moreover, the secure attachment style was linked to decreased levels of psychopathological symptoms. Additionally, it was
claimed that individuals, who had high levels of attachment anxiety (the preoccupied and fearful attachment style) displayed greater levels of excitement, suspiciousness, feelings of guilt and tension, depression, anxiety. It was also found that the dismissing attachment style was linked with social disengagement, emotional suppression and holding undesirable opinions regarding others.

This was further supported by a study of Alonso et al. (2018), who found that links between different attachment styles and various expressions of mental dysfunction. Specifically, aspects of attachment anxiety such as being fearful of rejection, fearfulness in general and feelings of insecurity within close relationships showed a moderate association with perceived stress. Attachment avoidance on the other hand was found to be significantly associated with higher levels of self-criticism, disengagement from social life and a decreased tendency to pursue help from others. The study then concluded that attachment anxiety predicts psychopathological dysfunction to a much higher level than life circumstances, the availability of support from others and coping methods.

Fossati et al. (2015) conducted the first study, which provided some support for the premise that the insecure attachment style is linked to the dysfunctional aspects of personality; these act as central components in the DSM-5 Alternative model of personality disorder. Their study discovered that among their non-clinical sample, attachment style in adulthood was significantly correlated to both functional personality traits, as well as, the dysfunctional personality facets of the DSM-5. Specifically, the maladaptive personality facets of the DSM-5 were observed to be significantly correlated with the insecure attachment styles. In particular, the dismissing attachment style was seen to be significantly associated with each of the DSM-5 dysfunctional personality facets; specifically, with facets such as disinhibition and hostility. In total, all of the DSM-5 dysfunctional personality facets were seen to be significantly correlated with both the preoccupied and dismissing attachment
styles; these insecure attachment styles explained 50% of the variation in the detachment and negative affectivity facets of personality. Furthermore, 25% of the variation in the Psychoticism and Disinhibition facets of personality was accounted for by the insecure attachment styles. Moreover, the insecure attachment style was found to play a particularly significant role at explaining the differences in the DSM-5 personality facets, which were described as a dominance of negative feelings and challenges in regulating closeness in close relationships. The study then concluded that all of the DSM-5 dysfunctional personality characteristics (except for risk taking) were predicted at a significant level by attachment styles in adulthood. For example, high levels of attachment avoidance and fearfulness were significantly correlated with the dysfunctional personality domains, which involve having an aggressive and mistrustful perception regarding others.

With regards to relationship satisfaction, it was found by Gleeson and Fitzgerald (2014) that the secure attachment style was positively correlated with the feeling of satisfaction within a romantic relationship, whereas the insecure attachment style was negatively correlated with satisfaction in a romantic relationship. Furthermore, individuals with the secure attachment style were found to experience the highest degree of relationship satisfaction compared to the those with an insecure attachment style. Additionally, individuals with the avoidant-fearful attachment style (those who have high levels of both attachment avoidance and attachment anxiety) were found to have the least satisfaction with their romantic relationship.

The link between internet addiction and attachment style

Several studies have found a significant relationship between problematic internet use and attachment style. For example, a recent study by Eichenberg et al. (2017) found that
subjects, who had an insecure attachment style, particularly the ambivalent attachment style, displayed a greater inclination towards pathological internet use in comparison to those, who had a secure attachment style. For the insecurely attached individuals, the motive to escape, be anonymous and gain social support online acted as significant motivations to using the internet to a pathological extent.

Furthermore, Odacı and Çıkrıkçı (2014) identified a weak but positive significant relation between the dismissing and preoccupied attachment style and problematic internet use. They also found that university students, who reported to have a secure attachment styles, obtained lower scores of problematic internet use in comparison with students reporting to have an insecure attachment style.

The above mentioned findings are further supported by Ceyhan et al. (2019) suggesting that individuals with the preoccupied attachment style and fearful attachment style had a higher likelihood of using the internet in a pathological manner. Moreover, they also found that the inclination towards social avoidance appears to act as a protective tool against pathological internet use; this was because individuals with the avoidant attachment style were observed to be less likely to use problematic regulation tactics online.

Schimmenti et al. (2014) on the other hand conducted a logistic regression analysis among adolescent students and found that along with the male gender and the presence of sexual and physical abuse in early childhood, another significant predictor of problematic internet use was the insecure attachment style, particularly the preoccupied attachment style. Specifically, it was found that adolescents, who engaged in problematic internet use obtained higher scores in three out of the four scales measuring their level of insecure attachment tendencies. These adolescents were found to possess high levels of attachment insecurity, which was associated with the disproportionate need to be approved and accepted by others and the tendency to rely on others to take care of their well-being and define their self-
esteem. They also were observed to possess high levels of attachment avoidance, which refers to the inclination to disregard the significance of intimate relationships. Schimmenti et al., (2014) therefore suggested that it was probable that adolescents, who were especially preoccupied with their close relationships and had high levels of attachment anxiety engaged in internet use in a manner that defends themselves from feeling lonely, held worries over communicating with others in real life and had a sense of helplessness in real-life relationships (Schimmenti & Caretti, 2010, as cited by Schimmenti et al., 2014). They may also use the internet in a manner that provides them with a secure platform, where they may communicate with others so as to improve their social skills, sense of self-competence and engage in some form of elf-centered therapy (Laghi et al., 2013; Rosegrant, 2012; as cited by Schimmenti et al., 2014). It was therefore concluded that both the anxious attachment style and the avoidant attachment style may be significant risk factors for the development and perpetuation of problematic internet use among adolescents.

This finding was supported by D’Arienzo et al. (2019) when they conducted a systematic review that investigated the evidence regarding the link between attachment style and social media or internet addiction. They included 32 articles that had been published between the year 2000 and 2018. Their results indicated that there was a significant positive association between the avoidant and anxious attachment styles and a problematic use of social media and internet. Furthermore, their results also implied that individuals, who had an insecure attachment style were observed to engage in social media use in order to gain the affection that they perceived to be lacking from the people surrounding them such as friends and family.

However, Jia and Jia (2016) found that only attachment anxiety acts as a predictor to problematic internet use while attachment avoidance does not. Additionally, their findings suggested that attachment anxiety towards a mother significantly predicted problematic
internet use among male participants while attachment anxiety towards a father predicted problematic internet use among female participants. This sheds light on the effect that a parent of the opposite gender can have on the development of a child.

Jia and Jia’s (2016) conclusions were supported by Şenormancı et al. (2014) since they too found that only the anxious attachment style was correlated with internet addiction. Furthermore, Şenormancı et al., (2014) also discovered that individuals with internet addiction considered the functioning of their family and their own selves to be maladaptive.
Method

Research design

This study was performed using a quantitative approach involving a testing of several hypotheses while using different kinds of quantitative, psychological measurement. It also has a non-experimental design. It adopts the predictive variables of impulsivity and attachment style and internet addiction as its outcome variable. This design has been opted because the aim of this study is to investigate variables, which are not to be manipulated.

Participants

There were a total of 152 participants, who have agreed to participate in this study voluntarily. The proportion of male and females was not equal, as there was 116 females and 36 males. The method of opportunistic sampling has been employed for recruiting purposes by approaching participants via survey exchange groups on ‘Facebook’. The system of these exchange groups resides in their own participation in this research study in exchange for their study being participated in. The aim was to target mainly university students, however given the independence of these online groups, the group could also include participants from the general population. Participant’s ages ranged from 19 to 45, hence supporting the assumption that some participants were actually not university students. The mean age was 23, and the standard deviation was 4.59 years. This group included 61.2% British participants, 4.61% were of the Scottish nationality, 3.95% were of the American nationality and 30.26% were of various other nationalities such as Chinese, Finnish, Indian and many others. A total of 112 of the participants reported that they grew up with both parents, 24 of them reported that they grew up with only 1 parent (such as a
mother or a father) and 7 of them reported that they grew up with other caretaker (such as any member of an extended family). One of the inclusion criteria was that the participant had to be 18 years old or older. Moreover, any missing data was replaced by the average score of the participant. The study was conducted in correspondence with the ethical standards. Ethical approval has been obtained from the Internal Review Board in University of New York in Prague.

**Procedure**

Participants were approached through survey exchange groups on Facebook where they willingly consented to participate in this study in return for their study being participated in. They were invited to read the informed consent form detailing important information regarding their participation. For example, they were informed of the aim of the study and their right to withdraw or discontinue their participant at any time without any consequences. They were then asked to confirm their agreement to participate in the study by ticking the ‘I agree’ box. Next, participants were asked some demographic questions regarding their age, gender, nationality and number of parents they lived with while growing up which were relevant to this study. They were then requested to fill in the three questionnaires mentioned above and click the ‘submit’ button once they had completed them. A total of approximately 5 to 10 minutes were needed to complete their participation.

**Measures**

*Short-UPPS-P Scale*
The questionnaire that has been chosen to measure the level of impulsivity was the short version of the *UPPS-P Impulsive Behavior scale* (Cyders et al., 2014). It has been chosen over more typically used measures such as the Barratt Impulsiveness Scale so as to contribute something new to the current literature related to the link between internet addiction and impulsivity. The questionnaire measures five aspects of impulsivity namely: sensation seeking (the inclination to seek exciting and new experiences), lack of deliberation (the tendency to act before considering the consequences of the action), lack of persistence (the lack of ability to focus on a task), negative urgency (the tendency to act impulsively upon feeling negative emotions) and positive urgency (the tendency to act impulsively upon feeling positive emotions) (Lynam et al., 2006). There are a total of 20 items in the questionnaire and examples of the items are “*When I feel rejected, I will often say things that I later regret*” (Measuring the participant’s sense of negative urgency)” and “*I tend to act without thinking when I am really excited*” (Measuring the participant’s sense of positive urgency)”.

Each item is rated by the participant on a 4-point likert scale ranging from *Strongly Agree* (1) to *Strongly disagree* (4). Items 6, 8, 13 and 15 measure the Negative Urgency sub-scale (Cyders et al., 2014). Items 3, 10, 17 and 20 measure the Positive Urgency sub-scale. Items 9, 14, 16 and 18 measure the Sensation Seeking sub-scale. Items 2, 5, 12 and 19 measure the lack of Premeditation sub-scale. Finally, items 1, 4, 7 and 11 measure the lack of Perseverance sub-scale. Furthermore, the manner in which the *Short-UPPS-P Scale* is to be scored is that the calculation of the mean or total score for each sub-scale could be done (Cyders et al., 2014).

It has been found that the psychometric properties of the short version of the UPPS-P replicated the inter-scale correlations and internal consistency of the full version of the UPPS-P scale and that the approximate loss of shared variance has been found to be minimal (Cyders et al., 2014). Therefore, it was concluded that the short version of the UPPS-P
questionnaire is as reliable and valid as the full version of the UPPS-P scale. This is supported by the finding that the Cronbach’s alpha of this scale for my sample is .82 which indicates the excellence of its internal consistency.

*Adult Attachment Questionnaire*

The questionnaire that was used to measure the attachment style of each participant is the *Adult Attachment Questionnaire* (Simpson et al., 1996). Two primary dimensions of attachment are being assessed in this questionnaire namely: attachment avoidance (the inclination to refrain and disengage from being close with others in relationships) and attachment ambivalence (the inclination to experience ambivalent feelings and thoughts regarding whether or not other people can be relied on in relationships) (Simpson et al., 1996). There are a total of 17 items in this questionnaire and examples of the items include “I'm not very comfortable having to depend on other people” (Measuring the participant’s level of attachment avoidance) and “Others often are reluctant to get as close as I would like” (Measuring the participant’s level of attachment ambivalence).

Each item is rated on a 7-point likert scale ranging from *Strongly Disagree* (1) to *I Strongly Agree* (7). Items 1 to 3 and 5 to 9 measure the attachment avoidance dimension. Therefore, the total score for attachment avoidance could be calculated by summing up the score of each of these items; a higher score would indicate a higher level of attachment avoidance. Item 4 and items 10 to 17 on the other hand measure the attachment ambivalence dimension. Therefore, the total score for attachment ambivalence could be calculated by summing up the score of each of these items; a higher score indicates a higher level of attachment ambivalence.

The way that cut-off points are chosen is that beginning from the median score for each sub-scale, 53% of individuals are to be positioned beneath these points (Stein et al.,
It is expected that individuals with a secure attachment style would obtain a low score on both the dimensions of attachment ambivalence and attachment avoidance. Individuals with the preoccupied attachment style on the other hand, would obtain a high score on attachment ambivalence but a low score on attachment avoidance. Additionally, individuals with the dismissing attachment style would obtain a low score on attachment ambivalence but a high score on attachment avoidance. Finally, individuals with the fearful attachment style would obtain a high score on both attachment ambivalence and attachment avoidance (Stein et al., 2002).

According to Ravitz et al. (2010), this questionnaire is one of the eleven scales measuring attachment style, which has shown to have strong psychometric properties and is extensively used in research. The study also found that the Cronbach’s alpha is .51 for the attachment security dimension, .79 for the attachment avoidance dimension and .59 for the attachment ambivalence dimension. Factor analyses confirmed that the items in the questionnaire underlie two primary dimensions; attachment avoidance and attachment ambivalence. Moreover, statistical analysis showed that the Cronbach’s alpha of the avoidance index of this scale for this study’s sample is .83. Additionally, the Cronbach’s alpha of the ambivalence index of this scale for this study’s sample is .70. This reflects the excellent internal consistency of the indexes of this scale.

**Internet Addiction Test – short version**

The questionnaire that was used in order to measure the level of internet addiction for each participant is the Internet Addiction Test – short version (Pawlikowski et al., 2013). It was derived from the 20-item questionnaire called the Internet Addiction test (IAT) that was constructed by Young (1998b). Based on a factor analysis conducted by Widyanto and McMurran (2004), six primary factors related to internet addiction were detected in the IAT
namely: neglecting work commitments, anticipation, disproportionate internet use, a lack of control, neglecting social relationships and salience. An exploratory factor analysis conducted by Chang and Law (2008) on the other hand extracted three dimensions from the IAT. The first one is ‘Reality substitute’, which refers to the act of using the internet as a substitute to living in the real world in an attempt to escape undesirable acts such as speaking to strangers. The second factor is withdrawal and social problems; this refers to the link between an individual’s withdrawal symptoms arising due to being away from the internet (moodiness, nervousness or depression) and the interpersonal issues that emerge as a consequence such as shouting or feeling annoyed when internet use is disturbed by somebody. The third factor is time management and performance referring to an individual’s use of the internet in a way that is compulsive and the associated lack of ability to manage or reduce the duration of time devoted to the use of internet. It also refers to any form of work or academic performance that is compromised due to maladaptive use of the internet.

The Internet Addiction Test – short version on the other hand has been found to consist of two primary factors: loss of control/time management and craving/social problems (Pawlikowski et al., 2013). There are a total of 12 items in the scale and examples of the items include “How often do your grades or school work suffer because of the amount of time you spend on-line? (Measuring the participant’s level of loss of control/time management)” and “How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back on-line? (Measuring the participant’s level of craving/social problems)” Each item is scored on a 5-point likert scale ranging from Never (1) to Very Often (5). The total score for overall level of internet addiction can be calculated by summing up the score of each item; a higher score would indicate a higher level of internet addiction. The cut-off score for problematic internet use according to Pawlikowski et al. (2013) is any value above 30 while the cut-off score for pathological internet use would
be any value above 37. Therefore, any individual who obtains a score which is above 30 would be considered as a problematic internet user and any individual who obtains a score which is above 37 would be considered to be a pathological internet user (Pawlikowski et al., 2013).

Pawlikowski et al. (2013) further suggested that the short version of the Internet Addiction test is a much better measurement of internet addiction compared to the original version of the Internet Addiction Test because it excludes items with outdated terms such as ‘checking your e-mails’ as this is no longer necessary because of the 24 hour accessibility of e-mails on smart phones. They replaced some outdated terms such as ‘late night log-ins’ with ‘being online’ which is much more in line with the current technology. They then concluded that the short version of the Internet Addiction Test possesses good psychometric properties and adequately measures the primary facets of internet addiction based on the diagnostic criteria that was originally proposed in the full version of the Internet Addiction Test. Moreover, statistical analysis showed that the Cronbach’s alpha of the entire scale for this study’s sample is .86 which indicates an excellent internal consistency.

**Statistical Analysis**

In order to compute the impact of impulsivity and attachment style on the level of internet addiction, the hierarchical multiple regression analysis was employed several times along with the simple multiple regression analysis, using IBM SPSS Statistics 23.
**Results**

The aim of this section

This section will outline the findings that appear after employing the statistical analysis method to answer the research questions. Hence, the descriptive statistics of the main variables will be reported, the normality of the predictive variables and the outcome variable will be assessed, and the research hypotheses will be tested.

Statistical method

In order to test the hypotheses, three hierarchical multiple regression analyses as well as one simple multiple regression analysis were carried out on the data. The rationale behind this choice dwells mainly in the goal to answer the research questions. With regards to the first hypothesis, the goal was to quantify the unique variance of five sub-scales of impulsivity into the model when controlling for demographics. With regards to the second hypothesis on the other hand, the goal was to observe whether attachment style would improve the prediction of internet addiction while controlling for demographics. These statistical methods are appropriate to be used as this research study adopts a non-experimental and cross-sectional design.

Descriptive statistics

The descriptive statistics of the predictive variables and the outcome variables included in the analyses will be reported. The predictors are Attachment Avoidance, Attachment Ambivalence, Negative Urgency, Positive Urgency, Sensation Seeking, Lack of Premeditation and Lack of Perseverance. The criterion variable on the other hand is internet addiction.
Attachment Avoidance scores

In terms of Attachment avoidance, there were a total of 152 participants who were involved in the calculation of its descriptive statistics. Findings showed that its mean was quite similar to its median ($M = 29.93; Mdn = 29.00$). The most common score was much lower than the mean and median ($Mo = 23$). It had a minimum value of 10 and a maximum value of 51 which showed the vast range of its scores. The standard deviation and variance were observed to have had a large variability ($SD = 8.70, S^2 = 75.68$). (Refer to Table 1)

Attachment Ambivalence scores

In the case of Attachment ambivalence, there were a total of 152 participants who were involved in the calculation of its descriptive statistics. Findings showed that its most recurring score was lower than its mean and median ($M = 33.14; Mdn = 34.00, Mo = 31.00$). It had a minimum value of 13 and a maximum value of 55 which showed that the scores had a wide range. The standard deviation and variance were seen to have had a large variability ($SD = 8.10, S^2 = 65.71$). (Refer to Table 1)

Additionally, with regards to Attachment Style, there were a total of 152 participants, who were included in the computation of its descriptive statistics. Findings showed that 49 participants had a secure attachment style, 29 of them had a preoccupied attachment style, 32 of them had a dismissing attachment style while 42 of them had a fearful attachment style.

Negative Urgency scores
In terms of Negative Urgency, there were a total of 152 participants who were included in the calculation of its descriptive statistics. Its most frequent score was similar to its median ($Mo = 10.00; Mdn = 10.00$). Its mean on the other hand was observed to be slightly higher than its most frequent score and median ($M = 10.16$). It had a minimum value of 4 and a maximum value of 16. The standard deviation and variance were observed to have had a moderate variability ($SD = 2.63, S^2 = 6.93$) (Refer to Table 1).

**Positive Urgency scores**

In the case of Positive Urgency, there were a total of 152 participants who were included in the calculation of its descriptive statistics. Findings showed that its most recurring score was the same with its median ($Mdn = 8.00, Mo = 8.00$). Its mean on the other hand slightly higher than its frequent score and median ($M = 8.38$). It had a minimum value of 4 and a maximum value of 16. The standard deviation and variance were seen to have had a moderate variability ($SD = 2.68, S^2 = 7.20$) (Refer to Table 1).

**Sensation Seeking scores**

With regards to Sensation Seeking, a total of 152 participants had been included in the calculation of its descriptive statistics. It was shown that its most common score and median were similar ($Mo = 10.00; Mdn = 10.00$). Its mean on the other hand was slightly greater than its most frequent score and median ($M = 10.03$). Moreover, its scores ranged from a minimum value of 4 and a maximum value of 16. Its standard deviation and variance on the other hand could be seen to have a moderate variability ($SD = 2.71, S^2 = 7.33$) (Refer to Table 1).
Lack of Premeditation scores

In terms of Lack of Premeditation, a total of 152 participants had been included in the calculation of its descriptive statistics. Its most common score and median had been observed to be the same \((Mo = 7.00; Mdn = 7.00)\). Additionally, its mean has been seen to be slightly greater than its most common score and median with a value of 7.12. Its scores had a minimum value of 4 and a maximum value of 14. In terms of the distribution of its scores, it could be observed that its standard deviation and variance had a moderate variability \((SD = 2.01, S^2 = 4.39)\) (Refer to Table 1).

Lack of Perseverance scores

In terms of Lack of Perseverance, a total of 152 participants had been included in the calculation of its descriptive statistics. Its median and mean had been observed to be quite similar \((Mdn = 7.00; M = 7.01)\). Additionally, its most commonly occurring score has been seen to be slightly lower than its mean and median with a value of 6.00. Its scores had a minimum value of 4 and a maximum value of 13. In terms of the distribution of its scores, it could be observed that its standard deviation and variance had a moderate variability \((SD = 2.00, S^2 = 4.00)\) (Refer to Table 1).

Internet addiction scores

In terms of internet addiction, a total of 152 participants had been included in the calculation of its descriptive statistics. Its mean and median had been observed to be very similar \((M = 30.40; Mdn = 30.00)\). Additionally, its most commonly occurring score has been seen to be slightly lower than its mean and median with a value of 28.00. Its scores had a minimum value of 12 and a maximum value of 54. In terms of the distribution of its scores, it could be observed that its standard deviation and variance had a large variability \((SD = 7.73, S^2 = 59.85)\) (Refer to Table 1).
$S^2 = 59.75$) (Refer to Table 1).

### Table 1

**Descriptive Statistics of the Measured Variables**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>M</th>
<th>Mdn</th>
<th>Mode</th>
<th>SD</th>
<th>$S^2$</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment Avoidance</td>
<td>152</td>
<td>29.93</td>
<td>29</td>
<td>23</td>
<td>8.70</td>
<td>75.68</td>
<td>10</td>
<td>51</td>
</tr>
<tr>
<td>Attachment Ambivalence</td>
<td>152</td>
<td>33.14</td>
<td>34</td>
<td>31</td>
<td>8.11</td>
<td>65.71</td>
<td>13</td>
<td>55</td>
</tr>
<tr>
<td>Negative Urgency</td>
<td>152</td>
<td>10.16</td>
<td>10.00</td>
<td>10.00</td>
<td>2.63</td>
<td>6.93</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Positive Urgency</td>
<td>152</td>
<td>8.38</td>
<td>8.00</td>
<td>8.00</td>
<td>2.68</td>
<td>7.20</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>152</td>
<td>10.03</td>
<td>10.00</td>
<td>10.00</td>
<td>2.71</td>
<td>7.33</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Lack of Premeditation</td>
<td>152</td>
<td>7.12</td>
<td>7.00</td>
<td>7.00</td>
<td>2.10</td>
<td>4.38</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Lack of Perseverance</td>
<td>152</td>
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<td>7.00</td>
<td>6.00</td>
<td>2.00</td>
<td>4.00</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Internet Addiction</td>
<td>152</td>
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<td>30</td>
<td>28</td>
<td>7.73</td>
<td>59.75</td>
<td>12</td>
<td>54</td>
</tr>
</tbody>
</table>

**Notes.** n = sample size; $M$ = Mean; $Mdn$ = median; $SD$ = standard deviation; $S^2$ = variance; $Min$ = minimum; $Max$ = maximum.

### Assessment of normality

Tests for normal distribution of scores were conducted for the predictors (namely Attachment Avoidance, Attachment Ambivalence, Negative Urgency, Positive Urgency, Sensation Seeking, Lack of Premeditation and Lack of Perseverance) and criterion (namely internet addiction) using the Shapiro-Wilk test and will be reported below.
Attachment Avoidance scores

In the case of the attachment avoidance scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were normally distributed, \( p > .05 \). (Refer to Table 2)

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a normal distribution of the scores (Refer to Figure 1 and Figure 2).

Additionally, in terms of the skewness and kurtosis, it could be observed that the attachment avoidance scores leaned towards having a positive skewness (\( \gamma_1 = .14, SE = .20 \)) and a platykurtic distribution (\( \beta_2 = -.59, SE = .39 \)). (Refer to Table 3)

Attachment Ambivalence scores

In the case of the attachment ambivalence scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were normally distributed, \( p > .05 \). (Refer to Table 2)

In support of this, the visual representation of its distribution in the form of histogram showed, that the scores distribution was close to Gaussian curve (See Figure 3). Additionally, the data distribution as depicted in normal Q-Q plots showed a normal distribution of the scores (Refer to Figure 4).

Additionally, in terms of the skewness and kurtosis, it could be observed that the attachment avoidance scores leaned towards having a negative skewness (\( \gamma_1 = -.20, SE = .20 \)) and a platykurtic distribution (\( \beta_2 = -.24., SE = .39 \)). (Refer to Table 3)
**Negative Urgency scores**

In the case of the Negative Urgency scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were not normally distributed, $p < .05$ (Refer to Table 2).

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a non-normal distribution of the scores (Refer to Figure 5 and Figure 6).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Negative Urgency scores leaned towards having a positive skewness ($\gamma_1 = .10, SE = .20$) and a platykurtic distribution ($\beta_2 = -.24, SE = .39$) (Refer to Table 3).

**Positive Urgency scores**

In the case of the Positive Urgency scores, the data were not normally distributed as assessed by Shapiro-Wilk’s Test of Normality ($p < .05$) (Refer to Table 2).

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a non-normal distribution of the scores (Refer to Figure 7 and 8).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Positive Urgency scores leaned towards having a positive skewness ($\gamma_1 = .55, SE = .20$) and a leptokurtic distribution ($\beta_2 = .22, SE = .39$) (Refer to Table 3).

**Sensation Seeking scores**
In the case of the Sensation Seeking scores, the data were not normally distributed as assessed by Shapiro-Wilk’s Test of Normality ($p < .05$) (Refer to Table 2).

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a non-normal distribution of the scores (Refer to Figure 9 and Figure 10).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Sensation Seeking scores leaned towards having a negative skewness ($\gamma_1 = -.11, SE = .20$) and a platykurtic distribution ($\beta_2 = -.60, SE = .39$) (Refer to Table 3).

**Lack of Premeditation scores**

In the case of the Lack of Premeditation scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were not normally distributed, $p < .05$ (Refer to Table 2).

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a non-normal distribution of the scores (Refer to Figure 11 and 12).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Lack of Premeditation scores leaned towards having a positive skewness ($\gamma_1 = .68, SE = .20$) and a leptokurtic distribution ($\beta_2 = .63, SE = .39$) (Refer to Table 3).

**Lack of Perseverance scores**
In the case of the Lack of Perseverance scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were not normally distributed, \( p < .05 \) (Refer to Table 2).

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a normal distribution of the scores (Refer to Figure 13 and 14).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Lack of Perseverance scores leaned towards having a positive skewness (\( \gamma_1 = .48, SE = .20 \)) and a platykurtic distribution (\( \beta_2 = -.31, SE = .39 \)) (Refer to Table 3).

**Internet Addiction scores**

In the case of the Internet Addiction scores, it could be observed based on the results of the Shapiro Wilk’s test that the scores were normally distributed, \( p > .05 \) (Refer to Table 2)

In support of this, the visual representation of its distribution in the form of histogram and normal Q-Q plots showed a normal distribution of the scores (Refer to Figure 15 and 16).

Additionally, in terms of the skewness and kurtosis, it could be observed that the Internet Addiction scores leaned towards having a positive skewness (\( \gamma_1 = .34, SE = .20 \)) and a leptokurtic distribution (\( \beta_2 = .29, SE = .39 \)) (Refer to Table 3).
Table 2

*Test of Normality of the Measured Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Shapiro-Wilk Statistic</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment Avoidance</td>
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<td>152</td>
</tr>
<tr>
<td>Attachment Ambivalence</td>
<td>.988</td>
<td>152</td>
</tr>
<tr>
<td>Negative Urgency</td>
<td>.979*</td>
<td>152</td>
</tr>
<tr>
<td>Positive Urgency</td>
<td>.955***</td>
<td>152</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>.975**</td>
<td>152</td>
</tr>
<tr>
<td>Lack of Premeditation</td>
<td>.937***</td>
<td>152</td>
</tr>
<tr>
<td>Lack of Perseverance</td>
<td>.950***</td>
<td>152</td>
</tr>
<tr>
<td>Internet Addiction</td>
<td>.988</td>
<td>152</td>
</tr>
</tbody>
</table>

*Note.* *p < .05* **p = < .01***p = < .001
Table 3

<table>
<thead>
<tr>
<th>Attachment Avoidance</th>
<th>$\gamma_1$</th>
<th>$SE_{\gamma_1}$</th>
<th>$\beta_2$</th>
<th>$SE_{\beta_2}$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>.14</td>
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<td>-.59</td>
<td>.39</td>
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<tr>
<td>Attachment Ambivalence</td>
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<td>-.24</td>
<td>.39</td>
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<tr>
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<tr>
<td>Positive Urgency</td>
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<td>.39</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>-.11</td>
<td>.20</td>
<td>-.60</td>
<td>.39</td>
</tr>
<tr>
<td>Lack of Premeditation</td>
<td>.68</td>
<td>.20</td>
<td>.63</td>
<td>.39</td>
</tr>
<tr>
<td>Lack of Perseverance</td>
<td>.48</td>
<td>.20</td>
<td>-.31</td>
<td>.39</td>
</tr>
<tr>
<td>Internet Addiction</td>
<td>.34</td>
<td>.20</td>
<td>.29</td>
<td>.39</td>
</tr>
</tbody>
</table>

Notes. $\gamma_1$ = skewness; $SE_{\gamma_1}$ = standard error of skewness; $\beta_2$ = kurtosis; $SE_{\beta_2}$ = standard error of kurtosis.
Figure 1

Histogram of the distribution of Attachment Avoidance scores

Avoidant_AS

Mean = 28.93
Std. Dev. = 6.7
N = 152
Figure 2

Q-Q plot of Attachment Avoidance scores
Figure 3

Histogram of the distribution of Attachment Ambivalence scores
Figure 4

Q-Q plot of Attachment Ambivalence scores
Figure 5

Histogram of Negative Urgency scores distribution
Figure 6

Q-Q plot of Negative Urgency scores
Figure 7

Histogram of Positive Urgency scores distribution

Mean = 8.37  
Std. Dev. = 2.684  
N = 152
Figure 8

Q-Q plot of Positive Urgency scores

Normal Q-Q Plot of Positive_Urgency
Figure 9

Histogram of Sensation Seeking scores distribution

Mean = 10.03
Std. Dev. = 2.707
N = 152
Figure 10

Q-Q plot of Sensation Seeking scores
Figure 11

Histogram of Lack of Premeditation scores distribution
Figure 12

Q-Q plot of Lack of Premeditation scores
Figure 13

Histogram of Lack of Perseverance scores distribution

Mean = 7.01
Std. Dev. = 1.998
N = 152
Figure 14

Q-Q plot of Lack of Perseverance scores
Figure 15

Histogram of Internet Addiction scores distribution
Figure 16

Q-Q plot of Internet Addiction scores
**Testing of Hypothesis 1**

The first hypothesis stated that the addition of the impulsivity subscales (namely Negative Urgency, Lack of Perseverance, Lack of Premeditation and Sensation Seeking and Positive Urgency) will positively and significantly predict internet addiction over and above gender, age, nationality and number of caretakers when growing up. Therefore, in order to test for this hypothesis, a hierarchical multiple regression analysis was conducted. Gender, age, nationality and number of caretakers were entered in the first step followed by all the subscales of impulsivity, which was entered into a model in the second step in order to see the unique contribution of the impulsivity subscales in the explanation of internet addiction scores.

**Assumptions check**

There was a linear relationship between a composite independent variable and standardized residuals (See Figure 17). The assumption of independence of errors was met (Durbin-Watson value = 2.29).

Similarly, there was no multicollinearity detected as the tolerance values for gender, age, nationality, number of caretakers when growing up, Negative Urgency, Positive Urgency, Sensation Seeking, Lack of Premeditation and Lack of Perseverance were all greater than .1 (.921, .915, .944, .928, .532, .471, .789, .560 and .694 respectively).

Inspection of studentized residuals and unstandardized predicted values indicated that there was an equal error variance (no homoscedasticity) (See Figure 18). Next, the residuals were approximately normally distributed based on the visual inspection of histogram (see Figure 19) and an almost tight fit of regression standardized residuals with P-P Plot diagonal line (See Figure 20).
Steps of hierarchical multiple regression analysis for Hypothesis 1

In the first step, all demographic variables were entered in model 1 (namely gender, age, nationality, number of caretakers when growing up) as predictors while internet addiction was a criterion. These variables did not statistically significantly predict internet addiction, $F(4, 147) = 1.97, p = .10$. The addition of the impulsivity subscales to the prediction of internet addiction in model 2 led to a statistically significant increase in $R^2$ of .14, $F(5, 142) = 4.93, p = .000$. The full model of gender, age, nationality, number of caretakers and all five of the Impulsivity subscales in model 2 was found to be statistically significant, $R^2 = .19, F(9, 142) = 3.73, p = .000$ and accounted for 14.00% of explained variability in internet addiction scores, adj. $R^2 = .14$. Furthermore, it was revealed that only Positive Urgency ($\beta = .23, p = .036$) and Age ($\beta = -.18, p = .021$) statistically significantly added to the prediction of internet addiction. For full details for both regression models with regression coefficients, see Table 4.

Although the unique explained variance in internet addiction scores can be inferred from the squared semi-partial correlation index, it is unable to reveal if the amount of variance explained by Positive urgency was significant. Therefore, a second hierarchical multiple regression analysis was ran in which the demographic variables was entered in the first step (model 1), the impulsivity subscales of Negative Urgency, Lack of Perseverance, Lack of Premeditation and Sensation Seeking in the second step (model 2) and finally, Positive Urgency in the third step (model 3).

Assumptions check for second hierarchical regression analysis

There was a linear relationship between a composite independent variable and standardized residuals (See Figure 21). The assumption of independence of errors was met (Durbin-Watson value = 2.29).
Similarly, there was no multicollinearity detected as the tolerance values for gender, age, nationality, number of caretakers when growing up, Negative Urgency, Positive Urgency, Sensation Seeking, Lack of Premeditation and Lack of Perseverance were all greater than .1.

Inspection of studentized residuals and unstandardized predicted values showed that there was an equal error variance (no homoscedasticity) (See Figure 22). Next, the residuals were approximately normally distributed based on the visual inspection of histogram (see Figure 23) and an almost tight fit of regression standardized residuals with P-P Plot diagonal line (See Figure 24).

**Steps of the second hierarchical multiple regression analysis for Hypothesis 1**

In the first step, all of demographic variables were entered (namely gender, age, nationality, number of caretakers when growing up). These variables did not appear to statistically significantly predict internet addiction, $F(4, 147) = 1.97, p = .10$.

The addition of the impulsivity subscales (namely Negative Urgency, Lack of Perseverance, Lack of Premeditation and Sensation Seeking) to the prediction of internet addiction in model 2 led to a statistically significant increase in $R^2$ of .12, $F(4, 143) = 4.92, p = .001$. The full model of gender, age, nationality, number of caretakers and four of the impulsivity subscales in model 2 was found to be statistically significant, $R^2 = .17, F(8, 143) = 3.55, p = .001$ and accounted for 12.00% of explained variability in internet addiction scores, adj. $R^2 = .12$.

Furthermore, the addition of the impulsivity subscale of Positive Urgency to the prediction of internet addiction in Model 3 led to a statistically significant increase in $R^2$ of .03, $F(1, 142) = 4.48, p = .036$. The full model of gender, age, nationality, number of caretakers and all five of the impulsivity subscales in model 3 was found to be statistically significant, $R^2$
= .19, $F(9, 142) = 3.73, p = .000$ and accounted for 14.00% of explained variability in internet addiction scores, $\text{adj. } R^2 = .14$. Furthermore, it was revealed that only Positive Urgency ($\beta = .23, p = .036$) and Age ($\beta = -.18, p = .021$) statistically significantly added to the prediction of internet addiction. This shows that Hypothesis 1 has been supported. For full details for all of the regression models with regression coefficients, see Table 5.
Figure 17

Scatterplot of Standardized Predicted Values and Residuals
Figure 18

Scatterplot of Unstandardized Predicted Values and Studentized Residuals showing Homoscedasticity
Figure 19

*Histogram of Standardized Residuals*

Histogram

**Dependent Variable: Internet_Addiction**

- **Mean:** -9.56E-16
- **Std. Dev.:** 0.970
- **N:** 152
Figure 20

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Internet Addicition
Figure 21

Scatterplot of Standardized Predicted Values and Residuals
Figure 22

Scatterplot of Unstandardized Predicted Values and Studentized Residuals showing Homoscedasticity
Figure 23

Histogram of Standardized Residuals

Histogram

Dependent Variable: Internet_Addiction

Mean = -5.28E-16
Std. Dev. = 0.970
N = 152
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Internet_Addiction
Table 4

*First Hierarchical Multiple Regression Predicting Internet Addiction From Demographic Variables and Impulsivity subscales*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Internet Addiction</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>Constant</td>
<td>42.54***</td>
<td></td>
<td>30.79***</td>
</tr>
<tr>
<td>Gender</td>
<td>-2.62</td>
<td>-.14</td>
<td>-2.33</td>
</tr>
<tr>
<td>Age</td>
<td>-.33*</td>
<td>-.20</td>
<td>-.31*</td>
</tr>
<tr>
<td>Nationality</td>
<td>.37</td>
<td>.04</td>
<td>.88</td>
</tr>
<tr>
<td>Number of caretakers</td>
<td>-.23</td>
<td>-.01</td>
<td>.28</td>
</tr>
<tr>
<td>Negative Urgency</td>
<td>.42</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>Lack of Perseverance</td>
<td>.69</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Lack of Premeditation</td>
<td>-.16</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>-.44</td>
<td>-.16</td>
<td></td>
</tr>
<tr>
<td>Positive Urgency</td>
<td>.67*</td>
<td>.23</td>
<td></td>
</tr>
</tbody>
</table>

\[
R^2                        \quad .05 \quad .19 \\
F                           \quad 1.97 \quad 3.73*** \\
\Delta R^2                  \quad .05 \quad .14 \\
\Delta F                    \quad 1.97 \quad 4.93***
\]

*Note.* *p = < .05 **p = < .01 ***p = < .001; N = 152; B = unstandardized regression coefficient; β = standardized coefficient.*
Table 5

Second Hierarchical Multiple Regression Predicting Internet Addiction

From Demographic Variables and Impulsivity subscales

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$B$</td>
<td>$β$</td>
</tr>
<tr>
<td>Constant</td>
<td>42.54***</td>
<td>30.05***</td>
<td>30.79***</td>
</tr>
<tr>
<td>Gender</td>
<td>-2.62</td>
<td>-.14</td>
<td>-2.52</td>
</tr>
<tr>
<td>Age</td>
<td>-.33*</td>
<td>-.12</td>
<td>-.33*</td>
</tr>
<tr>
<td>Nationality</td>
<td>.37</td>
<td>.04</td>
<td>.81</td>
</tr>
<tr>
<td>Number of caretakers</td>
<td>-.23</td>
<td>-.01</td>
<td>.33</td>
</tr>
<tr>
<td>Negative Urgency</td>
<td></td>
<td></td>
<td>.78**</td>
</tr>
<tr>
<td>Lack of Perseverance</td>
<td>.70</td>
<td>.18</td>
<td>.69</td>
</tr>
<tr>
<td>Lack of Premeditation</td>
<td>.01</td>
<td>.00</td>
<td>-.16</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>-.24</td>
<td>-.08</td>
<td>-.44</td>
</tr>
<tr>
<td>Positive Urgency</td>
<td></td>
<td></td>
<td>.67*</td>
</tr>
</tbody>
</table>

$R^2$          | .05      | .17      | .191     |

$F$            | 1.97     | 3.55***  | 3.73***  |

$ΔR^2$         | .05      | .12      | .03      |

$ΔF$           | 1.97     | 4.92***  | 4.48*    |

Note. * $p = < .05$ ** $p = < .01$ *** $p = < .001$; $N = 152$; $B =$ unstandardized regression coefficient; $β =$ standardized coefficient.
**Testing of Hypothesis 2**

The second hypothesis stated that the insecure attachment style will positively and significantly predict internet addiction over and above gender, age, nationality and number of caretakers when growing up. Therefore, in order to test for this hypothesis, a hierarchical multiple regression analysis was conducted. Gender, age, nationality and number of caretakers were entered in the first step followed by secure attachment style, which was entered in the second step. Finally, insecure attachment style was entered in the third step.

**Assumptions check**

There was a linear relationship between a composite predictor and standardized residuals (See Figure 25). The assumption of independence of errors was met (Durbin-Watson value = 2.17).

Similarly, there was no multicollinearity detected as the tolerance values for gender, age, nationality, number of caretakers when growing up, secure attachment style and insecure attachment style were all greater than .1 (.954, .958, .959, .961, .397 and .395 respectively).

Inspection of studentized residuals and unstandardized predicted values showed that there was an equal error variance (no homoscedasticity) (See Figure 26). Next, the residuals were approximately normally distributed based on the visual inspection of histogram (see Figure 27) and an almost tight fit of regression standardized residuals with P-P Plot diagonal line (See Figure 28).
Steps of the hierarchical multiple regression analysis for Hypothesis 2

In the first step, all demographic variables were entered in model 1 (namely gender, age, nationality, number of caretakers when growing up) as predictors while internet addiction was a criterion. These variables did not statistically significantly predict internet addiction, $F(4, 147) = 1.97, p = .10$; adjusted $R^2 = .03$. The addition of the secure attachment style to the prediction of internet addiction in model 2 did not lead to a statistically significant increase in $R^2$ of .005, $F(1, 146) = .81, p = .37$. The full model of gender, age, nationality, number of caretakers and secure attachment style in model 2 was not found to be statistically significant, $R^2 = .06, F(5, 146) = 1.74, p = .13$; adjusted $R^2 = .02$.

Additionally, the addition of the insecure attachment style to the prediction of internet addiction in model 3 led to a statistically significant increase in $R^2$ of .07, $F(1, 145) = 11.44, p = .001$. The full model of gender, age, nationality, number of caretakers, secure attachment style and insecure attachment style in model 3 was found to be statistically significant, $R^2 = .13, F(6, 145) = 3.46, p = .003$ and accounted for 8.90% of explained variability in internet addiction scores, adj. $R^2 = .089$.

Furthermore, it was revealed that only age ($\beta = -.18, p = .022$), secure attachment style ($\beta = .40, p = .002$) and insecure attachment style ($\beta = .42, p = .001$) statistically significantly added to the prediction of internet addiction. This shows that hypothesis 2 has been supported. For full details for both regression models with regression coefficients, see Table 6.

In order to discover which among the three types of insecure attachment style (preoccupied, dismissing or fearful) was the strongest predictor of internet addiction, a simple multiple regression analysis was conducted in which all three types of the insecure attachment style was entered into a model.
Assumptions Check

There was a linear relationship between composite independent variable and standardized residuals (See Figure 29). Moreover, since the Durbin-Watson value was 2.16, it could be stated that there was independence of errors. Additionally, it could also be stated that there was homoscedasticity, as the regression standardized residuals scores appeared to spread across the regression standardized predicted value scores constantly (Refer to Figure 30). Based on the visual inspection of histogram and normal P-P plot, it appeared that the residuals had a normal distribution (Refer to Figures 31 and 32). Lastly, there appeared to be an absence of multicollinearity as the tolerance values for all of the predictors were greater than 0.1; .921 for preoccupied attachment style, .802 for dismissing attachment style and .826 for fearful attachment style.

The full model consisting of these variables showed that they statistically significantly predicted internet addiction scores, $F(3, 148) = 3.25, p = .024$, adj. $R^2 = .043$ and they explained 4.30% of the variability in the internet addiction scores. Upon closer inspection, it was found that only the preoccupied attachment style added significantly to the prediction of internet addiction ($\beta = .20, p = .018$). For full details of the regression model, please refer to Table 7.
Figure 25

Scatterplot of Standardized Predicted Values and Residuals

Scatterplot

Dependent Variable: Internet_Addiction

Regression Standardized Residual vs. Regression Standardized Predicted Value

$R^2$ Linear = 0

$y = 4.34E-18 - 1.76E-17x$
Figure 26

Scatterplot of Unstandardized Predicted Values and Studentized Residuals showing Homoscedasticity
Figure 27

Histogram of Residuals predicting Internet Addiction

Histogram

Dependent Variable: Internet_Addiction

Mean = -4.34E-18
Std. Dev. = 0.980
N = 152
Figure 28

Normal P-P Plot of Regression Residuals

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Internet_Addiction
Figure 29

Scatterplot of Standardized Predicted Values and Residuals
Figure 30

Scatterplot of Unstandardized Predicted Values and Studentized Residuals showing Homoscedasticity
Figure 31

*Histogram of Residuals predicting Internet Addiction*

![Histogram of Residuals predicting Internet Addiction](image-url)
Figure 32

Normal P-P Plot of Regression Residuals

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Internet_Add
Table 6

Second Hierarchical Multiple Regression Predicting Internet Addiction

From Demographic Variables, Secure and Insecure Attachment styles

<table>
<thead>
<tr>
<th>Variable</th>
<th>Internet Addiction</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$B$</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Constant</td>
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<td>42.41***</td>
<td>41.23***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>-2.57</td>
<td>-2.11</td>
<td>-1.14</td>
<td>-1.2</td>
</tr>
<tr>
<td>Age</td>
<td>-.33*</td>
<td>-.32*</td>
<td>-.31*</td>
<td>-.19</td>
<td>-.18</td>
</tr>
<tr>
<td>Nationality</td>
<td>.37</td>
<td>.39</td>
<td>.12</td>
<td>.04</td>
<td>.01</td>
</tr>
<tr>
<td>Number of caretakers</td>
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<td>-.32</td>
<td>-.04</td>
<td>-.02</td>
<td>-.00</td>
</tr>
<tr>
<td>Secure Attachment Style</td>
<td>.87</td>
<td>.07</td>
<td>4.73**</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>Insecure Attachment Style</td>
<td></td>
<td></td>
<td>13.46***</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>Attachment Style</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.05</td>
<td>.06</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>1.97</td>
<td>1.74</td>
<td>3.46**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.05</td>
<td>.01</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta F$</td>
<td>1.97</td>
<td>.37</td>
<td>11.44***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $* p = < .05 $ ** $ p = < .01 $ *** $ p = < .001$; $N = 152$; $B =$ unstandardized regression coefficient; $\beta =$ standardized coefficient.
Table 7

Summary of Multiple Regression Analysis Predicting Internet Addiction based on all three types of Insecure Attachment Style

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>.60</td>
<td></td>
</tr>
<tr>
<td>Preoccupied Attachment Style</td>
<td>3.30*</td>
<td>1.38</td>
<td>.20</td>
</tr>
<tr>
<td>Dismissing Attachment Style</td>
<td>2.23</td>
<td>1.50</td>
<td>.13</td>
</tr>
<tr>
<td>Fearful Attachment Style</td>
<td>1.85</td>
<td>1.60</td>
<td>.10</td>
</tr>
</tbody>
</table>

Adjusted $R^2$                        | .043 |

$F$                                    | 3.25*|

Note. * $p = < .05$ ** $p = < .01$ *** $p = < .001$; $N = 152$; $B$ = unstandardized regression coefficient; $SE B$ = Standard error of the coefficient; $β$ = standardized coefficient.
Discussion

Main findings related to the first hypothesis

This study aimed at investigating the impact of an individual’s level of impulsivity and attachment style on their level of internet addiction. The first hypothesis was that impulsivity facets of Negative Urgency, Positive Urgency Lack of Perseverance, Lack of Premeditation and Sensation Seeking, which were all captured using the UPPS-P, will positively and statistically significantly predict internet addiction over and above gender, age, nationality and number of caretakers when growing up. Results showed that this hypothesis was supported. This therefore suggests that a higher level of the aforementioned impulsivity facets will predict a higher level of internet addiction. However, among all of the impulsivity facets, only the Positive Urgency added statistically significantly to the prediction of internet addiction. In other words, as Positive Urgency is defined as the inclination to make impulsive actions when feeling positive emotions, it could be stated that this specific type of impulsive inclination is what makes an individual more likely to be addicted to the internet.

These finding are in line with the findings of Zhou et al. (2014), who measured impulsivity using the Barratt Impulsiveness Scale Version 11 and a Go/No-Go task instead of the UPPS-P Impulsive Behavior scale, as used in this study. However, the findings of Zhou et al. (2014) are similar to those of this study; it found the tendency towards impulsive behavior in individuals who had an internet addiction disorder. It is also supportive of the conclusions made by Kawa and Shafi (2015), who conducted their study among undergraduate university students and also measured impulsivity using the Barratt Impulsiveness Scale Version 11; they discovered that there was a significant positive association between impulsivity and internet addiction.
Results of this study also concur with Zhang et al. (2015) who, similarly to this study, conducted their study on a large sample of university students and discovered that impulsivity (measured using the Barratt Impulsiveness Scale Version 11) had a statistically significant and direct impact on their level of internet addiction. Furthermore, results are also in agreement with Choi et al. (2014), who discovered that individuals who were addicted to internet use obtained greater scores in impulsivity (as measured using the Barratt Impulsiveness Scale Version 11) in comparison to healthy controls and that this impulsivity was a core part of their personality as well as their neuropsychological functioning.

Finally, results of this study also are in agreement with Li et al. (2019), who conducted their study among adolescents aged 11 to 18 years old and found that impulsivity (as measured using the Barratt Impulsiveness Scale Version 11) predicted internet addiction. Since all of the studies mentioned above have used the Barratt Impulsiveness Scale Version 11 to measure the level of impulsivity in an individual, this study has contributed something new to the literature by using the UPPS-P Impulsive Behavior Scale instead. In spite of using a different measure, findings of this study support those of previous studies, within which it was found that impulsivity predicts internet addiction. However, this study has also detected that it is the specific impulsivity facet of Positive Urgency that significantly predicts internet addiction. It could be stated that the UPPS-P Impulsive Behavior Scale holds an advantage over the Barratt Impulsiveness Scale as it measures different facets of impulsivity and is able to specify which of these facets predicts internet addiction; therefore, it could be stated that its use represents one of the strengths of this study.

Based on the findings of previously mentioned studies and the conducted study, results might be explained by the fact that the inclination to act rashly may undermine an individual’s capacity to govern their addiction (De Wit, 2009). Furthermore, cognitive processes that are associated with impulsive behavior such as being uninhibited behaviorally, failure to sustain
attention and delay discounting may also act as contributors to the dysfunctional behavior related to internet addiction (De Wit, 2009).

Results also suggested that demographic variables such as gender, nationality and number of caretakers did not statistically significantly predict internet addiction. However, age on the other hand, has been found to be a statistically significant predictor of internet addiction; younger age predicts a higher level of internet addiction. This finding concurs with Stodt (2016), who discovered that younger people had a greater tendency to use the Internet maladaptively. Another study conducted by Hsieh (2018) also found that young age acted as a predictor to the occurrence of Internet addiction among college students. However, the finding disagrees with Poli and Agrimi (2012), who claimed that there was no difference statistically between students of different ages in their level of internet addiction. It also disagrees with Dhir et al. (2015), who found a weak association between an adolescent’s age and internet addiction; due to the huge size of the study’s sample and the weak association, the study thus concluded that there is possibly no association between age and internet addiction.

With regards to the finding that gender is not a statistically significant predictor of internet addiction, this appears to agree with previous findings that gender is not a significant predictor of the occurrence or remission of internet addiction among college students (Hsieh et al., 2018). It also is in support of another study, which found that males and female students did not statistically significant differed in their degree of internet addiction (Usman et al., 2014). However, this study’s results related to gender also disagrees with various studies, which found that males had a greater inclination to be addicted to the internet or to use it problematically when being compared to their female counterparts (Dhir, 2015; Poli, & Agrimi, 2012; Yu, & Shek , 2013; Zhang et al, 2008). This could be due to the fact that only one fourth of the study’s sample consists of men while the other three-fourths consists of women; the number of men may have been too small to detect a genuine difference between the genders.
Additionally, with regards to the finding that nationality is not a significant predictor of internet addiction, this is in agreement with the finding made by Lai et al. (2015) in which it was stated that there was no statistically significant difference in terms of the overall internet addiction score between adolescent students of different nationalities namely those of Hong Kong, Malaysian as well as Japanese nationality. However, they also found that each of these countries certainly was more susceptible towards different symptoms related to internet addiction. For example, it was found that compared to adolescent Japanese students, adolescent Malaysian students obtained higher scores in the specific internet addiction domain of experiencing problems with regards to time management and performance. However, it is noteworthy to mention that since all of these nationalities are of the Asian continent, this may have skewed the results of the study.

Furthermore, results are also supported by a study conducted by Usman et al. (2014) who found out that there was no statistically significant difference in the level of internet addiction among foreign university students based on the country that the student belonged to, namely: Indonesia, China, Somalia and Yemen.

However, other studies on the other hand, appeared to disagree with the results of this study. For example, it was found that Chinese students experienced a higher level of internet addiction compared to American students (Zhang et al., 2008). The study also found that there was a statistically significant difference in the score of each of the five domains of internet addiction between students of the Chinese nationality and students of the American nationality; Chinese students scored higher than American students in the internet addiction domains of virtual intimacy, obsessive-compulsive disorder, social escape, negative consequences and secretive behavior.
Additionally, results of this study also appear contradictory to the study conducted by Błachnio et al. (2019), who found out that there was a statistically significant difference in the level of internet addiction between individuals of different countries. It was found that individuals from Poland had a greater score on internet addiction compared to individuals from China, Turkey, Israel and Romania. However, Polish individuals on the other hand, were also found to have a lower score on internet addiction compared to Italian and Greek individuals.

Finally, the finding that the number of caretakers that an individual had while growing up does not act as a statistically significant predictor of internet addiction has found a lack of support from several studies. For example, a review examining studies that were conducted in both the Chinese and English language, discovered that adolescents, who struggled with problematic internet use or internet addiction were more likely to have had parents, who were divorced and was staying with only one parent compared to adolescents with no problematic internet use or internet addiction (Li et al., 2014).

Another study, which appears to oppose to the results of this study was one conducted by Ni et al. (2009), who claimed that among Chinese university students, it was found that those, who lived with a single parent had a higher likelihood of being addicted to the internet. The study suggested that their reliance on the disproportionate engagement with the internet was linked to a deficit in social skills; they had a greater tendency to be in social isolation and therefore used the internet excessively as a means to compensate for a lack of relationships in their real lives. Another study conducted by Tsitsika et al. (2011) also disagreed with the results of this study due to their discovery that among outpatient adolescents in Greece, those who struggled with internet addiction were more likely to have had parents who were divorced compared to those, who did not struggle with internet addiction.
Implications of the findings related to the first hypothesis

The implication of the findings mentioned above is that readers are informed about the potential risk factors associated with internet addiction. It therefore specifically informed that the five facets of behavioral impulsivity (Negative Urgency, Positive Urgency Lack of Perseverance, Lack of Premeditation and Sensation Seeking) statistically significantly predicted internet addiction over and above gender, age, nationality and number of caretakers when growing up. Upon closer inspection, the behavioral impulsivity facet of positive urgency is what acts as a statistically significant predictor of internet addiction.

This knowledge of behavioral impulsivity facets acting as a risk factor to internet addiction can then be helpful in improving the interventions related to the curbing of internet addiction, whether in form of therapy or raising awareness to the public with regards to it; therapeutic interventions can be geared towards reducing certain impulsive tendencies (specifically the impulsivity facet of Positive Urgency) so as to decrease the likelihood of an individual to be addicted to the internet.

Several studies have found that certain types of therapies are effective at reducing an individual’s level of impulsivity. For example, Yao et al. (2017) found that the behavioral intervention (conducted in a group format), which includes the practice of mindfulness mediation and reality therapy, is effective at lessening impulsivity related to intertemporal decision (this refers to making decisions related to evaluating future ramifications) as well as the severity of internet gaming disorder among those, who struggled with the disorder. However, the intervention was found to be ineffective at reducing impulsivity related to making decisions with high risks involved.

Another study conducted by Soler et al. (2016) discovered that training individuals with borderline personality disorder with the practice of mindfulness has been effective at reducing
certain facets of impulsivity; namely the capacity to postpone gratification and time perception. However, the training was found to be ineffective at producing improvements with regards to response inhibition and trait impulsivity. Even though this study has not used a psychiatric sample as its participants, the discovery of Soler et al. (2016) nevertheless provided some indication that the mindfulness intervention is effective at reducing certain aspects of impulsivity for a particular group of people; future studies would have to be conducted in order to test whether it would also be effective for the general population and for those who struggle with internet addiction.

On the other hand, another study conducted by Franco et al., (2016) investigated the effect of a psychoeducative program involving a mindfulness training; a group of students who were attending high school were asked to engage in exercises such as a 15-minute mindfulness practice. They were also encouraged to perform a type of body-scan practice where concentration was given to different aspects of the body. This training was found to be effective at reducing the degree of aggression as well as impulsivity in the classroom setting among the high school students belonging to the experimental group.

Interventions such as the ones mentioned above that have been found to be effective at reducing an individual’s level of impulsivity can be applied to those, who struggle with internet addiction as the finding of this study has shown that behavioral impulsivity, particularly positive urgency, acts as a significant predictor of internet addiction.

Main findings related to the second hypothesis

The second hypothesis was that the insecure attachment style will positively and statistically significantly predict internet addiction over and above demographic variables. Results do support this hypothesis as it has been shown that both secure and insecure
attachment style positively and statistically significantly predict internet addiction when controlling for demographic variables. However, the insecure attachment style was observed to be a stronger predictor of internet addiction compared to the secure attachment style. Furthermore, of all the insecure attachment style (preoccupied, dismissing and fearful attachment styles), only the preoccupied attachment style statistically added to the prediction of internet addiction.

This finding supports several studies in the literature. For example, it was supported by the study of Eichenberg et al. (2017), who found that individuals with the insecure attachment style had a higher potential to be using the internet pathologically in comparison to their securely attachment counterparts. The study also found that the ambivalent attachment style (which is synonymous to the preoccupied attachment style which consists of high levels of attachment ambivalence) was significantly related to the engagement of the internet in a way that was pathological, which is in line with the findings of the presented study.

Results also support the discovery of Odacı and Çıkırkçı (2014), who found that university students with the secure attachment style attained lower scores in the problematic usage of the internet compared to those, who had an insecure attachment style. Results are also in line with the findings of Ceyhan et al. (2019), who found that individuals with the preoccupied attachment style had a greater tendency to be addicted to the internet. The study also claimed that attachment avoidance on the other hand (which is related to the dismissing attachment style) apparently acts as a protective tool against internet addiction.

Results of presented study are further bolstered by D’Arienzo et al. (2019), who investigated 32 studies (published between 2000 and 2018) that reviewed the link between attachment style and internet addiction; the study found a significant positive relationship
between the anxious attachment style and the problematic use of social media and internet addiction.

Furthermore, Jia and Jia (2016) appear to support the findings of this study by claiming that attachment anxiety acts as a significant predictor to the use of internet problematic whereas attachment avoidance does not. Finally, Şenormancı et al. (2014) also supports the findings of this study by discovering that among all of the insecure attachment styles, only the anxious attachment style is significantly correlated with internet addiction.

However, results of this study do not appear to agree with the discovery of D’Arienzo et al. (2019), who claimed that the avoidance attachment style had a positive and significant association with the use of social media and internet in a problematic way. Results of this study also do not support the discovery of Ceyhan et al. (2019), who found that individuals with the fearful attachment style, along with those who had the preoccupied attachment style, also had a higher inclination to be addicted to the internet.

Several explanations could be tentatively made with regards to the results of this study. Eichenberg et al. (2017) for example, conjectured that individuals with the ambivalent attachment style may appreciate the anonymity factor related to internet addiction; this may allow them to avoid feeling anxious with regards to whether or not they would be accepted by others, as they would feel in real life. Therefore, the study made the conclusion that internet addiction acts as a social compensatory tool to individuals with underlying relationship motives.

Odacı and Çıkrikçı (2014) on the other hand suggested that individuals with the preoccupied attachment style may tend to opt to construct online relationships due to their struggles with constructing relationships in their real life; this then helps them attain the interpersonal fulfilment which they lack in real life.
Another potential explanation to the results of this study would be that individuals with the preoccupied attachment style may engage in the use of internet so as to obtain a kind of social support and a place of interpersonal safety that they believe are lacking in their real life (Savcı and Aysan 2016; Schimmenti et al. 2014, as cited by D’Arienzo et al., 2019)

Implications of the findings related to the second hypothesis

The implication of this finding is that it specifically informed readers that attachment style is a significant predictor of internet addiction and that the insecure attachment style acts as a stronger predictor of internet addiction compared to the secure attachment style. This knowledge can then be helpful in improving interventions related to the reduction of internet addiction. For example, therapeutic interventions can be geared towards making an individual’s attachment style more secure so as to reduce the likelihood of internet addiction. Several studies have found the effectiveness of certain therapeutic interventions at improving an individual’s attachment style.

For example, Navarro-Gil et al. (2018) has found that compassion therapy, that has been developed based on attachment theory (such therapy includes practices such as specific mindfulness techniques, visualizing attitudes of compassion towards one’s self and comprehending the role of attachment style that has been formed throughout their childhood) has been effective at enhancing an individual’s degree of self-compassion, mindfulness and attachment security. Furthermore, it has also been found to be effective at reducing an individual’s level of psychological distress, avoidance and anxiety. In conclusion, attachment-based compassion therapy has been found to be highly efficacious at developing attachment security, compassion as well as psychological stability.
Another study done by Iwaniec and Sneddon (2001) that was conducted over a period of 20 years, claimed that individuals have the capacity to alter their attitudes and become more secure in their attachment with people, who are important to them with the proper intervention and support as well as improvements in their life situations.

Furthermore, the knowledge that securely attached individuals had lesser scores in internet addiction compared to insecurely attachment individuals and that the preoccupied attachment style acts a significant predictor to internet addiction could be helpful to emphasize to the public regarding the importance of parents’ role in building a healthy and secure attachment style with their children; this would then act as a protective factor against unpleasant outcomes such as internet addiction. In order to do this, parents could be encouraged to essentially be available during critical moments of urgency for their children and display empathy towards their children’s need for care and closeness; this has been suggested to contribute to the formation of a secure attachment style (Bowlby, 1973).

Limitations of this study

Some of the limitations of this study include the use of self-report questionnaires in order to obtain information about the participants; this makes such information prone to biases such as the self-serving bias, social desirability bias as well as a lack of honesty. Furthermore, the number of securely attached individuals was only half the number of insecurely attachment individuals; this may have impacted the analysis that sought to compare the difference in internet addiction scores between those two groups. Additionally, this study also has a lack of representativeness of men as only one fourth of the sample are men. This may have affected the result pertaining to the investigation of gender differences between men and women in terms of their level of internet addiction. Furthermore, around 61% of the participants were
British and were primarily university students; this makes the generalizability of this finding towards the general population somewhat limited.

Moreover, due to the nature of this study being a cross-sectional study, its findings are therefore not reflective of the causes of internet addiction; they merely inform us of the risk factors associated with internet addiction and serve as an encouragement for further research in the future. Lastly, the scale measuring attachment style that has been used in this study has been found to have a low high split half reliability index, particularly the subscale measuring attachment ambivalence (Cronbach's Alpha = .658). This could have caused the individuals, who were classified as securely attached to not have scored significantly lower than the individuals who were classified as insecurely attached.

**Future research**

Future research could perhaps offset the limitations of this study’s cross-sectional nature by conducting research that employs a longitudinal nature in order to ascertain the cause and effect relationships between internet addiction and impulsivity as well as attachment style. They could also include a larger sample of participants that are also of various nationalities so as to make the findings of the study more generalizable and representative of the general population. Another approach that could be adopted by future studies is that they could employ the use of an assessment that looks deeper into the type of online activities of participants as the IAT short version is not able to do this. Future studies could also investigate the potential variables that mediate or moderate the relationship between the variables under study so as to better our comprehension of it.
Conclusion

In conclusion, this study aimed to observe whether aspects of behavioral impulsivity and attachment style act as significant predictors to internet addiction after controlling for demographic variables. The results suggest that aspects of behavioral impulsivity are able to predict internet addiction after controlling for demographic variables, while only the impulsivity facet of positive urgency acts a statistically significant predictor of internet addiction.

Additionally, among all of the demographic variables that have been investigated (gender, age, nationality and number of caretakers upon growing up) only age appears to act as a statistically significant predictor to internet addiction in which younger age predicted a higher level of internet addiction.

It has also been shown that both secure and insecure attachment style positively and statistically significantly predict internet addiction when controlling for demographic variables. However, the insecure attachment style was observed to be a stronger predictor of internet addiction compared to the secure attachment style. Furthermore, of all the insecure attachment style (preoccupied, dismissing and fearful attachment styles), only the preoccupied attachment style statistically added to the prediction of internet addiction.

The implications of this study are that its findings inform us of the risk factors associated with internet addiction; interventions to curb internet addiction could then be geared towards reducing an individual’s level of impulsivity and improving their attachment style.
References


Hsieh, K. Y., Hsiao, R. C., Yang, Y. H., Liu, T. L., & Yen, C. F. (2018). Predictive effects of sex, age, depression, and problematic behaviors on the incidence and remission of


APPENDIX A: Consent Form

Consent Form: Impact of impulsivity and attachment style on level of internet addiction.

1. Summary: This research study aims to investigate the impact of impulsivity and attachment style on an individual's level of internet addiction among university students.

2. Your right to withdraw/discontinue: You are free to ask questions or to withdraw from this study at any period without any consequences.

3. Benefits: Participation in this research study does not guarantee any benefits to you. However, possible benefits include the fact that you may learn something about how research studies are conducted, and you may learn something about this area of research (i.e. impulsivity, attachment style and internet addiction).

4. Time Commitment: It should take you approximately 5 to 10 minutes to complete this survey.

5. Guarantee of Confidentiality: All data from this study will be kept from inappropriate disclosure and will be accessible only to the researchers. The researchers are not interested in anyone’s individual responses, only the average responses of everyone in the study.

6. Risks: The present research is designed to reduce the possibility of any negative experiences as a result of participation. Risks to participants are kept to a minimum. However, if your participation in this study causes you any concerns, anxiety, or distress, please contact the researcher at xbintef@student.unyp.cz so that she can refer you to an appropriate counsellor or psychologist in your area.

7. Researcher Contact Information: This research study is being conducted by Farah 'Adilah Binte Abdul Rahman in fulfillment of the University of New York in Prague Psychology Master's degree requirement. The research supervisor is Tereza Prihodova, Lecturer in the Psychology Department at the University of New York in Prague. If you have questions or concerns about your participation in this study, you may contact the researcher at xbintef@student.unyp.cz.

8. Results of the Study: You may obtain information about the outcome of the study at the end of the Spring 2020 semester by contacting the researcher listed above.

9. Personal Copy of Consent Form: You may print a blank, unsigned copy of this consent form at the beginning of the study.

Verification of Adult Age: By clicking “I Agree” below, you confirm that you are 18 years old or older.

Verification of Informed Consent: By clicking “I Agree” below, you confirm that you have read the consent form and agree to participate in this study.
APPENDIX B: Demographic Questionnaire

1) Age: ____________________

2) Gender:
   □ Male
   □ Female

3) Nationality: ____________________

4) Number of parents you lived with while growing up:
   □ 1 parent (With mother only)
   □ 1 parent (With father only)
   □ 2 parents (With both mother and father)
   Other: ____________________
APPENDIX C: Short UPPS-P Impulsive Behavior scale

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. Be sure to indicate your agreement or disagreement for every statement below.

1. I generally like to see things through to the end.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

2. My thinking is usually careful and purposeful.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

3. When I am in great mood, I tend to get into situations that could cause me problems.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

4. Unfinished tasks really bother me.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

5. I like to stop and think things over before I do them.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

6. When I feel bad, I will often do things I later regret in order to make myself feel better now.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

7. Once I get going on something I hate to stop.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
8. Sometimes when I feel bad, I can’t seem to stop what I am doing even though it is making me feel worse.
   - Disagree strongly
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

9. I quite enjoy taking risks.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

10. I tend to lose control when I am in a great mood.
    - Agree strongly
    - Agree somewhat
    - Disagree somewhat
    - Disagree strongly

11. I finish what I start.
    - Agree strongly
    - Agree somewhat
    - Disagree somewhat
    - Disagree strongly

12. I tend to value and follow a rational, "sensible" approach to things.
    - Agree strongly
    - Agree somewhat
    - Disagree somewhat
    - Disagree strongly

13. When I am upset I often act without thinking.
    - Agree strongly
    - Agree somewhat
    - Disagree somewhat
    - Disagree strongly

14. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.
    - Agree strongly
    - Agree somewhat
    - Disagree somewhat
    - Disagree strongly
15. When I feel rejected, I will often say things that I later regret.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

16. I would like to learn to fly an airplane.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

17. Others are shocked or worried about the things I do when I am feeling very excited.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

18. I would enjoy the sensation of skiing very fast down a high mountain slope.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

19. I usually think carefully before doing anything.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly

20. I tend to act without thinking when I am really excited.
   - Agree strongly
   - Agree somewhat
   - Disagree somewhat
   - Disagree strongly
APPENDIX D: Adult Attachment Questionnaire

Please indicate how you typically feel toward romantic (dating) partners in general. Keep in mind that there are no right or wrong answers. Use the 7-point scale provided below and circle the appropriate number for each item on the scantron.

<table>
<thead>
<tr>
<th>Statement</th>
<th>I strongly disagree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find it relatively easy to get close to others.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>2. I'm not very comfortable having to depend on other people.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>3. I'm comfortable having others depend on me.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>4. I rarely worry about being abandoned by others.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>5. I don't like people getting too close to me.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>6. I'm somewhat uncomfortable being too close to others.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>7. I find it difficult to trust others completely.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>8. I'm nervous whenever anyone gets too close to me.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>9. Others often want me to be more intimate than I feel comfortable being.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>10. Others often are reluctant to get as close as I would like.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>11. I often worry that my partner(s) don't really love me.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td></td>
<td>Statement</td>
<td>1</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>12.</td>
<td>I rarely worry about my partner(s) leaving me.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>I often want to merge completely with others, and this desire sometimes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>scares them away.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>I'm confident others would never hurt me by suddenly ending our</td>
<td></td>
</tr>
<tr>
<td></td>
<td>relationship.</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>I usually want more closeness and intimacy than others do.</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>The thought of being left by others rarely enters my mind.</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>I'm confident that my partner(s) love me just as much as I love them.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E: Internet Addiction Test – short version

For each statement, please indicate how often you engage in the activity mentioned.

1. How often do you find that you stay on-line longer than you intended?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

2. How often do you neglect household chores to spend more time on-line?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

3. How often do your grades or school work suffer because of the amount of time you spend on-line?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

4. How often do you become defensive or secretive when anyone asks you what you do online?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

5. How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

6. How often do you lose sleep due to being online late at night?
   - Never
   - Rarely
   - Sometimes
   - Often
7. How often do you feel preoccupied with the Internet when off-line, or fantasize about being on-line?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

8. How often do you find yourself saying “just a few more minutes” when on-line?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

9. How often do you try to cut down the amount of time you spend on-line and fail?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Very often

10. How often do you try to hide how long you’ve been on-line?
    - Never
    - Rarely
    - Sometimes
    - Often
    - Very often

11. How often do you choose to spend more time on-line over going out with others?
    - Never
    - Rarely
    - Sometimes
    - Often
    - Very often

12. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back on-line?
    - Never
    - Rarely
    - Sometimes
    - Often
    - Very often