PROBLEMATIC PORNOGRAPHY USE AMONG MALAYSIAN YOUNG ADULTS: A STUDY OF FREQUENCY OF PORNOGRAPHY USE, WELL-BEING, ADHD SYMPTOMS, AND HYPERSEXUALITY

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Problematic Pornography Use Among Malaysian Young Adults: A Study of Frequency of Pornography Use, Well-Being, ADHD Symptoms, and Hypersexuality

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APPROVAL FORM

This research paper attached hereto, entitled “Problematic Pornography Use Among Malaysian Young Adults: A Study of Frequency of Pornography Use, Well-Being, ADHD Symptoms, and Hypersexuality” prepared and submitted by “Rowen Wong Jing Tong, Teoh Shu Hui, and Tiew Xin Yee” in partial fulfillment of the requirements for the Bachelor of Social Science (Hons) Psychology is hereby accepted.

Date: 10.12.2024

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Abstract

This study investigated the relationships between the frequency of pornography use (FPU), well-being, ADHD symptoms, hypersexuality, and problematic pornography use (PPU) as the dependent variable. A quantitative, cross-sectional research design was employed, utilizing purposive sampling. Data were collected through an online survey targeted on Malaysian young adults aged 18 to 35, with no geographic restrictions, excluding participants with no prior experience using pornography. A total number of 118 participants (M = 21.77 years old; SD = 2.94 years), where 89.8% of them were Chinese (n = 106). Statistical analyses, including correlation and regression tests, were conducted to examine the associations between variables and assess their significance. Moreover, the study used validated scales, including the short version Problematic Pornography Consumption Scale (PPCS-6), Frequency of Pornography Use (FPU), World Health Organization Well-Being Index (WHO-5), Adult ADHD Self-Report Scale (ASRS-v1.1) - Part A, and Hypersexual Behavior Inventory Short Form (HBI-SF), to assess PPU and measure the levels of FPU, well-being, ADHD symptoms, and hypersexuality. Results revealed significant correlations among the variables, except between PPU and well-being. In conclusion, this research addressed a significant gap in the literature by providing insights specific to the Malaysian context, where studies examining the interplay of these variables remain inadequate. By offering culturally relevant empirical evidence, this study laid the groundwork for further exploration of PPU and its contributing factors in this region.

Keywords: Problematic pornography use, frequency of pornography use, well-being, ADHD symptoms, hypersexuality

Subject area: H1-99, Social sciences (General)

DECLARATION

We declare that the material contained in this paper is the end result of our own work and that due acknowledgement has been given in the bibliography and references to ALL sources be they printed, electronic or personal.

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List of Abbreviations

Abbreviation	
ADHD	Attention-Deficit/Hyperactivity Disorder
ASRS-v1.1	Adult ADHD Self-Report Scale
CLT	Central Limit Theorem
CSBD	Compulsive Sexual Behaviour Disorder
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
FPU	Frequency of Pornography Use
HBI-SF	Hypersexual Behavior Inventory Short Form
HD	Hypersexual Disorder
ICD-11	11th Revision of the International Classification of Disease
I-PACE	Interaction of Person-Affect-Cognition-Execution
MLR	Multiple Linear Regression
PPCS	Problematic Pornography Consumption Scale
PPMC	Pearson Product-Moment Correlation
PPU	Problematic Pornography Use
RDS	Reward Deficiency Syndrome
ROC	Receiver Operating Characteristic
SERC	Scientific and Ethical Review Committee
SPSS	Statistical Package for Social Science
UTAR	Universiti Tunku Abdul Rahman
WHO	World Health Organization
WHO-5	World Health Organization Well-Being Index

Chapter I

Introduction

Background of study

Pornography, which includes texts, pictures, videos, movies, and digital media, is designed to elicit sexual arousal by depicting explicit sexual activity or nudity, primarily intended for adult consumption (Ashton et al., 2019). Pornhub, one of the most popular websites, receives over 138 million visits from Malaysia as of January 2024 (Ceci, 2024). In Malaysia, nearly 75% of university students have been exposed to pornography (Ali et al., 2021). Notably, possession of any form of pornographic material is illegal in Malaysia (Attorney General's Chambers of Malaysia, 2023). Despite restrictions on over 1,000 pornographic websites (Malaysian Communications and Multimedia Commission, 2023), there are no specific laws prohibiting online viewing of pornography in the country. The easy access and anonymity provided by the internet have fuelled concerns about problematic pornography use (PPU) (De Alarcón et al., 2019), which is characterised by compulsive and excessive consumption of pornography that disrupts daily functioning and impairs relationships (Ince et al., 2020). Generally, males have higher prevalence and levels of PPU than females (Bőthe et al., 2024).

Research highlighted the significant impact of PPU on well-being, which is a state of optimal health and functioning, including physical, emotional, psychological, and social aspects (American Psychological Association [APA], n.d.-a). PPU has a significant impact on mental health conditions such as depression, anxiety, and stress (Camilleri et al., 2021), emotional dysregulation (Cardoso et al., 2023), loneliness (Mestre-Bach & Potenza, 2023a). A study from India reported that about 13% of participants experienced PPU, and its adverse impact on quality of life (Kumar et al., 2021).

The frequency of pornography use (FPU) has been identified as a strong predictor of PPU, indicating a significant and positive relationship between them (Lewczuk et al., 2020). Research indicated that as individuals engage more frequently with pornography, the likelihood of escalating to problematic use increases significantly, leading to negative impact on sexual well-being, such as satisfaction and dysfunction (Malki et al., 2021). Such relationships may be influenced in different cultural and religious contexts (Efrati, 2020).

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterised by persistent patterns of inattention, hyperactivity, and impulsivity that exceed typical behaviours for individuals of similar mental age. These symptoms impair executive functioning, which includes cognitive processes such as memory, attention, and self-regulation (American Psychiatric Association, 2022). A systematic review by Bausela-Herreras et al. (2023), people with executive dysfunctions can lead to challenges in managing memory, attention, and emotional regulation. The ADHD symptom was positively correlated with PPU (Bőthe et al., 2019), also mediated by impulsivity (Zhang et al., 2022).

Hypersexuality is a condition marked by an unusually high frequency or intense desire for sexual activity (APA, n.d.-b), including pornography use. In Malaysia, individuals reported the highest levels of sexual arousal after watching pornography, often using it as visual stimulation for masturbation (Goh et al., 2023). The association between hypersexuality and PPU can lead to negative consequences, including poor decision-making (Castro-Calvo et al., 2021), distress and interpersonal difficulties (Engel et. al., 2023). The prevalence of individuals at risk for PPU and hypersexuality is high, indicating that these issues are relatively common (Lewczuk et al., 2023).

Problem Statement

Recent studies pointed out that FPU does not always lead to PPU (Bőthe et al., 2020b; Wizła & Lewczuk, 2024). These studies suggested that individual differences in personality, coping mechanisms, and contextual factors play crucial roles in determining whether frequent pornography use becomes problematic. For instance, some individuals may frequently use pornography without it interfering with their daily lives, relationships, or responsibilities, thus not meeting the criteria for PPU. Moreover, cultural and religious factors also influence FPU. Several research indicated that in conservative countries, including Malaysia, it is more likely that low-frequency usage can lead to PPU due to cultural norms, social shame of watching porn and cultural related factors (Ali et al., 2021; Chen et al., 2022; Grubbs & Perry, 2019). This finding contrasts with earlier research that established a significant positive relationship between FPU and PPU (Lewczuk et al., 2020; Okabe et al., 2021; Rousseau et al., 2020). These inconsistencies highlight the need to examine how various profiles of FPU correlate with PPU within the Malaysian context.

While much research has shown that PPU contributes to various mental health issues and a decline in overall well-being (Ince et al., 2020; Tan et al., 2022a; Vieira & Griffiths, 2024), there has not been exploration into how an individual's pre-existing state of well-being might influence the development of PPU. In addition to well-being, there is also limited exploration of how ADHD symptoms and hypersexuality intersect with PPU in Malaysia, as previous studies on PPU in Malaysia have primarily focused on mental health issues, gender differences, and perceived realism of pornography (Ali et al., 2021; Tan et al., 2022a; Tan et al., 2022b). Thus, the role of ADHD symptoms and hypersexuality, particularly their contribution to PPU, remains underexplored.

Most studies on pornography have been conducted in Western countries (Camilleri et al., 2021; Kohut et al., 2020; Lewczuk et al., 2020; Malki et al., 2021), leading to findings

that reflect Western cultural attitudes. In contrast, Malaysia, a predominantly Muslim country, restricts premarital sexual relationships, and discussions about sexual topics are often taboo (Azam & Nor, 2022). Given the inconsistent findings and limited research due to cultural differences, it is important to investigate the relationships between PPU, FPU, well-being, ADHD symptoms, and hypersexuality among young adults in Malaysia.

Research Objectives

1. To examine the correlation between problematic pornography use and frequency of pornography use among young adults in Malaysia.
2. To examine the correlation between problematic pornography use and well-being among young adults in Malaysia.
3. To examine the correlation between problematic pornography use and ADHD symptoms among young adults in Malaysia.
4. To examine the correlation between problematic pornography use and hypersexuality among young adults in Malaysia.
5. To examine the gender differences in the problematic pornography use among young adults in Malaysia.

Research Questions

1. What is the correlation between problematic pornography use and the frequency of pornography use among young adults in Malaysia?
2. What is the correlation between problematic pornography use and well-being among young adults in Malaysia?
3. What is the correlation between problematic pornography use and ADHD symptoms among young adults in Malaysia?
4. What is the correlation between problematic pornography use and hypersexuality among young adults in Malaysia?

5. What are the gender differences in the problematic pornography use among young adults in Malaysia?

Research Hypotheses

Hypothesis 1: There is a significant correlation between the frequency of pornography use and problematic pornography use among young adults in Malaysia.

Hypothesis 2: There is a significant correlation between well-being, and problematic pornography use among young adults in Malaysia.

Hypothesis 3: There is a significant correlation between ADHD symptoms and problematic pornography use among young adults in Malaysia.

Hypothesis 4: There is a significant correlation between hypersexuality and problematic pornography use among young adults in Malaysia.

Hypothesis 5: There is a significant association between the frequency of pornography use, well-being, ADHD symptoms, hypersexuality, and problematic pornography use among young adults in Malaysia.

Hypothesis 6: There are significant gender differences in problematic pornography use, with males having a higher prevalence than females among young adults in Malaysia.

Significance of the study

The significance of this study lies in its contribution to understanding PPU among young adults in Malaysia, focusing on FPU, well-being, ADHD symptoms, hypersexuality. Despite the increasing recognition of PPU as a significant behavioural issue, research on this topic within the Malaysian context shows discrepancy and limited outcomes (Ali et al., 2021; Lewczuk et al., 2020). Regarding the inconsistent result in FPU predicting PPU, this study will help clarify whether FPU directly correlates with the development of PPU by focusing on a Malaysian sample. Practically, the study's outcomes could serve as a contribution for

future research, guiding scholars who wish to explore similar topics in different cultural contexts or expand on the findings within Malaysia.

As for the insufficient findings, the study is significant as it will contribute to the understanding of how ADHD-related impulsivity and hypersexuality interact to influence PPU. Moreover, it will also contribute to the growing body of evidence that individuals with ADHD may have a higher risk of developing PPU, and further underscores the importance of considering ADHD as a factor in addressing and managing PPU. In addition, there has not been exploration into one's pre-existing state of well-being that might influence the development of PPU. Therefore, this study aims to fill a critical gap in the literature by exploring the associations between PPU, FPU, well-being, ADHD symptoms, and hypersexuality within Malaysian young adults.

Conceptual Definitions

Problematic Pornography Use (PPU)

PPU involves ongoing challenges in regulating pornography use, even when it negatively impacts personal, relational, or occupational functioning (Vieira & Griffiths, 2024). Suggested by Ince et al. (2020), it is characterised by patterns of tolerance and escalation, increased consumption of pornography, psychological distress, and heightened sexual responsiveness to pornography. Parallelly, PPU may be defined as uncontrollable, repetitive of pornography use with clinically significant distress and functional impairment (Bőthe et al., 2024).

Frequency of Pornography Use (FPU)

FPU refers to the number of times an individual consumes pornographic material over a specified period, typically measured on a scale ranging from rare or occasional use to frequent or daily use. This measure assesses the regularity with which an individual engages with sexually explicit content.

Well-Being

According to the APA (n.d.-a), well-being is defined as a state of happiness and satisfaction, characterised by low levels of distress, good overall physical and mental health, a positive outlook, and a high quality of life.

Attentional-Deficit/Hyperactivity Disorder (ADHD) Symptoms

According to DSM-5, ADHD is characterised by persistent patterns of inattention, hyperactivity, and impulsivity that disrupt functioning or development. Inattention involves difficulty staying focused, organised, and on task, not due to defiance or lack of understanding. Hyperactivity is marked by constant movement, fidgeting, and excessive talking, with adults often feeling extremely restless. Impulsivity involves acting without thinking, poor self-control, and a preference for immediate rewards, leading to behaviours like interrupting others and making hasty decisions (American Psychiatric Association, 2022). In addition to the core symptoms, ADHD is often associated with deficits in executive functioning. These deficits impair an individual's ability to manage and regulate behaviours, emotions, and cognitive processes, leading to challenges in planning, organisation, self-regulation, and working memory. Executive functioning deficits contribute to the difficulties individuals with ADHD face in daily activities and decision-making (Roth et al., 2005).

Hypersexuality

According to the APA (n.d.-b), hypersexuality is characterized by repetitive engagement in sexual activities often as a response to negative emotions or stress. This condition is marked by persistent sexual urges or behaviours that interfere with important obligations, persisting for at least 6 months, and causing significant personal distress or functional impairment due to the intensity and frequency of the behaviour. Since the concept of hypersexuality can encompass various forms of excessive sexual behaviour, terms like compulsive sexual behaviour and sexual addiction are often used interchangeably in this

study. This study considers hypersexuality as a behavioural condition rather than a diagnosable disorder. Hypersexuality can manifest in various forms, often referred to by different terms such as compulsive sexual behaviour disorder (CSBD), sexual addiction, and impulsive sexual behaviour (Sassover & Weinstein, 2022).

Operational Definitions

Problematic Pornography Use (PPU)

In this study, PPU is defined by the score the participants reported on the short version of the Problematic Pornography Consumption Scale (PPCS-6). PPCS-6 is developed by Bőthe et al. (2020a), derived from the original 18-item PPCS (PPCS-18). PPCS-6 includes six items covering the following factors: salience, tolerance, mood modification, conflict, withdrawal, and relapse. It uses a 7-point scale ranging from 1 (Never) to 7 (All the time). In the PPCS-6, a higher score indicates a greater likelihood of PPU.

Frequency of Pornography Use (FPU)

Following Bőthe et al. (2020b), a single question will be used to measure the FPU in this study. Participants will be asked: “How often have you used pornography during the past year?” Responses will be recorded on a 10-point scale ranging from 1 (Never) to 10 (6 or 7 times a week). Higher score indicates a higher FPU.

Well-Being

In this study, well-being will be assessed using the 5-item World Health Organization Well-Being Index (WHO-5) (World Health Organization [WHO], 1998). This brief, self-administered scale is designed to evaluate well-being over a 2-week period. The scale includes 5 items rated on a 6-point Likert scale, ranging from 0 (At no time) to 5 (All of the time). To calculate the total, the item responses are summed and then multiplied by 4, resulting in a range from 0 to 100. A lower score indicates poor well-being, while a score of 100 represents the highest possible quality of life.

Attentional-Deficit/Hyperactivity Disorder (ADHD) Symptoms

The Adult ADHD Self-Report Scale (ASRS-v1.1) symptoms checklist will be used to screen for ADHD among adults. It consists of two parts: Part A with six questions and Part B with 12 questions. For this screening, only Part A will be used, as these six questions have been found to be the most predictive and effective for this instrument. Participants need to answer each question and mark a cross sign (X) on the option that best describes their experience. By summing up the checkmarks in the shaded area, a higher score indicates a high consistency of symptoms with adult ADHD (WHO et al., n.d.).

Hypersexuality

The short form of the Hypersexual Behavior Inventory (HBI-SF) (Bőthe et al., 2018b; Reid et al., 2013) will be used to measure hypersexuality. This self-report scale consists of eight items, derived from the original 19-item scale. Participants will respond using a 5-point Likert scale ranging from 1 (Never) to 5 (Very Often). A cut-off score of 26 is used to distinguish between non-hypersexual and hypersexual individuals. Higher score refers to higher tendency towards hypersexual behaviour.

Chapter II

Literature Review

Problematic Pornography Use (PPU)

Pornographic content includes imagery, videos, and films that involve depictions of explicit sexual behaviours or nudity and is intended to arouse the sexual desires of its consumers (Ashton et al., 2019). These contents can be easily accessed through various pornography websites, social media platforms, and streaming services, contributing to their widespread accessibility, and anonymity, further raising the prevalence of PPU (De Alarcón et al., 2019). PPU is defined as intense and excessive consumption of pornography that leads to range of adverse consequences (Ince et al., 2020), as individuals may struggle to control their consumption despite negative impacts on their lives (Camilleri et al., 2021; Privara & Bob, 2023). In recent years, there has been an increasing amount of literature on the predictors that may predispose individuals to PPU. This review will explore the variables: FPU (Lewczuk et al., 2020), moral incongruence (Grubbs et al., 2019a), well-being (Vieira & Griffiths, 2024), loneliness (Vescan et al., 2024), emotional dysregulation (Cardoso et al., 2023), and psychiatric comorbidities, including hypersexuality (also known as CSBD) and ADHD (Bőthe et al., 2019). Additionally, gender differences have been reported in PPU, with males having a higher prevalence than females (Borgogna et al., 2022; Bőthe et al., 2024).

Included Variables

Following a comprehensive review, the variables selected for inclusion will be FPU, well-being, ADHD symptoms, and hypersexuality. While there is no universally agreed definition of FPU in the context of PPU, it is commonly assessed by researchers through the frequency of consumption or by comparing it to the average frequency observed in the sample (Malki et al., 2021). Conversely, Bőthe et al. (2020b) have argued that FPU alone may not be a reliable determinant of PPU, as individuals with higher FPU may not

necessarily exhibit problematic behaviour. Nonetheless, FPU remains a relevant variable of PPU, not only due to its positive and moderate correlation with PPU (Lewczuk et al., 2020), but also considering cultural factors. In specific cultural contexts, such as conservative countries like Malaysia, even lower levels of FPU can be associated with PPU (Chen et al., 2022; Vaillancourt-Morel & Bergeron, 2019).

Next, this study considers the variables of well-being, defined as a state of optimal health and functioning, including physical, emotional, psychological, and social aspects, characterized by low levels of distress, and a positive, satisfying quality of life (APA, n.d.-a). Generally, PPU has been shown to significantly impact mental health conditions such as depression, anxiety, and stress (Camilleri et al., 2021). Thus, well-being will be included in this study due to its broad and integrative nature that captures many risk factors, such as loneliness and emotional dysregulation within a single framework.

In addition to the predictors previously discussed, ADHD symptoms and hypersexuality represent significant variables in this study. Research indicated that individuals with ADHD symptoms and hypersexuality often struggle with emotion regulation (Aslan et al., 2024), which is linked to heightened impulsivity (Halouani et al., 2023). Research suggested that hypersexuality may be a self-regulatory strategy to cope with emotional challenges faced by individuals with ADHD symptoms, and impulsivity significantly impacts both ADHD symptoms and hypersexuality, particularly in controlling sexual impulses (Doroldi et al., 2024). Importantly, it has been suggested that screening for PPU should incorporate assessments for both ADHD (Niazof et al., 2019), and hypersexuality (Efrati, 2020). Hence, including ADHD symptoms and hypersexuality in the study is important, as they provide insight into how these underlying mental health conditions influence PPU.

Excluded Variables

Despite initial consideration, several variables will not be included in the present study, including moral incongruence, loneliness, and emotional dysregulation. Based on the model proposed by Grubbs et al. (2019a), moral incongruence occurs when an individual's actions conflict with their personal, moral, belief, or religious values, leading to guilt, shame, and distress. This model suggests that the distress is more about the internal conflict than the content itself. Although Lewczuk et al. (2020) noted a moderate and positive relationship between moral incongruence related distress and PPU, this study excludes moral incongruence due to the lack of reliable, validated psychometric tools for its accurate measurement. Without such measures, assessing consistency in moral inconsistency would be challenging, limiting its utility as a direct correlate in this context.

Another variable excluded from this study will be loneliness. Evidence suggested a positive and weak relationship between loneliness and both viewing sexually explicit material (Ostrander, 2021) and PPU (Cordero, 2020; Vescan et al., 2024). Mestre-Bach and Potenza (2023a) identified a bidirectional relationship where higher levels of PPU link with increased loneliness, and loneliness, in turn, predicts increased pornography use over time. This suggests that individuals may turn to pornography as a coping mechanism for negative emotions or social isolation. Additionally, Cardoso et al. (2022) highlighted that those who feel lonely and have difficulty controlling their emotions may frequently consume pornography to compensate for social deficits and emotional distress. However, Vescan et al. (2024) indicated that the effect of loneliness on PPU is fully mediated by emotion regulation, causing the direct path between loneliness and PPU insignificant. Given this, including loneliness as a variable of PPU is redundant, as its effects are entirely captured by emotion regulation and overlap with well-being.

Similarly, emotional dysregulation will be excluded from this study. Although studies have shown that emotional dysregulation is positively and weakly linked with PPU (Cardoso et al., 2023), findings are mixed regarding its impact on how individuals respond to or engage with pornographic material. For instance, while Janssen et al. (2020) found that negative emotions did not significantly affect how individual responded to or engaged with the pornographic material, Rousseau et al. (2021) highlighted that individuals who experience more negative emotions may use pornography to alter or distract from the negative emotions. This tendency is particularly evident in individuals with PPU, who tend to react more strongly to negative stimuli and may use pornography to regulate negative emotions (Wang & Li, 2023). However, the study cannot determine whether increased sensitivity to negative stimuli directly causes addictive behaviour. Additionally, emotion dysregulation highly overlaps with well-being and psychiatric disorders (i.e., ADHD symptoms and hypersexuality). Consequently, this study excludes emotional dysregulation as an independent variable of PPU.

Gender Differences in Problematic Pornography Use (PPU)

In term of the prevalence of PPU, it has affected a large proportion of the population, especially males and young adults. In general, males consume pornography more frequently (Bőthe et al., 2020b) and have higher prevalence and levels of PPU than females (Borgogna et al., 2022; Bőthe et al., 2024). Regarding age, Pornhub (n.d.) reported that more than half of its visitors are between 18 and 34 years old, which closely aligns with the age range of 20 to 35 years old defined by the APA (n.d.-c) as young adults. In Malaysia, approximately 13% of participants experienced PPU, with males exhibited higher levels of PPU compared to females (Kumar et al., 2021). Several local studies have further supported these findings (Goh et al., 2023; Nozid et al., 2023). Notably, the age range for consuming pornography in the Western and Malaysia context appear to be highly consistent, suggesting that the majority

of consumers are young adults, but the gender of PPU prevalence is predominantly male, indicating possible cultural or social influences.

Frequency of Pornography Use (FPU)

When examining pornography use, literature typically focuses on both the quantity and quality of consumption (Chen et al., 2022; Kohut et al., 2020). Quantity refers to the frequency of use, while quality pertains to the negative impact it has on an individual's life (Bőthe et al., 2021). According to Marshall and Miller (2019), FPU serves as a measure of consumption, and studies have shown widespread pornography use among university students. For instance, in the United States, around 57% of students reported lifetime pornography use (Camilleri et al., 2021), while in Malaysia, the figure is approximately 75% (Ali et al., 2021). Research by Tan et al. (2022a) indicated that 30% to 40% of Malaysians view pornography weekly. In Japan, a study found that aged 20-26 college students use pornography an average of 12 days per month, with a daily usage of around 45 minutes (Okabe et al., 2021).

FPU can negatively impact mental health, contributing to depression, anxiety, and stress (Privara & Bob, 2023). These effects are often linked to the shame and self-disgust that some individuals experience after viewing pornography, leading to a negative self-image and mental health issues (Camilleri et al., 2021; Vaillancourt-Morel et al., 2017). FPU may also harm sexual well-being, creating unrealistic expectations in relationships and causing dissatisfaction or dysfunction (Malki et al., 2021; Pouralijian et al., 2024). On the other hand, there are some positive effects associated with FPU. A minority of users report improvements in sexual communication and increased closeness with partners (Kohut et al., 2018). Additionally, FPU may indirectly enhance sexual satisfaction by fostering interest in different sexual behaviours (Miller et al., 2019). As supported by Jhe et al. (2023), viewing

pornography can actually support sexual development, boost self-confidence, and promote a positive sexual identity.

Well-Being

Well-being is defined as a state of happiness and satisfaction, characterised by low levels of distress, good overall physical and mental health, a positive outlook, and a high quality of life (APA, n.d.-a). Besides, it is used as a framework to understand mental health status, revealing how individuals experience their lives in relation to their emotional and physical health (WHO, 2024). Furthermore, well-being is influenced by a range of contextual factors, including cultural norms, economic status, and personal experiences, making it a complex and individualized phenomenon that varies across different populations and contexts (Das et al., 2020). Research has shown that low scores in well-being are often associated with higher probabilities of adverse outcomes such as depression, anxiety (Doré et al., 2020), and decreased life satisfaction, whereas high scores in well-being are typically linked to improved mental health and overall life contentment (Manchana, 2023). Therefore, well-being serves as a crucial indicator in assessing and addressing mental health needs and outcomes.

ADHD Symptoms

According to Roselló et al. (2020), ADHD core symptoms are strongly linked to deficits in executive functioning, which are essential for regulating behaviour, planning, and impulse control. Turjeman-Levi et al. (2024) further supported this by showing that individuals with inattentive ADHD often struggle with sustaining attention, organising tasks, and managing time, due to impairments in working memory (i.e., a key aspect of executive functioning). For those with hyperactive-impulsive symptoms, poor inhibitory control leads to challenges in suppressing inappropriate behaviours like fidgeting or interrupting others (American Psychiatric Association, n.d.). Colautti et al. (2022) also noted that hyperactivity-impulsivity in ADHD is strongly linked to difficulties with impulse control and emotional

regulation. Notably, while motoric hyperactivity tends to decrease during adolescence and adulthood, challenges with restlessness, inattention, and impulsivity often persist, with impulsivity remaining problematic even as hyperactivity diminishes (American Psychiatric Association, 2022). Therefore, both ADHD subtypes are characterised by executive dysfunction, which exacerbates issues related to attention, planning, and emotional regulation, ultimately impacting daily functioning and decision-making (Roselló et al., 2020).

Research highlighted that emotional dysregulation is central to ADHD's psychopathology (Beheshti et al., 2020), with emotional instability and negative affectivity being key components (Soler-Gutiérrez et al., 2023). Albesisi and Overton (2023) demonstrated that inattention is associated with challenges in maintaining goal-directed behaviour, while hyperactivity-impulsivity is linked to impulse control issues, worsening emotional dysregulation severity as ADHD symptoms increase. Martz et al. (2023) identified emotional dysregulation in nearly 70% of their adult ADHD sample, emphasizing emotional instability and impulsivity as significant factors. Surprisingly, recent studies have also found a strong association between inattention and hypersexuality (Soldati et al., 2021).

Hypersexuality

Over the last decade or so, debate has continued over whether hypersexuality can be considered a mental health disorder. Hypersexuality is described by an excessive preoccupation with sexual fantasies, urges, or behaviours, leading to distress or impairment in daily functioning. Although it was initially proposed for inclusion in DSM-5 as Hypersexual Disorder (HD), it was ultimately rejected (Kafka, 2010, 2014). However, in 2018, hypersexuality was officially included in 11th Revision of the International Classification of Diseases (ICD-11) and classified as Compulsive Sexual Behaviour Disorder (CSBD) (WHO, 2019). Both HD and CSBD share diagnostic criteria such as impaired control of sexual behaviour or fantasies, engage in sexual behaviours despite adverse consequences, and also

result in significant distress or impairment. One key distinction is that HD emphasises engaging in sexual behaviours to cope with negative emotional states or stressful life events, whereas CSBD describes repetitive sexual behaviours that provide little or no satisfaction (Gola et al., 2022). Broadly speaking, although there are slight differences, the concepts of both are highly similar.

Some argue that hypersexuality should not be considered a disorder but rather a symptom of psychological distress and a maladaptive coping mechanism (Doroldi et al., 2024). Studies indicate negative correlations between hypersexuality and mental health (Koós et al., 2021), as well as associations with relationship difficulties (Engel et al., 2019a; Engel et al., 2023), sexual fantasies, pornography use, problematic cybersex, and especially depression (Engel et al., 2019a). Hypersexuality is also linked to personality traits, sexual dysfunctions, sensation seeking, impulsivity, ADHD symptoms, negative childhood experiences, attachment difficulties, and maladaptive emotion regulation (Engel et al., 2019b; Kowalewska et al., 2020). Impulsivity plays a significant role in hypersexual behaviour, with higher impulsivity correlating with a reduced ability to control sexual urges (Doroldi et al., 2024). Other than that, individuals with hypersexuality exhibit difficulty inhibiting responses, particularly in the presence of sexual stimuli (Seok & Sohn, 2020). Specifically, individuals with lower inhibitory control are more vulnerable to acting on impulses triggered by emotional stressors, leading to maladaptive emotional coping strategies (Brand et al., 2019).

Problematic Pornography Use (PPU) and Frequency of Pornography Use (FPU)

Cultural and religious contexts also play a significant role in the relationship between FPU and PPU. According to Lewczuk et al. (2020), conservative or permissive cultural contexts influence this relationship, with cultural or religious barriers being a key factor. Grubbs and Perry (2019) reported that religious individuals tend to use pornography less frequently than non-religious individuals but still exhibit higher levels of PPU. In

conservative countries like Malaysia, where extramarital sexual relations are forbidden and discussing sexual topics is culturally taboo, these factors can further complicate the relationship between FPU and PPU (Alomair et al., 2020). Despite these limitations on watching pornography, the prevalence of FPU in Malaysia is still considered high at 61.4% (Ali et al., 2021). The high prevalence suggests that cultural and religious restrictions might not reduce the usage but may contribute to higher levels of shame and guilt further evolving into problematic.

There has been ongoing debate regarding the effectiveness of different measures of pornography use, specifically the frequency of use versus the amount of time spent using pornography. Antons et al. (2019) found that the amount of time spent on pornography had a stronger association with PPU compared to the frequency of use. Nevertheless, recent research suggested that frequency is more significantly associated with PPU than the duration of use (Chen et al., 2022; Malki et al., 2021; Okabe et al., 2021). Apart from this, Bőthe et al. (2018a) argued that both duration and frequency should not be tested alone as some individuals might visit the website on a regular basis but can stop whenever they choose. As of now, there is no definitive conclusion on whether frequency or duration has a stronger association with PPU.

According to Lewczuk et al. (2020), FPU has a positive association with PPU. This finding aligned with previous studies (Chen & Jiang, 2020; Jiang et al., 2022; Rousseau et al., 2021). However, there is no universally established definition of FPU in the context of PPU. For example, different studies may consider varying time frames, such as usage over the past week (Chen et al., 2022), the past month (Okabe et al., 2021) or the past 6 months (Rousseau et al., 2021). Most researchers differentiated PPU from non-PPU by determining the frequency of problematic pornography consumers within their studies or by comparing high

and low FPU based on the mean or average frequency in their samples (Chen et al., 2018; Malki et al., 2021).

While high-frequency use of pornography is often linked to problematic outcomes, it is important to recognize that this is not always the case. For instance, some individuals may engage in high-FPU without experiencing negative consequences, suggesting that frequency alone is not a definitive indicator of problematic use. Bőthe et al. (2020b) proposed that high-FPU does not always lead to negative outcomes such as PPU. The findings categorised individuals into: 1) non-problematic with low frequency, 2) non-problematic with high frequency, and 3) problematic with high frequency. As a result, the differences between non-problematic and problematic with high-FPU are evident in constructs such as hypersexuality, depressive symptoms, and low self-esteem. The study revealed that individuals initially may use pornography as a way to cope with negative emotions such as depression or stress. Over time, however, this can intensify these feelings, leading to a self-perpetuating cycle of PPU. Besides that, the study explained that individuals who struggle to form meaningful social relationships may turn to pornography for a sense of connection, which in turn affects their social interactions and increases their consumption of pornography based on basic psychological needs. Besides, boredom reduction is another motivation for those who are high-FPU, as the novel and varied stimuli provided by pornography can be particularly appealing (Grubbs et al., 2019b).

In contrast, some studies suggested that even low-FPU can contribute to PPU, particularly in conservative countries (Chen et al., 2022; Lewczuk et al., 2020; Vaillancourt-Morel & Bergeron, 2019). Cultural and religious factors play a significant role in distinguishing between PPU and non-PPU, as religiosity often imposes strict moral standards that foster a negative attitude toward pornography (Efrati, 2020). Individuals may view their sexual behaviour as sinful, leading to a sense of moral incongruence with their values

(Grubbs & Perry, 2019). Lewczuk et al. (2020) also suggested that moral incongruence related distress possibly due to the broader cognitive and emotional factors involved in problematic use, such as guilt. The study also confirmed that more religious individuals are more likely to view pornography use as morally disapproval and experience moral incongruence. Despite limitations such as censorship on pornography in Malaysia, the prevalence of FPU remains high at nearly 62% (Ali et al., 2021). This high prevalence suggests that cultural and religious restrictions may not effectively reduce usage but instead contribute to higher levels of shame and guilt, potentially leading to PPU.

Problematic Pornography Use (PPU) and Well-Being

Whether or not porn use is problematic, it is often associated with poor quality of life (Kumar et al., 2021). Numerous studies have explored the negative consequences of PPU on well-being, though the relationship with psychological well-being remains unclear (Vieira & Griffiths, 2024). Generally, psychological distress is notably associated with PPU (Ince et al., 2020; Tan et al., 2022a), and associated with mental health conditions such as depression, anxiety, and stress (Camilleri et al., 2021). Individuals with higher FPU and PPU tend to exhibit higher levels of depressive symptoms, lower self-esteem, and also reduced relationship satisfaction (Bőthe et al., 2020b). Importantly, it has been suggested that prevention of PPU requires improvement of mental well-being (Vieira & Griffiths, 2024).

In social aspect, PPU has been linked to deteriorating relationships, including issues in romantic partnerships, reduced social engagement, and a sense of social isolation (Mestre-Bach & Potenza, 2023a, 2023b). For example, higher level of PPU correlate with increased loneliness (Mestre-Bach & Potenza, 2023a), while perceived family support predicts lower PPU levels (Wizła et al., 2022). Additionally, emotional dysregulation is another reported consequence of PPU, with negative emotions contributing to a cycle of continued use and exacerbating emotional distress (Cardoso et al., 2023).

Problematic Pornography Use (PPU) and ADHD Symptoms

ADHD symptoms, particularly executive dysfunctions, are closely linked to PPU. According to Müller and Antons (2023), individuals with ADHD often experience difficulties in regulating attention, controlling impulses, and managing behaviours, making them more vulnerable to PPU. In fact, impulsive symptoms are strongly associated with ADHD, are also linked to hypersexuality and PPU due to challenges in impulse control and behaviour regulation, especially in emotionally charged situations (Engel et al., 2019a). Archi et al. (2023) further highlighted that impulsivity and emotion dysregulation are independent risk factors contributing to the significant association between ADHD symptoms and addictive behaviours. This underscores how individuals with ADHD are more prone to developing PPU because of their struggles in managing impulsive behaviours and emotions.

To further explain, reduced activity in the prefrontal cortex is a common feature in individuals with ADHD. This underactivity impairs focus, impulse regulation, and decision-making (Bleich-Cohen et al., 2021), leading to an increased tendency to seek immediate rewards such as sexual stimulation through masturbation or pornography use (Soldati et al., 2021). These impulsive tendencies make individuals with ADHD more vulnerable to PPU and behavioural addiction as they struggle to manage these behaviours effectively over time (Archi et al., 2023). Castillo et al. (2023) also provided evidence that individuals with impulsivity-related issues, particularly those exhibiting ADHD symptoms, face difficulties in controlling impulses, including sexual behaviours. This diminished impulse control can contribute to PPU, as individuals may find it hard to resist urges or delay gratification, leading to compulsive behaviours.

Several studies have reinforced the association between ADHD symptoms and PPU. For instance, Hernandez-Mora and Varescon (2022) found statistically significant differences in PPU scores between participants with and without ADHD symptoms, while Niazof et al.

(2019) reported that ADHD accounted for approximately 35% of the variance in PPU. These findings suggest that ADHD symptoms significantly contribute to the development of PPU, highlighting the importance of considering ADHD as a critical factor in understanding and addressing PPU. In addition, the high correlation between impulsivity and PPU suggests that individuals with ADHD symptoms have a higher likelihood of developing PPU compared to those without such symptoms (Winstanley et al., 2006, as cited in Zhang et al., 2022). However, Bőthe et al. (2020b) indicated that while ADHD contributes to PPU, it is not the sole factor influencing the severity of pornography use, highlighting the importance of considering other contributing factors in this relationship.

Problematic Pornography Use (PPU) and Hypersexuality

PPU and hypersexuality are associated with a range of negative outcomes, including relationship difficulties (Engel et. al., 2023), mental health issues, and impairment in daily functioning (Bothe et al., 2020b). PPU is often considered a specific manifestation of hypersexuality, with many individuals with hypersexuality exhibiting problematic levels of pornography use (Bothe et al., 2020b; Lewczuk et al., 2023). As revealed by Lewczuk et al. (2023), the prevalence of individuals at risk for PPU and hypersexuality is high in the sample population, indicating that these issues are relatively common. The study found that sexual attitudes, especially permissive attitudes which are more open or liberal views about sexual behaviour, significantly contribute to symptoms of problematic sexual behaviour, including both hypersexuality and PPU. In Malaysia, most people have positive attitudes toward watching pornography and generally watch it for sexual gratification (Goh et al., 2023). Even more, many people spend more time surfing the Internet and watching pornography material as a coping mechanism to relieve their pain (Ali et al., 2021). Notably, individuals may use pornography as a tool to relieve negative emotions arising from some reasons (Bothe et al., 2020b; Nozid et al., 2023), which is one of the criteria of hypersexuality.

Other than that, a key factor driving both PPU and hypersexuality is emotional dysregulation. Individuals with hypersexual tendencies often struggle to manage negative emotions effectively, leading them to use sexual arousal and release as maladaptive coping mechanisms (Lew-Starowicz et al., 2020; Rahm-Knigge et al., 2023). Although this coping strategy may provide short-term relief, it ultimately results in uncontrolled behaviour and negative outcomes, thereby reinforcing the cycle of compulsive sexual behaviour (Lew-Starowicz et al., 2020). For example, individuals often face internal cognitive conflicts when processing stimuli linked to their symptoms, further complicating their ability to employ effective cognitive coping strategies (Draps et al., 2024).

Additionally, impulsivity exacerbates these challenges by impairing response inhibition. For instance, individuals may watch pornography for immediate sexual arousal and often ignore its negative consequences, which increases the likelihood of PPU (Rousseau et al., 2021). Neurologically, the use of sexually explicit content activates the brain's reward pathways, resulting in the release of dopamine and creating feelings of self-gratification and impulsivity (Brown & Wisco, 2019). However, excessive stimulation of these pathways can cause the brain to overreact to perceived rewards, which impairs the development of impulse control and response inhibition, ultimately leading to poor decision making (Brown & Wisco, 2019).

Importantly, assessing whether pornography consumption is problematic requires an examination of its association with hypersexuality, as emphasized by Efrati (2020). To support this research, Bothe et al. (2020b) have found that individuals who engage in problematic or high-frequency pornography use often exhibit heightened levels of hypersexuality. This association persists even when the use of pornography is not classified as problematic.

Theoretical Framework

This study is grounded in the Interaction of Person-Affect-Cognition-Execution (I-PACE) Model by Brand et al. (2016), which has been used in previous research to explain PPU (Golder et al., 2023; Yue et al., 2023; Zhang et al., 2022). The I-PACE model details the psychological and neurobiological processes that drive addictive behaviours linked to internet applications, such as gaming, gambling, pornography, shopping, and social networking. It considers predisposing factors, emotional and cognitive responses to stimuli, and executive control mechanisms that collectively contribute to these addictive patterns. This research builds on the I-PACE model whereby emphasizing PPU (i.e., addictive behaviours) develop as a consequence of the interaction between hypersexuality and ADHD symptoms (i.e., predisposing variables), well-being (i.e., affective and cognitive responses to specific stimuli), and FPU (i.e., executive functions).

According to Brand et al. (2016), the "P" component represents an individual's core traits that likely play a role in the addiction process, identified as predisposing variables. These risk factors include genetic influences, comorbidities, negative early childhood experiences, and specific personality traits. As mentioned in above, impulsivity is the trait that both hypersexual and ADHD have in common. It is a temperamental feature that can be further specified in terms of PPU, whereas heightened sexual desires are viewed as a behaviour-specific predisposing variable that is considered a characteristic of PPU (Brand et al., 2019). In detail, individuals with higher traits of impulsivity in uncertain situations or stronger craving responses, showed more severe PPU symptoms, but only when exposed to pornographic material (Anton & Brand, 2018). Hence, hypersexuality and ADHD symptoms are both considered as the predisposing factors in the development of PPU.

By incorporating the "A-C-E" components, the central idea of this model is that the development of problematic or addictive behaviour occurs through the interaction between

predisposing factors and specific situational aspects (Brand et al., 2019). In this study, well-being, encompassing affective and cognitive responses (the A- and C-components), viewed as a key factor influencing behaviour. For instance, internal or external triggers such as stress or depressive moods can lead to heightened attention to these stressors and stronger urges to alleviate negative feelings. Additionally, impulsivity (influenced by classical and operant conditioning) acting as part of an interactive system in this response can drive decision-making toward specific behaviours including PPU. In this context, individuals with hypersexuality, might be more prone to increased impulsiveness and may escalate pornography consumption as a coping strategy to relieve stress or depression (De Alarcón et al., 2019).

Subsequently, executive dysfunction (i.e., ADHD symptom) and FPU are recognized as executive functions (E-component) that contribute prominently to the development and maintenance of PPU. In the I-PACE model, inhibitory control and executive functioning may exist between affective and cognitive responses and the decision to engage in specific behaviours (Brand et al., 2019). The use of sexually explicit content may cause overstimulation in the brain's reward pathways, which can impair the development of impulse control and response inhibition, ultimately leading to poor decision-making (Brown & Wisco, 2019). As these inhibitory control processes weaken, individuals may begin to behave habitually or seemingly automatically, with FPU becoming a habitual behaviour in the later stage (Brand et al., 2019).

Conceptual Framework

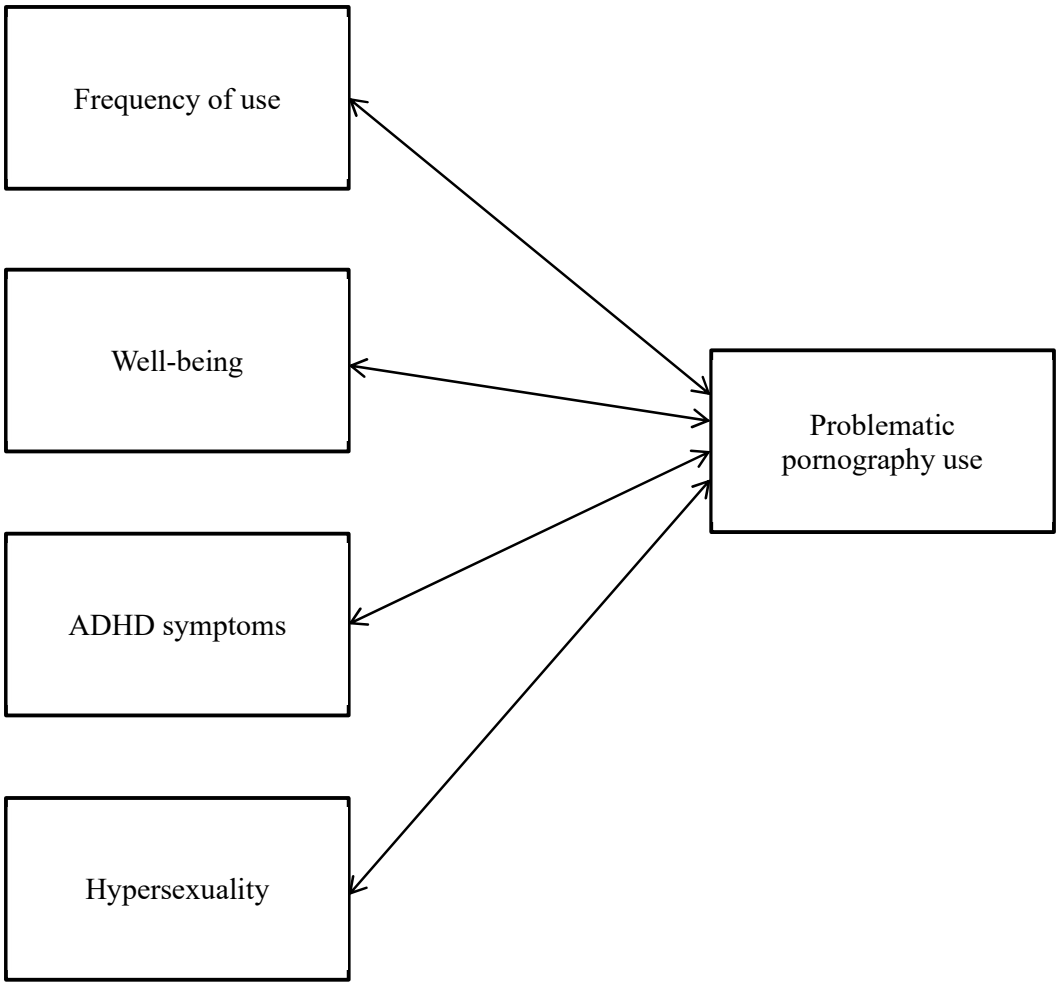
FPU is one of the predictors of PPU and is positively correlated with it (Lewczuk et al., 2020). FPU is representing how often an individual engages with pornography. By adopting the questions utilised by Rousseau et al. (2021), FPU will be measured using a question: “In the past 6 months, how often have you used pornography?” It is expected that a

higher number in a day will indicate a higher FPU. PPU will be measured using the PPCS-6 (Bőthe et al., 2020a). Participants are expected to score 20 points or more to be considered PPU, while score 19 points or less to be non-PPU. Whether or not porn use is problematic, individuals with lower levels of well-being might be more inclined to use pornography and associated with poor quality of life (Kumar et al., 2021), loneliness (Vescan et al., 2024), emotional dysregulation (Cardoso et al., 2023), depression, anxiety, and stress (Camilleri et al., 2021). Well-being will be assessed using WHO-5 (WHO, 1998). It is expected that a lower score will increase the risk of PPU.

ADHD symptoms and hypersexuality positively correlated with PPU (Bőthe et al., 2019). Individuals with hypersexuality may engage in pornography more frequently as they seek to satisfy their heightened sexual desires (Engel et al., 2019a), while individuals with ADHD symptoms may struggle with impulse control, both factors can increase susceptibility to escalating to problematic levels of pornography use (Bőthe et al., 2019). ADHD symptoms and hypersexuality will be measured using ASRS-v1.1 Part A (Kessler et al., 2005) and HBI-SF (Reid, 2013), respectively. It is expected that a higher score on these scales will correlate with a greater risk of developing PPU.

Figure 2.1

Conceptual Framework of Present Study



Chapter III

Methodology

Research Design

The study employed a quantitative, cross-sectional research design to examine the relationship between FPU, well-being, ADHD symptoms, and hypersexuality, with PPU as the dependent variable among young adults in Malaysia. Quantitative research was chosen because it is commonly used to establish relationships between variables through the use of statistical methods, making it suitable for the study (Ahmad et al., 2019). Data were collected using an online survey, with questionnaires distributed via platforms such as Instagram, WhatsApp, and Microsoft Teams. This approach allowed for efficient and cost-effective data collection from a geographically diverse sample. The cross-sectional design enabled the collection of data from participants at a single point in time (Wang & Cheng, 2020), which was useful for exploring the associations between the independent variables and PPU. This research design was particularly appropriate given the need to assess these relationships within a specific population over a limited period, while also being resource efficient (Levin, 2006).

Sampling Method

A non-probability sampling method, specifically purposive sampling, was employed to recruit participants. Purposive sampling is a non-probability sampling method in which participants are selected based on specific characteristics or criteria relevant to the research study, ensuring that the sample is intentionally chosen to provide the most relevant and rich data (Vehovar et al., 2016). Data were collected through an online survey distributed via social media platforms and university networks, targeting young adults in Malaysia aged 18-35. The survey included standardized questionnaires to measure FPU, well-being, ADHD symptoms, hypersexuality, and PPU. Descriptive statistics and multiple linear regression

analysis were conducted to examine the relationships between these variables, while ensuring participants' anonymity and confidentiality throughout the study.

Location of Study

The study was conducted in Malaysia without geographic restrictions. Data collection utilized both online and offline methods to gather responses from young adults across various states. This approach aimed to increase the diversity of the sample by including participants from various areas without occupational restrictions. For the online method, a questionnaire containing all necessary questions was distributed to targeted participants through different social media platforms, namely Instagram, WhatsApp, and Microsoft Teams. To enhance the effectiveness of data collection, the researchers conducted in-person outreach at Universiti Tunku Abdul Rahman (UTAR), walking around the Kampar campus, as well as in Klang, Subang, and Johor Bahru areas. During these interactions, participants were invited to scan a QR code to assess the survey form.

Ethical Clearance Approval

Before beginning the data collection phase, the researchers obtained ethical clearance from the UTAR Scientific and Ethical Review Committee (SERC) and other relevant parties to secure permission for the inclusion of human subjects in this study (Re: U/SERC/78-365/2024) (refer to the Appendix A).

Sample Size

The estimated minimum sample size was determined using G*Power software version 3.1.9.7 originally developed by Erdfelder et al. (1996) and later expanded by Faul et al. (2009). There were four parameters, which were effect size, probability alpha error, and statistical power. As proposed by Cohen (1988), effect sizes were classified as small (.02), moderate (.15), and large (.35). To detect a Pearson’s correlation coefficient of $r = .3006$ with 80% power (alpha = .05, two-tailed), G*Power indicated the total sample size of 84. Plus, to

detect an effect size of 0.5910 with 80% power (alpha = .05, two-tailed), G*Power indicated the total sample size of 92 in an independent samples *t*-test for gender differences. Considering these results, the larger sample size of 92 was used as the minimum requirement. To account for potential incomplete data, however, the minimum sample size was increased by 20%. Thus, the minimum sample size for this study was adjusted to 110 (refer to Appendix C and D).

Data Collection Procedures

Inclusion and Exclusion Criteria

The inclusion criteria for participation were Malaysian citizens aged 18 to 35 years old, while the exclusion criteria were participants with no prior experience in FPU.

Description of Data Collection Procedures

The data collection for this study was conducted through an online survey using Microsoft Forms (refer to Appendix B). Participants were recruited through various online platforms including Instagram, WhatsApp, and Microsoft Teams. For offline participants, QR code was created and distributed, allowing them to scan and directly access the survey. Before proceeding the survey, participants were required to provide informed consent, which was presented on the first page of the survey form. This ensured that participants were fully aware of the study's purpose and their rights before beginning the questionnaire. The entire data collection period lasted 85 days, from 14th October to 11th November 2024.

Instruments

Problematic Pornography Consumption Scale (PPCS-6)

The PPCS-6 was used in this study to assess PPU due to its brevity and strong correlation with the original PPCS-18. Based on Griffiths's (2005) six-component addiction model (i.e., salience, mood modification, conflict, tolerance, relapse, and withdrawal), the PPCS-6 utilized a single item per component to evaluate the negative impact of pornography

use on daily functioning. Responses were rated on a 7-point Likert scale, with higher scores indicating more severe issues. A score of 20 or higher (out of 42) suggested problematic use. The PPCS-6 demonstrated good reliability (α = .84) and strong associations with the PPCS-18, with only minimal information loss (r = .05, p < .001). It also showed weak-to-moderate positive associations with various pornography use behaviours and moderate correlations with hypersexuality levels (Bőthe et al., 2020a).

Frequency of Pornography Use (FPU)

Building on Bőthe et al. (2020b), FPU in this study was evaluated through a straightforward self-report measure. Participants were asked, "How often have you used pornography over the past year?" Responses were recorded on a 10-point scale, where 1 represented "Never" and 10 corresponded to "6 or 7 times a week." This scale was designed to capture the wide range of pornography use behaviours, with higher scores indicating more frequent use. Its simplicity allowed participants to report their usage patterns quickly and accurately, providing a clear indicator of frequency for subsequent analysis.

World Health Organization Well-Being Index (WHO-5)

The WHO-5 is a concise measure of overall well-being, originally derived from a 28-item scale that included items from the Zung scales and the General Health Questionnaire. It was refined into a 5-item scale to assess a global hedonic dimension of well-being by converting negative items into positive statements and eliminating redundancies (Bech et al., 1996; WHO, 1998). The 5-item are: “I have felt cheerful and in good spirits,” “I have felt calm and relaxed,” “I have felt active and vigorous," “I woke up feeling fresh and rested," and “My daily life has been filled with things that interest me." Each item is rated on a 6-point scale, with a maximum score of 25, where a score of ⩽13 is suggested as a cut-off for screening purposes. A lower score indicates poor well-being, while a score of 100 represents

the highest possible quality of life (WHO, 1998). The scale demonstrated high internal consistency, with a (α = .91) and showed good validity (Dadfar et al., 2018).

Adult ADHD Self-Report Scale (ASRS-v1.1) - Part A

This scale is a 6-item screening tool used to assess ADHD symptoms in adults, focusing on inattention and hyperactivity/impulsivity (Kessler et al., 2005). The items evaluate common ADHD-related difficulties, such as trouble wrapping up final project details, difficulty organizing tasks, problems remembering appointments, avoidance or delay in starting tasks that require significant thought, fidgeting when sitting for extended periods, and feeling overly active or "driven as if by a motor" (Adler et al., 2006). Each item was rated on a scale from 0 (Never) to 4 (Very Often), with a threshold score of 4 or more suggests symptoms highly consistent with ADHD in adults, indicating the need for further assessment. The ASRS-v1.1 Part A demonstrated good internal consistency (α = .80) (Green et al., 2019), and strong validity measures. These included a sensitivity of 68.7%, reflecting the tool's ability to correctly identify individuals with ADHD symptoms, and a specificity of 99.5%, indicating its accuracy in ruling out those without the symptoms. Its overall classification accuracy was 97.9%, representing the tool's effectiveness in identifying true positives and true negatives. Additionally, the Kappa value of 0.76, measuring agreement between the observed diagnoses and chance expectations, indicated substantial agreement and strong validity (Kessler et al., 2005).

Hypersexual Behavior Inventory (HBI-SF)

The HBI-SF is an 8-item measure designed to assess hypersexual behaviours across three dimensions: coping, control, and consequences. The eight items were selected from the original 19-item scale based on Graded Response Model analysis and Receiver Operating Characteristic (ROC) curves (Reid et al., 2011). Participants rated each item on a 5-point scale, from 1 (Never) to 5 (Very Often), with higher scores indicating greater hypersexuality

and a cut-off score of 26. The HBI-SF demonstrated excellent internal consistency (α = .96) and strong correlations with the full scale (α = .95 to .99, p < .001) (Reid, 2013).

Reliability Analysis

Pilot study is often conducted to ensure the reliability and appropriateness of research instruments (Lowe, 2019). In present study, pilot study was deemed unnecessary as reliability analysis confirmed the suitability of the instruments, both in the present study and in related prior studies. Table 3.1 presented the Cronbach's Alpha (α) reliability coefficients for the PPCS-6, WHO-5, ASRS-v1.1 - Part A, and HBI-SF scales (further details in Appendix E). Evidence from prior studies supported the reliability of these instruments in relevant contexts. The PPCS-6 proved excellent reliability (α = .95) in the Asian context (Bőthe et al., 2024). The WHO-5 showed high reliability (α = .89) among Malaysian young adults (Low et al., 2021). The ASRS-v1.1 - Part A showed acceptable reliability (α = .72) in Malaysia context (Zakaria et al., 2023). The HBI-SF exhibited high reliability (α = .87) in an international context (Bőthe et al., 2020e). As such, pilot study was unnecessary for this research.

Table 3.1

Cronbach's Alpha (α) for Each Instrument

	α	*N*
PPCS-6	.866	6
WHO-5	.897	5
ASRS-v1.1 (Part A)	.768	6
HBI-SF	.912	8

Note. α = Cronbach's Alpha, *N* = number of items

Chapter IV

Results

Data Cleaning

The initial dataset contained 218 responses. A data cleaning process conducted to ensure data quality and relevance: 15 responses checked "disagree" before answering the demographic questions; 7 responses were not within the inclusion criteria of age and nationality; 1 response listed employment status as "Retired," which did not logically fit within the 18 to 35 age range and was considered an as abnormal data. For the question, “How often have you used pornography over the past year?”, 72 responses met the exclusion criteria by answering “Never” (i.e., no prior experience in FPU). After removing a total of 95 responses, 123 complete responses were retained for the final dataset.

Normality Assumption

Histogram

Histogram analysis of all variables displayed a symmetrical distribution (refer to Appendix F), with a bell-shaped curve with the only peak above the mean indicating an ideal normal distribution.

Probability–Probability (P-P) plot

P-P plots were used to assess how well the observed data fit a normal distribution. Most of the observed data fall near to the diagonal line in the P-P plots of each distribution, indicating good normality for each variable (refer to Appendix F).

Skewness and Kurtosis Tests

Skewness and kurtosis were assessed by calculating their respective z-scores, as the observed values of skewness and kurtosis were not exactly zero (refer to Appendix F). In Table 4.1, while some z-scores had absolute values less than 1.96, others exceeded this threshold (Field, 2009), As a result, the dataset in present study was not normally distributed.

Table 4.1

Z-score of Skewness and Kurtosis

	FPU	Well-being	ADHD symptoms	Hypersexuality	PPU
Z-skewness	−2.078	−0.193	1.243	2.504	4.399
Z-kurtosis	−1.658	−1.148	−0.062	−0.878	1.072

Kolmogorov-Smirnov (K-S) and Shapiro-Wilk Tests

The results of the K-S test for FPU, well-being, ADHD symptoms, hypersexuality, and PPU were D (123) = .144, $p < .001$, D (123) = .116, $p < .001$, D (123) = .103, $p = .003$, D (123) = .122, $p < .001$, D (123) = .128, $p < .001$, respectively. Correspondingly, Shapiro-Wilk test results were W (123) = .923, $p < .001$, W (123) = .959, $p = .001$, W (123) = .979, $p = .049$, W (123) = .950, $p < .001$, W (123) = .916, $p < .001$, respectively. Both the K-S and Shapiro-Wilk tests ($p < .05$) indicated violations of the normality assumption (Massey, 1954; Shapiro & Wilk, 1965) (refer to Appendix F).

Summary

While the skewness and kurtosis, K-S, and Shapiro-Wilk tests indicated violations of normality for all variables ($p < .05$), but not the histograms and P-P plots. To address the violations of normality, the Central Limit Theorem (CLT) provides an important theoretical basis for proceeding with the analysis (Bluman, 2012). With a sufficiently large sample size that is larger than or equal to 30, the sampling distribution of the mean will approximate a normal distribution, even if the population distribution is not perfectly normal. Given the appropriate sample size for this study, the normality assumption for regression analysis was expected to hold. By combining the histograms, P-P plots, and the theoretical justification from the CLT supported the conclusion that the data were suitable for analysis.

Outlier Detection

Univariate Outliers

Boxplots were generated for each variable to visually identify potential univariate outliers. ADHD symptoms and PPU had total five outliers above the upper whisker (refer to Appendix G). Hence, Case 65, Case 71, Case 108, Case 109, and Case 114 were removed from the data set.

Multivariate Outliers

The multivariate outliers were identified by Mahalanobis Distance, Cook's Distance, and Centred Leverage value. Casewise diagnostic presented eight potential influential cases (refer to Appendix G), which were Case 2, Case 8, Case 16, Case 28, Case 32, Case 75, Case 77, and Case 102. According to Mahalanobis Distance critical value proposed by Barnett and Lewis (1978), all eight cases with a value less than 15 were not considered outliers. Moreover, no observation exceeded the critical value of 1 based on Cook's Distance, indicating that no single case was an outlier (Cook & Weisberg, 1982). According to Hoaglin and Welsch (1978), the Centred Leverage value that exceeds twice the calculated value was considered outlier. By using the formula: $\frac{2(k+1)}{n}$, in which k is the number of independent variables in the model and n refers to the number of cases. The calculated leverage value was $\frac{2(4+1)}{118} = 0.0847$, and none of the cases were outliers. After evaluation, zero cases were removed as none of the cases violated the critical value of Mahalanobis Distance, Cook's Distance, and Centred Leverage.

Descriptive Statistics

The study sample consisted of 118 participants, with demographic characteristics summarized in Table 4.2 (also attached in Appendix H). The sample was predominantly male (77.1%), while females accounted for 22%, and 0.8% of the participants preferred not to disclose their gender. The age of the participants ranged from 18 to 32 years old ($M = 21.77$,

SD = 2.929). Most participants identified as Chinese (89.8%), followed by Indian (5.1%), Malay (3.4%), and Other (1.7%). The majority of participants were single (82.2%), while smaller proportions reported being in domestic partnerships (9.3%), living with a partner (2.5%), married (1.7%), separated (2.5%), and preferring not to disclose (1.7%). A significant proportion of participants were students (71.2%), followed by employed (22%), self-employed (5.1%), and unemployed individuals (1.7%).

Table 4.2

Demographic Information of Respondents

	n	*%*	*M*	*SD*
Age			21.77	2.929
Sex				
Male	91	77.1		
Female	26	22.0		
Prefer not to say	1	0.8		
Race				
Malay	4	3.4		
Chinese	106	89.8		
Indian	6	5.1		
Other	2	1.7		
Marital Status				
Single (never married)	97	82.2		
Domestic partnership	11	9.3		
Living with partner	3	2.5		
Married	2	1.7		
Separated	3	2.5		

	n	*%*	*M*	*SD*
Prefer not to say	2	1.7		
Employment Status				
Student	84	71.2		
Employed	26	22.0		
Self-employed	6	5.1		
Unemployed	2	1.7		

Table 4.3 summarized the descriptive statistics for FPU, well-being, ADHD symptoms, hypersexuality, and PPU reported as minimum and maximum values, mean, and standard deviation.

Table 4.3

Descriptive Statistics of Variables

	Min	*Max*	*M*	*SD*
FPU	1	9	5.72	2.432
Well-being	2	25	14.81	5.746
ADHD Symptoms	6	29	17.21	4.762
Hypersexuality	8	40	19.49	7.714
PPU	6	42	16.78	8.042

Note. N = 118.

Multiple Linear Regression (MLR) Assumptions

Variable Types

The dependent variable PPU was continuous, and the independent variables (including FPU, well-being, ADHD symptoms, and hypersexuality) were quantitative in the analysis, This ensured that the variables align with the assumptions for conducting MLR.

Independent

The observations were collected independently, and no repeated measurements were taken from the same subject.

Multicollinearity

Multicollinearity among the independent variables was assessed using the Variance Inflation Factor (VIF) and Tolerance in Table 4.4. All VIF values were below 10 and tolerance values were above the threshold of .10 (refer to Appendix I), indicating that there were no multicollinearity issues.

Table 4.4

Collinearity Statistics

	Tolerance	VIF
FPU	.889	1.125
Well-being	.946	1.057
ADHD Symptoms	.921	1.086
Hypersexuality	.849	1.177

Independent Error

To assess independent error, the Durbin-Watson statistic was calculated to check for autocorrelation in the residuals. The test value should ideally fall between 1 and 3, with a value closer to 2 indicating no autocorrelation. The value of 1.868 (refer to Appendix I) indicated that that the residuals were independent. Hence, the assumption was not violated.

Homoscedasticity, Normality of Residual, and Linearity of Residual

The scatterplot (refer to Appendix I) indicated the relationship between the independent and dependent variables is linear with the predicted values as the residuals were randomly and evenly distributed along the zero line with no obvious distribution pattern,

suggesting homoscedasticity. Therefore, the assumptions of homoscedasticity, normality of residual, and linearity were not violated.

Multiple Linear Regression (MLR) Analysis

To measure the proportion of variance in PPU that could be explained for by FPU, well-being, ADHD symptoms, as well as hypersexuality, a MLR analysis was assessed (refer to Appendix I). These variables accounted for a significant 61.6% of the variability in PPU, $R^2 = .616$, adjusted $R^2 = .602$, $F\ (4, 113) = 45.24$, $p < .001$. Unstandardised (B) and standardised (β) regression coefficients for each variable in the regression model. It was found that FPU (β = .290, $p < .001$) and hypersexuality (β = .618, $p < .001$) were significantly predicted PPU, whereas well-being (β = .051, $p = .400$) and ADHD symptoms (β = .102, $p = .095$) were not significantly predicted PPU. The effect size for the multiple regression was calculated using the formula and was $f^2 = 1.6$, indicating a large effect size according to Cohen (1988), meaning the model as a whole has a meaningful impact on PPU.

Pearson Product-Moment Correlation (PPMC)

In Table 4.5, the strength and direction of the linear relationship between dependent variable (i.e., PPU) and independent variables (i.e., FPU, well-being, ADHD symptoms, and hypersexuality), a bivariate PPMC coefficient (r) were calculated (refer to Appendix J). The correlation between FPU and PPU was statistically significant moderate and positive, $r\ (116) = .484$, $p < .001$. A statistically significant strong and positive correlation between hypersexuality and PPU, $r\ (116) = .721$, $p < .001$. ADHD symptoms was also statistically significantly positive correlated with PPU, though the correlation was weaker, $r\ (116) = .287$, $p = .002$. No statistically significant correlation was observed between well-being and PPU, $r\ (116) = .001$, $p = .992$. Effect sizes (r^2) were calculated to assess the variance in PPU explained by FPU (23.4%), hypersexuality (51.9%), ADHD symptoms (8.2%). Well-being had a negligible effect, explaining virtually none of the variance in PPU.

Table 4.5

Pearson Correlation for Study Variables

		FPU	Well-being	ADHD symptoms	Hypersexuality
PPU	*r*	.484**	.001	.287**	.721**
	p	.000	.992	.002	.000

**$p < .01$

Independent Samples Test

Independent samples *t*-test was conducted to compare the means of PPU between two groups: males ($n = 91$) and females ($n = 26$) (refer to Appendix K). In Table 4.6, Levene's test ($F = 5.218$, $p = .024$) for homogeneity of variance cannot be assumed as the significant *p*-value was less than .05, indicating that the equal variance assumption was violated. Thus, the *t*-values was taken under "equal variances not assumed" in the Statistical Package for Social Science (SPSS) output. The *t*-test results for equal variances not assumed showed a statistically significant difference, t (57.833) = 3.858, $p < .001$, in PPU between males and females. Males ($M = 17.88$, $SD = 8.177$) had a mean score for PPU that was 5.42 points higher, 95% CI [2.60, 8.23], compared to females ($M = 12.46$, $SD = 5.673$). By using the formula, the effect size (d) was calculated. A $d = .85$ represented a large effect size (Cohen, 1988), indicating a significant difference between the male and female.

Table 4.6

Levene's Test and T-Test for Equality of Variances

	F	*p*	*t* (57.833)	*MD*	95% CI	
					LL	*UL*
Levene's test	5.128	.024				
t-test			3.858***	5.418	2.606	8.229

Note. MD = Mean difference, CI = confidence interval; LL = lower limit; UL = upper limit.

***$p < .001$.

Summary of Findings

Five hypotheses were supported, but Hypothesis 2 was not supported (see Table 4.7).

Table 4.7

Summary of Results

	Hypotheses	Decision
Hypothesis 1	There is a significant correlation between the frequency of pornography use and problematic pornography use among young adults in Malaysia.	Supported
Hypothesis 2	There is a significant correlation between well-being and problematic pornography use among young adults in Malaysia.	Not Supported
Hypothesis 3	There is a significant correlation between ADHD symptoms and problematic pornography use among young adults in Malaysia.	Supported
Hypothesis 4	There is a significant correlation between hypersexuality and problematic pornography use among young adults in Malaysia.	Supported
Hypothesis 5	There is a significant association between the frequency of pornography use, well-being, ADHD symptoms, hypersexuality and problematic pornography use among young adults in Malaysia.	Supported
Hypothesis 6	There are significant gender differences in problematic pornography use, with males having a higher prevalence than females among young adults in Malaysia.	Supported

Chapter V

Discussion

Discussion on Findings

Hypothesis 1: There is a significant correlation between the frequency of pornography use and problematic pornography use among young adults in Malaysia.

The findings of the present study showed a statistically significant moderate and positive correlation between FPU and PPU among Malaysian young adults, r (116) = .484, p < .001, supporting Hypothesis 1. Specifically, higher levels of pornography consumption were strongly associated with an increased likelihood of developing PPU, which was in line with previous research (Bőthe et al., 2018a; Chen et al., 2018; Chen et al., 2022; Grubbs & Gola, 2019; Grubbs et al., 2019c)

The correlation between FPU and PPU can be understood through the interplay of motivational, rewarding, and reinforcing mechanisms. Motivational factors, such as seeking sexual pleasure, reducing stress, or coping with boredom, drive individuals to engage in online sexual activities more frequently. According to Chen et al. (2018), motivations to view pornography not only led to increased frequency but also contributed to the development of problematic patterns, as individuals rely on pornography to manage their emotional states. Furthermore, Bőthe et al. (2020d) highlighted that while motivations like stress reduction and sexual pleasure are common to both FPU and PPU, the latter is uniquely associated with emotional-avoidance strategies, such as using pornography to suppress negative emotions, escape reality, or avoid problems.

From a psychobiological perspective, the rewarding and reinforcing effects of pornography use further explain this correlation. According to psychobiological models (Skinner & Aubin, 2010), using pornography in response to cravings provides immediate gratification and relief, reinforcing the behaviour through a cycle of craving, consumption,

and reward. Skinner and Aubin (2010) described this cycle as generating short-term satisfaction but leading to longer-term difficulties, such as dependency and reduced emotional regulation. Similarly, Brand et al. (2016) proposed that individuals who use pornography to alleviate negative emotions may experience temporary relief but fail to address the underlying issues, creating a self-perpetuating cycle of problematic use.

The correlation between FPU and PPU is often weak to moderate, which can be explained by viewing FPU as a peripheral symptom within the PPU network (Bőthe et al., 2020c; Chen et al., 2022). While FPU reflects a high level of engagement with pornography, it does not necessarily entail the core symptoms of PPU, such as conflict, relapse, and withdrawal, which define its problematic nature. Individuals with high sexual desire or hypersexuality may drive frequent use, leading salience, tolerance, and mood modification, but these do not inherently lead to the distress or functional impairments central to PPU. Moreover, individual differences, such as moral incongruence, sexual desire, or emotional coping strategies, further dilute the relationship between FPU and PPU. For instance, some users with strong religious beliefs may feel guilt and distress over watching pornography and become problematic even if the frequency is low. This distinction highlights that while FPU and PPU are positively related, FPU remains a peripheral factor, contributing to but not fully encapsulating the multifaceted nature of PPU (Bőthe et al., 2018a; Bőthe et al., 2020b; Chen et al., 2022).

Hypothesis 2: There is a significant correlation between well-being and problematic pornography use among young adults in Malaysia.

The results of this study showed that there was no statistically significant correlation between well-being and PPU among Malaysian young adults, r (116) = .001, p = .992, which did not support Hypothesis 2. The result provided clarity to prior research where the

relationship between well-being and PPU was unclear (Cardoso et al., 2023; Vieira & Griffiths, 2024).

While no direct association was found between well-being and PPU in present study, previous studies on related constructs, such as perceived stress, loneliness, and emotion regulation difficulties, offered valuable insights. These factors, which are known predictors of well-being, have been significantly associated with PPU. For example, individuals with higher levels of PPU often report elevated feelings of loneliness and perceived stress, both of which negatively impact overall well-being (Cardoso et al., 2022). Cardoso et al. (2023) revealed that difficulties in emotion regulation positively correlate with PPU, with loneliness partially mediating this relationship. Similarly, Vieira and Griffiths (2024) accentuated the indirect pathways linking PPU to mental health challenges, including anxiety, self-esteem issues, and loneliness, illustrating that the association between PPU and psychological well-being is not straightforward.

In addition, Altin et al. (2024) underscored the severity of these dynamics, highlighting PPU's connection to elevated levels of anxiety, depression, stress, and loneliness, alongside notable outcomes such as suicidal ideation and diminished life satisfaction. These findings emphasize the pressing need to investigate emotional dysregulation's underlying role in exacerbating such severe psychological outcomes. Explicitly, Camilleri et al. (2021) documented significant associations between pornography use, including behaviours indicative of addiction, and mental health indicators like depression, anxiety, and stress, reinforcing the interconnected nature of these variables. Thus, well-being may not constitute a sufficiently robust variable for directly investigating its relationship with PPU, as its effects appear predominantly indirect and mediated by complex factors such as emotional regulation and psychological distress.

Hypothesis 3: There is a significant correlation between ADHD symptoms and problematic pornography use among young adults in Malaysia.

The results showed that there was statistically significant positive correlation between ADHD symptoms and PPU among Malaysian young adults, supporting Hypothesis 3, although the correlation was weaker, r (116) = .287, p = .002. This finding aligned with previous research findings (Bőthe et al., 2019; Niazof et al., 2019). This suggested that while a relationship exists, its strength was limited, highlighting the complexity of the underlying mechanisms connecting these two variables.

The Reward Deficiency Syndrome (RDS) offers a relevant theoretical framework for understanding this association. RDS refers to a neurological condition in which the brain's reward system, particularly the dopamine pathways, functions inefficiently. As a result, individuals with RDS experience a diminished ability to derive pleasure or satisfaction from typical rewards. To compensate for this deficiency, people are more likely to engage in highly stimulating activities, such as excessive pornography use, to activate their reward system and achieve a sense of pleasure or gratification (Blum et al., 2008; Volkow et al., 2007).

In the context of ADHD, executive dysfunction is a core characteristic that contributes significantly to impulsivity. Executive dysfunction refers to impairments in cognitive processes such as planning, decision-making, and self-regulation, which are essential for controlling impulsive actions and maintaining goal-directed behaviours (Roselló et al. 2020). For individuals with ADHD, these impairments hinder their ability to delay gratification and manage long-term consequences, making them more vulnerable to maladaptive coping mechanisms like PPU.

Zhang et al. (2022) demonstrated that impulsivity and reward-seeking behaviours, core traits of ADHD, were strongly linked to an increased risk of maladaptive behaviours, including PPU. The temporary but intense stimulation from pornography may act as a

maladaptive coping mechanism for individuals with ADHD, providing short-term relief while exacerbating long-term regulatory challenges (Privara & Bob, 2023). However, the weak association between ADHD symptoms and PPU suggests that ADHD alone does not necessarily lead to PPU. Prior research highlighted that without impulsivity as a mediating factor, individuals with ADHD were less likely to engage in PPU (Niazof et al., 2019), emphasizing the critical role of impulsivity in driving this behaviour.

Hypothesis 4: There is a significant correlation between hypersexuality, and problematic pornography use among young adults in Malaysia.

The results of the present study indicated hypersexuality had the strongest significant positive correlation with PPU among Malaysian young adults, r (116) = .721, $p < .001$, supporting Hypothesis 4. It demonstrated that both hypersexuality and PPU often co-occur, implying that individuals experiencing hypersexuality are likely to exhibit signs of PPU, and vice versa. This result aligned with existing studies (Bothe et al., 2020b; Efrati, 2020; Lewczuk et al., 2023). For instance, individuals who experience hypersexuality may engage in PPU (Lewczuk et al., 2023), conversely, individuals with PPU might develop patterns or sign of hypersexual behaviour (Bothe et al., 2020b).

Sexual attitudes are a significant factor when discussing PPU and hypersexuality, with cultural contexts shaping their impact. Studies in Western contexts often highlight sexual permissiveness as a strong predictor of PPU and hypersexuality, proven by Lewczuk et al. (2023). They also recognized that tolerance as a sexual attitude correlates positively with PPU, suggesting that accepting diverse sexual practices can lead to increased (or problematic) pornography use as well as hypersexual behaviour or tendencies. Similarly, in Malaysia context, where societal norms often promote conservatism and discourage overt sexual expression, Goh et al. (2023) proposed that positive sexual attitudes were correlated with pornography use and using it for sexual gratification. In such context, exposure to sexually

explicit materials indirectly increases the likelihood that an individual will intend to pursue casual sexual encounters and may normalize casual sex (e.g., through the belief that "everyone is doing it"), as they feel powerless to regulate or control or resist engaging in such behaviour (Tseng et al., 2021).

A study by Setyawati et al. (2020) showed that exposure to sexually explicit materials lead to cognitive obsession-compulsive with pornographic use, with the desire to watch those photos or videos repeatedly and imagine sexual intercourse. Emotionally, there is a desire for sexual behaviour, with passion and pleasure after watching pornographic content. Even in the Malaysian context, this is supported by Goh et al. (2023) that the motivations for using pornography is sexual arousal and pleasure. They also pointed out that individuals may tend to objectify actors or characters in pornography for sexual pleasure or rely on situational cues (e.g., sexual fantasies) to stimulate sexual desire and arousal. Hence, regardless of cultural differences, sexual attitudes and the motivations may serve as a core mechanism driving hypersexuality, which in turn correlates to PPU.

Hypothesis 5: There is a significant association between the frequency of pornography use, well-being, ADHD symptoms, hypersexuality and problematic pornography use among young adults in Malaysia.

In present study, MLR analysis indicated that FPU, well-being, ADHD symptoms, hypersexuality collectively explained for 61.6% of the variability and had a combined predictive effect, supporting Hypothesis 5. While FPU ($\beta = .290$, $p < .001$) and hypersexuality ($\beta = .618$, $p < .001$) significantly associated with PPU, neither well-being ($\beta = .051$, $p = .400$) nor ADHD symptoms ($\beta = .102$, $p = .095$) were significant. The association between FPU and PPU aligned with prior research suggesting that frequent pornography exposure is a primary factor in the development of problematic use (Lewczuk et al., 2020;

Rousseau et al., 2021). Repeated exposure reinforces habitual behaviours, which can escalate to PPU as individuals pay less attention to consequences (Kruglanski & Szumowska, 2020).

Meanwhile, hypersexuality significantly predicted PPU, as individuals with high levels of hypersexuality often exhibit impulsivity, making it difficult to regulate sexual urges (Doroldi et al., 2024). Hypersexuality may lead to problematic high-FPU compared to non-problematic high-FPU, which may in turn mediates the association between hypersexuality and PPU (Bothe et al., 2019; Bothe et al. 2020b). While hypersexuality may predispose an individual to greater consumption of pornography, at the same time the frequency and habitual nature of this use that determines whether it becomes a problem, which means that PPU can be predicted through FPU and hypersexuality.

Although impulsivity is a hallmark trait of ADHD and could theoretically lead to PPU, the model indicated ADHD symptoms had limited predictive power, as stronger predictors accounted for the majority of the explained variance. The result contrasts with previous studies, with ADHD symptoms associated with hypersexuality and PPU (Bothe et al., 2019). According to Bothe et al. (2020b), ADHD symptoms may contribute to FPU but not necessarily become PPU, as ADHD symptoms were not the only factor predicting PPU. Besides, ADHD's heterogeneous nature and its varying symptom presentations (Luo et al., 2019), including inattentiveness and hyperactive-impulsive traits. Hyperactive-impulsive traits influence a wide range of behaviours such gambling and substance use (Koncz et al., 2023), not just pornography use. Individuals with PPU appear minimal deficits on tasks measuring risky decision-making and executive function (Müller & Antons, 2023), suggesting that ADHD symptoms (i.e., executive function deficits) may not explain PPU.

Contrary to expectations, well-being was not significant in predicting PPU in the present study. The results provided clarity to previous studies suggested that mental well-being may protect against PPU (Vieira & Griffiths, 2024). In the Malaysia, religiosity may

affect people's emotional coping mechanisms in different ways, as people with religion may manage their emotions in more adaptive ways rather than maladaptive ways (Vishkin et al., 2019). Furthermore, religiosity has been shown to exert a protective effect on addictive behaviours, as highlighted by Kádár et al. (2023), by reducing psychological susceptibility to such tendencies, further reducing the likelihood of engaging in PPU even among those with low well-being. Therefore, regardless of level of well-being, people with high religiosity may be less likely to use pornography as a coping mechanism.

Hypothesis 6: There are significant gender differences in problematic pornography use, with males having a higher prevalence than females among young adults in Malaysia.

The findings of the present study showed that there are significant gender differences in PPU among Malaysian young adults, which was consistent with previous studies (Borgogna et al., 2022; Bőthe et al., 2020b; Bőthe et al., 2024; Grubbs et al., 2019c; Lewczuk et al., 2022), supporting Hypothesis 6 that males having a higher prevalence compared to females.

According to Frankenbach et al. (2022), men exhibit a stronger focus on sexual thoughts and fantasies compared to women and show higher levels of sexual desire, a difference largely driven by testosterone, which plays a key role in regulating male sexual arousal and behaviour across physiological and psychological domains (Corona et al., 2016). This heightened sexual drive, combined with men's tendency to seek self-gratification through masturbation rather than interpersonal connection, leads to greater consumption of pornography for arousal rather than relational purposes (Vaillancourt-Morel et al., 2017). Moreover, men's preference for external, image-based sexual stimuli, in contrast to women's internal, interoceptive cues, further explains their higher FPU. This reliance on visual stimuli increases the likelihood of habitual consumption, making men more vulnerable to developing PPU (Bőthe et al., 2020b).

Additionally, compared to women, men were found to have higher impulsivity which may lead to more frequent and uncontrolled pornography use, eventually escalating to problematic levels (Bőthe et al., 2018c). This impulsive behaviour often combines with the reinforcing properties of pornography, creating a feedback loop that makes abstinence more difficult.

Besides, societal norms and cultural expectations play a crucial role in shaping gender differences in pornography consumption. In many cultures, pornography use was less stigmatized for men than for women, partly due to traditional feminine ideologies that value chastity and sexual purity in women (Borgogna et al., 2022). A review by Frankenbach et al. (2022) highlighted that social role theory and social learning theory suggest that men and women internalize different societal expectations, with men often encouraged to explore and express their sexuality while women face greater scrutiny and sanctions. These gendered expectations not only influence actual behaviour but also affect how individuals report their behaviours. For example, men may openly admit to higher pornography use due to societal acceptance (Bothe et al., 2024), whereas women might underreport their usage to conform to societal norms, contributing to perceived differences.

Implications

Theoretical Implications

The results of the present study contribute to the I-PACE model (Brand et al., 2016) by examining the relationships between FPU, well-being, ADHD symptoms, hypersexuality, and PPU among Malaysian young adults. The findings revealed a positive association between FPU, hypersexuality, ADHD symptoms, and PPU, supporting the I-PACE model's assertion that predisposing factors, emotional and cognitive responses to stimuli, and executive control mechanisms collectively contribute to addictive behaviours. Predisposing factors, such as impulsivity in ADHD symptoms and hypersexuality, play a role in the

development of PPU by increasing the tendency for compulsive use. Executive dysfunction in ADHD symptoms, coupled with habitual behaviours in FPU, weakens impulse control and response inhibition, leading to poor decision-making and may engage in automatic behaviours, increasing the risk of developing PPU. These results reinforced the validity of the I-PACE model in the Malaysian context, demonstrating its continued relevance in understanding the complex dynamics of PPU and its intersection with individual traits such as impulsivity and executive dysfunction.

Nevertheless, well-being was found to have no significant relationship with PPU in this study, highlighting that the emotional and cognitive aspects of the I-PACE model were not supported in the Malaysian context for young adults. Given the limited research on well-being and its connection to PPU in Malaysia, this study served as a foundation for further exploration into how well-being may influence PPU in this population. Future research should focus on examining how emotional health and mental well-being interact with PPU, providing a more comprehensive understanding of these dynamics in the Malaysian context.

Practical Implications

This research has addressed significant gaps in understanding the interplay between FPU, well-being, ADHD symptoms, hypersexuality, and PPU. These gaps are particularly relevant given the scarcity of region-specific studies examining the complex dynamics of these variables, especially in Malaysia. The findings underscore the importance of adopting multidimensional approaches for studying behavioural addictions, emphasizing the need to account for multiple interacting psychological and behavioural factors. By identifying hypersexuality as a key contributing factor, this study enriches the broader field of behavioural addiction research, offering nuanced insights that can inform targeted interventions.

Furthermore, the study's findings carry implications for clinical practice, particularly in managing ADHD-related cases. Given the demonstrated potential link between ADHD symptoms and PPU, clinicians should incorporate assessments for PPU in individuals who exhibit ADHD symptoms. Screening for PPU can help identify underlying behavioural concerns and enable more comprehensive treatment plans that address co-occurring challenges, promoting better outcomes for affected individuals.

Policymakers can also leverage these insights to develop awareness campaigns or digital behaviour management policies targeting young adults. Such initiatives should emphasize the psychological risks associated with PPU, advocating for improved digital literacy and self-regulation practices among vulnerable populations. These efforts could reduce the stigma surrounding PPU while fostering open dialogue and early intervention strategies.

Eventually, this research serves as a foundation for future studies, particularly within the Malaysian context, where empirical data on these topics remain limited. By providing empirical evidence specific to this region, the study paves the way for further exploration of culturally relevant factors influencing PPU. Future researchers can build upon these findings to refine prevention and intervention strategies globally, contributing to a deeper understanding of behavioural addictions and their broader implications.

Limitations

In this study, there were several limitations to address. Firstly, the unequal distribution of genders in the dataset may have affected the accuracy of the findings related to gender differences in PPU. For example, 91 males and 26 females in this study. A disproportionate number of male and female participants likely influenced the results, limiting the generalizability of the conclusions across genders.

Another limitation of this study was the unequal ethnic representation among respondents, which affects the generalizability of the findings within the Malaysian context. The sample consisted of only 4 Malays and 6 Indians, compared to 106 Chinese participants. This imbalance may be attributed to religious and cultural factors, particularly among Malays and some Indians, who are predominantly Muslim. In Islam, viewing pornography and engaging in masturbation are considered "haram" (forbidden). Islamic teachings, derived from Quranic verses and hadiths, categorize pornography as a form of sexual immorality, leading to sinful thoughts and actions that contradict the principles of Islam (“Is Porn Haram,” n.d.).

Recommendation for Future Research

In the context of ADHD symptoms and PPU in the current study, there was a lack of research explaining the weak or moderate relationship between these factors beyond the commonly discussed role of impulsivity. Thus, future researchers are encouraged to explore the influence of other ADHD symptoms, such as inattention or hyperactivity, on PPU. Additionally, examining how ADHD-related difficulties, such as emotional dysregulation or challenges with self-monitoring, intersect with PPU could offer valuable insights and expand the current knowledge base. Likewise, there was also insufficient research on the relationship between well-being and PPU, future studies could further investigate how fluctuating well-being impacts PPU. Expanding the understanding of these interrelations would contribute to a more comprehensive framework for addressing PPU, considering both psychological symptoms and emotional well-being.

Future research should consider probability sampling methods to minimize researcher bias and improve the generalizability of findings by ensuring equal selection chances for all individuals in the target population. Specifically, stratified sampling divides the population into subgroups based on demographics like race or gender, then selects a proportional random

sample from each group. This method ensures balanced representation of key demographic groups, addressing the issue of unequal distribution in the sample (Elfil & Negida, 2017). This approach is particularly beneficial in diverse populations like Malaysia, where ethnic and cultural factors may significantly influence the outcomes being studied.

Additionally, to study the topic more deeply within the Malaysian context, future researchers could include questions related to religion in the survey. For example, adding items such as “How important is religion in your daily life?” or “How religious do you consider yourself to be?” could provide insights into the influence of religiosity on pornography use and PPU. This approach would help to explore how religious beliefs and practices, which are particularly significant in Malaysia’s multicultural and multi-religious society, interact with PPU. Understanding these dynamics could offer a more culturally nuanced perspective on the factors contributing to or mitigating PPU in the Malaysian population.

Besides, this study found a few participants with extremely low well-being and high PPU levels but could not provide support due to the anonymous survey design ensuring confidentiality. Future research could address this limitation by collecting non-identifiable contact information, such as email addresses, allowing researchers to follow up with participants showing concerning patterns. This approach would enable the provision of feedback, resources, or professional referrals while maintaining participants' privacy and confidentiality.

To improve participants' honesty and accurately target the intended population, future research could incorporate qualitative methods, such as in-depth interviews or focus groups. These approaches allow participants to share their experiences in a confidential and non-judgmental setting, offering richer, more nuanced insights into sensitive topics like pornography use, which may be influenced by social norms or cultural factors.

On top of that, researchers might consider leveraging platforms frequented by individuals engaging with pornography to better reach the target population. For instance, uploading educational content or survey invitations to adult websites could be a novel way to engage participants effectively. This strategy aligns with a precedent set in 2021, when a Taiwanese teacher gained significant public attention by teaching math on an adult website (Steinbuch, 2021). Such an approach demonstrates the potential of using unconventional platforms to engage the target audience directly and increase participation in studies on topics related to pornography use.

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Appendices

Appendix A

Ethical Approval For Research Project

UNIVERSITI TUNKU ABDUL RAHMAN DU012(A)
Wholly owned by UTAR Education Foundation Co. No. 578227-M

Re: U/SERC/78-365/2024

1 October 2024

Mr Tay Kok Wai
Head, Department of Psychology and Counselling
Faculty of Arts and Social Science
Universiti Tunku Abdul Rahman
Jalan Universiti, Bandar Baru Barat
31900 Kampar, Perak.

Dear Mr Tay,

Ethical Approval For Research Project/Protocol

We refer to the application for ethical approval for your students' research project from Bachelor of Social Science (Honours) Psychology programme enrolled in course UAPZ3013. We are pleased to inform you that the application has been approved under Expedited Review.

The details of the research projects are as follows:

No	Research Title	Student's Name	Supervisor's Name	Approval Validity
1.	Problematic Pornography Use Among Malaysian Young Adults: A Study of Frequency of Pornography Use, Well-Being, ADHD Symptoms, and Hypersexuality	1. Rowen Wong Jing Tong 2. Teoh Shu Hui 3. Tiew Xin Yee	Mr Tay Kok Wai	1 October 2024 – 30 September 2025

The conduct of this research is subject to the following:

(1) The participants' informed consent be obtained prior to the commencement of the research;

(2) Confidentiality of participants' personal data must be maintained; and

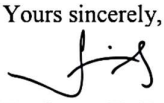
(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.

(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,



Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Arts and Social Science
Director, Institute of Postgraduate Studies and Research

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
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Website: www.utar.edu.my

Appendix C

Effect Size Calculation

Figure C1

Problematic Pornography Use (PPU) and Frequency of Use (FPU)

Variable	Mean	SD	1	2	3	4	5	6	7
1. Self-perceived addiction to pornography	1.93	1.35	-						
2. Problematic pornography use	6.63	2.32	.55**	-					
3. Avoidant coping	11.25	3.90	.20**	.24**	-				
4. Frequency of pornography use	3.68	2.25	.53**	.44**	.07*	-			
5. Religiosity	3.81	1.84	−.04	.11**	.05	−.21**	-		
6. Moral disapproval of pornography use	3.46	1.63	−.08*	.03	.09**	−.32**	.44**	-	
7. Moral incongruence–related distress	0.28	0.59	.23**	.40**	.23**	.08*	.22**	.22**	-

Note. From Lewczuk et al. (2020).

$$f^2 = \frac{(0.44)^2}{1-(0.44)^2} = 0.2401$$

Figure C2

Problematic Pornography Use (PPU) and Well-Being

	1	2	3	4	5	6	7	8
1. Salience	1							
2. Mood modification	0.81 ***	1						
3. Conflict	0.44 ***	0.47 ***	1					
4. Tolerance	0.73 ***	0.72 ***	0.60 ***	1				
5. Relapse	0.78 ***	0.71 ***	0.53 ***	0.77 ***	1			
6. Withdrawal	0.78 ***	0.75 ***	0.51 ***	0.78 ***	0.75 ***	1		
7. Problematic IPU	0.89 ***	0.88 ***	0.68 ***	0.89 ***	0.89 ***	0.89 ***	1	
8. Psychological distress	0.13	0.17 *	0.28 ***	0.12	0.17 *	0.19 *	0.20 **	1

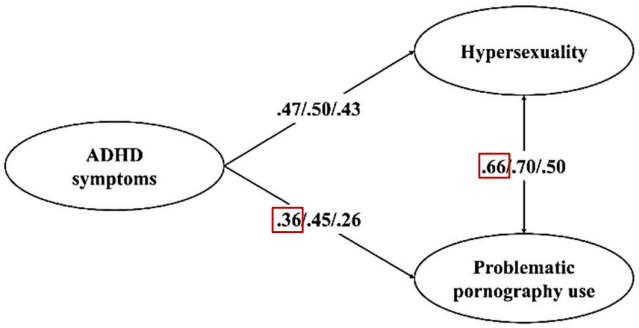
Note. From Tan et al. (2022a).

$$f^2 = \frac{(0.2)^2}{1-(0.2)^2} = 0.0417$$

Figure C3

Problematic Pornography Use (PPU) and ADHD Symptoms and Hypersexuality

Figure 1. *The associations of ADHD symptoms with hypersexuality and problematic pornography use*



Note. All variables presented in ellipses are latent variables. For the sake of clarity, indicator variables related to them are not depicted in this figure. One-headed arrows represent standardized regression weights and two-headed arrows represent correlations. Numbers on the arrows indicate the path coefficients (total, male and female sample, respectively). Percentages in parentheses below the variables represent the proportion of explained variance (total, male and female sample, respectively). All pathways were significant at level $p < .01$.

Note. From Bőthe et al. (2019).

With ADHD symptoms, $f^2 = \frac{(0.36)^2}{1-(0.36)^2} = 0.1489$

With hypersexuality, $f^2 = \frac{(0.66)^2}{1-(0.66)^2} = 0.7718$

Average Effect Size

$$f^2 = \frac{(0.2401+0.0417+\ .1489+0.7718)}{4} = 0.3006$$

Appendix D

G*Power Sample Size Calculation

Figure D1

*G*Power Sample Size Calculation for Correlation Analyses*

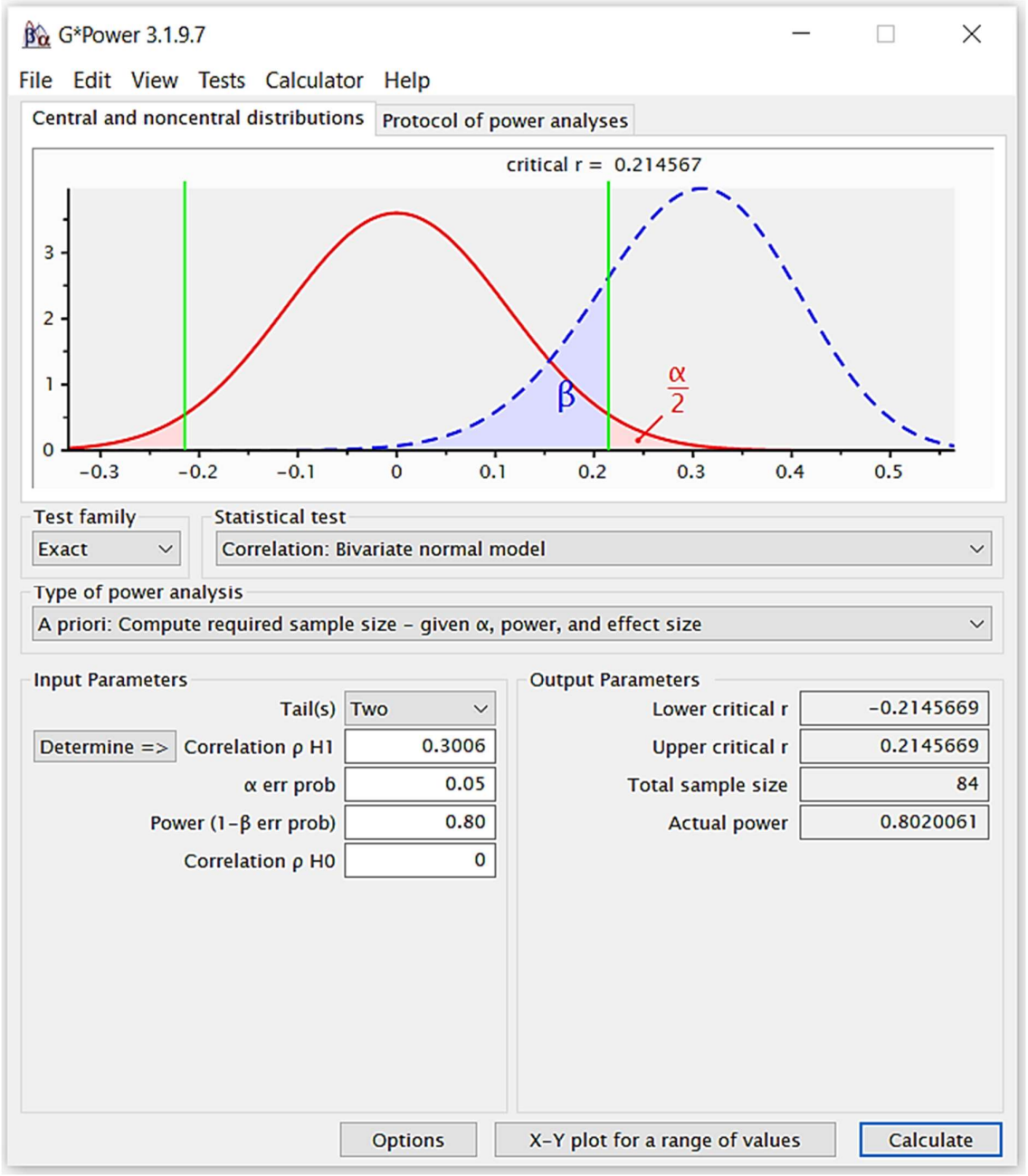


Figure D2

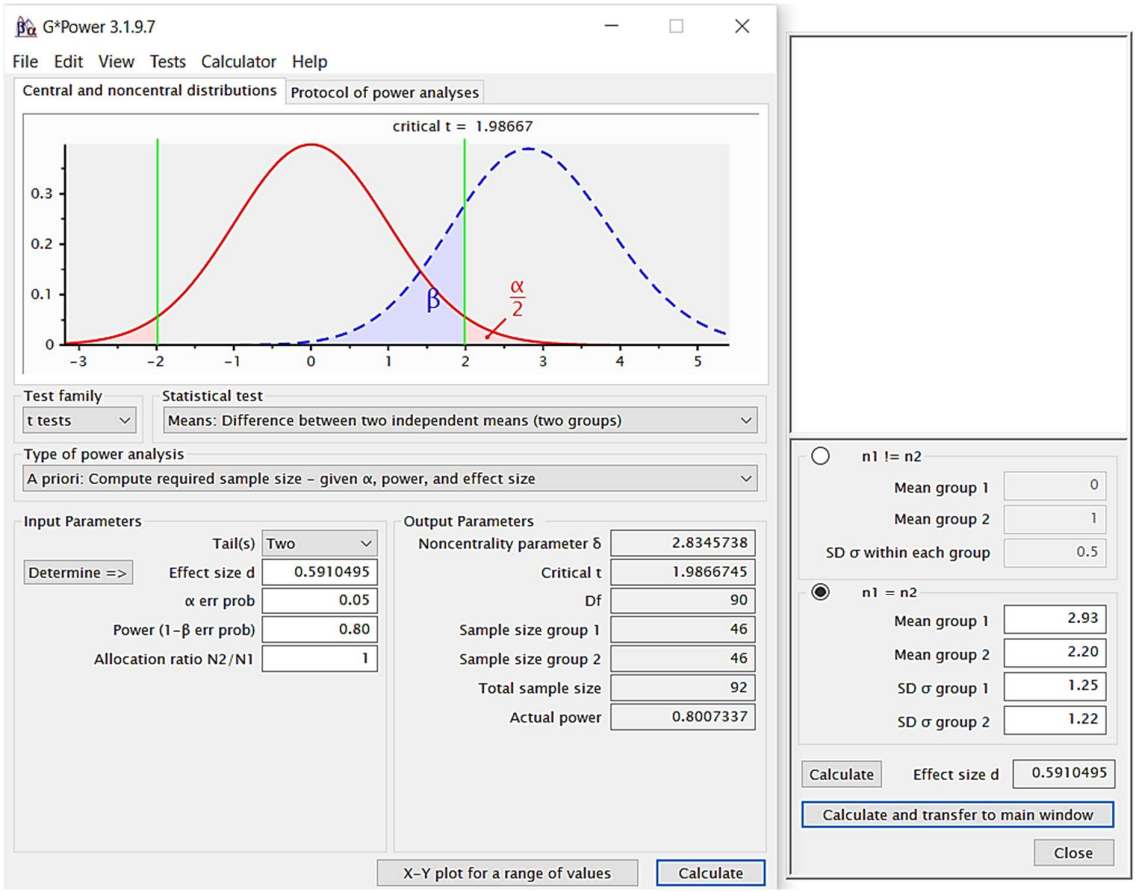
Gender Differences in Pornography Problem Use (PPU)

Variable	Total		Male		Female		*t*	*p*
	Mean	SD	Mean	SD	Mean	SD		
Salience	2.96	1.51	3.30	1.54	2.38	1.27	3.83	<0.001
Mood Modification	3.10	1.68	3.42	1.67	2.54	1.55	3.16	0.002
Conflict	2.31	1.35	2.55	1.42	1.91	1.15	2.93	0.004
Tolerance	2.50	1.47	2.69	1.50	2.19	1.36	2.05	0.043
Relapse	2.86	1.57	3.23	1.54	2.21	1.42	4.01	<0.001
Withdrawal	2.24	1.42	2.40	1.45	1.96	1.35	1.81	0.073
Problematic Pornography Use	2.66	1.28	2.93	1.25	2.20	1.22	3.42	0.001

Note. From Tan et al. (2022a).

Figure D3

*G*Power Sample Size Calculation for Independent Sample t-Test (Gender Differences)*



Appendix E

SPSS Output: Reliability

Table E1

Reliability for Problematic Pornography Consumption Scale (PPCS-6)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.866	.871	6

Table E2

Reliability for World Health Organization Well-Being Index (WHO-5)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.897	.899	5

Table E3

Reliability for Adult ADHD Self-Report Scale (ASRS-v1.1) - Part A

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.768	.771	6

Table E4

Reliability for Hypersexual Behavior Inventory (HBI-SF)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.912	.911	8

Appendix F

SPSS Output: Normality Assumptions

Figure F1

Histogram of Problematic Pornography Use (PPU)

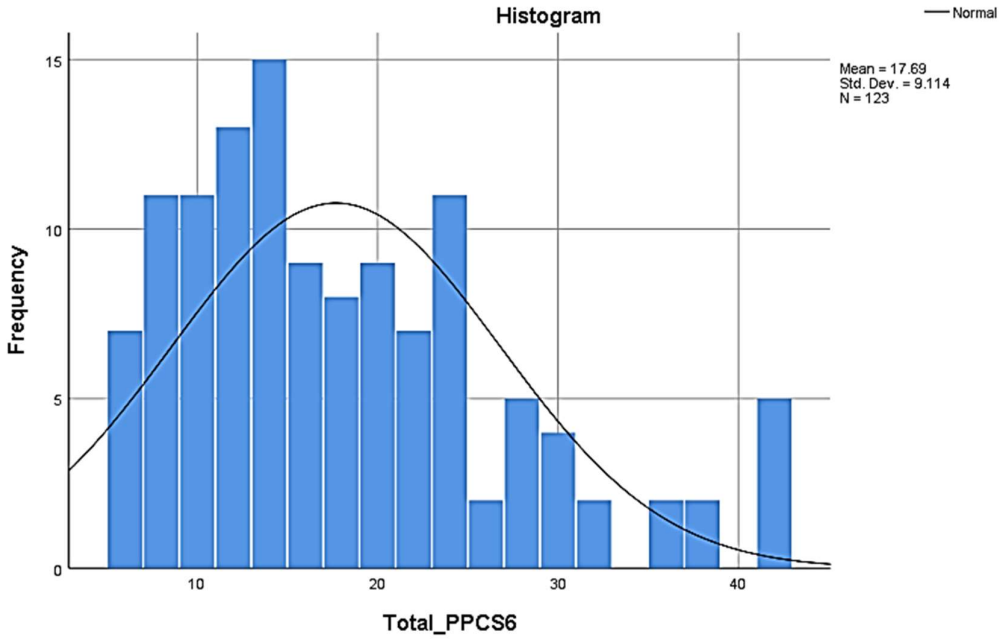


Figure F2

Histogram of Frequency of Pornography Use (FPU)

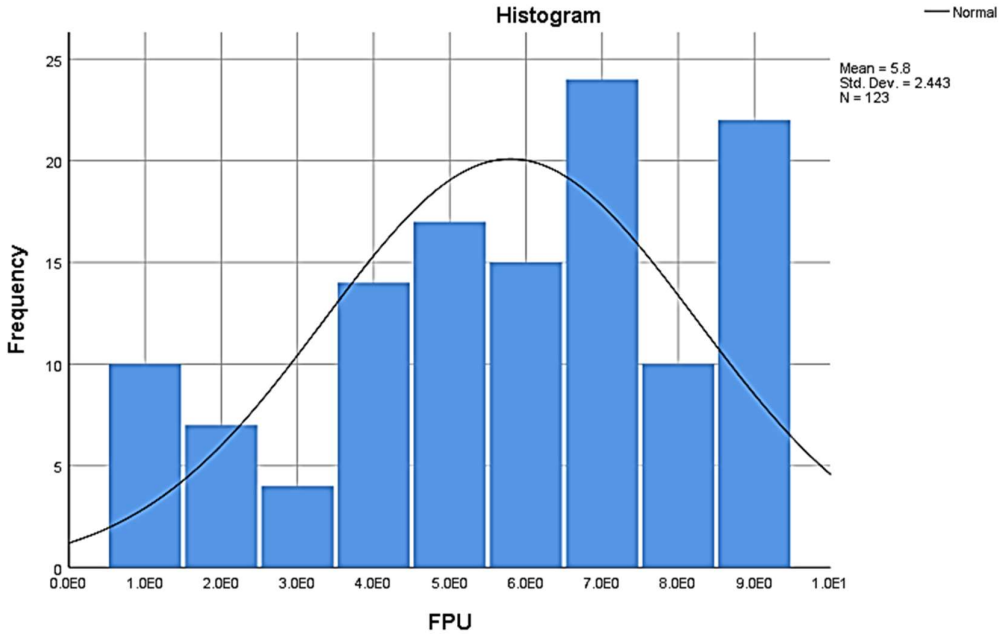


Figure F3

Histogram of Well-Being

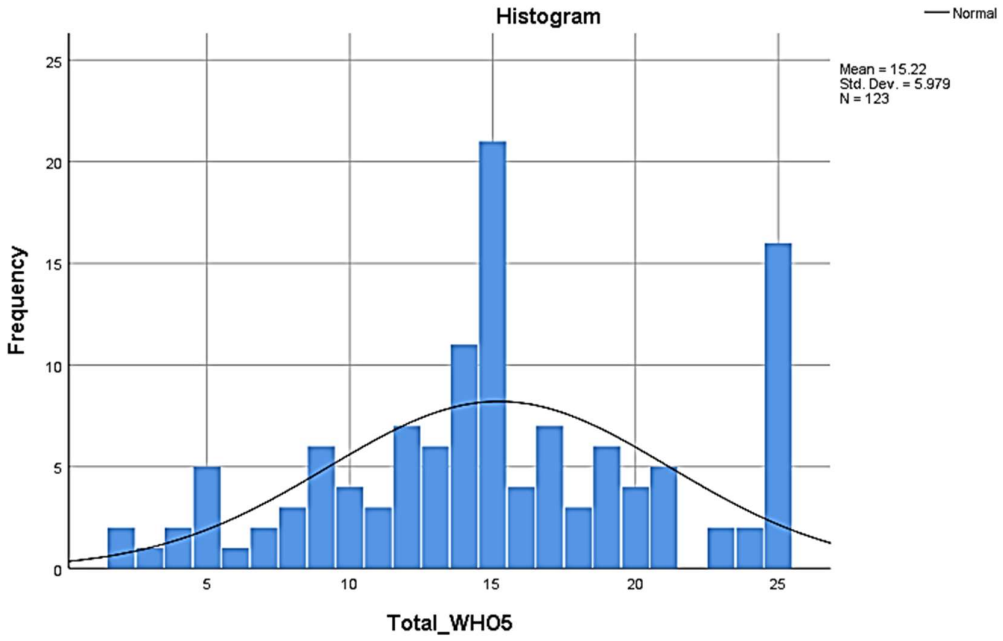


Figure F4

Histogram of ADHD Symptoms

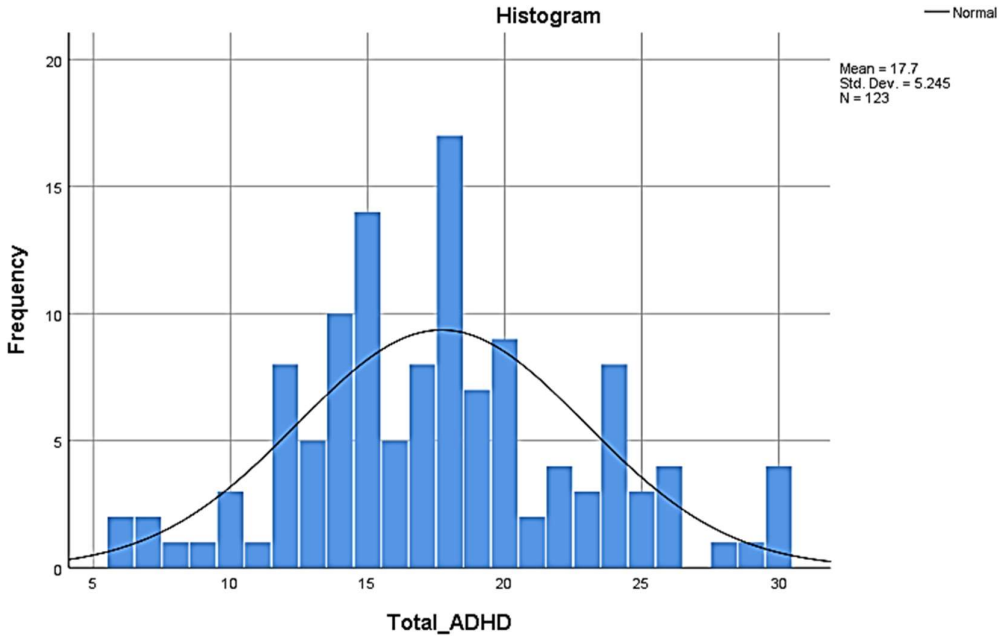


Figure F5

Histogram of Hypersexuality

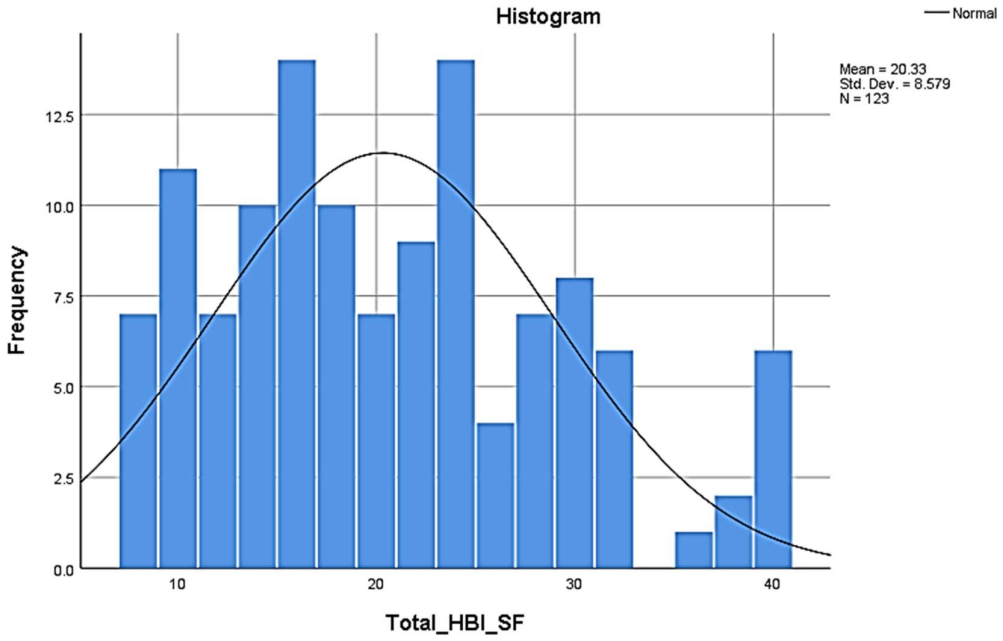


Figure F6

P-P plot of Problematic Pornography Use (PPU)

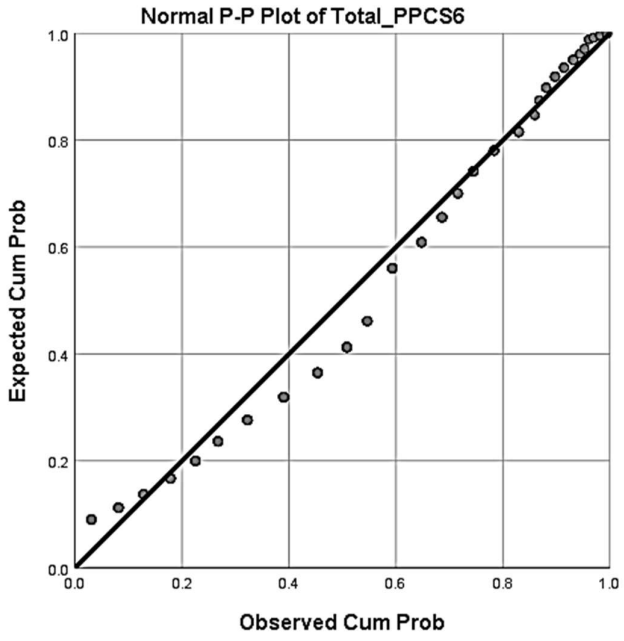


Figure F7

P-P plot of Frequency of Pornography Use (FPU)

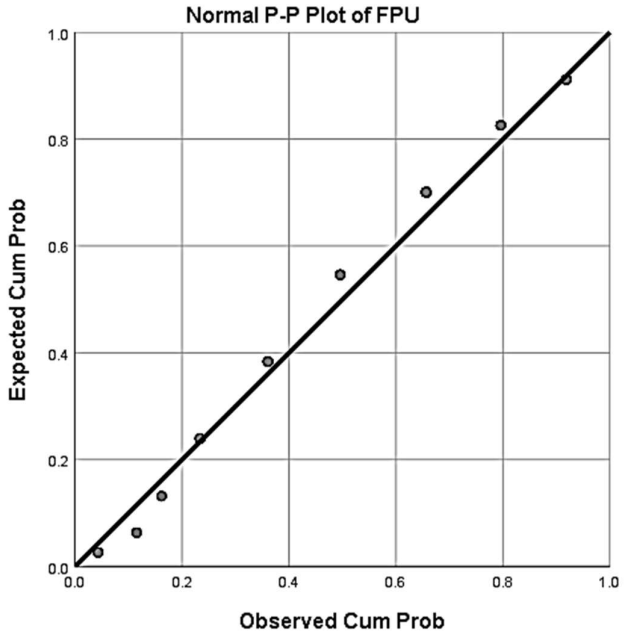


Figure F8

P-P plot of Well-Being

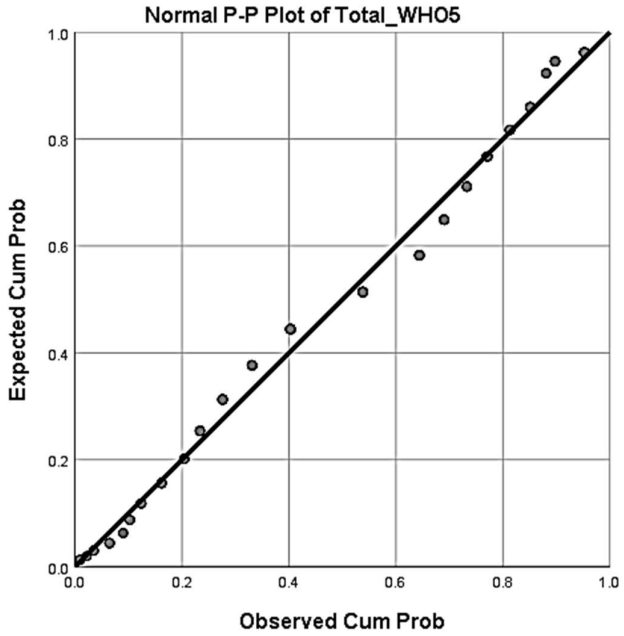


Figure F9

P-P plot of ADHD Symptoms

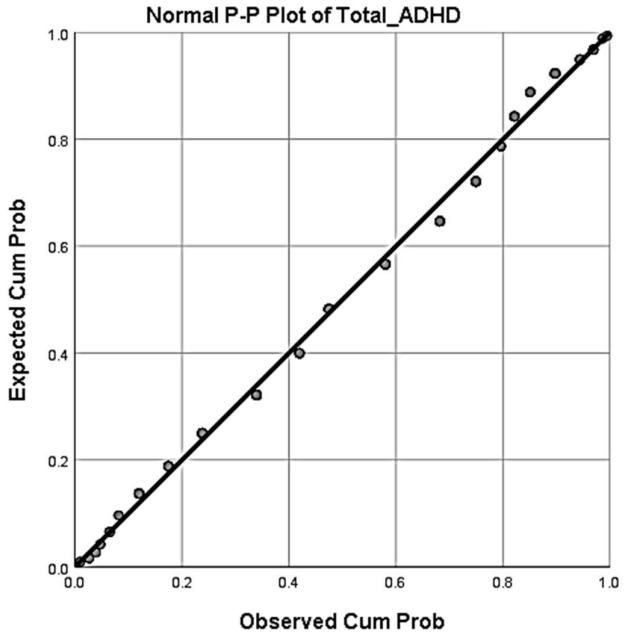


Figure F10

P-P plot of Hypersexuality

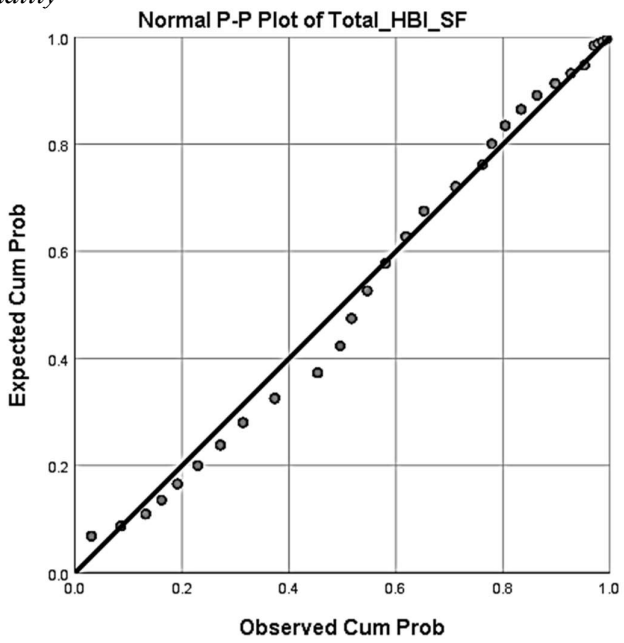


Table F1

Skewness and Kurtosis Tests

		FPU	Total_WHO5	Total_ADHD	Total_HBI_SF	Total_PPCS6
N	Valid	123	123	123	123	123
	Missing	0	0	0	0	0
Skewness		-.453	-.042	.271	.546	.959
Std. Error of Skewness		.218	.218	.218	.218	.218
Kurtosis		-.718	-.497	-.027	-.380	.464
Std. Error of Kurtosis		.433	.433	.433	.433	.433

Table F2

Kolmogorov-Smirnov (K-S) and Shapiro-Wilk Tests

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
FPU	.144	123	.000	.923	123	.000
Total_WHO5	.116	123	.000	.959	123	.001
Total_ADHD	.103	123	.003	.979	123	.049
Total_HBI_SF	.122	123	.000	.950	123	.000
Total_PPCS6	.128	123	.000	.916	123	.000

a. Lilliefors Significance Correction

Appendix G

SPSS Output: Outliers

Boxplot

Figure G1

Boxplot of Problematic Pornography Use (PPU)

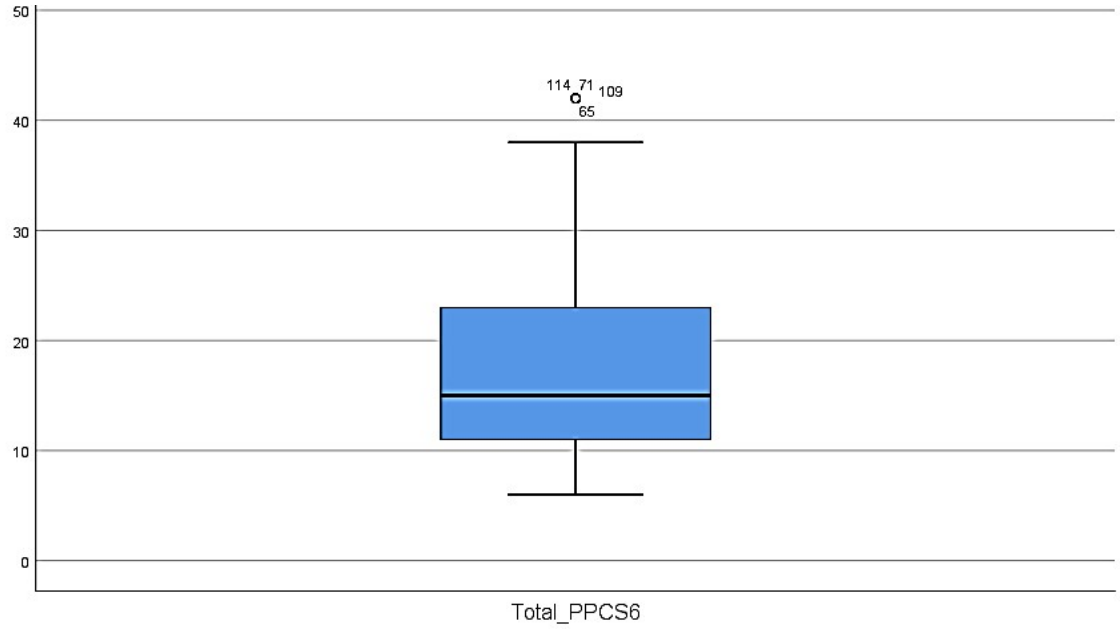


Figure G2

Boxplot of Frequency of Pornography Use (FPU)

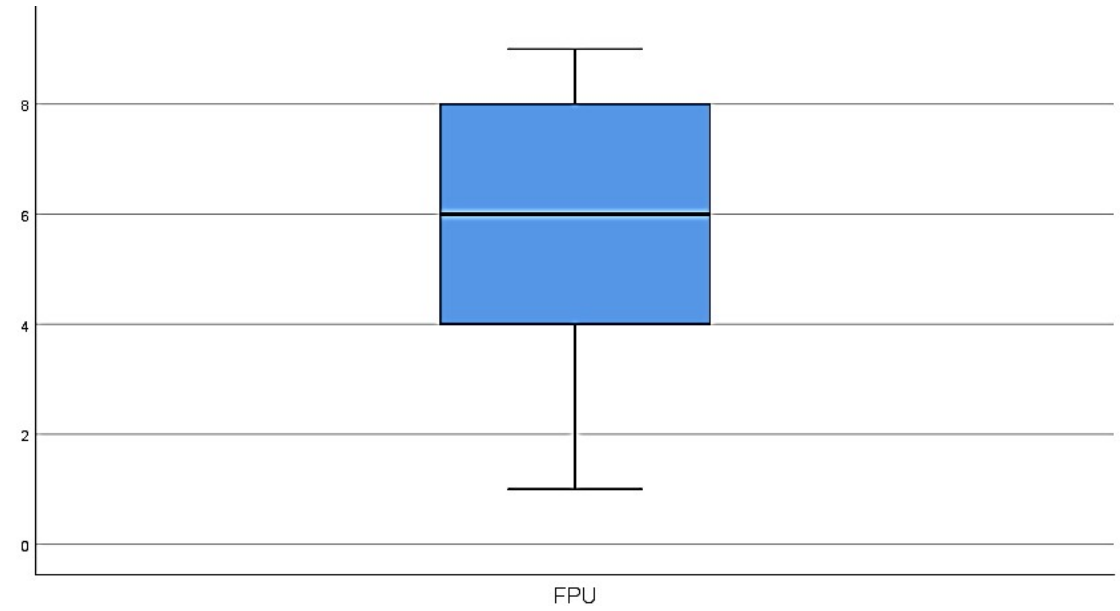


Figure G3

Boxplot of Well-Being

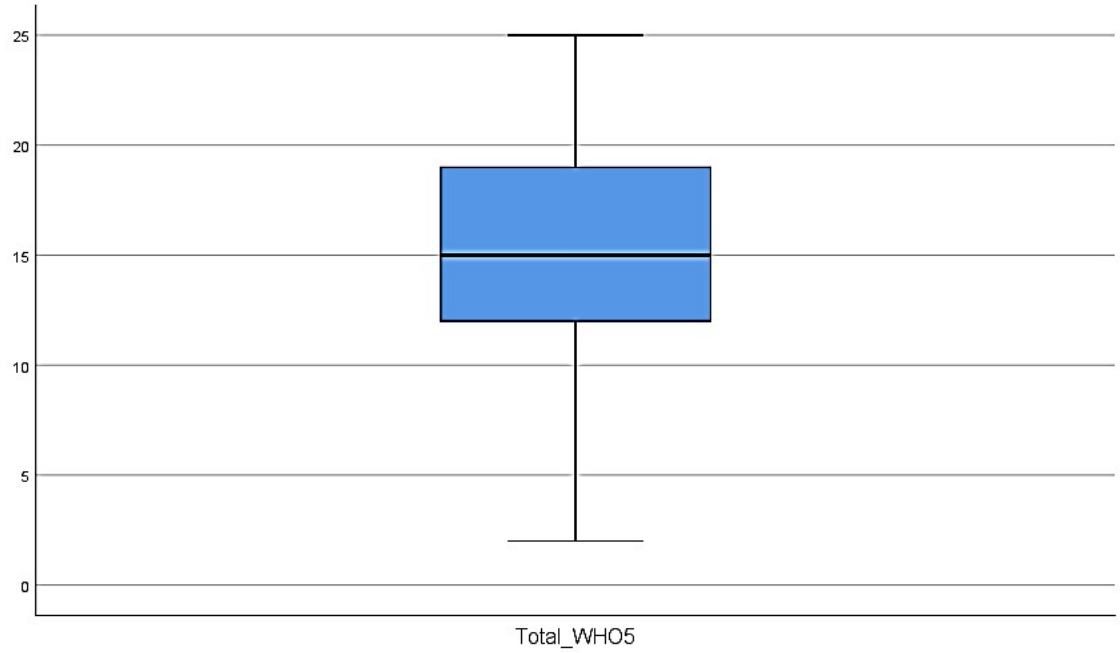


Figure G4

Boxplot of ADHD Symptoms

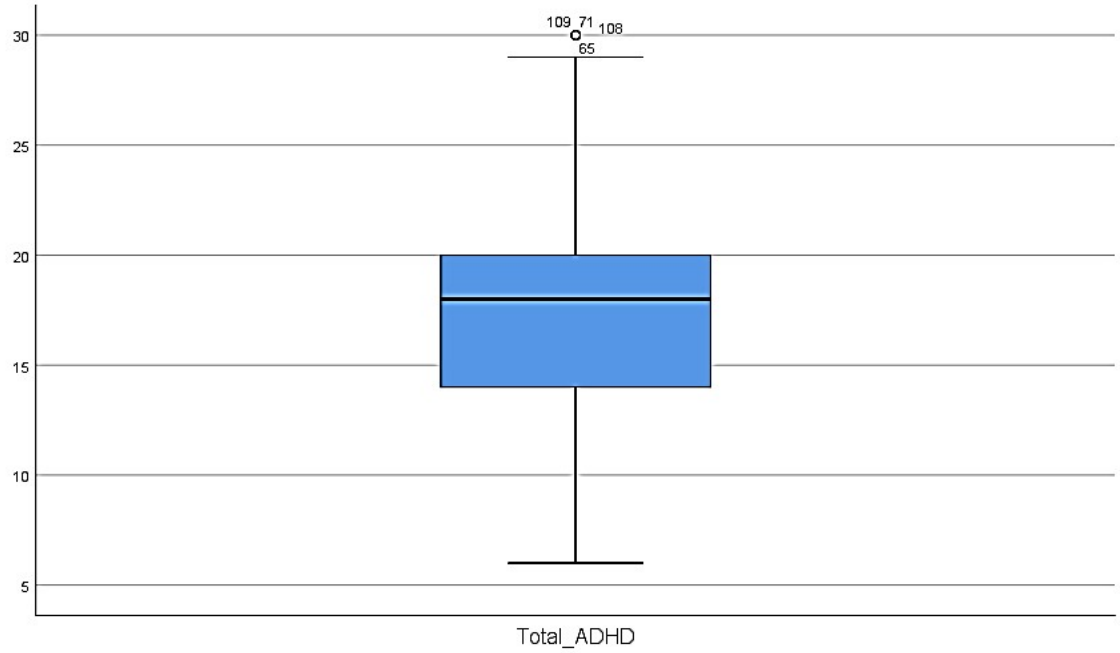


Figure G5

Boxplot of Hypersexuality

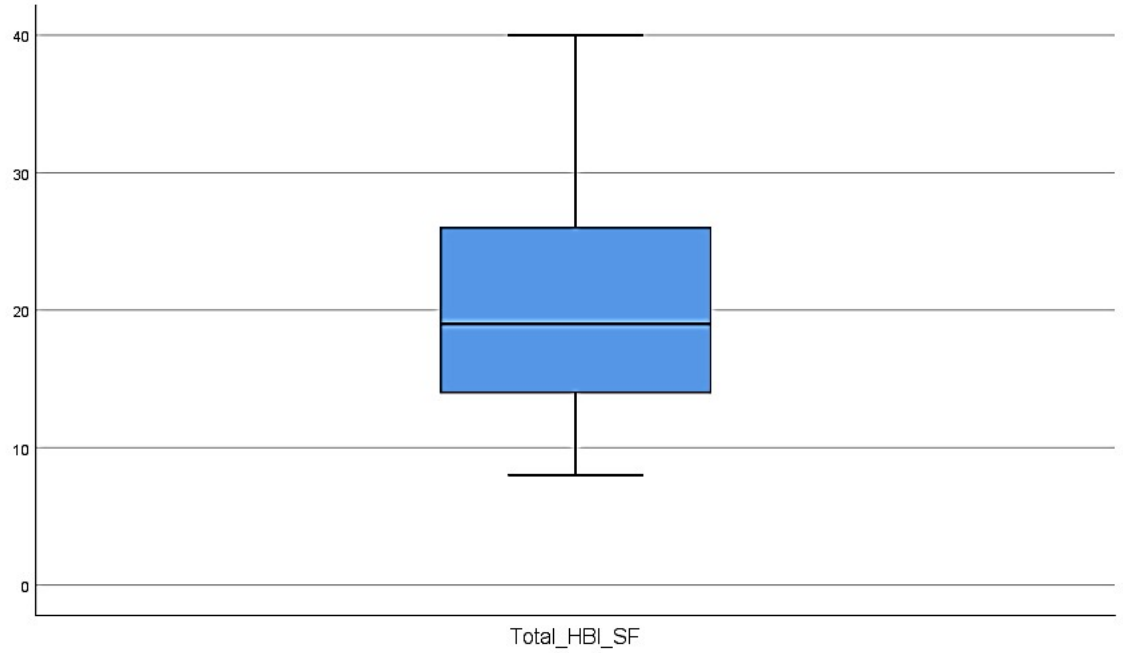


Table G1

Casewise Diagnostics for Problematic Pornography Use

Casewise Diagnostics[a]

Case Number	Std. Residual	Total_PPCS6	Predicted Value	Residual
2	3.148	27	10.99	16.006
8	-2.325	10	21.82	-11.821
16	-2.452	12	24.47	-12.469
28	3.520	42	24.10	17.898
32	-2.324	13	24.82	-11.819
75	2.055	38	27.55	10.447
77	-2.139	8	18.87	-10.874
102	-2.182	23	34.09	-11.093

a. Dependent Variable: Total_PPCS6

Table G2

Residuals Statistics (Mahalanobis Distance, Cook's Distance, and Leverage)

Case Summaries

	Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
1	1	1.51834	.00059	.01245

2	2	4.82446	.10419	.03954
3	3	3.02691	.00007	.02481
4	4	5.73874	.00634	.04704
5	5	3.48079	.00433	.02853
6	6	5.36535	.01701	.04398
7	7	4.02081	.00247	.03296
8	8	2.02404	.02810	.01659
9	9	.12921	.00049	.00106
10	10	6.95575	.00963	.05701
11	11	3.33773	.01492	.02736
12	12	1.99994	.00374	.01639
13	13	1.54890	.00156	.01270
14	14	5.96166	.02597	.04887
15	15	2.36101	.00041	.01935
16	16	1.12420	.02161	.00921
17	17	2.01666	.00000	.01653
18	18	.91082	.00328	.00747
19	19	4.04790	.00303	.03318
20	20	6.87803	.00813	.05638
21	21	3.94268	.00110	.03232
22	22	.81906	.00107	.00671
23	23	2.84579	.00277	.02333
24	24	2.56253	.00054	.02100
25	25	3.41956	.00071	.02803
26	26	2.87606	.00566	.02357
27	27	1.85937	.00042	.01524
28	28	4.15714	.11401	.03407
29	29	4.99848	.00461	.04097
30	30	4.49406	.01092	.03684
31	31	3.92686	.00110	.03219
32	32	3.03389	.03813	.02487
33	33	3.10381	.00387	.02544
34	34	4.71180	.00015	.03862
35	35	3.58995	.00027	.02943
36	36	1.02937	.01007	.00844
37	37	5.38399	.00381	.04413
38	38	1.78127	.00368	.01460
39	39	3.32875	.00015	.02728
40	40	5.99427	.00354	.04913
41	41	5.37901	.00089	.04409
42	42	2.49327	.00578	.02044
43	43	3.16713	.00093	.02596
44	44	8.74380	.00580	.07167
45	45	3.21720	.01604	.02637
46	46	1.40805	.00174	.01154
47	47	1.78516	.00018	.01463
48	48	3.56565	.00652	.02923

49	49	3.83373	.00619	.03142
50	50	3.12173	.00005	.02559
51	51	5.25674	.01556	.04309
52	52	6.68646	.00032	.05481
53	53	10.18001	.00999	.08344
54	54	.73986	.00017	.00606
55	55	3.29948	.00325	.02704
56	56	8.11764	.00026	.06654
57	57	3.75551	.00267	.03078
58	58	5.62580	.00106	.04611
59	59	7.69294	.00109	.06306
60	60	4.45163	.00035	.03649
61	61	4.57955	.02654	.03754
62	62	4.33749	.00159	.03555
63	63	2.50649	.00144	.02055
64	64	2.62499	.00576	.02152
65	65	1.32450	.00170	.01086
66	66	5.18302	.03146	.04248
67	67	2.27458	.00940	.01864
68	68	8.47406	.01041	.06946
69	69	.95657	.00495	.00784
70	70	7.64145	.01467	.06263
71	71	1.89194	.00103	.01551
72	72	.41017	.00000	.00336
73	73	4.84275	.04454	.03969
74	74	1.59731	.01249	.01309
75	75	8.39662	.08263	.06882
76	76	.81291	.00005	.00666
77	77	3.92169	.00102	.03214
78	78	3.78159	.00174	.03100
79	79	2.29210	.00010	.01879
80	80	2.33656	.00614	.01915
81	81	2.65871	.00002	.02179
82	82	5.96977	.03962	.04893
83	83	1.47791	.00015	.01211
84	84	2.74021	.00002	.02246
85	85	6.79706	.00239	.05571
86	86	2.82887	.00243	.02319
87	87	3.82570	.00108	.03136
88	88	5.76939	.00423	.04729
89	89	7.20893	.03266	.05909
90	90	2.68528	.00005	.02201
91	91	1.74227	.00163	.01428
92	92	6.22389	.00125	.05102
93	93	.67778	.00116	.00556
94	94	1.59648	.00090	.01309
95	95	17.13914	.01435	.14048

96		96	.43608	.00193	.00357
97		97	1.71423	.00000	.01405
98		98	2.31444	.00166	.01897
99		99	.43038	.00067	.00353
100		100	5.05483	.05224	.04143
101		101	.49982	.00004	.00410
102		102	4.43476	.00101	.03635
103		103	2.45876	.00356	.02015
104		104	6.51340	.00031	.05339
105		105	2.06026	.00394	.01689
106		106	.60272	.00009	.00494
107		107	.72369	.00132	.00593
108		108	2.69668	.00001	.02210
109		109	.50071	.00115	.00410
110		110	5.66082	.00163	.04640
111		111	6.13190	.00084	.05026
112		112	.37841	.00199	.00310
113		113	4.43783	.00863	.03638
114		114	5.75876	.00750	.04720
115		115	5.56655	.01865	.04563
116		116	5.74112	.00023	.04706
117		117	3.86041	.00020	.03164
118		118	1.93091	.00502	.01583
Total	N		118	118	118
	Sum		437.08589	1.01354	3.58267

Appendix H

SPSS Output: Descriptive Statistics

Descriptive Statistics of Demographic Variables

Table H1

Descriptive Statistics for Sex

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	91	77.1	77.1	77.1
	Female	26	22.0	22.0	99.2
	Prefer not to say	1	.8	.8	100.0
	Total	118	100.0	100.0	

Table H2

Descriptive Statistics for Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std. Deviation
Valid	18	16	13.6	13.6	13.6	21.77	2.939
	19	20	16.9	16.9	30.5		
	20	9	7.6	7.6	38.1		
	21	4	3.4	3.4	41.5		
	22	28	23.7	23.7	65.3		
	23	14	11.9	11.9	77.1		
	24	10	8.5	8.5	85.6		
	25	5	4.2	4.2	89.8		
	26	3	2.5	2.5	92.4		
	27	2	1.7	1.7	94.1		
	28	5	4.2	4.2	98.3		
	30	1	.8	.8	99.2		
	32	1	.8	.8	100.0		
	Total	118	100.0	100.0			

Table H3

Descriptive Statistics for Race

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	4	3.4	3.4	3.4
	Chinese	106	89.8	89.8	93.2
	Indian	6	5.1	5.1	98.3
	Other	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

Table H4

Descriptive Statistics for Marital Status

Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single (never married)	97	82.2	82.2	82.2
	Domestic partnership	11	9.3	9.3	91.5
	Living with partner	3	2.5	2.5	94.1
	Married	2	1.7	1.7	95.8
	Separated	3	2.5	2.5	98.3
	Prefer not to say	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

Table H5

Descriptive Statistics for Employment Status

Employment Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	84	71.2	71.2	71.2
	Employed	26	22.0	22.0	93.2
	Self-employed	6	5.1	5.1	98.3
	Unemployed	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

Table H6

Descriptive Statistics for Independent Variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FPU	118	1	9	5.72	2.432
Total_WHO5	118	2	25	14.81	5.746
Total_ADHD	118	6	29	17.21	4.762
Total_HBI_SF	118	8	40	19.49	7.714
Total_PPCS6	118	6	42	16.78	8.042
Valid N (listwise)	118				

Appendix I

SPSS Output: Multiple Linear Regression Assumptions and Analysis

Table I1

Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4657.768	4	1164.442	45.240	.000[b]
	Residual	2908.503	113	25.739		
	Total	7566.271	117			

a. Dependent Variable: Total_PPCS6
b. Predictors: (Constant), Total_HBI_SF, Total_WHO5, Total_ADHD, FPU

Table I2

Overall Model Fit

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.785[a]	.616	.602	5.073	1.868

a. Predictors: (Constant), Total_HBI_SF, Total_WHO5, Total_ADHD, FPU
b. Dependent Variable: Total_PPCS6

Table I3

Analysis of Regression

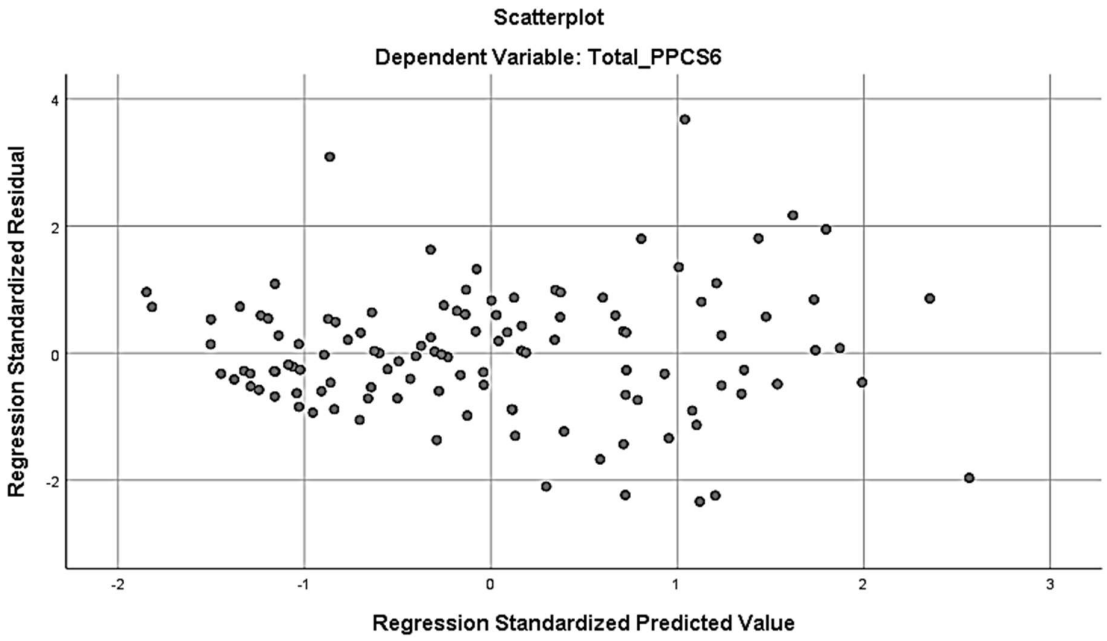
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-5.290	2.494		-2.121	.036		
	FPU	.959	.205	.290	4.689	.000	.889	1.125
	Total_WHO5	.071	.084	.051	.845	.400	.946	1.057
	Total_ADHD	.173	.103	.102	1.686	.095	.921	1.086
	Total_HBI_SF	.644	.066	.618	9.764	.000	.849	1.177

a. Dependent Variable: Total_PPCS6

Figure I1

Scatterplot of Homoscedasticity, Normality of Residual, and Linearity of Residual



Appendix J

SPSS Output: Pearson Product-Moment Correlation (PPMC)

Table J1

PPMC between Problematic Pornography Use (PPU) and Each Variable

Correlations

		FPU	Total_WHO5	Total_ADHD	Total_HBI_SF	Total_PPCS6
FPU	Pearson Correlation	1	.128	.106	.286**	.484**
	Sig. (2-tailed)		.169	.255	.002	.000
	N	118	118	118	118	118
Total_WHO5	Pearson Correlation	.128	1	-.128	-.119	.001
	Sig. (2-tailed)	.169		.166	.199	.992
	N	118	118	118	118	118
Total_ADHD	Pearson Correlation	.106	-.128	1	.259**	.287**
	Sig. (2-tailed)	.255	.166		.005	.002
	N	118	118	118	118	118
Total_HBI_SF	Pearson Correlation	.286**	-.119	.259**	1	.721**
	Sig. (2-tailed)	.002	.199	.005		.000
	N	118	118	118	118	118
Total_PPCS6	Pearson Correlation	.484**	.001	.287**	.721**	1
	Sig. (2-tailed)	.000	.992	.002	.000	
	N	118	118	118	118	118

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

Appendix K

SPSS Output: Independent Sample T-Test

Table K1

Gender differences in Problematic Pornography Use (PPU)

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
Total_PPCS6	Male	91	17.88	8.177	.857
	Female	26	12.46	5.673	1.112

Table K2

Equality of Variances and Means

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Total_PPCS6	Equal variances assumed	5.218	.024	3.163	115	.002	5.418	1.713	2.025	8.810
	Equal variances not assumed			3.858	57.833	.000	5.418	1.404	2.606	8.229