

INTERNET ADDICTION AND DEPRESSION AMONG  
UNIVERSITY STUDENTS AT SCHOOL OF HEALTH  
SCIENCES, UNIVERSITI SAINS MALAYSIA DURING THE  
COVID-19 PANDEMIC

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by

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## LIST OF ABBREVIATIONS

$n$  – Frequency

$p$  - Probability Value

$r$  - Correlation Coefficient

ADHD – Attention Deficit Hyperactivity Disorder

CDC - Centre for Disease Control and Prevention

CES-D - Center for Epidemiologic Studies Depression Scale

CIAS - Chen Internet Addiction Scale

COVID-19 -Coronavirus Disease 2019

FET – Fisher’s Exact test

GHQ-28 - General Health Questionnaire

IA – Internet Addiction

IAT - Internet Addiction Test

IGD – Internet Gaming Disorder

IUS - Internet Users Survey

MCMC - Malaysian Communications and Multimedia Commission

PIU – Problematic Internet Use

WHO – World of Health Organization

**KETAGIHAN INTERNET DAN KEMURUNGAN DALAM KALANGAN  
PELAJAR UNIVERSITI DI SEKOLAH SAINS KESIHATAN, UNIVERSITI SAINS  
MALAYSIA SEMASA PANDEMIK COVID-19**

**ABSTRAK**

Kesihatan mental yang semakin merosot dalam kalangan pelajar universiti semasa pandemik COVID-19 merupakan kebimbangan kesihatan awam yang serius di seluruh dunia. Isu ketagihan Internet meningkat semasa COVID-19. Kajian ini bertujuan untuk mengkaji ketagihan internet (IA) dan kemurungan dalam kalangan pelajar universiti di Pusat Pengajian Sains Kesihatan, USM. Kajian ini merupakan kajian keratan rentas. Kami mengumpul data daripada 122 pelajar dari Januari 2022 hingga Mac 2022 melalui pensampelan mudah. Ketagihan Internet diukur menggunakan 26-item yang disahkan oleh Chen Internet Addiction (CIAS). Kemurungan diukur menggunakan 10 item yang disahkan oleh skala Pusat Kajian Epidemiologi-Kemurungan (CES-D). Deskriptif, Pearson Chi-square, ujian Fisher's Exact dan ujian Korelasi Pearson digunakan dalam kajian ini. Terdapat 122 orang responden yang menyertai kajian ini dan kebanyakannya 78.7% pelajar perempuan mengambil bahagian. Kebanyakan responden adalah murid Tahun Dua (37.7%). Tempat tinggal responden kebanyakannya dari asrama atau kampus (54.1%). Masa yang dihabiskan di internet setiap hari kebanyakannya melebihi lima jam (92.6%) sehari. 44 pelajar (36.1%) ditunjukkan sebagai penagih internet. 75.4% agak tertekan. Terdapat korelasi yang signifikan, sederhana dan positif antara ketagihan internet dan kemurungan ( $r = 0.481$ ,  $p < 0.001$ ). Tiada perkaitan yang signifikan antara ciri sosiodemografi dan ketagihan internet ( $p > 0.05$ ). Kajian ini menunjukkan bahawa mengurangkan masa menggunakan internet setiap hari adalah perlu untuk mengurangkan bahaya kepada kesihatan mental pelajar universiti seperti kemurungan.

## ABSTRACT

Deteriorating mental health among university students during the COVID-19 pandemic is a serious worldwide public health concern. Internet addiction issue risen during COVID-19. This study aims to study internet addiction (IA) and depression among university students in School of Health Sciences, USM. This study is a cross-sectional study. We collected data from 122 students from January 2022 to March 2022 via convenience sampling. Internet addiction was measured using 26-items validated by Chen Internet Addiction (CIAS). Depression was measured using 10 items validated by the Center for Epidemiological Studies–Depression (CES-D) scale. Descriptive, Pearson Chi-square, Fisher's Exact test and Pearson's Correlation test were used in this study. There were 122 respondents who participated in this study and mostly 78.7% female students participated. The most of the respondents were Year Two students (37.7%). The residence of the respondents mostly from hostel or campus (54.1%). The time spent on internet per day mostly more than five hours (92.6%) per day. 44 students (36.1%) shown as internet addict. 75.4% were mildly depressed. There is a significant, moderate and positive correlation between internet addiction and depression ( $r = 0.481$ ,  $p < 0.001$ ). There is no significant association between sociodemographic characteristics and internet addiction ( $p > 0.05$ ). This study implies that lowering the time spent on internet per day is necessary to reduce the hazards to university students' mental health such as depression.



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## **CHAPTER 1:**

### **INTRODUCTION**

#### **1.1 Background of Study**

A newly novel coronavirus (SARS-CoV-2) was first reported in Wuhan, China at the end of 2019. The COVID-19 may cause severe respiratory illnesses such as SARS and MERS (Zhao N. & Zhou G.,2020), leading to death. The World Health Organization had declared coronavirus disease (COVID-19) as a global pandemic that affected many countries in March 2020 which enforced unprecedented lockdown measures to prevent the spread of novel virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to people (Wan Mohd Yunus et al.,2020). According to Coronavirus Resource Center from John Hopkins University & Medicine (2021), more than 200 million COVID-19 cases have been globally confirmed meanwhile global death due to COVID-19 cases is about five million deaths. In Malaysia, the total number of COVID-19 cases has reached about 2.5 million cases and about twenty-nine thousand deaths due to COVID-19 (COVIDNOW, 2021). Thus, this pandemic causes the implementation of “spatial distancing” policies (GJoneska et al.,2021) such as restriction of public movement and large gatherings (Zhao N. & Zhou,2020) and suspended of physical or social activities in schools and higher institution (Wan Mohd Yunus et al., 2020). Besides the World Health Organization (WHO) declared the importance of wearing a mask and keeping a physical distance of at least 1 meter away from each other (Siste et al., 2020).

Internet Users Survey (IUS) performed by the Malaysian Communications and Multimedia Commission (MCMC) revealed that 38.1 percent of internet users in Malaysia were between the ages of 20 and 29, with an estimated 24.5 million internet users in 2016 (Radeef & Faisal, 2019). Commonly, internet used among adolescent

during pandemic for maintain social interaction, doing homework, playing computer games, collect information on various subject and participate in online learning (Dong et al., 2020). Besides, university students were vulnerable for problematic internet user since the academic activities conducted through online since the universities need to shut down due to the COVID-19 lockdown measures (Xia et al., 2021). However, the consequences of lockdown during COVID-19 pandemic causes people living in sedentary life and lead to problematic internet use due to escapism from stressful events (Kiraly et al., 2020). A study reported on psychological problems such as stress, anxiety, and depression among half of the respondents during COVID-19 outbreak due to home quarantine and social distancing (Wang et al, 2020). Thus, using internet such as social media, video gaming, surfing internet and watching pornography are most frequent used in alleviating psychological distress in the form of “escapism” (Jahan et al., 2021).

In addition, higher engagement with technology and internet use may lead to a state of addiction (Shehata & Abdeldaim, 2021; Jahan et al., 2021). Kiraly et al. (2020) mentioned that thoughts of rationalize the inappropriate use of internet due to psychological stress during the COVID-19 pandemic may lead to problematic internet use (PIU) and internet gaming disorder (IGD) indeed the effects will stay even after the normal situations returned. According to study by Oka et al. (2021) in Japan, probable PIU during COVID-19 pandemic was 7.8% for overall with 17% was among younger people and 3.2% to 3.7% higher compared to reported before the pandemic. The dependence of internet among youth has several negative impacts such as poor family connections, weakened social life, poor academic performance, and emotional and mental issues (Ansar et al., 2020). A study by Saikia et al. (2019) in Kamrup Distript, Assam, showed that those with internet addiction more prone to more depressed, stressed, and

anxious compared to non-internet addict during COVID-19.

Internet during the COVID-19 pandemic is essential for global networking in coping with daily routine activities such as studying, meeting, and socializing (Siste et al., 2020). Few previous studies reported heavy and continuous internet use could contribute to internet dependence (Veisani et al, 2020; Mihara et al., 2016). During the COVID-19 pandemic, people's lives have been changed, which negatively impact on their motivation due to pandemic-related social, health, financial, occupational, and other stressors that contribute to potential addictive behavior including internet addiction (Masaeli & Farhadi, 2021).

Researchers have used maladaptive terms in studies such as internet addiction, problematic internet use, internet dependency and internet overdependence. Internet addiction (IA) is characterized by excessive or poorly regulated preoccupations, desires, or behaviors related to computer and internet use that cause harm or disruption (Weinstein & Lejoyeux, 2010). Moreover, internet overdependence based on the 2016 Survey on Internet Usage, it has three factors which are: a) salience=a condition that one's daily life depends on the internet use as their crucial activities, b) loss of self-control=a condition of failing in self-control in an individual despite their self-set goals, and c) major consequences= an individual's condition of experiences negative impacts due to internet use regarding physical, social and psychological aspects (Nik Jaafar et al., 2021).

According to World Health Organization (2015), internet addiction is on the rise among university students, especially after the COVID-19 outbreak globally. Moreover, their physical, mental, and social have been negatively impacted, affecting their life and psychological well-being. A previous study reported that internet addicts are unable to control themselves when using the internet for internet gambling, online pornography,

and online gaming (Shamsuddin et al., 2013). Internet addiction among those students correlated with psychological disorders such as depression, stress, anxiety, low self-esteem, and low psychological well-being (Desouky & Ibrahem, 2015).

According to Awatshi et al. (2017), mental health is an important human need in each stage of life, from childhood, adolescence until adulthood, as it consists of our emotional, cognitive, psychosocial, well-being. It also affects how an individual to thinks, feels, acts, handles stress, makes choices, and interacts with others. Depression one of most common mental disorder with approximate of 280 million depressive people in the world (World Health Organization, 2021). World Health Organization (2021) also mentioned that person during depressive mood (feeling sad, irritable, empty) and felt uninterested in doing certain activities for days, weeks or even months have difficulty in functioning with oneself, family, academic, work and other important works. Chi et al. (2019) mentioned that adolescent with depression can have a variety of negative effects on them, including poor interpersonal relationships, a low quality of life, academic failure, and even suicide.

During COVID-19, few studies found regarding depression. A previous cross sectional study conducted among university students in Bangladesh showed 15% students had moderately severe depression (Akhtarul et al., 2020). According to the findings by Lee et al. (2021) among college students in the U.S, approximately 88% of students experienced moderate to severe stress, with 44% experiencing moderate to severe anxiety and 36% experiencing moderate to severe depression. In Malaysia, previous study during COVID-19 showed one-quarter (25.1%) of the participants had severe depressive symptoms, and nearly one-sixth (18.7%) reported mild depressive symptoms, while one-third (34.1%) reported mild to moderate anxiety symptoms (Marzo et al., 2021).

## 1.2 Problem Statement

This current COVID-19 pandemic has enforced global “spatial distancing” policy in response to curb the spread of this pandemic (Kiraly et al., 2020; Zhao et al., 2021). This regulation includes strict social isolation, home quarantine, temporary closures of educational institutions, homecare, cultural and entertainment-related location such as theatres, clubs, mosques, malls, museums, and sporting arenas (Kiraly et al., 2020; Zhao et al., 2021; Islam et al. 2020). A recent study by Wan Mohd Yunus et al. (2021) documented that the unprecedented movement control order (lockdown) can disrupt daily life and delays in academic activities thus, enforcing the university’ authority to resume students’ academic activities under online teaching methods. Furthermore, this new policy had against the fundamental human needs for connection with people, as said by one psychologist, and soon can lead to mental problems such as anxiety, depression, and domestic violence (Abel & McQueen, 2020).

Internet use is usually spent on study, online gaming, watching movies, social media and chatting among children and adolescent to suppress depressive symptoms or reduce anxiety and stress (Dong et al., 2020). Moreover, a recent study reports this new policy of “spatial distancing” increased the duration of the internet among adolescents on academics, playing games and social media when staying at home (Siste et al., 2021). Several previous studies prior to COVID-19 were found that the high prevalence of IA was 51.7% in Egypt and a lower prevalence of IA was 1.3% in Iran, 5% in Malaysia (Feizy et al., 2020; Shehata & Abdeldaim, 2021; Busubul & Rahman, 2021).

A previous study had shown that IA can contribute to mental problems such as depression, physical symptoms, anxiety, social disorder, or dysfunction including neglect of work and social life (Veisani et al., 2020; Jahanian & Seifury, 2013). According to a previous



study from Zainudin et al. (2013), which investigated the impacts of IA among Malaysian University students, the internet addict group have personality problem which participants feel moody and depressed when they are not online. Researchers believe depressed person is caused by their addiction to the virtual world, that lead to lack of face-to-face conversation and genuine social support, making them more vulnerable to depression (He et al., 2014). According to World Health Organization (2021), depression can cause poor function to people in work, school and family moreover cause suicide that occurs in over 700000 people each year.

However, no studies were found regarding the impact of IA on mental health especially depression during the COVID-19 pandemic in Malaysia. A survey among 141 students from physiotherapy students at Polish universities during the COVID-19 pandemic has shown an overuse internet led to depressive symptoms and association that being active in physical activities has positive impacts on mental health (Zalewka et al., 2021). A study in Indonesia showed that students with higher internet addiction (social media) were found to have a greater mild depression (Sujarwoto et al., 2021).

Besides, few studies in Malaysia focus on internet addiction and anxiety during the COVID-19 pandemic. A study on the impact of internet addiction on health anxiety in Malaysian youth during the COVID-19 pandemic by Khodabakhsh et.al, (2021), shows the level of total health anxiety (THA) was significantly higher in the internet addict group compared to other two group of internet user (over-use and average-use) due to seeking valuable medical information through internet. The higher prevalence of IA was found during the COVID-19 pandemic meanwhile low anxiety level was found among medical students in Malaysia (Ismail et al., 2021). This study considered the limitation and few studies found regarding the internet addiction and depression during the COVID-19

pandemic found among university students and no study found in Malaysia regarding this study. Therefore, this study proposed on students at School of Health Sciences, USM during the COVID-19 pandemic which will investigate the level of internet addiction and depression, study the association between sociodemographic data (gender, courses, year of study, residence, time spent on internet per day) and internet addiction and determine the relationship between the internet addiction and depression.

### **1.3 Research Question**

1. What is the internet addiction level among university students at the School of Health Sciences, USM during the COVID-19 pandemic?
2. What is the depression level among university students at the School of Health Sciences, USM during the COVID-19 pandemic?
3. What is the relationship between internet addiction and depression among university students at the School of Health Sciences, USM during the COVID-19 pandemic?
4. What is the association between sociodemographic characteristics (gender, courses, year of study, residence, time spent on the internet per day) and internet addiction among university students at the School of Health Sciences, USM during the COVID-19 pandemic?

## **1.4 Research Objective**

### **1.4.1 General Objective**

To determine the level of internet addiction and depression among university students at the School of Health Science, USM during the COVID-19 pandemic.

### **1.4.2 Specific Objectives**

- i. To determine the internet addiction level among university students at the School of Health Sciences, USM during the COVID-19 pandemic.
- ii. To determine the depression level among university students at the School of Health Sciences, USM during the COVID-19 pandemic.
- iii. To determine the relationship of internet addiction and depression among university students at the School of Health Sciences, USM during the COVID-19 pandemic.
- iv. To determine the association between sociodemographic characteristics (gender, courses, year of study, residence, time spent on the internet per day) and internet addiction among university students at the School of Health Sciences, USM during the COVID-19 pandemic.

## 1.5 Hypothesis

The research hypotheses for this study are as follow:

$H_{01}$ : There is no relationship of internet addiction and depression among university students at the School of Health Sciences, USM during the COVID-19 pandemic.

$H_{A1}$ : There is a relationship of internet addiction and depression among university students at the School of Health Sciences, USM during the COVID-19 pandemic.

$H_{02}$ : There is no association between sociodemographic characteristics (gender, courses, year of study, residence, time spent on the internet per day) and internet addiction among university students at the School of Health Sciences, USM during the COVID-19 pandemic.

$H_{A2}$ : There is an association between sociodemographic characteristics (gender, courses, year of study, residence, time spent on the internet per day) and internet addiction among university students at the School of Health Sciences, USM during the COVID-19 pandemic.

## 1.6 Conceptual and operational definitions

Definition for operational term use in this research proposal as shown below:

- **Internet addiction:** According to Awatshi et al. (2017), problematic internet use is defined as failure in controlling the internet use that significantly involves social, academic, psychological and/or major problems in individual's life. In this study, internet addiction refers to internet addiction level based on Chen Internet Addiction Scale (CIAS). Compulsive usage, withdrawal, tolerance, interpersonal and health effects, and time management challenges are the five domains of Internet-related disorders that being analyzed in the students.
- **Depression:** According to American Psychiatric Association (2021), depression can be defined as feeling of sadness and/or uninterested participate in activities that individual once enjoyed for at least 2 weeks with several symptoms (eg. difficulty to sleep, to think or concentrate or making decisions, suicide thoughts). In this study, depression refer to depression level based on the Center for Epidemiologic Studies Depression Scale (CES-D). It refers to how often students felt depressed during a past week.
- **University Health Science students:** According to Cambridge Dictionary (2021), university is defined as a student at college or university who is studying for first degree. This study refers to the university student at the School of Health Science, USM consists of several different courses: audiology, biomedicine, dietetics, environmental & occupational health, exercise & sports science, forensic science, medical radiation, nursing,

nutrition, and speech pathology.

- **COVID-19 pandemic:** The term COVID-19 pandemic has officially designated by the World Health Organization (WHO) since the novel coronavirus disease started affected from Wuhan, China to all countries across the world (Rajkumar,2020). This study refers to condition during this research study

### **1.7 Significance of The Study**

Internet addiction is a serious issue that can impact students' mental health, especially depression. This study will investigate the level of internet addiction and depression, an association of sociodemographic characteristics with internet addiction includes relationship between internet addiction and depression among university students. This study is also significant as awareness for government and institutions authorities in preventing depression and risk for suicidal behavior among students by a better variety of management and treatments in internet addiction. This study will enable institutions authorities to increase their understanding regarding internet addiction especially during the COVID-19 pandemic and provide awareness of IA among students. The findings of this study will benefit the society considering the impact of internet addiction has a tremendous toll on young students' well-being and mental health, social interactions, and productivity, which are the crucial factors to succeed in higher education indeed having a bright future in life and contribute to this to the society.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter provide general information about internet addiction, mental health status and factors associated with internet addiction. This chapter will provide a detailed description of the conceptual framework chosen for the proposed study.

#### **2.2 Concept of Internet Addiction**

Internet addiction is known as an emerging disorder which recently becomes the subject of several studies as a social and mental health issue among the youth, however, IA does not currently exist with official diagnostic criteria (Wu et al., 2016). Internet addiction was firstly proposed by Kimberly Young in 1996 with modifying of DSM-IV criteria for pathological gambling (Cash et al, 2012). According to Ciarrochi et al. (2015), the concept of internet addiction presents similarities with other addictive disorders such as withdrawal phenomena, tolerance, and negative social repercussions. Thus, internet addiction definition has an inconsistent set of criteria (Cash et al., 2012). Internet addiction has various types: cyber-sexual addiction, cyber-relationship addiction, net compulsions, information overload, computer addiction, online gaming, social media, and online shopping (Kumar & Modal, 2018; Ryding & Kaye, 2017). Few studies have shown that internet addiction has a different aspect of online use: excessive gaming, online sexual preoccupation, and e-mailing/texting (Young, 2008; Griffiths et al., 1999).

According to Nik Jaafar et al. (2021) internet addictions have several maladaptive terms use by other researchers including problematic internet use, internet dependency

and lastly internet overdependence which used in their study. In their study, term for internet over-dependence seems more appropriate. It avoids over-pathologizing persons who use smart media excessively and acknowledges that internet gadgets and smart media are an important part of their daily lives. Internet addiction can be defined generally as the internet, resulting in excessive use of the internet and leading to other negative consequences in daily life (Shehata & Abdeldaim, 2021, Mbayo et al., 2020, Hasan & Jaber, 2019).

According to Lau et al. (2018), adverse consequences were associated with IA in adolescents, such as low academic or self-esteem, conflicts with parents, and high levels of stress, thus contributing to depression. Internet use has interfered with academic work, professional performance, or social lives in students (Griffiths et al., 1999). Internet addiction is also shown can cause tiredness, functional disability, and poor sleep quality (Busubul & Rahman, 2021).

IA can be measured using various questionnaire. The common test for IA found in the studies was Young's Internet Addiction Test (YIAT) which classification of internet levels were normal, mild, moderate, and severe (Jahanian & Seifury, 2013; Guo et al., 2020; Lebni et al., 2020; Desouky & Ibrahim, 2015). The YIAT present good reliability with Cronbach's alpha above 0.93 (Sayeed et al., 2021). Moreover, IA level can be measured using Chen Internet Addiction Scale (CIAS), which has good psychometric properties and internal consistency with Cronbach's alpha was 0.95 (Lau et al., 2018).