



Internet Addiction and Fear of Missing Out as Predictors of Depression Among Rural Secondary School Students: A Pilot Study

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Abstract

Depression is a major mental health problem that is becoming a great concern among adolescents. An adolescent who experiences depression is associated with having internet addiction and Fear of Missing Out (FoMO). The study aims to i) identify the correlation between internet addiction and FoMO and depression, as well as ii) to determine the predictive effects of internet addiction and FoMO on the depression of rural secondary school students. This quantitative approach study utilises the online questionnaire method (via Google Form) which was participated by 145 Form 4 students. A descriptive analysis of the Pearson Correlation and regression was conducted using the 25.0 version of Statistical Package for Social Sciences (SPSS) software. The results indicated that internet addiction and FoMO have significant positive correlation with depression. Internet addiction and FoMO have positive predictive effects on depression of rural secondary school students. The implication of this study holds crucial importance in understanding the correlation between internet addiction and FoMO with depression, as well as the necessity for intervention that can be designed in order to assist the treatment of students who face the problems of internet addiction, FoMO and depression. The recommendation for future researchers is to further explore and expand the research via a mixed-method in order to gain more transparent and accurate results based on respondents' experiences.

Keywords: Internet Addiction, Fear of Missing Out, Depression, Secondary School Student

Introduction

Mental health is an aspect that needs to be accentuated as it can affect one's life. Depression is one of the mental health problems occurring worldwide which is getting increasingly alarming especially among adolescents. It is a known fact that the adolescence period is vital as they undergo processes that develop their knowledge and skills, learn ways to manage emotions and relationships along with gaining traits and abilities before stepping into adulthood. (Beirão et al., 2020). Hence, having good mental health helps adolescents' growth which enables them to be perseverant and competitive.

World Health Organization (WHO) identified depression as the fourth illness that contributes to global health problems. A study performed by National Health Morbidity Survey (NHMS) in 2011 by Ministry of Health Malaysia stated that depression is the main cause of health problems in developing countries since 2020. In connection with that, statistics by WHO reveals that 280 million people suffer from depression globally (WHO, 2021). In Malaysia, NHMS statistics of adolescents' mental health found that the prevalence of adolescents who fall victim to depression escalated from 18.3% in 2017 to 26.9% in 2022 (Institute For Public Health, 2022).

Depressed individuals will experience changes in each daily activity. The symptoms can be observed from the cognitive, behaviour and physiological aspects which are interrelated in everyday life (Intan Farhana & Siti Nabilah, 2021). According to Nur Ashidah & Fariza (2020), if left without treatment, these emotional disturbances can be detrimental not only to oneself, but also to the society. A person undergoing the severest depression could be led to suicidal desires or attempt (WHO, 2017). Therefore, depression demands serious attention and needs to be curbed so that it does not occur continuously to the point of causing loss of life.

Previous local and foreign studies stated that the primary factor for adolescents experiencing depression is rooted from various issues such as familial and peers (Nor Asikhin et al., 2020; Paul & Usha, 2021). Low resilience (Nor Shafrin et al., 2020) and self-worth Faez et al (2022) could also lead to depression. Apart from that, research has shown that adolescents abusing drugs and suffering from bullying have higher probability to experience depression (Norhafizah et al., 2019). However, depression exists due to comorbidity factors such as anxiety (Marzo et al., 2021). Recent studies concerning depression are related to internet use Tasnim et al (2020); Wan Soraya et al (2019) and fear of missing out (FoMO) Metin-Orta (2020); Anwar et al (2022), but this study linked depression separately.

Depression can pose negative impacts on one's daily life. For instance, the findings of Chen et al (2022) found that students who face depression will experience sleep disturbance problems. When sleep is disrupted regularly, it can directly affect one's emotions and mood the day after. Thus, students become more inclined to display negative emotions when feeling discomfort or hurt. According to Shafrin et al (2020), the most obvious effect that can be observed on a student experiencing depression is from the aspects of academic, discipline and social problems. Therefore, students who suffer from depression need support from parents, friends and teachers to improve their emotional and psychological well-being (Nur Shyahirah & Noremy, 2020).

It is undeniable that abundant past research has outlined that depression has various factors. Despite this, studies concerning the influence of internet addiction and FoMO on depression are still limited compared to other factors in the context of adolescents in this country. Thus, the objectives of this research are focused on i) identifying the correlation between internet addiction and FoMO and depression and ii) determining the predictive effects of internet addiction and FoMO on the depression of rural secondary school students.

Literature Review**a) Depression**

World Health Organisation (WHO) describes depression as an individual who experiences sadness, loss of interest, guilt and low self esteem, sleep and appetite disturbance, feeling fatigued and weak in concentration (WHO, 2017). This condition can be continuous, permanent or repetitive to the point of affecting an individual's function in daily life, at the workplace or in school. Meanwhile, Ministry of Health Malaysia defined that those experiencing depression will feel prolonged sadness, more than the period of two weeks, feeling fatigued and absence of energy, being irritable and experiencing loss of interest to perform daily activities as well as difficulty to sleep and loss of concentration (MoH, 2015).

Beck's theory of depression or Beck's Cognitive Theory is a theory that was introduced by Aaron Temkin Beck in 1976 to demonstrate how depression is triggered and how it develops from time to time. Based on Beck's Cognitive Theory (1976) there are three specific concepts that explain the psychology of depression which are the cognitive triad, schema and cognitive errors. The cognitive triad is a three-fold structure comprising negative views or beliefs of the self, world and future. (Marchetti & Pössel, 2023). Schemas are the non-functioning behaviour that are gained from one's early life experiences which causes individuals to instill a rigid and irrational belief in oneself and the world. This behaviour causes automated-negative thoughts in which it affects the way one interprets, records and retrieves information. (Hankin et al., 2008). Cognitive error is an individual's thought pattern that makes inaccurate assumptions or the inclination to make conclusions without sufficient proof (Pössel & Smith, 2020). Hence, these concepts explain a person can be triggered to experiencing depression.

An online survey conducted by Marzo et al (2021) using the Patient Health Questionnaire (PHQ-9) instrument in measuring the depression of adolescents in the midst of the third wave of Covid-19 in Malaysia found that 70% respondents suffered from mild to severe depression. Meanwhile, research by Nor Asikhin et al (2021), studying the rate of depression among Malaysian adolescents using Depression, Anxiety and Stress Scale (DASS) and Beck Depression Instrument (BDI), the analysis results obtained from these instruments show that more than half of 97 respondents experienced mild to severe depression. A study conducted on students in Turkey implementing the PHQ-9 instrument found that nearly half, or 42% of students contributed to severe depression (Kaya, 2022).

Previous research suggested that adolescents living in urban and rural areas are influenced by different risk factors. Research conducted in Hubei, China found that sociodemographic aspects such as exercising, being at a younger age, belonging to a first class citizen, having excellent academic performance and being a male are factors that reduce depression in urban areas, whereas being neglected as a child, having low academic performance and being a woman are higher risk factors of depression (Li et al., 2019). A study in a rural area, Haryana, India discovered that the prevalence of depression among adolescents using PHQ-9 is 20.9%. This study involves various sociodemographic aspects and other multiple variable factors such as one's mother's education, number of siblings, parents' marital status, the family psychiatric history and so forth.

b) Internet Addiction and Depression

A factor that can potentially cause adolescents to experience depression is internet addiction. In general, internet addiction is a compulsive tendency and a continuous desire in using the internet (Wan Ismail et al., 2020). Those who experience internet addiction exhibit several behavioural symptoms such as preoccupation, conflicts, withdrawal symptoms and tolerance (Siti Zobidah et al., 2020). Several studies have emphasised on internet addiction being a predictor of depression, but the results vary depending on samples.

Studies related to correlation between internet addiction and depression are consistent. Most studies show positive significant correlation between internet addiction and depression. A local survey study was conducted by Nur Ainaa and Azam (2020) on 148 students aged between 18 and 27 years old in University of Technology Malaysia, Malaysia. It was found that internet addiction has significant positive correlation with depression, which is (0.357*, $p < 0.01$). A closely-similar study was also conducted by Wan Ismail et al (2020) on public university students in Lembah Klang, Malaysia which found that internet addiction has significant positive correlation with depression (0.33**, $p < 0.00$) and internet addiction is an important predictor of depression. A recent study by Siti Munirah, Shahlan and Saemah (2023) associates depression and internet use of adolescents in rural areas as having significant correlation ($r = 0.323$).

Studies also denote that problematic internet use is prevalent and associated with depression among adolescents. A large scale study on Lebanon adolescents ($n = 1810$) discovered that problematic internet use pertains significant positive correlation among students who experience severe depression ($\beta = 0.082$, $p < 0.001$) (Dib et al., 2021). The higher the number of students using internet in a problematic manner, the more they face depression. It is also added that, adolescents between 14 and 17 years old are usually vulnerable to challenges and pressure such as in education, forming new relationships and finding self-identity by using the internet as a means to create riskless, positive communication with other like-minded individuals.

However, a study by Perez-Oyola et al (2023) did not find a connection between internet addiction and symptomology of depression among adolescents in the Peruvian Province, China during the Covid-19 pandemic. Nevertheless, the findings obtained show that 7 out of 10 adolescents experience the symptoms of depression. The prevalence of depression symptomology due to the change from social life norms to isolation during the pandemic such as lack of face-to-face communication, the fear of getting ill or the loss of a family member contributes to depression symptoms in adolescents, especially those with existing depression.

c) Fear of Missing Out and Depression

Another factor that can contribute to depression of adolescents is fear of missing out (FoMO). FoMO or fear of loss is a widespread phenomenon in which one has a desire to stay up to date and worries that others have interesting experiences without his or her presence (Przybylski et al., 2013). This characteristic results in the individual often desiring communication to keep track of what other people are doing and this situation occurs in the context of social media. In other words, FoMO is a desire to always stay up to date with current events.

Anwar et al (2022) studied the relationship between FoMO and depression of bachelor's degree students in a public university in Selangor, Malaysia. 281 respondents were involved in the online survey study via Google Form. The FoMO Scale and Depression, Anxiety and Stress Scale-21 Items (DASS-21) instruments were used in obtaining the research data. It is found that FoMO is positively associated with depression ($r_s'=.149$, $p<.05$). It is also added that, those who are depressed do not possess the skills in controlling emotions and strive to find their place in the social world, hoping for social feedback to improve their low self-worth as well as depending on others in their social networks to help them feel better. These people who are pressured are easily vulnerable to FoMO.

In a different study about the effects of FoMO and depression, a global study was carried out on university students associating positive correlation FoMO with depression (Elhai et al., 2020). Another research has focused on students between the age of 12 to 16 years old (Sela et al., 2020). The results obtained show that FoMO is a predictor of depression, and FoMO has positive correlation with problematic internet use among adolescents. In this particular study, it is also suggested that a negative family environment is linked to high adolescent depression, where it can eventually bring about symptoms of FoMO.

Another research also revealed that FoMO is a predictor of depression. A study conducted by Yuan et al (2021) on university students in China discovered that FoMO is positively-linked to depression whereby one who experiences severe FoMO is more inclined to experience depression. The findings of the research also found that FoMO is a significant mediator in the relationship between depression and smartphone use problems.

Methodology

The construct of this pilot study adapts the quantitative approach in a form of a questionnaire. The researcher utilised the online method in obtaining data for this study. The instrument used is Google Form. This method was selected as there were obstacles that arose in distributing a physical questionnaire. However, this particular method was helpful in gathering feedback which was received swiftly and ensuring a smooth process of the research. The link generated on Google Form was spread with the assistance of Counselling teachers in selected schools in order to be distributed to the samples. Samples are required to answer a set of instrument via the Google Form link provided. The researcher allocated two weeks for said respondents to provide feedback, and the Google Form link was closed after the period was over.

The samples comprise 145 Form 4 students from 5 rural secondary schools in Selangor. Samples are selected via the simple-random method. Out of the 145 respondents, 57 students (39.3%) are males, whereas 88 students (60.7%) are females. Respondents also belong to 4 streams which are Academic/ Prime (Science), a total of 30 students (20.7%), Academic/Prime (Technical), 10 students (6.9%), Academic/Prime (Social Science), 71 students (49%) and Religious (*Dini*), a total of 34 students (23.4%). The type of schools encompasses 76.6 % respondents from *Sekolah Menengah Kebangsaan* (SMK) and 23.4% respondents from *Sekolah Agama Bantuan Kerajaan* (SABK).

The survey 'Malay Version Internet Addiction Test (MVIAT)' was used to obtain data on internet addiction. The survey was translated from the original survey (Kimberly Young, 1998)

to Malay by (Guan et al., 2012). This survey consists of 20 items and each item uses the Likert scale ranging from 1 to 5 in which 1=Never, 2=Sometimes, 3=slightly often, 4=often and 5=Very frequently. The reliability value of the MVIAT survey is Alpha Cronbach=0.87.

The Fear of Missing Out Scale (FoMO Scale) is a survey used to obtain data on FoMO. This survey was translated to Malay by Atiqah (2022) from the original survey (Przybylski et al., 2013). This survey consists of 10 items. Each item uses Likert 1 to 5 and requires 1 answer to be responded to which is 1=Not at all true of me, 2=Slightly true of me, 3=Moderately true of me, 4=Very true of me and 5=Extremely true of me. The reliability value of the FoMO Scale survey is Alpha Cronbach=0.76.

The Patient Health Questionnaire (PHQ-9) is used to acquire data on depression. This questionnaire was translated to Malay by (Sherina et al., 2012). It consists of 9 items. The scale assesses the severity of the symptom in the span of the past two weeks. Each item uses the Likert Scale of 0 to 3 where 0=Not at all, 1=Several days, 2=More than half the days and 3=Nearly every day. The reliability of the PHQ-9 questionnaire is Alpha Cronbach= 0.96.

This research complies with the procedure whereby the researcher has formerly received the permission from The Educational Research Application System (e-Ras), State Education Department, District Education Department and the school administrators of the selected schools. In order to analyse the findings of the research, the researcher used the 25.0 version of Statistical Package for Social Sciences (SPSS). The data was analysed using descriptive analysis and the regression method.

Results

a) *The Correlation between Internet Addiction and Fear of Missing Out with Depression of Rural Secondary School Students*

Table 1 shows the results of the Pearson correlation to test out the relationship between internet addiction, FoMO and depression of rural secondary school students. The results of the correlation in Table 1 indicate that internet addiction has significant positive connection to depression ($r=.509^{**}$, $p<0.01$). Apart from that, the results also show that FoMO has significant positive relation with depression ($r=.370^{**}$, $p<0.01$). This denotes that the higher the severity of the internet addiction and FoMO that a student faces, the worse the depression gets.

Table 1

Correlation between Variables

Variables	M	SD	1	2	3
1. Internet Addiction	44.37	10.62	1	.342**	.509**
2. Fear of Missing Out	25.97	6.67	.342**	1	.370**
3. Depression	9.33	5.06	.509**	.370**	1

* $p<0.05$, ** $p<0.01$

b) *Predictive Factors of Depression among Rural Secondary School Students*

Table 2 shows the regression analysis of depression predictors of rural secondary school students. The results shown in Table 2 denote that internet addiction is a significant predictive

factor of depression ($\beta=.423$, $p<0.000$) and FoMO is a significant predictive factor of depression ($\beta=.201$, $p<0.07$).

Table 2

Summary of Regression Analysis on Predictors of Depression

Variables	β	t	p
1. Internet Addiction	.423	5.757	.000
2. Fear of Missing Out	.201	2.719	0.07

Discussion

The results of the pilot study on 145 rural secondary school students is to achieve the aim of this particular research which is to i) identify the correlation between internet addiction and FoMO and depression, as well as to (ii) determine the predictive effects of internet addiction and FoMO on depression of rural secondary school students, and internet addiction and FoMO are significant predictive factors of depression.

The results found that internet addiction denotes significant positive correlation with depression. The findings are consistent with a past research conducted by Nur Ainaa and Wan Azam (2020); Wan Ismail et al (2020) in which internet addiction has significant positive correlation with depression. Lim et al (2021) clarified that those who experience depression would normally use social media applications, for example, chatting applications (chat apps) on their smartphones to curb and control their negative emotions. Despite that, the findings are different from the study conducted by Perez-Oyola et al (2023); Lim et al (2021) who found that there is no relationship between internet addiction and depression. This difference might be due to the different sample population and research methods.

Other than that, the research found that FoMO has positive correlation with depression. These research findings are similar to the one conducted by Sela et al (2020) and Syamsul Anwar et al (2022) where FoMO has positive correlation with depression. According to Sela et al (2020), this positive relationship is due to lack of skills in managing emotions, failure to identify and express problems by means of striving to improve self-confidence and reducing the dependability on somebody else. This situation is manipulated by the perks that are present on one's social networks, which provide various fascinating applications.

Internet addiction and FoMO are also predictive factors of the occurrence of depression in adolescents. This recent discovery is in line with previous studies which revealed that internet addiction is a predictor of depression. Similar results claimed that internet addiction is a positive predictor of depression (Anand et al., 2022; Stankovic & Nesic, 2022; Wan Ismail et al., 2020). These findings are also in line with the previous studies in the sense that FoMO influences depression positively. These findings are similar to the study which was carried out by Elhai et al (2020) which determined that FoMO is a predictor of depression.

Students experiencing internet addiction and FoMO are closely associated with having mental health problems, namely depression. According to previous and current studies, depression cannot be ignored or taken lightly. The effects that one has to cope with would undoubtedly cause struggles as well as burdening the lives of students facing depression. This situation would impact one's self-development and in point of fact, the country could lose the

generation that takes the role of being the backbone to productivity. Students who experiences depression normally face lack of social skills, acceptance from peers and are prone to isolate themselves from the real life (Anand et al., 2022). In order to alleviate depression, students would depend on the internet and use it excessively to achieve self-satisfaction. Besides that, students would experience sleep disturbances or low quality sleep due to internet use and depression (Chen et al., 2022; Gupta et al., 2021). According to Masaeli and Farhadi (2021), a student experiencing depression due to loneliness can suffer from irregular sleep. It is without a doubt that this disruption can affect one's mood and emotions throughout the day and give rise to mental health problems.

The implication of this research is vastly meaningful as it is pivotal for a researcher to understand the connection between internet addiction, FoMO and depression which has become a recent trend in adolescents. In addition, the research data convey the necessity to make further research on an intervention that can be designed to assist students with internet addiction, FoMO and depression. This research is fundamental to policymakers who are planning for preventive programmes focused on raising awareness in using the internet wisely and cognitive restructuring so that students can handle various social and emotional pressure better. This strategy will benefit students as they are the group that is increasingly vulnerable to mental health problems which will become more severe in the future.

There are several limitations to this research. It is a pilot study. The data of this research is limited to 145 samples and only involves five rural secondary schools and in relation to this, it is unable to be generalised to the whole students. Furthermore, the set of questionnaire used the Google Form method and was distributed to Guidance and Counselling teachers in selected schools. It is possible that there were students who encountered difficulties in getting internet access to partake in this research.

Summary and Recommendation

Overall, the findings showed that internet addiction and FoMO had a significantly positive association with depression among rural high school students. In addition, internet addiction and FoMO are positive predictors of depression in these students. The three variables in this study are intertwined. This means that the higher the level of internet addiction, the higher the level of depression, and similarly, higher FoMO is associated with higher depression. If this problem is not addressed immediately, students in rural areas could potentially face increased internet addiction, FoMO, and more severe depression.

In the future, researchers can expand the study to include various levels of high school students and integrate different methods of distributing questionnaires, both face-to-face and online. Additionally, it is recommended that future researchers explore and develop the research using a mixed-methods approach (quantitative and qualitative) to provide clearer findings based on respondents' interview experiences.

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