

## Impact of Mental Morbidity and Locus of Control on Problematic Internet Use

Swati Srinivas Damaraju<sup>1\*</sup>, Dr. Patrick Jude L.<sup>2</sup>

### ABSTRACT

**Background:** The incidence of problematic internet use (PIU) has increased in the context of the pandemic where the internet has turned into a necessity. Most of the present studies in the Indian context are focused on the prevalence rates. This study aims to examine the relationship between problematic internet use with the locus of control and mental morbidity. **Aim:** The study aimed to assess the impact of locus of control and mental morbidity on young adults with problematic internet use through the administration of pre-existing scales. **Variables:** The independent variables are the locus of control and mental morbidity, and the dependent variable is problematic internet use. **Sample:** Data was collected from 140 participants. Participants were recruited based on convenience from universities across the country and a snowball sampling method was adopted where the participants were engaged in the process of data collection. **Methods:** One hundred and forty participants were recruited over a course of two months. The participants completed an online survey (Male/ Female/ Prefer Not to Say: 70/ 66/ 4; Mean age: 19.9). The participants filled out the Internet Addiction Test, Rotter's Locus of Control Scale, and the Self Report Questionnaire. **Results:** Among the 140 students, 19.29% reported problematic internet use. Problematic internet use is significantly associated in the positive direction with the variables of locus of control ( $\rho=0.216$ ,  $p=0.010$ ) and mental morbidity ( $\rho=0.309$ ,  $p<.001$ ). Locus of control ( $\beta=0.222$ ,  $p<.001$ ) and mental morbidity ( $\beta=0.922$ ,  $p<.001$ ) are also weak but significant predictors of problematic internet use. **Conclusion:** The incidence of PIU among the chosen sample of young adults is relatively low. An external locus of control and high mental morbidity were significant predictors of problematic internet use.

**Keywords:** *Problematic Internet Use, Locus of Control, Mental Morbidity*

Problematic Internet Use (PIU) was first heard of in 1996 when a psychologist named Young published a case report about her middle-aged patient who had become addicted to online chat rooms. The patient became so involved on the internet that she overlooked her daily duties and withdrew entirely from her family and social life. (Aboujaoude, 2010) 'Problematic Internet Use' can broadly be explained as an individual's inability to exercise control over their internet usage to an extent where it interferes with their ability to function effectively in their daily lives. It is a generic term that entails a

<sup>1</sup>Masters Student, Dept. of Psychology, Christ (Deemed to be University), Bangalore, Karnataka & India

<sup>2</sup>Assistant Professor, Dept. of Psychology, Christ (Deemed to be University), Bangalore, Karnataka & India

\*Corresponding Author

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whole body of behaviors such as excessive social media usage, gaming disorder, online gambling, pornography, and cyberbullying, among others.

For the longest time, PIU was subsumed under gambling disorders. It is only recently, with the intervention of the Diagnostic Statistical Manual 5th Edition (DSM) and the American Psychological Association (APA), that “internet gaming disorder” has been included as an independent criterion in DSM-5 as well as in the International Classification of Diseases (ICD) 11th Edition. The inclusion of the criteria shows a change in the classification of PIU as a disorder rather than referring to it as addiction. (Dahl & Bergmark, 2020)

The susceptibility to Problematic Internet Use is determined by various factors. A review of international literature will reveal that hindrances in functioning, substance dependence, social impairment, and addiction to gambling are the risk factors that increase the likelihood of PIU (Dib, Haddad, Sacre, et al., 2021). Another determining influence is the locus of control. The extent to which an individual fosters a dependency on the internet is shaped by the direction of their motivation. Of all age groups of internet users, university students i.e. young adults are at the most risk of addiction (Nduanya, 2018). Young adults who believe that the majority of what happens to them is influenced by luck or other such external factors are more vulnerable to developing an addiction to the internet (Agaj, 2016).

The relationship between PIU and locus of control is not simple and direct. The relationship is influenced by a number of moderating variables. Emotional intelligence, for instance, strongly determines the locus of control in an individual. A higher emotional intelligence implies belief regarding the inner locus of control which prepares an individual to control their internet usage as and when required. (Derya et al., 2019)

Besides social and cultural factors, certain clinical conditions predispose an individual to be more vulnerable to developing problematic patterns of internet use. When undergoing psychological distress, individuals find the effort of daily face-to-face interactions burdensome. In such an instance, the internet cuts out the need to intimately engage with others by creating a virtually simulated environment. People become increasingly reliant on social media sites and other internet avenues to make up for the void in their social life. This has an adverse impact on mental health. People with internet addiction are more likely to show signs of depression (University of Leeds, 2010). The risk of PIU in adolescents and young adults with mental health issues is influenced by a number of socio-demographic factors. Gender, socioeconomic status, and levels of physical activity determine the extent to which an individual prone to mental health problems will develop over-reliance on the internet. (Islam & Hossin, 2016)

While the phenomenon of Problematic Internet Use is not a new one, the issue has been accentuated due to the COVID-19 pandemic. To curtail the spread of the deadly SARS-CoV-2 virus, the governments of over 100 countries ordered partial or complete shutdowns and imposed “stay-at-home” orders on their citizens (Dunford, Dale, Stylianou, et al., 2020). With the restriction in mobility, the use of the internet shifted from being a luxury to a necessity. People had to rely on the internet for their work, to attend classes, and to alleviate boredom. A national survey revealed that over 130 million people became regular internet users since the onset of the pandemic. Of this population, 34 million admitted to doing so because of the pandemic (IANS, 2021).

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The massive death tolls, fear-mongering by media outlets, loved ones contracting the virus, the extended periods of lockdown restriction, and the subsequent loss of employment became a cause of grave psychological distress for many. The outbreak of the pandemic increased mental health concerns of stress, anxiety, and depression (Torales et al., 2020). For several people with pre-existing history, mental health concerns worsened. Hence, internet usage became a coping mechanism for many. Especially members who constantly look to the environment for support (external locus of control), also are more likely to have had increased usage of internet resources, bordering on addiction to make up for the loss of social interactions.

The literature review did not yield a study that focused on the correlation between locus and control, mental morbidity, and PIU together in the context of Indian society. The current study attempted to assess the incidence of PIU among the chosen sample, to assess the association between problematic internet use, locus of control, and mental morbidity, and to determine if mental morbidity and locus of control will predict the likelihood of PIU.

### *Objectives of the study*

- To examine problematic internet use among 18-21-year-old undergraduate students.
- To assess if the locus of control plays a role in determining problematic internet use.
- To assess if mental morbidity has an impact on determining problematic internet use.

### *Hypothesis*

Based on the review of literature, three major hypotheses emerge. The statistical analysis of the data collected will be to prove or disprove the following hypotheses.

- **H1:** There will be a significant relationship between external locus of control and problematic internet use.
- **H2:** There will be a significant relationship between high mental morbidity and problematic internet use.
- **H3:** An external locus of control will predict problematic internet use.
- **H4:** A higher mental morbidity will predict problematic internet usage.

## **MATERIALS AND METHODS**

### *Participants*

A correlational study was conducted on a sample of 140 participants. Participants were recruited based on convenience from universities across the country and a snowball sampling method was adopted where the participants were engaged in the process of data collection from June 2022 to September 2022. After obtaining written consent, participants were asked to fill out an online questionnaire.

University students aged 18-21 with access to the internet and daily usage of at least a few hours were included in the study and those that did not have regular access to the internet or had been diagnosed with a severe psychiatric condition were excluded.

### *Measures*

#### *Administration*

Problematic internet use was measured using the Internet Addiction Test (IAT) developed by Young. Locus of control was measured using Rotter's Locus of Control Scale. Mental

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morbidity was measured using the Self-Reporting Questionnaire developed by the World Health Organization.

### *Scoring*

The Internet Addiction Test Scale consists of 20 items which can be answered on a five-point Likert scale. The scores obtained by the test taker will classify them into three categories (mild, moderate, or severe) of internet addiction. The cut-off for the classification as PIU was 50 points. Anyone with a moderate-severe addiction was identified as having problematic internet use as suggested by Guertler et al. (2014). The Locus of control scale consists of 29 items. The cut-off for the external locus of control was 13 points as proposed per the scale. The Self-Reporting Questionnaire consists of 20 items. The cut-off for high mental morbidity is 8 or higher as per the user guide developed by WHO.

### *Reliability & Validity*

The Internet Addiction Test scale has a strong internal consistency with a Cronbach Alpha score of 0.90- 0.93 and test-retest reliability of 0.85 (Samaha et al., 2018). The Locus of control scale has a test-retest reliability of 0.61 and split-half reliability of 0.65- 0.79 (Lange & Tiggemann, 1981). The Self-Reporting Questionnaire has an internal reliability of 0.78 (Netsereab et al., 2018).

### *Procedure*

Participants who met the required criteria were contacted online and those who provided written consent then completed the questionnaire assessing the domains of problematic internet use, locus of control, and mental morbidity.

Problematic internet use was measured using the Internet Addiction Test (IAT) developed by Young. The scale consists of 20 items which can be answered on a five-point Likert scale. The scores obtained by the test taker will classify them into three categories (mild, moderate, or severe) of internet addiction. The cut-off for the classification as PIU was 50 points. Anyone with a moderate-severe addiction was identified as having problematic internet use as suggested by Guertler et al. (2014). Locus of control was measured using Rotter's Locus of Control Scale. The scale consists of 29 items. The cut-off for the external locus of control was 13 points as proposed per the scale. Mental morbidity was measured using the Self-Reporting Questionnaire developed by the World Health Organization. The cut-off for high mental morbidity is as per the user guide developed by WHO.

All three scales were filled out on a single Google form. After the submission of the form, the participants were asked to circulate the form amongst any others who fit the criteria of the study.

Ethical clearance for the study was granted by the Institutional Review Board of Christ (Deemed to be) University. Because this study was conducted by a postgraduate student, it was done under the supervision of the department.

### *Statistical Analysis*

Data for the study were analyzed using Jamovi, a statistical software package, version 2.2.5. Descriptive statistics were shown as mean ( $\pm$  standard deviation) and were presented as numbers and percentages. To investigate the relationship between problematic internet use and the variables of locus of control and mental morbidity, Spearman's correlation coefficient was computed. A linear regression analysis was conducted on the data collected

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to analyze if the locus of control and mental morbidity can predict the likelihood of problematic internet use.

The chosen level of significance for this study was  $p \leq 0.05$  at a 95% confidence level.

### RESULTS

*Table 1 Socio-Demographic characteristics of the participants*

Variables	Frequency (Percentage)	Mean $\pm$ SD	Shapiro- Wilk p
<b>Age</b>			
18	22 (15.6%)		
19	23 (16.3%)		
20	39 (27.7%)	19.9 $\pm$ 1.09	< .001
21	56 (39.7%)		
<b>Gender</b>			
Male	70 (50%)		
Female	66 (47.1%)	22.23	< .001
Prefer not to say	4 (2.9%)		

The age of the participants ranged from 18-21 years (mean age= 19.9; SD= 1.09). The data collected consisted of both male (50%) and female (47.1%) respondents, and 2.9% preferred not to disclose their gender.

*Table 2 Problematic internet use, Locus of control & Mental morbidity*

Variables	Frequency (Percentage)	Mean $\pm$ SD	Shapiro- Wilk p
<b>Problematic Internet Use</b>			
Normal Level	51 (36.43%)		
Mild Level	62 (44.29%)		
Moderate Level	23 (16.43%)	37.5 $\pm$ 16.1	< .001
Severe	4 (2.86%)		
<b>Locus of Control</b>			
Internal Locus	83 (59.29%)	12.4 $\pm$ 3.54	0.022
External Locus	57 (40.71%)		
<b>Mental Morbidity</b>			
High Mental Morbidity	64 (45.71%)	7.46 $\pm$ 5.45	< .001
Low Mental Morbidity	76 (54.28%)		

Problem internet use was measured in terms of the level of internet addiction. In terms of internet addiction (mean= 37.5; SD= 16.1), 36.43% showed normal levels of addiction, 44.29% showed mild levels of addiction, while 16.43% and 2.86% showed moderate and severe levels of addiction respectively. Hence, amongst the chosen sample of urban young adults, 19.29% showed problematic internet usage.

In terms of locus of control (mean= 12.4; SD= 3.54), 59.29% showed an internal locus of control while 32.86% showed an external locus of control. In terms of mental morbidity (mean= 7.46; SD= 5.45), 40.71% showed high mental morbidity while 54.28% showed low mental morbidity. This is depicted in Table 1.

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It was hypothesized that participants with problematic internet use would score higher on the self-report questionnaire measuring mental morbidity and show an external locus of control.

**Table 3 Relationship between Problematic Internet Use, Locus of Control, and Mental Morbidity**

Internet Addiction	Locus of Control		Mental Morbidity
	Spearman's rho	0.216	0.309
p-value	0.010	< .001	

The scores on Problematic Internet Use were positively correlated with the scores on Locus of Control ( $\rho = 0.216$ ,  $p = 0.010$ ). Similarly, a more significant positive correlation was found between the scores on Problematic Internet Use and Mental Morbidity ( $\rho = 0.309$ ,  $p < .001$ ). Thus, the hypothesis that a significant relationship exists between the variables of problematic internet use, locus of control, and mental morbidity is accepted.

**Table 4 Model Coefficients – Problematic Internet Use & Locus of Control**

Predictor	Estimate	SE	t	p	Standard Estimate (Beta)
Intercept	25.03	4.845	5.17	< .001	
Locus of Control	1.01	0.377	2.67	0.008	0.222

Predictor	$\beta$	t	P	r <sup>2</sup>	F	p
Locus of Control	0.222	2.67	0.008	0.0492	7.15	< .001

*Dependent variable: Problematic Internet Use*

Regression analysis indicated that the Locus of Control is a significant predictor of problematic internet use ( $\beta = 0.222$ ,  $p < .001$ ). The coefficient of determination ( $r^2 = 0.0492$ ) showed that variation of locus of control can explain a 4.92% variation in problematic internet use, indicating a very weak association. Hence, the hypothesis stating locus of control will predict problematic internet use is accepted.

**Table 5 Model Coefficients – Problematic Internet Use & Mental Morbidity**

Predictor	Estimate	SE	t	p	Standard Estimate (Beta)
Intercept	30.601	2.205	13.88	< .001	
Mental Morbidity	0.922	0.239	3.86	< .001	0.312

Predictor	$\beta$	t	P	r <sup>2</sup>	F	p
Mental Morbidity	0.922	3.86	< .001	0.0975	14.9	< .001

*Dependent variable: Problematic Internet Use*

Regression analysis indicated that Mental Morbidity is a significant predictor of problematic internet use ( $\beta = 0.922$ ,  $p < .001$ ). The coefficient of determination ( $r^2 = 0.0975$ ) showed that variation in mental morbidity can explain a 9.75% variation in problematic internet use,

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indicating a very weak association. Hence, the hypothesis stating mental morbidity will predict problematic internet use is accepted.

### **DISCUSSION**

The review of existing literature on related studies indicated that most studies on problematic internet usage have been focused on understanding the prevalence of problematic internet use among the Indian population and understanding the causal factors, and there are a few studies focused on the correlation between the factors of mental morbidity and locus of control with problematic internet use. Thus, understanding the relationship between locus of control, mental morbidity, and problematic internet use was central to this study. The purpose of this study was to determine if a significant relationship existed between the variables and if so if an external locus of control and high mental morbidity would be indicative of the presence of problematic internet use in the participants.

The study found that a significant positive correlation exists between problematic internet use and locus of control. The implication is that an individual with an external locus of control is more likely to develop an addiction to the internet.

Individuals who have an external locus of control tend to ascribe events in their life as having been caused by factors external and thus outside their control such as luck or fate. Such individuals are more likely to rely on the internet for validation and hence more vulnerable to becoming addicted to the internet. This finding has been substantiated by a study conducted by Agaj (2016), which found that among adolescents, those who considered external factors mediated their life were 57% more likely to become addicted to the internet. Additionally, research in recent years has also shown that individuals who demonstrate problematic use of Facebook showed a stronger belief in fate and the unjustness of the world (Salik Sengul, Kahraman & Ozcan Kahraman, 2021).

However, individual differences exist in the locus of control and its relationship with problematic internet use. While the current study revealed a significant relationship between problematic internet use, there are studies that have found the opposite. A noteworthy finding is from a study on students of health sciences which revealed a significant negative relationship between locus of control and problematic internet use (Derya et al., 2019). Similarly, another study on undergraduate students indicated a significant negative relationship between locus of control and the use of social media (Hussin, Huzili & Hamzah, 2021).

The study's results also indicated a more significant positive correlation between problematic internet use and mental morbidity. The implication is that an individual with higher mental morbidity is more likely to develop a problematic use of the internet.

Individuals with higher mental morbidity are more susceptible to developing an addiction. They are more likely to be anxious and look to the internet as an avenue to relieve their uncomfortable thoughts and feelings. This relationship between internet use of a problematic nature and mental morbidity is evidenced by supporting literature. de Vries et al. (2018), found that amongst psychiatric patients, a higher level of problematic internet use was found. Among graduate students from North India, it was found that those who showed signs of internet addiction also showed higher levels of anxiety, stress, and depression (Gupta et al., 2018). Meta-analyses of studies assessing the association between internet addiction (PIU) and psychiatric co-morbidity (mental morbidity), found that problematic

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internet use was highly correlated with psychological problems such as attention deficit hyperactivity disorder, alcohol abuse, anxiety, and depression (Ho, Zhang, Tsang, et al., 2014).

Regression analysis indicates that locus of control is a significant predictor of problematic internet use. This indicates that an external locus of control will predict the existence of problematic internet use.

An older investigation indicated that individuals who credited external events, places, and external others as being more powerful were more likely to develop an internet addiction (Chak & Leung, 2004). Another study on university students showed that an external academic locus of control positively predicted problematic use of the internet (Iskender & Akin, 2010). In a study conducted on undergraduate students in the state of Oyo however, locus of control was not found to be a statistical predictor of problematic internet use (Olanrewaju & Olabisi, 2022).

Regression analysis further indicated that mental morbidity is a significant predictor of problematic internet use. This indicates that higher mental morbidity will predict the existence of problematic internet use.

Yao et al. (2013) found factors of psychological comorbidity such as depression, anxiety, and somatization to be predictors of internet addiction.

### ***Limitations***

The study suffers from a few limitations. The major limitation of the study is the limited sample size. Secondly, socio-demographic variables such as level of education, family income, and family structure that may have exerted an influence on problematic internet use were not considered for the study. Future research must focus on the numerous social and cultural factors that can influence PIU. Thirdly, the sample of young adults is also restricted to university students and cannot be generalized to a diverse population. Another limitation of the study is the online mode of data collection which resulted in a large rate of response attrition. Additionally, all the tools relied on self-report which prevents us from guaranteeing the honesty of the participant response. Future research may focus on the numerous social and cultural factors that can influence PIU. Further, changes in a person's internet usage over the years may yield a more in-depth understanding of an individual's internet use patterns.

## **CONCLUSION**

The study found different degrees of problematic internet use, locus of control, and mental morbidity among the participants. The results revealed that 19.29% of the respondents demonstrated problematic internet use, 40.71% had an external locus of control, and 45.71% had high mental morbidity. Both loci of control and mental morbidity have a positive albeit weak association with problematic internet use and are significant predictors of the same. Hence, having tools that can assess locus of control and mental morbidity will indicate the potential of developing a problematic usage of the internet and preventive measures can be adopted.



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