



Problematic Internet Use Among University Students in Jamaica

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Abstract

The prevalence of problematic Internet use (PIU) and its associated negative outcomes among college students has been heavily researched in developed countries. However, despite the increased accessibility of the Internet and indicators which may suggest PIU in developing countries such as Jamaica, PIU in this context remains grossly understudied. This study surveyed 277 Jamaican university students and found evidence of PIU, with younger respondents (ages 18–23) at risk. The findings also indicate that the predictors of PIU in this sample are depressive symptomatology, avoidant-attachment, and low social connectedness ($R^2 = .208$, $F[7, 269] = 10.112$, $p < .001$). Findings from the current study highlight that problematic Internet use is of concern in this developing context and warrants further exploration.

Problematic Internet use (PIU), commonly identified as a form of addictive behavior (Shaw & Black, 2008), is characterized by increased mental engagement with the Internet resulting in neglect of traditional or routine activities with others, disregard for responsibilities, and difficulty controlling Internet access in terms of frequency or absolute time spent accessing the Internet (Demetrovics et al., 2008). The prevalence of PIU among college students ranges from 1–26.6% in the USA and 6–19% internationally (Christakis et al., 2011; Moreno et al., 2011). This is of significance given that PIU has been associated with negative outcomes such as sleep deprivation, loneliness, and medical conditions as well as psychopathology (Babic et al., 2017; Cooper et al., 2010; Romer et al., 2013; Rosen et al., 2014; Twenge et al., 2012; Yang et al., 2013).

Interpersonal processes such as social connectedness and attachment have been closely linked to both psychological functioning and PIU. While social connection focuses on the bond between one person and several individuals or social groups (Baumeister & Leary, 1995; Lee & Robbins, 1998), attachment on the other hand focuses on the nature of the bond between one person to another, which may be secure or insecure (Anders & Tucker, 2000; Bowlby, 1988).

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Studies have shown that individuals with low social connectedness, underlying psychopathologies, and psychological distress (Anderson et al., 2017; Kraut & Burke, 2015; Quesnel et al., 2017) use the Internet as a way of distracting themselves from their psychological challenges or as compensation for an unmet need for connection (McIntrye et al., 2015; Meerkerk, 2007; Gentzler et al., 2011; Kraut & Burke, 2015; Quesnel et al., 2017; Romano et al., 2013; Kardefelt-Winther, 2014; Schimmenti & Caretti, 2010). Those lacking social connection often report experiences of withdrawal symptoms when Internet use declines (Li & Chung, 2006; Nichols & Nicki, 2004) which leads individuals to require greater and continuous amounts of Internet use (Yellowlees & Marks, 2007); While it may appear that increased usage are attempts at seeking connection, excessive use of the Internet to address low social connectedness only serves to perpetuate low social connectedness (Savci & Aysan, 2017).

Individuals with insecure attachment similarly demonstrate distinct patterns and reasons for engaging in problematic Internet use which are guided by the type of insecure attachment experienced: anxious-preoccupied, fearful-avoidant, and dismissive-avoidant (Bartholomew & Horowitz, 1991). One study found that individuals who fell in the anxious pre-occupied attachment category were more likely to excessively use social media platforms, like Facebook, in their attempt to maintain connections (Oldmeadow et al., 2013). A more recent study found a relationship between university students who report anxious attachment and Facebook addiction, which was mediated by an unmet need to belong, low self-esteem, and Facebook usage to meet romantic partners (Stănculescu & Griffiths, 2021). Further, those with fearful-avoidant attachment styles may prefer to interact over the Internet as it is perceived as “low-risk” when compared to face-to-face interactions (Baek et al., 2014). For individuals with dismissive-avoidant attachment style, it is believed that they can exercise more control in their interactions over the Internet as they could safely divulge any amount of information to others (Baek et al., 2014).

Both low social connection and insecure attachment have been frequently implicated in the prevalence of PIU among vulnerable groups of students at university. However, while these findings are well established in developed countries, in developing countries such as Jamaica, this area has been grossly understudied. Despite the growing evidence of loneliness and psychopathologies among Jamaican university students (Lowe et al., 2009; James et al., 2017) along with reports of the increased access and availability of the Internet to university students (Barzey, 2014; Morris, 2013; Robinson et al., 2020), there are no known studies that have explored whether problematic Internet use also exists in these groups. One local study did report a connection between psychopathologies and frequent Internet use; however, this was among a sample of adolescents (Harrison et al., 2019) and not much detail on whether the frequent Internet use could be considered problematic.

The purpose of the present study is to ascertain if problematic Internet use exists among young adults in a university sample and if this is more prevalent among younger, traditional-age college students ages 18–23, when compared with their older college student counterparts. Secondly, and more specifically, we sought to ascertain if problematic Internet use could be explained by a limited set of independent variables such as sex, social connectedness, attachment style, and psychopathology; and the extent to which these variables may be responsible for predicting problematic Internet use in college students.

Method

Participants

A cross-sectional sample of $n = 277$ university participants (73.2% female) ages 18 to 48 years ($\bar{X} = 22$; $SD = 3.45$) was recruited from the population of registered on-campus students, graduate, and undergraduate, at the University of the West Indies, Mona Campus.

Measures

Participants were first asked to report demographic variables, including sex, age, faculty, program of choice, frequency, and duration of Internet use.

Depression Anxiety and Stress Scale-21 (DASS-21) is a 21-item short form of the 42-item self-report measure of depression, anxiety, and stress (Lovibond & Lovibond, 1995). The short form DASS-21 (Henry & Crawford, 2005) is a brief, 21-item, self-report assessing the three related states on a Likert scale ranging from 0 (“does not apply to me at all”) to 3 (“applied to me very much or most of the time”). Summed scores for each of the subscales range from 0–42 with lower scores indicating lower levels of psychopathology. Prior work revealed good internal reliability for the scales of 0.88 for the depression scale, 0.82 for the anxiety scale, 0.90 for the stress scale, and 0.93 for the total scale (Henry & Crawford, 2005). Similar internal consistency reliability scores were found in the present study where $\alpha = 0.84$ for the depression subscale, 0.74 for the anxiety subscale, 0.82 for the stress subscale, and 0.91 for the total scale.

The Social Connectedness Scale-Revised (SCS-R) by Lee and Robbins (1995) measures social connectedness as degrees of feeling connected, affiliated, and having companionship with others. The scale is comprised of 20 items, on a Likert scale which ranges from 1 (“strongly disagree”) to 6 (“strongly agree”) with scores ranging from 20 to 120, with higher scores represent high social connectedness. Internal consistency in prior work with university students revealed $\alpha = 0.92$ (Williams, 2006). In the present study, $\alpha = 0.90$.

The Adult Attachment Scale (Collins & Read, 1990) is an 18-item scale which measures closeness, dependency, and anxiety in romantic relationships on a 5-point Likert scale ranging from “not characteristic” to “very characteristic of me.” Prior work with the instrument yielded good reliability scores: closeness $\alpha = 0.85$, dependency $\alpha = 0.88$, and anxiety $\alpha = 0.83$ (Collins & Read, 1990). Internal consistency reliability scores in the present study are closeness $\alpha = 0.67$, dependency $\alpha = 0.71$, avoidance $\alpha = 0.78$, and anxiety $\alpha = 0.87$.

The Problematic Internet Use Questionnaire (PIUQ) (Demetrovics et al., 2008) is an 18-item measure which assesses an individual’s level of neglect, control, and obsession experienced when using the Internet on a 5-point Likert scale from 1 (“never”) to 5 (“always”). Scores range from 18–90 with higher scores indicating problematic Internet use. Good internal reliability has been found by previous studies of 0.91 (Demetrovics et al., 2008). Internal consistency reliability in the present study is $\alpha = 0.87$.

Procedure

Following ethical approval from the University of the West Indies, University Hospital Ethics Committee, flyers promoting the study were circulated on WhatsApp Messenger groups. Permission was granted from three lecturers of large introductory undergraduate courses to circulate the questionnaires to willing participants. Participants were invited

Table 1 Demographics (age, frequency of Internet use and activities) of problematic Internet users and non-problematic Internet users

Categories	Problematic Internet users		Non-problematic Internet users	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Sex				
Male	12	27.9	61	26.4
Female	31	72.0	173	73.9
Age				
18–23	37	86	186	79.4
24–29	5	11.6	33	14.1
30–35	0	-	1	.4
36–50	1	2.32	3	1.28
Frequency of Internet use				
Daily basis	42	97.6	224	95.7
Several times a week	1	2.3	7	2.99
At least once a day	0	-	1	.4
Occasionally	0	-	2	.8
Use of the Internet for leisure				
High (5 or more hours)	32	74.4	108	46.1
Average (1–4 h)	8	18.6	112	47.8
Low (Less than 1 h)	0	-	13	5.5
Use of the Internet for academics				
High (5 or more hours)	13	30.2	68	29.0
Average (1–4 h)	23	53.4	139	59.4
Low (less than 1 h)	7	16.2	25	10.6
Activities completed on the Internet				
Send emails	36	83.7	216	93.5
Watch movies	37	86.0	179	76.4
Listen to music	41	95.3	195	83.3
Skype/video call	13	30.2	70	29.9
Instagram	35	81.3	188	80.3
Snapchat	18	41.8	105	44.8
Twitter	19	44.1	76	32.4
Facebook	17	39.5	89	38.0
Other social network	11	25.5	58	24.7
Video games	10	23.2	50	21.3
YouTube	39	90.6	222	94.8
WhatsApp/Instant Messaging	39	90.6	220	94.0
Online Shopping	17	39.5	87	37.1

Problematic Internet users ($n = 43$); non-problematic Internet users ($n = 234$)

to complete paper-based surveys, web-based surveys (Google Forms) and device-based forms (ODK, 2018). For the web-based survey, the campus registrar gave permission to contact all registered students through a link to the survey. For the device-based forms, the

software Open Data Kit was utilized for individual face-to-face participants who expressed interest after seeing the flyer circulating on WhatsApp Messenger. Utilizing device-based data collection in this study supplemented the web-based Google Form as it allowed information to be gathered face-to-face when Wi-Fi was not present. Open Data Kit is a free, modifiable, tool that originated from a Google philanthropy project, under the guidance of Gaetano Borriello in April of 2008 (ODK, 2018). It allows for simple data collection that minimized the use of resources such as paper (Hartung et al., 2010). For this study, Open Data Kit's "Build" tool was used to create the survey while the "Collect" tool was used to allow for device-based data collection (ODK, 2018). Utilizing device-based data collection in this study supplemented the web-based Google Form as it allowed information to be gathered face-to-face when Wi-Fi was not present. Data gathered via the web and devices was automatically submitted to a secure, password protected, corresponding spreadsheet, while the paper-based questionnaires were secured in a room that only the researcher had access to.

Data Analysis

Data from the questionnaires were entered into IBM Statistical Package for the Social Sciences version 22 (SPSS 22). At the start of analysis, missing data was deleted listwise and the percentage of missing data across all variables was found to be no larger than 30%. The dataset was then assessed for normality, linearity, and homoscedasticity. All variables of interest were normally distributed in the sample and homoscedastic. Descriptive statistics, independent sample *t*-tests, and multiple regression analyses were used to test a hypothesized model where sex, social connectedness, attachment style, and psychopathology explain problematic Internet use. Statistical significance was determined based on an alpha level of 0.05 (Cohen & Holliday, 1982).

Table 2 Levels of social connectedness and attachment style

	Problematic Internet users		Non-problematic Internet users	
	Frequency	(%)	Frequency	(%)
Social connectedness:				
Low social connectedness	28	65.1	111	47.4
High social connectedness	15	34.8	123	52.5
Attachment styles:				
<i>Insecure attachment</i>				
Avoidance high; anxiety high	22	51.1	45	19.2
Avoidance low; anxiety high	7	16.2	61	26.0
Avoidance high; anxiety low	11	25.5	59	25.2
<i>Insecure attachment total:</i>	40	93.0	165	70.5
<i>Secure attachment</i>				
Avoidance low; anxious low	3	6.9	69	29.4

Non-problematic Internet users ($n=43$); problematic Internet users ($n=234$)

Results

Descriptive statistics revealing the time spent on Internet activities by participants along with demographic characteristics are provided in Table 1. Descriptive statistics for each of the independent variables and the dependent variable are provided in Table 2. All variables of interest were examined for missing data mechanisms and distributional assumptions. All missing data was MCAR, $\chi^2 = 945.78$ ($df = 878$, $p = 0.056$) and the variables of interest were normally distributed and homoscedastic. We then examined the first hypothesis that Internet use would vary by age using an independent samples t -test. Participants in the 18–23 age category ($M = 2.53$, $SD = 5.4$) compared to those in the 24–50 age category ($M = 2.29$, $SD = 4.8$) showed significantly higher levels of PIU $t(264) = 2.19$, $p = 0.03$. We confirmed this hypothesis with a significant test, indicating that Internet use is more prevalent among younger respondents.

Finally, we sought to examine the extent to which psychopathology (depression, anxiety, and stress), social connectedness, and attachment style predicted problematic Internet use. A correlation matrix table was also included; see Table 3. Multiple linear regression was conducted, where problematic Internet use was regressed on social connectedness, attachment anxiety, psychopathology (depression, stress, and anxiety scales separately), attachment style, and sex as shown in Table 4. The model was statistically significant ($R^2 = 0.208$, $F[7, 269] = 10.112$, $p < 0.001$). Psychopathology, social connectedness, and attachment style accounted for 20.8% of the variance in problematic Internet use. The strongest predictor of problematic Internet use was depression ($b = 0.201$, $p = 0.007$), followed by avoidant attachment ($b = 0.171$, $p = 0.001$), and social connectedness ($b = 0.116$, $p = 0.015$). Anxiety, stress, and attachment anxiety were not significant predictors. Sex was also not a significant predictor of problematic Internet use. The unstandardized regression coefficient (b) for sex was -0.081 ($t [269] = -1.022$, $p = 0.308$) as shown in Table 4.

Table 3 Correlation matrix of variables included in model

	PIU	Social connect	Attach anxiety	Depress	Stress	Anxiety	Attach avoid	Sex
PIU	1							
Social connect	-.308*	1						
Attach anxiety	.257*	-.405*	1					
Depress	.366*	-.449*	.394*	1				
Stress	.323*	-.371*	.415*	.677*	1			
Anxiety	.261*	-.380*	.371*	.624*	.745*	1		
Attach avoid	.193*	-.023	.035	.030	.046	.073	1	
Sex	-.048	-.010	-.022	.008	.013	.078	.054	1

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

Table 4 Summary of multiple regression coefficients for variables predicting problematic Internet use

	<i>b</i>	S.E <i>b</i>	β	r_s^2	<i>t</i>	Sig.
Social connectedness	-0.116	0.047	-0.155	0.457	-2.447	0.015*
Attachment anxiety	0.044	0.038	0.072	0.317	1.142	0.255
Depression	0.201	0.074	0.216	0.643	2.735	0.007*
Stress	0.124	0.086	0.130	0.500	1.441	0.151
Anxiety	-0.065	0.085	-0.065	0.327	-0.763	0.446
Attachment avoidance	0.171	0.051	0.182	0.179	3.350	0.001*
Sex	-0.081	0.079	-0.056	0.011	-1.022	0.308

$R^2=0.208$, Adj. $R^2=0.188$

* $p < 0.05$

Discussion

The present study aimed to determine if problematic Internet use exists among a sample of Jamaican university students based on a model including psychopathologies, insecure attachment, and low social connectedness as predictors of problematic Internet use. Our study found four key findings, namely (1) problematic Internet use exists among Jamaican university students; (2) psychopathologies are higher among persons with problematic Internet use; (3) persons with problematic Internet use reported low social connectedness and insecure attachment; and (4) psychopathologies, social connectedness, and attachment significantly predicted problematic Internet use. These findings are consistent with previous findings and add to an area that has been under researched in Jamaica.

Similar to previous studies in developed countries (Macur et al., 2016), we found evidence of problematic Internet use among a sample of university students. However, unlike the developed countries where the studies are more extensive, in developing countries, this area has been grossly understudied. This is the first known study to explore the occurrence of problematic Internet use among university students within the Caribbean context. The prevalence rate of 15.5% found in this study is comparable to previous studies in developed countries (6–19%; 1.2–26.6%) (Christakis et al., 2011; Moreno et al., 2011). Nevertheless, the presence of PIU in this sample is disconcerting considering the negative medical and psychological outcomes associated with PIU and the resource constraints that exist within the Jamaican context to adequately meet the psychological needs of these persons (Babic et al., 2017; Cooper et al., 2010; Romer et al., 2013; Rosen et al., 2014; Twenge et al., 2012; Yang et al., 2013).

Researchers have suggested that problematic Internet use among university students may be their attempts to cope with underlying psychological distress (Babic et al., 2017; Twenge et al., 2012). These assumptions could be relevant to our study as we found problematic Internet use to be higher among persons with psychopathologies and persons experiencing psychological distress, such as stress, when compared to non-problematic Internet users; this association was also consistent with previous studies (Anderson et al., 2017; Kim et al., 2006; Mazhari, 2012). Further, our findings indicate that the 18–23 age group reported a higher prevalence of PIU as well as psychopathologies, which is consistent with Kessler et al. (2005) findings that 75% of psychopathologies emerge by age 24. In addition to the myriad of developmental and personal factors that typically place individuals in this age group at risk (Pedrelli et al., 2015; Wood et al., 2017), researchers have also found that

individuals who reside in resource constrained conditions are more vulnerable to psychopathologies when compared to those in developed countries (Myer et al., 2008).

Consistent with the literature (Kraut & Burke, 2015; Quesnel et al., 2017; Romano et al., 2013), we found that a higher proportion of those who report insecure attachment and low social connectedness were among problematic Internet users. Research has shown that one of the underlying factors that drive problematic Internet use is a desire for connection and that young adults are at a developmental stage where forming these close connections are essential to their psychological well-being (Kardefelt-Winther, 2014; Schimmenti & Caretti, 2010). An inability to form these connections can result in a persistent unmet need which can lead to the obsessive use of the Internet in an attempt to meet these needs (McIntrye et al., 2015; Meerkerk, 2007; Gentzler et al., 2011; Kraut & Burke, 2015). Predictors for future connections during adulthood can be found in the attachment formed early on in life between the parent and child (Anders & Tucker, 2000; Bowlby, 1988). Research has shown that nuclear families increase the likelihood of developing secure attachment, while single parent unions are more likely to report low quality of parent–child attachment (Scott et al., 2013). While this study did not explore family forms, it is possible that the preponderance of single parent family forms in the Jamaican setting (United Nation, 2019) may contribute to the insecure attachment found in this sample.

Even though previous studies have alluded to depressive traits as a contributing factor of PIU, the identified predictors of PIU in these studies have been low social connectedness (Quesnel et al., 2017; Romano et al., 2013; Kardefelt-Winther, 2014; Schimmenti & Caretti, 2010) and insecure attachment (Oldmeadow et al., 2013; Stănculescu & Griffiths, 2021). We found that depressive symptoms, avoidance attachment, and low social connectedness predicted problematic Internet use. It is possible that these predictors may be in keeping with a depressive profile. Given previous researchers indicating a higher prevalence of depressive symptoms among Jamaican university students when compared to international students, this relationship should be further explored in future studies (Lowe et al., 2009; Seixas et al., 2015). Depressive symptoms typically influence individuals to have decreased engagement with their environment, which can lead to social isolation (Baumeister & Leary, 1995). Individuals with high levels of attachment avoidance attempt to keep emotional distance from others in an attempt to protect themselves from being let down by their partner (Bartholomew & Horowitz, 1991; Bowlby, 1988). These approaches further decrease the likelihood of the formation or maintenance of relationships which therefore leaves the individual to become more vulnerable to developing depression (Caspers et al., 2005). The findings of this study suggest that once depressive symptoms have been uncovered, that care should be taken to ascertain if problematic Internet use also co-occur with this condition.

Limitations and Recommendations

While the study has its strengths, it does have some limitations. Firstly, this is a subset of university students and is not representative of all university students; future study should therefore consider including a more representative sample. Secondly, there are various conceptualizations and measures of problematic Internet use which may lead to conflicting findings; therefore, there needs to be a consensus on a gold standard measure to streamline the findings.

Conclusion

The findings of this study indicate that PIU is also a phenomenon of concern in the developing context with similar risk factors such as low social connectedness, insecure avoidant attachment as well as depressive symptoms. While most of the literature on PIU have been conducted among adolescents, PIU has been discovered mainly among 18–23-year-olds, an age group which also coincides with the emergence of psychopathology. The existence of, and vulnerability to, problematic Internet use in this developing country along with the implications that this might have for other negative psychological outcomes warrants further attention. The findings of this study can serve to inform healthcare providers and policymakers, especially considering the onset of the COVID-19 pandemic and the psychological outcomes associated with the ongoing social distancing requirements; these conditions could potentially lead to an increased reliance on the Internet as a way to cope.

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Declarations

Ethics Approval and Consent to Participate This study has been given ethical approval from the University of the West Indies, University Hospital Ethics Committee and is in accordance with Helsinki Declaration of 1975. Informed consent was received from all participants who participated in this study.

Conflict of Interest The authors declare no competing interests.

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