Emerging Adults in a Digitalized World: Influence of Gender on the Domains of Problematic Internet Use

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ABSTRACT

Numerous researchers have investigated the importance of exploring the factors associated with issues of problematic Internet use among emerging adults. This study aimed to explore the interaction between problematic Internet use and gender differences within the domains of problematic Internet use, namely obsession, neglect, and control disorder. Problematic Internet use was assessed using the Problematic Internet Use Questionnaire (PIUQ). 386 emerging adults from University of Lagos (50.5% males and 49.5% females) were purposively selected to participate in a survey. Prevalence of problematic Internet use was found to be 80.8%, and females (51.9%) demonstrated higher problematic Internet use compared to males (48.1%), [t(384) = -2.142, p < .05]. On the domains, however, multivariate regression analyses revealed gender differences within domains of problematic Internet use: females displayed a higher level of obsession [F(1, 384) = 3.864, p = .050, R² = .010] compared to males, and were more likely to struggle with controlling Internet use [F(1, 384) = 7.719, p < .05, R² = .020]. The findings from this study suggest a persistent rise in problematic Internet use among emerging adults. Preliminary evidence highlights the effectiveness and efficacy of gender-specific intervention strategies in addressing Internet addiction. Furthermore, the study recommended advocacy efforts and evidence-based parenting techniques that encourage alternative offline engagements. These interventions aim to minimise adolescents’ screen time while promoting positive attributes such as self-control and self-esteem, which research has shown to be helpful in preventing problematic Internet use. Lastly, the research will add to the existing knowledge on gender and internet use.

Keywords: Gender, Problematic Internet Use, Neglect, Obsession, Control Disorder

INTRODUCTION

The Internet can be conceptualised as a broad phenomenon that encompasses diverse online activities and categories such as social media platforms (e.g., Facebook, Instagram, Snapchat, and Tiktok), instant messaging apps (e.g., WhatsApp, Telegram), interactive online multiplayer games (e.g., Call of Duty, MobileOps, online chess, etc.), online shopping, and much more. The multidimensional nature of the Internet has consequently occasioned several studies and research efforts that have sought to explore its impact and various aspects. One such study investigated the potential negative and positive impact of social Internet use (that is, the adoption of the Internet for the purpose of socialization and communication with friends, family, and other people) among adolescents.¹ Some notable positive uses include its role in keeping individuals connected and strengthening


shown to be strongly associated with negative lifestyles and depressive risk factors, particularly among young people, which have been identified as the population most vulnerable to problematic Internet use (PIU). Additionally, problematic Internet use has been found to have high comorbidity rates with several psychiatric disorders. Research unequivocally indicates that problematic Internet use (PIU) is especially prevalent among young adults, and has become a global public health challenge. This study, therefore, attempts to provide more insight into possibly overlooked connections between gender and the problematic internet use, and the far-reaching implications these may have in such a radically volatile era as the 21st century. Hence, the following objectives were stated followed by the hypothesis; (i) to establish if there will be a significant difference in the level of problematic internet use of male and female emerging adults and (ii) to determine if there will be a significant relationship between gender and the domains of problematic internet use (obsession, neglect, and control disorder) among emerging adults. Hypothesis; (i) there will be a significant difference in the level of Problematic Internet Use of male and female emerging adults, and (ii) there will be a significant relationship between gender and the domains of problematic internet use (obsession, neglect, and control disorder) among emerging.

LITERATURE REVIEW

Females appear to be less susceptible to PIU; a study revealed that a good portion of its female respondents reported using the Internet for safer purposes such as seeking out helpful information and connecting with friends although such use harbours the potential to be excessive. Another study found differences in preference for online activities amidst problematic use: female adolescents were more inclined to use social networking sites, while males preferred online gaming. A study that examined about 4,000 college students in Quebec, Canada, found that males generally used the Internet frequently more than females.

THEORETICAL REVIEW

Self-determination Theory

Some of the Internet’s superpowers are its speed, access to vast amounts of information, affordability, and stupendous versatility. A text message can get travel thousands of miles in one second, one can learn about the British royal family from the comfort of his/her bedroom, and online activities can range from online gaming to shopping, tabloid surfing, freelancing, advertising, and keeping in touch with family and friends on social networks. These positive features, incidentally, also catalyse obsessive and addictive tendencies. The self-determination theory attempts to explain human behaviour as a function of motivation and self-determination. Ryan and Deci grouped human needs into three types: autonomy, competence, and relatedness (or connection).
They conceptualised autonomy as the need for a sense of independence and self-sufficiency people have that drives them to make decisions consistent with their personal beliefs; competence indicates a desire for growth, skill, and mastery, and relatedness denotes the need for attachment and a sense of belonging. According to this model, people engage in activities that cater to these needs, with those activities becoming reinforced over time. A number of empirical studies have been conducted to investigate PIU through the lenses of the self-determination model and found it to be useful in understanding individuals’ motivation for using the Internet and how frequently resorting to Internet use can transform into PIU. Research has shown that unsatisfied psychological needs and subpar life satisfaction tend to a maladaptive use of the Internet. Social media use provides for connection and belongingness needs. Research has identified online gaming as a significant channel through which all three needs can be simultaneously satisfied. Online games often feature a range of gameplay pathways and choices, as well as avatar designs and customization options, all of which cater to the autonomy needs of gamers; relatedness needs are provided for by multiplayer game options and other in-game features that allow for collaboration and team-play. Competence needs are gratified usually through a combination of intrinsic and extrinsic mechanisms, such as in-game awards, rankings, achievements, and badges, which gamers obtain after successfully completing competitive challenges and tasks.

In a nutshell, when basic psychological needs are inadequately or insufficiently fulfilled, the Internet can quickly emerge as an ad-hoc solution to problems which were previously resolved through offline, in-person mechanisms. Other attributes, such as anonymity, also influence the transition of normal Internet use to PIU.

**Caplan’s Preference for Online Social Interaction Theory**
This model of problematic or excessive Internet use conceptualises PIU as a consequence of an individual’s maladaptive or problematic psychological and social condition. According to Caplan, individuals facing psychosocial health challenges such as depression, loneliness, and social anxiety are predisposed to developing a preference for Internet-mediated social interactions rather than face-to-face or other offline contexts. People experiencing loneliness and depression often hold negative beliefs and perceptions about themselves, particularly in terms of their social competence. This internal struggle drives them to seek safer and less threatening alternatives, which the Internet readily provides. Caplan argues that their Internet usage often becomes compulsive and problematic and, in turn, results in exacerbated psychological distress.

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22 Wong, Yuen, and Li, “A Basic Need Theory Approach to Problematic Internet Use and the Mediating Effect of Psychological Distress.”
research corroborated his earlier claims, as his subsequent study revealed that individuals with actual social skills deficits were more likely to develop PIU.\textsuperscript{33}

Although PIU has received massive attention from the research community in recent years,\textsuperscript{34} it has yet to be consensually defined and measured.\textsuperscript{35} While there is a preponderance of studies that have explored the prevalence,\textsuperscript{36} risk factors,\textsuperscript{37} and negative consequences of problematic Internet use,\textsuperscript{38} especially among younger populations,\textsuperscript{39} further inquiry is necessary to buttress and consolidate pre-existing knowledge on the relationship between problematic Internet use and adolescent delinquency, as very few studies have explored the connection between both constructs.

\textbf{METHODOLOGY}

For the purpose of this study, the University of Lagos was selected as the major research location which accounted for the vast number of locations boasting a bountiful proportion of the researchers' target population. This study adopted a cross-sectional design which availed the researcher the opportunity to investigate gender and problematic internet use which involved a total of 386 emerging adults. Participants included 191 males (49.5\%) and 195 females (50.5\%) ranging from 16-27 years, who were predominantly students. Participants’ consent was sought and participation was voluntary, and anonymous, and no form of compensation was offered to the participants who chose to participate.

Participants in this study were selected through the purposive sampling technique. This technique saw the researcher make subjective, pre-determined choices about specific locations and settings in which the sample to be examined in this study was to be recruited. Questionnaire administration took place at various faculties and locations within the University to the students. Part of the process of obtaining approval included providing specifics regarding the study—such as the purpose of the study, who it concerns, and who it benefits—and assuring respondents, of strict adherence to confidentiality and anonymity guidelines. Participants’ consent was also obtained after a detailed explanation of the survey process. Consenting respondents followed through the process and were encouraged to ask questions when they encountered any form of challenge in understanding the questionnaire items or recording their responses. Participants were also encouraged to be maximally honest in their responses, having been reassured of the anonymity of their responses. Four hundred (400) questionnaires were administered in total; 390 were retrieved and four were rejected because they were not properly filled, bringing the total to 386 (a return rate of 96.5\%) which were then analysed for statistical relationships.

Respondents’ data were collected using a structured questionnaire consisting of a demographics section and other sections comprising standardized psychological scales. The following section is a more detailed outline of the content of the questionnaire.

\textsuperscript{33} Caplan, “A Social Skill Account of Problematic Internet Use.”


\textsuperscript{39} Marta Kożybska et al., “Problematic Internet Use, Health Behaviors, Depression and Eating Disorders: A Cross-Sectional Study among Polish Medical School Students,” \textit{Annals of General Psychiatry} 21, no. 1 (December 11, 2022): 5, https://doi.org/10.1186/s12991-022-00384-4; Öztürk and Özmen, “The Relationship of Self-Perception, Personality and High School Type with the Level of Problematic Internet Use in Adolescents.”
Section A of this questionnaire was designed to collect the demographic information of participants. It included age, gender, education level, family structure, and neighbourhood type.

Section B consisted of the Problematic Internet Use Questionnaire (PIUQ) developed by Demetrovics and his colleagues, and was used in this study to measure excessive or problematic Internet use among the participants. The PIUQ is a self-report instrument that consists of 18 items, all of which are subdivided into three six-item subscales: obsession—for example, “How often do you fantasize about the Internet, or think about what it would be like to be online when you are not on the Internet?”; neglect—for example, “How often do you neglect household chores to spend more time online?”; and control disorder—for example, “How often do you feel that you should decrease the amount of time spent online?” Participants were to rate each item on a 5-point scale: 1—Never, 2—Rarely, 3—Sometimes, 4—Often, and 5—Always. Cronbach’s $\alpha$ of the entire PIUQ is .87, and of the subscales are .85, .74, and .76, respectively. The PIUQ has a test–retest correlation score of .90 and has been widely adopted in studies exploring Internet addiction some of which were conducted in Nigerian settings, with Nigerian participants. It has also been proven to be a reliable assessment tool for determining the impact of poorly controlled Internet use. The PIUQ demonstrated satisfactory construct validity, with its subscales correlating significantly with various indices of physical and psychological health. In this study, the 18-item PIUQ had a Cronbach’s $\alpha$ of .872. Higher scores indicate possible PIU. Mazhari, following the recommendation of the developers of the PIUQ, used a cut-off point of 41 to distinguish between average Internet users (18–41) and PIUs (42–90).

PRESENTATION OF RESULTS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Levels</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>16–19</td>
<td>172</td>
<td>44.6</td>
<td>44.6</td>
</tr>
<tr>
<td></td>
<td>20–27</td>
<td>214</td>
<td>55.4</td>
<td>55.4</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>191</td>
<td>49.5</td>
<td>49.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>195</td>
<td>50.5</td>
<td>50.5</td>
</tr>
<tr>
<td>Household Income Level (Monthly)</td>
<td>Below ₦150,000</td>
<td>138</td>
<td>35.8</td>
<td>36.8</td>
</tr>
<tr>
<td></td>
<td>Above ₦150,000</td>
<td>237</td>
<td>61.4</td>
<td>63.2</td>
</tr>
<tr>
<td>Family Type/Structure</td>
<td>Nuclear</td>
<td>340</td>
<td>88.1</td>
<td>88.8</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>43</td>
<td>11.1</td>
<td>11.2</td>
</tr>
</tbody>
</table>

Table 1 results show demographic characteristics of the study participants. The above results show that the 386 participants were evenly distributed between both genders, 195 were female (50.5%) and 191 were male (49.5%), and they comprised 172 adolescents aged 16–19 (44.6%) and 214 persons aged 20–27 (55.4%). Other data collected included monthly household income, which showed that 61.4% of participants were in households earning above ₦150,000 while 35.8% earned below ₦150,000, and 2.8% didn’t indicate. 88.1% were from nuclear families, while 11.1% were in extended family settings, and .8% didn’t indicate their family type.

Hypothesis 1: There will be a significant difference in the level of problematic internet use of male and female emerging adults.

Table 2: An Independent Sample T-test for Gender Differences in Problematic Internet Use

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIU Score</td>
<td>Male</td>
<td>191</td>
<td>50.48</td>
<td>11.556</td>
<td>-2.142</td>
<td>384</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>195</td>
<td>53.10</td>
<td>12.492</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dependent Variable: PIU

Results from an independent-sample test indicated that there was a significant difference between the problematic internet use (PIU) scores of male (M = 50.48, SD = 11.556) and female (M = 53.10, SD = 12.492) emerging adults, ((t(384) = -2.142, p< .05). Results revealed that female adolescents have higher levels of problematic Internet use than males. In line with this result, the hypothesis that there would be a significant difference in PIU of males and females was accepted.

Hypothesis 2: There will be a significant relationship between gender and at least one of the domains of PIU (i.e. obsession, neglect, and control disorder).

Table 3: Multivariate Regression Analysis for the Relationship(s) between Gender and the Domains of PIU

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>R²</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obsession</td>
<td>Male</td>
<td>191</td>
<td>15.80</td>
<td>5.389</td>
<td>.010</td>
<td>3.864</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>195</td>
<td>16.89</td>
<td>5.497</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>386</td>
<td>16.35</td>
<td>5.464</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neglect</td>
<td>Male</td>
<td>191</td>
<td>16.98</td>
<td>4.747</td>
<td>.006</td>
<td>2.397</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>195</td>
<td>17.74</td>
<td>4.903</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>386</td>
<td>17.37</td>
<td>4.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Disorder</td>
<td>Male</td>
<td>191</td>
<td>17.36</td>
<td>4.313</td>
<td>.020</td>
<td>7.719</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>195</td>
<td>18.63</td>
<td>4.655</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>386</td>
<td>18.00</td>
<td>4.528</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above shows that there were significant relationships between gender and two of the three different domains of Problematic Internet use; in Obsession, males’ scores (M = 15.80, SD = 5.389) was significantly different from females’ scores (M = 16.89, SD = 5.497), ((F(1, 384) = 3.864, p<.05, R² = .010)); in Control Disorder, males’ scores (M =17.36, SD = 4.313) differed significantly from females’ scores (M = 18.63, SD = 4.655),((F(1, 384) = 7.719,p< .05, R² = .020), while no significant relationship was found in Neglect for males (M =16.98, SD = 4.835) and females (M = 17.74, SD = 4.903), ((F(1, 384) = 2.397, p> .05, R²= .006). These results revealed that female adolescents are likely to be more obsessive and have challenges controlling their Internet use than male adolescents. In view of this, the hypothesis that there would be a significant relationship between gender and at least one of the domains of problematic internet use (PIU) was accepted.

DISCUSSION

Problematic Internet Use was found to be present in 80.8% of the participants in this study. This figure is strikingly similar to figures from a recent study conducted by Onukwuli and colleagues,44 which found the prevalence of Internet addiction in the southeastern part of Nigeria to be 88.1%. Another study carried out in Ibadan, a southwestern state of Nigeria, revealed a more modest figure of 50% Internet addiction among secondary school students.45 A plausible explanation for this level of PIU could be the ever-increasing accessibility and ubiquity of smartphones and other Internet-enabled devices, as well as the penetrative integration of the Internet in arguably every aspect of the life of adolescents, from school settings for tests, course presentations, preparation for examinations, and other academic activities, especially in the post-COVID era, as noted by Onukwuli and colleagues, coupled with a myriad of options for entertainment and recreation which youth appear to enormously enjoy, and are seemingly resorting to more than ever since the Internet

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44 Onukwuli et al., “Internet Addiction during the COVID-19 Pandemic among Adolescents in Southeast Nigeria and Implications for Adolescent Care in the Post-Pandemic Era: A Cross-Sectional Study.”

arrived. 46 This intensifying use, and need for, the Internet, if left unregulated and unchecked, may engender heightened PIU among emerging adults. 47

Regarding the first hypothesis in the study, it was found that male adolescents had a significantly different PIU score from females and that females generally scored higher on PIU than males. This finding contradicts a considerable number of past findings, for only a relatively few past studies arrived at a similar conclusion. 48 To illustrate, Adiele and Olatokun found that males were three times more likely to have Internet addiction than females. 49 Omoyemiju and Popoola 50 also tread the path of the aforementioned, and found Internet addiction to be more prevalent in male adolescents compared to females, as did some other studies. 51

Another interesting study conducted to investigate the impact of the COVID-19 pandemic on adolescents’ susceptibility to PIU found that male participants were twice as likely to exhibit PIU characteristics as females before the pandemic, but found no significant differences in the levels of PIU between both genders after the pandemic. 52 This might possibly explain the findings of this present study, as it suggests that female emerging adults have caught up with, and overtaken, male counterparts with respect to PIU, as is observed in this case. The unprecedented trajectory of female problematic Internet use calls for serious concern.

Further, a significant relationship was established between gender and at least one of the three domains of PIU, namely obsession, neglect, and control disorder. Kelley and Gruber (2010) reasoned that obsession is an intertemperate preoccupation with Internet activities; neglect implies forgoing non-Internet activities, and control disorder entails the inability to discontinue Internet use at will. It was determined in this study that there were indeed gender differences, and females overtook the males in two categories: obsession and control disorder, harmonizing with Demetrovics et al.’s findings from their pilot study that sex differences existed within the obsession and neglect dimensions. 53 Although both males and females use the Internet for vastly different purposes—for example, female adolescents have been found to be more likely to visit social networking sites and use social media, while males prefer online gaming a great portion of literature purports that male adolescents are more obsessed with Internet use and, consequently, more susceptible to Problematic Internet Use. 54 Demetrovics et al., in validating a short-form version of the PIUQ, highlighted considerable differences in the neglect dimension between at-risk and no-risk adolescents but didn’t report any gender differences. 55 This is quite similar to Koronczai et al.’s discovery of heightened levels of obsession in at-risk adolescents than their counterparts, excluding other dimensions. 56 Another validation study undertaken in Japan showed that adult females scored significantly higher in the control disorder dimension than males, 57 well in keeping with the findings of this research. Liu et al.’s observation convincingly buttresses the foregoing points. 58 They noted that adolescent females were more likely to report feeling helpless about controlling the urge to use the Internet, had serial failed attempts to monitor Internet use patterns, and had family and friends complain

46 Omukwuli et al., “Internet Addiction during the COVID-19 Pandemic among Adolescents in Southeast Nigeria and Implications for Adolescent Care in the Post-Pandemic Era: A Cross-Sectional Study.”
51 Balhara et al., “Problematic Internet Use and Its Correlates Among Students from Three Medical Schools Across Three Countries.”
53 Kelley and Gruber, “Psychometric Properties of the Problematic Internet Use Questionnaire.”
54 Andreassen et al., “The Relationship between Addictive Use of Social Media and Video Games and Symptoms of Psychiatric Disorders: A Large-Scale Cross-Sectional Study.;” Dufour et al., “Gender Difference in Internet Use and Internet Problems among Quebec High School Students.”
55 Demetrovics, Szeredi, and Rózsa, “The Three-Factor Model of Internet Addiction: The Development of the Problematic Internet Use Questionnaire.”
56 Koronczai et al., “Confirmation of the Three-Factor Model of Problematic Internet Use on Off-Line Adolescent and Adult Samples.”
57 Lin and Kim, “The Reliability and Validity of the 18-Item Long Form and Two Short Forms of the Problematic Internet Use Questionnaire in Three Japanese Samples.”
58 Liu, Sun, and Li, “Research on Gender Differences in Online Health Communities.”
about how much time they spend online. Paying close attention to these effects of gender differences will help devise more effective (gender-specific, where necessary) intervention strategies to combat the manifest symptoms of PIU in adolescents, as well as sensitize parents and guardians on more efficacious, evidence-based parenting strategies, offering teenagers a wider range of exciting offline attractions and alternatives.

RECOMMENDATIONS

The Internet has come to stay; combating its pervasiveness or completely restricting its usage in this time and age would be impractical. However, there are measures that can be taken to effectively manage Internet usage and reduce the prevalence of PIU. One such measure is the implementation of educational campaigns targeted at emerging adults and their parents regarding the adverse effects of PIU, featuring evidence-based, data-driven findings on its implications and other offline alternatives for online attractions.

Another measure of the aforementioned findings is that female young adults may have to be given slightly more careful attention, seeing that they are also more susceptible to the negative effects of PIU, such as depression and low self-esteem, which explains why they might express greater obsessive tendencies. They may need help regulating screen time, understanding themselves better, and determining what exact adaptive functions the Internet distinctly serves for them, as research has revealed that attributes like high self-esteem and self-control are associated with less problematic Internet use.  

CONCLUSION

Problematic Internet Use in Nigeria appears to be rising over time and can be tentatively linked to the impact of the COVID pandemic, which occasioned unprecedented levels of Internet usage. Gender differences persisted in relation to PIU, with female participants reporting a higher occurrence of symptoms than their male counterparts. Additionally, females showed a greater tendency towards obsession with Internet-related activity and a lack of self-regulation in Internet use. Various recommendations have been suggested and if implemented by stakeholders will minimise adolescents’ screen time while promoting positive attributes such as self-control and self-esteem. This will result in the holistic development of teenagers in Nigeria.

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