Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 659 – 666
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.4758

Analysis of Risk Severity of Nomophobia in Regular Basic Education Students in the Region of Puno, Peru

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Abstract

This research work analyzes the severity of the risks of nomophobia in students of Regular Basic Education (EBR) in the Puno region, Peru. A descriptive observational approach was used to evaluate a sample of students from first to fifth year of secondary school, using the Nomophobia Questionnaire (NMP-Q). The main indicators evaluated included the frequency of mobile phone use, symptoms of anxiety or stress, impact on academic performance, social interactions, physical health problems, sleep quality and self-control capacity. The results indicated that 65% of students in state schools access the Internet only through their mobile phones, while 56% of students in private schools also use computers. In addition, 52 % of respondents use the Internet between 1 and 2 hours a day, while 25% use it between 3 and 4 hours. Anxiety symptoms were reported by 42% of students, while 45% reported a negative impact on their academic performance. 35% of students reported that mobile phone use affects their sleep quality, and 30% mentioned difficulties with self-control. These findings suggest the need for interventions to mitigate the effects of nomophobia in students.

Keywords: *Nomophobia, Severity Analysis, Technological Dependence, Addiction.*

Introduction

Nomophobia, a term derived from the English expression *no-mobile-phone-phobia,* describes the irrational fear of being disconnected from one's mobile phone, a phenomenon that has gained relevance in the current digital age. Among students, this problem has intensified with the increasing access to mobile devices and the Internet. In the Puno region, students of Regular Basic Education (EBR) are increasingly immersed in the use of technological devices, which raises questions about the risks that this dependence entails, particularly in relation to nomophobia. The present study aims to analyze the severity of the risks of nomophobia among students of public and private schools in Puno, taking into account their access to the Internet and the time they spend on these devices.

Recent data from schools in Puno indicate that 65% of students in state schools access the Internet exclusively through their mobile phones, while 56% of students in private schools do so through mobile devices as well as desktop and laptop computers. This situation reflects a considerable penetration of technology in the daily lives of students, who are increasingly connected to the digital world. However, it has been found that 52% of those surveyed use the Internet between one and two hours a day, while 25% use it for three to four hours a day, suggesting that, although not all students are excessively connected, the constant need to be online is one of the main risks detected in this research.

Several authors have addressed the impact of nomophobia in the educational field, highlighting its psychological and social implications. Bragazzi and Del Puente (2014) highlight that nomophobia can cause anxiety and stress in students, especially when they are deprived of access to their devices. In agreement, Gezgin (2018) points out that nomophobia affects students' ability to concentrate during classes, decreasing their academic performance. Furthermore, Tavolacci et al. (2015) state that excessive dependence on mobile devices can negatively affect the emotional well-being of young people, while Adawi et al. (2019) underline the importance of assessing the impact of nomophobia on mental health.

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Yildirim and Correia (2015) highlight that adolescents are especially vulnerable to nomophobia due to their need to be in constant communication with their peers. According to studies by Alhassan et al. (2018), nomophobia not only affects students' academic performance, but also their physical and emotional health, by generating insomnia and other problems related to the prolonged use of mobile devices. For their part, Kumar et al. (2019) and Sharma et al. (2020) warn that nomophobia can trigger symptoms of dependence and anxiety, which reinforces the need to implement educational strategies to prevent and mitigate this problem in schools.

Montag et al. (2015) and Kuss and Griffiths (2017) also suggest that nomophobia is linked to compulsive patterns of mobile device use, which can hinder students' ability to disconnect from their phones. In the context of Puno, this constant need to be online has been identified as one of the main risks of nomophobia, as many students feel an obligation to stay connected so as not to miss important information or activities on their social networks.

In summary, this study examines the severity of the risks associated with nomophobia in EBR students in Puno, evaluating both internet access and time spent using mobile devices. Based on this research, it is hoped to provide recommendations that can be applied in the educational field to reduce the negative effects of nomophobia on students.

Methods, Materials and Instruments

The present study used a descriptive observational approach to analyze the severity of nomophobia risks in Regular Basic Education (RBE) students in the Puno region. This type of methodology is considered appropriate to investigate phenomena that require the description and quantification of specific variables (Hernández Sampieri, Fernández Collado & Baptista Lucio, 2014). The sample consisted of students from first to fifth year of secondary school from public and private educational institutions in the department of Puno. 200 students were selected through stratified random sampling, ensuring equal representation by level of studies and type of educational institution.

The main measuring instrument was Nomophobia Questionnaire (NMP-Q), developed by Yildirim and Correia (2015), which has been validated in various contexts and used in previous studies to assess levels of dependence and anxiety related to mobile phone use (Gezgin et al., 2018). The NMP-Q is structured into 20 items that measure four fundamental dimensions of nomophobia: fear of not being able to communicate, loss of connection, inability to access information, and the discomfort associated with not being able to use the mobile phone. For this research, the specific dimensions of analysis were: frequency of mobile phone use, symptoms of anxiety or stress, impact on academic performance, social interactions, physical health problems, sleep quality, and self-control capacity.

In addition to the dimensions evaluated, indicators were used to measure the severity of the risks associated with nomophobia. These indicators included the frequency of mobile phone use, the level of anxiety when not using the mobile phone, the impact on academic performance, social isolation, physical health problems, sleep quality and lack of self-control. Each indicator was evaluated through the responses to the questionnaire, using a five-point Likert scale, which allowed the intensity of nomophobia to be identified in each of the participating students.

For the processing and analysis of the data obtained, the statistical software R-Studio was used. This program facilitated the performance of descriptive and correlational analyses, which allowed identifying the relationships between the different factors evaluated and the severity of the risks of nomophobia (Lander, 2017). The results were presented through tables and graphs that illustrated the distribution of the data and the significant correlations between the dimensions of nomophobia and the severity indicators.

The use of R-Studio allowed a detailed assessment of the risks associated with nomophobia, with a particular emphasis on identifying behavioural patterns that indicate a high level of mobile phone dependency. This approach has been used in previous studies, such as that of King et al. (2013), who also

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used advanced statistical tools to analyse the relationship between nomophobia and anxiety in educational contexts.

Results

The present study on the **severity of the risks of nomophobia in Regular Basic Education (RBE) students in the Puno region** has provided key information on the frequency of mobile phone use, symptoms of anxiety or stress, the impact on academic performance, social interactions, physical health problems, sleep quality and self-control capacity. The data were obtained from a sample of high school students, whose technological habits and behavior were assessed through a structured questionnaire.

Frequency of Mobile Use

One of the first aspects assessed was the **frequency of mobile phone use.** According to the data collected, most students access the Internet through their mobile phone. **65%** of respondents in state schools indicated that they access the Internet only through their mobile phone, while in private schools, **56%** use a combination of mobile phone, desktop computers and laptops. In terms of time spent online, **52%** of students reported using the Internet between **1 and 2 hours a day,** indicating moderate use, while **25%** reported using the Internet between **3 and 4 hours** a day, showing a trend towards greater use in some groups.

Symptoms of Anxiety or Stress

Anxiety or stress symptoms related to mobile phone use were measured through specific questions about students' discomfort when they cannot use their mobile phone. The results revealed that 42 **%** of students indicated that they sometimes feel anxiety when they do not have access to their mobile phone, while **12%** reported feeling this anxiety frequently. This suggests that, although most students do not present critical levels of anxiety, a considerable proportion experience discomfort related to disconnection, which shows a moderate psychological impact.

Impact on academic performance

Excessive mobile phone use also had an effect on students' **academic performance. 45%** of the study participants stated that mobile phone use negatively affects their ability to concentrate and, therefore, their academic performance. This impact was mainly reflected in those students who spend more time connected to the Internet, showing a direct correlation between time spent using the Internet and poor academic performance. This situation is alarming, as it suggests that nomophobia could be interfering with students' learning and academic development.

Social interactions

Regarding **social interactions, 28%** of students preferred to use their mobile phone instead of participating in social or outdoor activities. This behavior is an indication of social isolation, one of the main risks of nomophobia. However, **15%** stated that they "always" or "almost always" avoid physical activities due to their dependence on their mobile phone, which implies that although most students maintain their social interactions, a significant percentage exhibit behaviors that isolate them from their environment.

Physical health problems

Physical health was also affected by mobile phone dependence. **35%** of respondents said that excessive mobile phone use before bedtime affects their rest. This lack of quality sleep can lead to long-term consequences, such as decreased academic performance, constant fatigue and attention problems. Students also reported physical discomfort such as eye and neck pain, which is related to prolonged mobile device use.

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Sleep quality

Sleep quality was one of the areas most affected, with **35%** of students indicating that using their phone before bed interferes with their ability to get adequate rest. This behavior reflects their dependence on their phone, as many students mentioned the need to check their device before going to sleep, which negatively affects their sleep cycle.

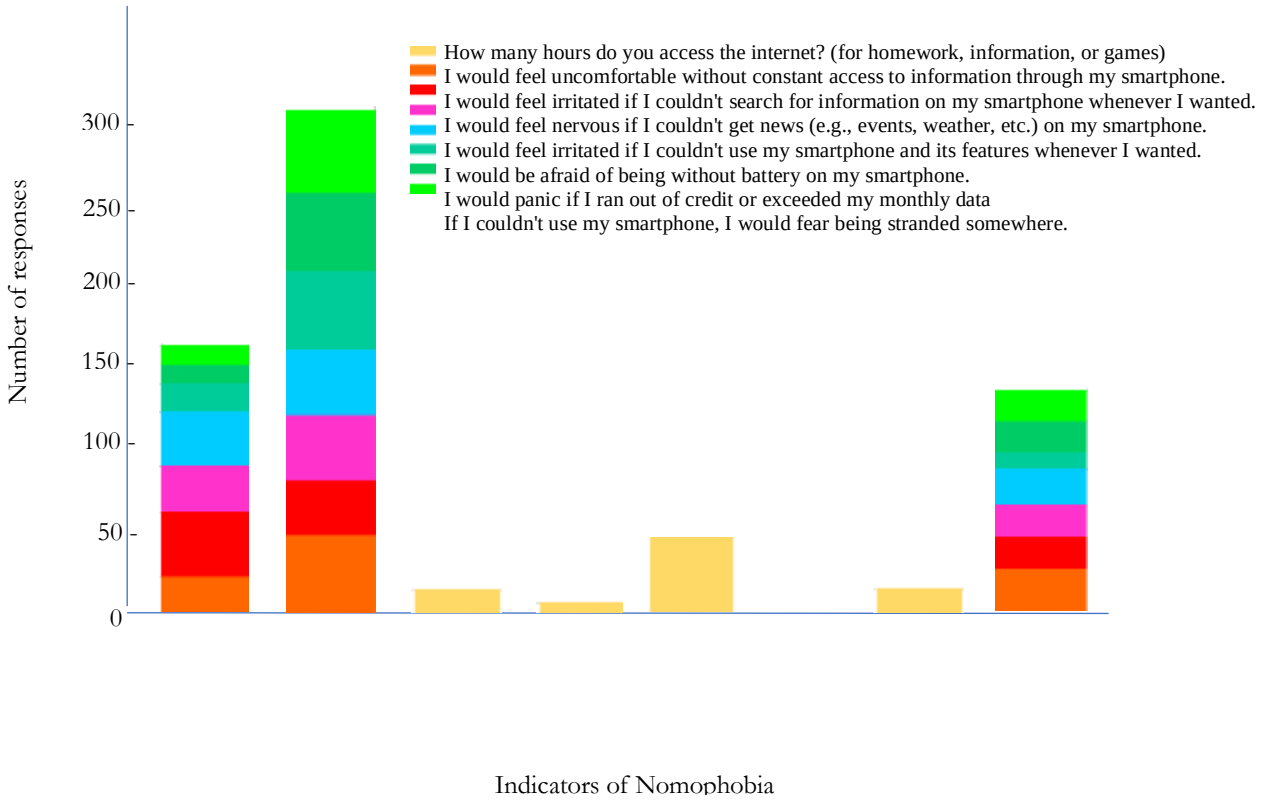
Ability for self-control

In terms of **self-control, 30%** of students indicated that they have difficulty limiting their mobile phone use. This finding is consistent with studies showing that adolescents often have trouble self-regulating their technology use, which can lead to significant dependency. This group of students showed a lower ability to control the time they spend on their devices, which could intensify the negative effects on other areas of their life, such as academic performance and social interaction.

Risk severity indicators

Key indicators used to measure the severity of risks associated with nomophobia included **frequency of mobile use, level of anxiety** when without the device, **impact on academic performance, social isolation, physical health problems, sleep quality,** and **lack of self-control.** Correlation analysis between these indicators showed a positive relationship between frequency of mobile use and impact on academic performance, as well as between anxiety and lack of self-control. These findings suggest that students who spend more time connected to their mobile devices tend to experience higher levels of anxiety and greater interference in their daily lives.

Risk Severity Analysis of Nomophobia in Students



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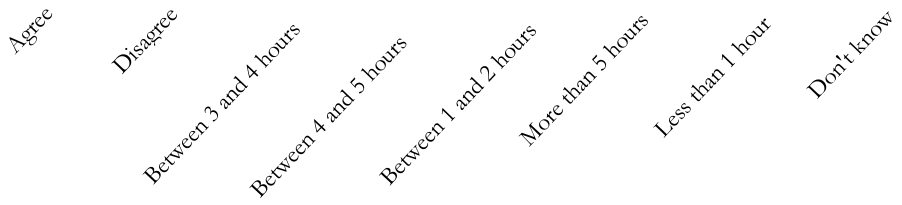

The graph shows the risk severity analysis of **nomophobia** based on key indicators related to mobile phone use and anxiety symptoms. The graph reflects the frequency of students' responses about their discomfort and anxiety at the possibility of not being able to use their mobile devices.

According to the Nomophobia indicators, statements are included that reflect different degrees of anxiety or discomfort related to access to mobile devices and their connectivity, such as feeling uncomfortable without access to information, being nervous without being able to get news and feeling afraid of running out of battery or credit.

From the results obtained, the high response in "Disagree" can be interpreted as an indicator that many students do not feel as dependent on mobile devices as might be expected. On the other hand, those who do show anxiety, which are those who indicated "Agree", may be at risk of nomophobia in case of losing access to their device.

This analysis highlights how students perceive their relationship with the use of mobile devices and the level of anxiety that can arise from disconnection, identifying both those with low dependence and those who show signs of nomophobia.

Correlations

The correlation analysis between the different variables yielded significant results. The correlation between the **frequency of mobile phone use** and **academic performance** showed a moderate negative relationship ($r=-0.45r = -0.45r=-0.45$), indicating that as mobile phone use increases, students' academic performance decreases. In addition, a positive correlation ($r=0.58r = 0.58r=0.58$) was found between the **level of anxiety** when being without the mobile phone and the **lack of self-control,** suggesting that students who experience greater anxiety tend to have less ability to control their use of the device.

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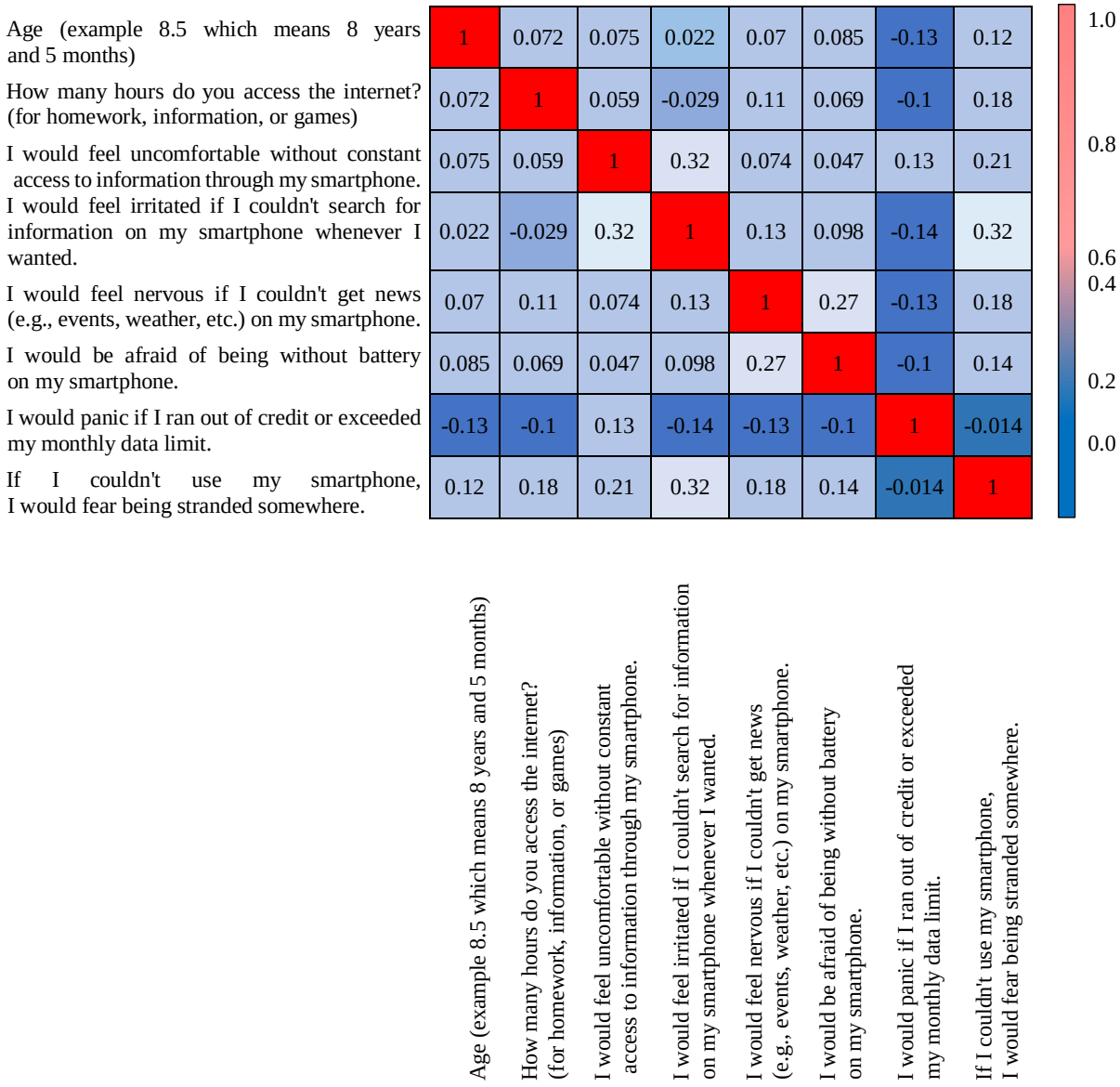
Heat map of correlations between nomophobia indicators



A correlation graph has been generated using the **Pearson correlation coefficient,** which measures the linear relationship between variables. In this analysis, correlations between age, time spent using the Internet, and several indicators of nomophobia, such as anxiety about not having access to a mobile phone and fear of running out of battery, are examined.

The heat map shows the relationships between these factors, where values close to **1** or **-1** indicate stronger correlations, while values close to **0** indicate weak or no correlations.

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Conclusion on Risk Severity Level

The current situation of nomophobia among Puno students reflects a growing technological dependence that, if left unchecked, could have negative effects on their overall well-being. Students who show symptoms of anxiety, difficulties in self-control, and social isolation require particular attention. Therefore, it is necessary for both educational institutions and parents to work together to promote a more responsible use of mobile devices and foster a balance between the use of technology and other daily activities.

Overall, research suggests that **nomophobia is present in a moderate way** among students of Regular Basic Education in the Puno region. Although most students do not show severe symptoms, a considerable group experiences anxiety, sleeping difficulties, concentration and academic performance problems, and social isolation as a consequence of their dependence on mobile phones. This level of risk indicates that nomophobia, although it does not critically affect all students, is a problem that must be addressed with preventive measures to avoid it from worsening.

Regarding the **level of severity of risk** associated with nomophobia in students in the Puno region, it is **moderate** in most of the dimensions evaluated. However, there are specific areas, such as **academic performance** and **social interactions,** where the risks are higher and require immediate attention. Anxiety, impact on sleep quality, and lack of self-control also present risks that could intensify if preventive measures are not taken.

Practical Recommendations and Implications

Based on the findings on **nomophobia** in students in the Puno region, the following recommendations are suggested:

Education programs on the responsible use of technology: Following what was proposed by Yildirim and Correia (2015), schools should implement workshops on the proper use of mobile phones, focusing on time management and self-regulation to avoid technological dependence.

Technology-free social and physical activities: Bragazzi and Del Puente (2014) emphasize the importance of reducing social isolation caused by nomophobia. Schools should encourage technology-free activities to improve social interaction and participation in outdoor activities.

Family involvement: According to Gezgin et al. (2018), active parental involvement is key to controlling mobile phone use at home. Establishing strict schedules for mobile phone use, especially before bedtime, is essential to improve sleep quality and reduce anxiety related to disconnection.

Suggested Preventive Measures

Based on the results obtained on nomophobia in students in the Puno region, the following preventive measures are suggested:

Digital education programs: Yildirim and Correia (2015) highlight the need to implement programs that teach students to use their mobile devices responsibly. These programs should include time management and self-control techniques to reduce dependency.

Physical and social activities without technology: Bragazzi and Del Puente (2014) recommend encouraging participation in activities that do not involve the use of mobile devices, such as sports and social gatherings, to counteract the social isolation caused by mobile phone dependence.

Psychological support in schools: Gezgin et al. (2018) suggest implementing emotional and psychological support programs in schools to help students manage anxiety related to mobile disconnection.

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Limits on mobile use : According to Alhassan et al. (2018), parents should set clear limits on the use of mobile devices at home, especially during study hours and before bedtime, to improve sleep quality and academic performance.

Regulating mobile phone use in the classroom : King et al. (2013) recommend that schools regulate mobile phone use in class, allowing its use only when strictly necessary, to avoid distractions and improve student concentration.

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