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Camila Alessandra Valarezo-Calero , Paola Silvana Valencia-Medina , Carlos Alberto Espinosa-Pinos *

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Cell Phone Use and Anxiety in College Students: A Correlation and Comparison Study Between Usage Groups

Camila Alessandra Valarezo-Calero, Paola Silvana Valencia-Medina and Carlos Alberto Espinosa-Pinos *

Facultad de Ciencias Sociales y Humanas – Carrera de Psicología, Universidad Tecnológica Indoamérica, Ambato 180102, Ecuador

* Correspondence: carlosespinosa@indoamerica.edu.ec

Abstract: Mental health care has become a priority in the 21st century, driving the study of disorders that affect daily life. Nomophobia, defined as excessive dependence on the cell phone, is considered a current problem and is associated with anxiety symptoms, such as fear and distress at not being able to access the device. Anxiety, recognized as the most common mental disorder, significantly affects cognitive and emotional well-being. Several studies have pointed to a positive correlation between nomophobia and anxiety, especially in university students, although some research has not found a direct relationship. Sociodemographic factors such as age and residence in urban areas influence the prevalence of nomophobia and anxiety, with young people being the most affected. However, there are discrepancies regarding the impact of gender and socioeconomic level. The aim of the present study was to evaluate the relationship between sociodemographic factors and anxious symptomatology associated with nomophobia in higher education students in Ecuador. A quantitative, non-experimental and correlational study was conducted with 1484 higher education students in Ambato, Ecuador, aged between 18 and 25 years. An online questionnaire composed of a socio-demographic survey, the Nomophobia Questionnaire (NMP-Q) and the Anxiety subscale of the Depression, Anxiety and Stress Scale (DASS-21) was administered. The psychometric properties of both instruments were evaluated, obtaining adequate fit and reliability indices (CFI > 0.93, α > 0.91). The analysis was performed with JASP, using Machine Learning algorithms and statistical tests such as Spearman correlation, Kruskal-Wallis and Bonferroni post-hoc comparisons to identify patterns of anxiety in different sociodemographic groups. The analyses indicated that younger students (18-21 years old), those in high-demanding careers (Health, Agri-Food and Social Sciences), with intensive workdays and of female gender presented higher levels of anxiety. In addition, a positive correlation was found between nomophobia and anxiety, highlighting the impact of technological dependence on mental health. These findings highlight the need for preventive and support strategies adapted to the characteristics of each vulnerable group.

Keywords: Anxiety; Correlation; College students; Cell phone use; Nomophobia; Anxiety; Nomophobia

1. Introduction

Mental health care, since the 21st century, has become a priority for each and every person, leading to the study of those disorders or diseases that impair the normal development of daily life activities. For its part, nomophobia is considered the disease of the present century, due to the excessive use of the mobile device, which can trigger a phobia, characterized by the presence of some types of reactions, such as anxiety and fear (Waldersee, 2019). This phobia could be noticeable when information or connection networks cannot be accessed, or even when the person does not use his or her cell phone (Jahrami, 2024). It is important to affirm that the new demands of the world revolve

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around technology and communication; and the use of the cell phone is a current demand for the progress of societies (Ji et al., 2024; Zakariah et al., 2024).

Considering another aspect, anxiety, by 2019, was the most common mental disorder, violating the health of those who suffer from it (World Health Organization, 2023). For the American Psychological As-sociation APA (American Psychological Association, 2018), anxiety is an emotion characterized by somatic symptoms, such as pain, tremors and palpitations; at the cognitive level, it is recognized the decrease in productivity, changes in personality, self-esteem and academic performance; among other effects (Al-Momani et al., 2024; American Psychological Association, 2018). In addition, in case the person loses control of such manifestations, it can trigger a disorder, which worsens their daily actions in the personal, social, academic, work and emotional spheres (American Psychological Association, 2018; Sun et al., 2024).

It is worth mentioning that, according to some authors, anxiety and nomophobia are positively correlated according to research developed in countries such as Jordan, Turkey and Ecuador (Al-Momani et al., 2024; Altınel et al., 2024; American Psychological Association, 2018; Fernandez-Crespo et al., 2024; Valarezo-Calero, 2024), even being related to each of the scales proposed for nomophobia. Thus, anxiety can be expressed at times when the person cannot access his or her mobile device, especially during the loss of internet connection, as determined in the study conducted by (Sun et al., 2024) in students at a university in China. However, (Vagka et al., 2024), based on their research conducted on university students in Greece, de-termined the non-existence of a direct relationship between nomophobia and anxiety (61% of the participants), stating that the negative emotional symptomatology could arise from other external factors. Also, the emotional state of social appearance and social status and level could be documented as a predictor of nomophobia and anxiety levels (Karaoglan Yilmaz et al., 2024).

According to the analysis conducted by (Zakariah et al., 2024), for co-cina students, parental income is relevant for the acquisition of mobile devices and their use (SD=0.580; M=4.73), as well as the ease and speed they provide; accompanied by the preference of “spending time on their sophisticated phone” because of the applications and the need to compete with their peers (SD=0.473; M=4.67); in case the acquisition does not occur, stress and anxiety reactions are produced. Similarly, studies conducted by authors such as (Garcia et al., 2024; Lazarus et al., 2024) show that there is a statistical difference with the scores obtained between anxiety and nomophobia conditions in terms of the incidence of age (more than 80% for students between 20 and 30 years of age) and daily use of the device ($p<0.001$); on the other hand, there are no significant discrepancies with respect to marital status or gender, and a slightly higher use in women (Altınel et al., 2024; Lazarus et al., 2024).

On the other hand, research conducted in Latin America found high levels of mobile device use among higher education students, which are linked to other social and demographic factors. In the study conducted by (Copaja-Corzo et al., 2022) in several universities in Peru, it was determined that age (between 18 and 20 years old, M=57; and between 21 and 23 years old, M=53.3) and the presence of anxious symptoms (M=62.2) can be considered risk factors in those who tend or present nomophobia; complementing what was determined by (Rosales-Huamani et al., 2019) at the National University of Engineering in Peru, where 38.67% of participants reported feeling “anxious” when they cannot access their cell phone. Likewise, in the Ecuadorian context, according to (Oyola et al., 2022), there is a significant direct correlation between nomophobia and anxiety (0.513**), and it would be influenced by the age group, with those under 25 years of age and residents in urban areas indicating the greatest dependence on cell phones (Ruano-Yarpaz et al., 2024); although, in relation to the study by (Valarezo & Mantilla, 2020), there is no direct relationship between social status and the presence of nomophobia among students in higher education institutions in Ecuador, but it shows an incidence of 56% in men and excessive use of cell phones in 71% of women for reasons of social approval.

However, data collected by researchers such as (Güveli et al., 2024) affirm the absence of disparity in the correlation established between the aforementioned variables by sociodemographic situations, with gender, marital status, age, educational level and economic status being indifferent

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(p>0.05). In accordance with the variability of the data provided by the studies analyzed, there are age groups, such as young adults, who, in addition to being students, tend to develop nomophobia and present anxious symptoms; even women have shown to be more prone to be involved in this problem in relation to men, while the sociodemographic factor would not have a greater impact on them. For this reason, and as a contribution to the scientific community, the objective of this research is to evaluate the relationship between sociodemographic factors in the presence of nomophobia and its corresponding anxious symptomatology in students of higher education institutions in Ecuador.

2. Materials and Methods

2.1. Participants

A total of 1484 participants were recruited under the following inclusion criteria: students from two institutions of higher education in the city of Ambato, Ecuador, who were in the age range of 18 to 25 years, fulfilling the criteria of having a mobile device and signing the informed consent form; in turn, they should not suffer from any medical or psychiatric condition, nor be under the effect of any substance.

2.2. Procedures

The present study corresponds to a quantitative approach, with a non-experimental design and correlational scope. In the first instance, a bibliographic review of previous research that contributed to the development of this study was conducted. For data collection, an online questionnaire was applied through the Microsoft Forms platform to 1484 participants under the following inclusion criteria: students from two institutions of higher education in the city of Ambato, Ecuador, who were in the age range of 18 to 25 years, meeting the criteria of having a mobile device and signing the informed consent; in turn, they should not suffer from any medical or psychiatric condition, nor be under the effect of any substance; the questionnaire was divided into four sections: Informed consent, sociodemographic survey, Nomophobia Questionnaire NMP-Q and Depression, Anxiety and Stress Scale DASS-21 (only the Anxiety subscale). Subsequently, the information collected was analyzed using the JASP application and code applied in RStudio, computer resources that facilitate the statistical analysis of data. The data collection process was carried out in several stages in order to guarantee the validity and reliability of the information obtained. First, informed consent was requested from the participants, ensuring compliance with ethical principles.

Subsequently, participants completed a questionnaire divided into three main sections. The first part corresponded to the sociodemographic survey, where data related to age, sex, gender, marital status, means and frequency of connectivity were collected, relevant information for the segmentation and analysis of the results.

In the second section, the Nomophobia Questionnaire (NMP-Q) by Yildi-rim & Correia (2015) was applied, composed of 20 items distributed in four dimensions: not accessing information, giving up comfort, not being able to communicate and loss of connectivity. The scores obtained allowed classifying the presence of nomofo-bia into low, moderate or severe levels (Jahrami et al., 2023).

The third section consisted of the application of the Depression, Anxiety and Stress Scale (DASS-21) of (Osman et al., 2012), of which only the seven items corresponding to the anxiety subscale were used (Ruiz et al., 2017). This measurement allowed the classification of anxious symptomatology into low, moderate, severe and ex-tremely severe levels (Sultana et al., 2025).

For data analysis, traditional statistical analyses were used since the groups under study did not conform to a normal distribution (Luzuriaga-Jaramillo et al., 2023), such as Spearman's correlation, to evaluate the relationship between variables, and nonparametric tests such as Kruskal-Wallis with post-hoc comparisons adjusted by Bonferroni to determine significant differences between groups (Petter et al., 2022).

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This procedure made it possible to evaluate the validity and reliability of the instruments applied, as well as to determine the association between sociodemographic variables and anxiety levels in the population studied.

2.3. Instruments

In the first section of the questionnaire applied for data collection, informed consent was obtained, a document that contributes to communicating the objective of the research, respecting the participant's decision and preserving the confidentiality of the information (Asamblea Médica Mundial, 1964); once the informed consent was accepted, the following sections were accessed. The second section corresponds to the sociodemographic survey, in which information was recorded regarding age, sex, gender, marital status, means of connectivity and frequency of connectivity; these data were also used to obtain the results.

In the following sections, the NMP-Q and DASS-21 questionnaires were ascertained, respectively. On the other hand, the Nomophobia Questionnaire NMP-Q of (Yildirim & Correia, 2015), which consists of 20 questions, divided into four dimensions (not accessing information, giving up comfort, not being able to communicate, loss of co-nectivity); the scores estimate the condition of low, moderate and severe presence, or its absence (Jahrami et al., 2023). On the other hand, the Depression, Anxiety and Stress Scale DASS-21 of (Osman et al., 2012), which consists of 21 questions and 3 subscales (an-anxiety, depression and stress); it is worth mentioning that only the 7 pre-questions corresponding to the anxiety subscale were used (Ruiz et al., 2017); the estimation is low, moderate, severe and extremely severe for each of the subscales evaluated.

The psychometric properties of the Nomophobia Questionnaire (NMP-Q) and the Depression, Anxiety and Stress Scale (DASS-21) were evaluated. Table 1 summarizes the model fit, reliability, and confirmatory factor analysis results.

Table 1. Psychometric Evaluation of Instruments: Model Fit and Reliability.

Model Fit				**Reliability**		**Confirmatory Factor Analysis**	
Questionnaire or Scale	**CFI**	**RMSEA**	**SRMR**	**Cronbach's α**	**McDonald's ω**	**AVE**	**R^2**
Nomophobia (Nomophobia Questionnaire NMP-Q)	0.934	0.102	0.038	0.957	0.958	Dimension_001 0.667 Dimension_002 0.648 Dimension_003 0.791 Dimension_004 0.855	0.665 0.663 0.801 0.856
Intensity of symptoms such as depression, anxiety and stress (Depression, Anxiety and Stress Scale DASS - 21)	0.978	0.085	0.025	0.919	0.920	0.631	0.628

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CFI: Comparative fit index; RMSEA: Root mean square error of approximation; SRMR: Standardized root mean square residual; AVE: Average variance extracted; R^2: R-Squared.

Nomophobia Questionnaire (NMP-Q)

Model fit: The Comparative Fit Index (CFI) of 0.934 indicates good model fit, suggesting that the hypothesized structure of the NMP-Q is a reasonable re-presentation of the data. The root mean square error of approximation (RMSEA) of 0.102 is slightly above the commonly accepted threshold of 0.08, indicating a moderate fit. However, the root mean square residual (SRMR) of 0.038 is well below the 0.08 threshold, suggesting a good fit based on the residual variances. Reliability: The NMP-Q demonstrates excellent internal consistency, with a Cronbach's alpha of 0.957 and a McDonald omega of 0.958. These high values indicate that the NMP-Q items are reliable. These high values indicate that the NMP-Q items consistently measure the same underlying construct. Confirmatory factor analysis: The values of the Average Variance Extracted (AVE) for the dimensions of the NMP-Q range from 0.648 to 0.855, indicating a strong convergent strength. Specifically: Dimension 1 shows an AVE of 0.667 and an R^2 of 0.665; Dimension 2 shows an AVE of 0.648 and an R^2 of 0.663; Dimension 3 shows an AVE of 0.791 and an R^2 of 0.801; Dimension 4 shows an AVE of 0.855 and an R^2 of 0.856. These AVE values suggest that each dimension of the NMP-Q explains a substantial amount of variance in their respective items, which further supports the validity of the instrument.

Depression, Anxiety and Stress Scale (DASS-21)

Model fit: The DASS-21 shows excellent model fit, with a CFI of 0.978, an RMSEA of 0.085, and an SRMR of 0.025. These values indicate that the hypothesized structure of DASS-21 represents the data very well. These values indicate that the hypothesized structure of DASS-21 is a very good representation of the data. Reliability: The DASS-21 demonstrates strong internal consistency, with a Cronbach's alpha of 0.919 and a McDonald's omega of 0.920. Confirmatory factor analysis: The AVE of the DASS-21 is 0.631, and the R^2 is 0.628, suggesting that the scale ex-plains a significant amount of variance in the measured construct.

The results indicate that both the NMP-Q and the DASS-21 are psychometrically sound instruments for measuring nomophobia and symptoms of depression, an-anxiety and stress, respectively. The NMP-Q demonstrates high reliability and validity, and each of its dimensions shows strong convergent validity. The DASS-21 also shows excellent model fit and reliability, making it a suitable instrument for assessing emotional distress.

2.4. Preprocessing of the Data and Data Analysis

For the analysis and processing of the information, we used open-use software packages such as Jasp and RStudio, employing non-parametric techniques, allowing us to identify significant differences between variables and groups of the database to be examined (Arora et al., 2021; Echefu et al., 2025). Specifically, Spearman's correlation, a statistical test to numerically measure the relationship between the proposed variables, was used, as well as the Kruskal-Wallis test techniques and post-hoc comparisons with Bonferroni correction, compatible with the objective of establishing comparisons between the various groups of data (Lola & Tzetzis, 2025; Yue et al., 2025; Zhong et al., 2025).

3. Results

Table 2 presents a detailed analysis of the differences in the levels of anxiety among various categorical groups, based on Kruskal-Wallis tests and post-hoc comparisons with Bonferroni correction. This statistical approach allows us to identify both overall differences between groups and specific comparisons that are statistically significant. The results are organized by variable (age, career, study day, gender, sex and socioeconomic level), highlighting the direction of the effect, the Z-values obtained in the post-hoc tests, the adjusted p-values and the corresponding effect sizes.

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In general terms, the younger groups (18-19 years and 20-21 years) tend to show significantly higher levels of anxiety compared to the older groups (22-23 years and 24-25 years). Likewise, careers related to Health, Agri-Food and Social Sciences exhibit higher levels of anxiety in comparison with Technology, the latter being the category with the least anxious symptomatology. Regarding the study day, students in intensive study days show significantly higher levels of anxiety than those in morning, afternoon or evening study days. Finally, significant differences were observed between genders and socioeconomic levels; women reported higher levels of anxiety than men, and participants with incomes above $2000 showed higher levels of anxiety compared to those in lower socioeconomic categories.

These findings provide a comprehensive view of how several categorical variables are associated with anxious symptomatology, highlighting consistent patterns that may guide specific interventions in vulnerable populations. To quantify the magnitude of observed differences, effect sizes were calculated for significant comparisons. For variables analyzed with the Kruskal-Wallis test, effect sizes were calculated using the pairwise Wil-coxon test with Bonferroni adjustment, implemented with the pairwise.wilcox.test() function. Subsequently, the wilcox_effsize() function was used to determine the magnitude of the effect for each comparison. The resulting values allow us to interpret the practical relevance of the differences found between groups.

Table 2. Post-Hoc Comparisons of Anxiety Levels by Demographic Variable: Groups with Greater Symptomatology.

Variable	Groups and direction of the effect	Z	P adjusted (Bonferroni)	Effect size
Age	18-19 years old > 22-23 years old	3.29	0.003*	0.0944
	18-19 years old > 24-25 years old	3.97	0.0002*	0.1300
	20-21 years old > 22-23 years old	2.8305	0.0139*	0.0975
	20-21 years old > 24-25 years old	3.60	0.001*	0.1190
Careers	Agrifoods < Health	2.6964	0.0210*	0.0797
	Agrifoods > Technology	4.1497	0.0001*	0.1500
	Health > Technology	6.9933	0.0000*	0.2150
	Social > Technology	5.4491	0.0000*	0.1980
Study day	Intensive > Morning	4.6076	0.0000*	0.1610
	Evening < Afternoon	4.5252	0.0000*	0.1730
	Intensive > Evening	5.8946	0.0000*	03180
	Intensive > Afternoon	3.0756	0.0063*	0.1370
	Morning > Evening	3.0098	0.0078*	0.0594
Sexo*	Men < Women	-	0.0000*	0.2067
Género	Female > Male	8.0576	0.0000*	0.2090
Socioeconomic level	More than $ 2000 > Less than $ 470	2.8272	0.0141*	0.0450
	More than $ 2000 > Between $470 and $1000	3.1962	0.0042*	0.124

* For all variables with more than two groups, comparisons were performed using the Kruskal-Wallis test followed by post-hoc Dunn's test with Bonferroni adjustment. The variable “Sex”, having only two groups, was analyzed using the Mann-Whitney U test.

Associations Between Dimensions and Anxious Symptoms

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To examine the relationship between the dimensions of nomophobia and general anxious symptomatology, Spearman correlations (ϱ) were calculated between each dimension of the Nomophobia Questionnaire (NMP-Q) and the total scores of the DASS21. Spearman's correlation is a nonparametric measure suitable for assessing monotonic re-relation between ordinal or non-normally distributed variables. The analysis revealed positive and statistically significant associations ($p < 0.001$) between all dimensions of nomophobia assessed and general anxious symptomatology. These results suggest that higher scores on each of the nomophobia dimensions are associated with greater severity of anxious symptoms. In parti-cular, dimension Dimension_002 (Giving up comfort) demonstrated the strongest correlation ($\varrho = 0.36$), followed closely by dimensions Dimension_003 (Not being able to communicate) and Dimension_001 (Not being able to access information) ($\varrho \approx 0.35$), while dimension Dimension_004 (Loss of connectivity) presented a slightly lower correlation ($\varrho = 0.31$). Table 3 below details these results:

Table 3. Interpretation of Spearman correlations between dimensions of irrational fear of not being able to use a smartphone and anxious symptoms.

Dimension	Description	Rho (correlation)	Interpretation
Dimension_002	Giving up comfort: Groups 5 items related to the discomfort of not having a telephone	0.36*	Moderate correlation
Dimension_003	Not being able to communicate: Includes 6 items related to the inability to interact socially due to the lack of a telephone	0.35*	Moderate correlation
Dimension_001	Not being able to access information: Contains 4 items that measure the anxiety of not being able to obtain immediate information	0.35*	Moderate correlation
Dimension_004	Loss of connectivity: Composed of 6 items that reflect the fear of not being connected to the Internet.	031*	Small-moderate correlation

* All correlations are highly significant ($p < 0.001$).

4. Discussion

The findings of this study revealed significant associations between several demographic variables and anxious symptomatology, which provides a comprehensive view of potential risk factors in the population studied. Kruskal-Wallis analyses and Dunn's post-hoc tests (with Bonferroni correction) allowed the identification of specific groups with greater vulnerability to anxiety.

Age and Anxiety

The results of the present investigation indicated that younger students (18-21 years) exhibited significantly higher levels of anxiety than their older counterparts (22-25 years). This is consistent with the existing literature suggesting that young adults often face intense academic and social pressures, as well as uncertainty about the future, which contributes to a higher prevalence of anxious symptoms (Kosic et al., 2020). In particular, the transition to college life and job search may be significant stressors for this age group (Worsley et al., 2021).

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Academic Career and Anxiety

Significant differences in anxiety levels were found among different academic careers. Students in Health, Agri-Food, and Social Sciences reported higher levels of anxiety compared to those in Technology. These findings may reflect the specific demands and stress associated with each field of study. For example, health students often face high academic expectations, exposure to intense emotional situations, and worries about their professional performance (Gao et al., 2020). Similarly, careers in Agri-Food and Social Sciences may involve job uncertainty and pressure to address complex social problems. The lower prevalence of anxiety in Technology students may be related to a more structured and technical approach, as well as greater job opportunities today (Chang, 2023).

Study Time and Anxiety

Study day also proved to be a relevant factor in anxiety. Students with intensive study days presented significantly higher levels of anxiety compared to those with morning, afternoon or evening study days. This could be explained by the higher academic load and lack of free time associated with intensive days, which limits opportunities for unwinding and recreation (Norbury & Evans, 2019).

Gender, Sex and Anxiety

Consistent with previous research (Altemus et al., 2014), women showed significantly higher levels of anxiety than men. This differential according to the work of (Li & Graham, 2017) may be attributed to biological, hormonal, and sociocultural factors that influence women's experience of anxiety.

Socioeconomic Status and Anxiety.

Participants with incomes above $2000 showed higher levels of anxiety compared to those in lower socioeconomic categories. While this finding may seem counterintuitive, it may reflect the pressures and expectations associated with maintaining a certain standard of living and the fear of losing economic stability based on evidence provided by (Parra-Mujica et al., 2023).

Correlations between Dimensions of Nomophobia and Anxiety.

Additionally, this study revealed positive and significant correlations between the dimensions of nomophobia and general anxious symptomatology. In particular, the dimension “Giving up comfort” demonstrated the strongest correlation, suggesting that the discomfort of not having a cell phone is closely linked to the experience of anxiety (Güneş & Özdemir, 2021). These findings support the idea that overreliance on mobile devices may contribute to the development of anxious symptoms (Contreras-Pinochet et al., 2023).

Dimensions of Nomophobia and Anxiety.

The findings of this study confirm a significant relationship between nomophobia and anxious symptomatology, which highlights the importance of considering the use of mobile devices as a relevant factor in the mental health of college students. Specifically, positive and significant correlations between Nomophobia Questionnaire (NMP-Q) dimensions and DASS-21 total scores suggest that greater dependence and worry about not being able to access the cell phone are associated with higher levels of anxiety (Mir & Akhtar, 2020) .

The “Giving up comfort” dimension (Dimension_002) demonstrated the strongest correlation with anxiety ($\varrho = 0.36$). This dimension groups items related to the discomfort and unease that people experience when they do not have their cell phone, which can manifest as fear of running out of battery, panic of running out of data, or the constant need to search for a network connection (Lee et

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al., 2016). These findings suggest that anxiety associated with the loss of cell phone functionality can have a significant impact on individuals' emotional well-being (Brown & Medcalf-Bell, 2022).

The dimensions "Not being able to communicate" (Dimension_003) and "Not being able to access information" (Dimension_001) also showed moderate correlations with anxiety ($\varrho \approx 0.35$). The inability to interact socially due to the lack of the telephone (Dimension_003) can generate feelings of isolation and exclusion, which contributes to the experience of anxiety (Gallè et al., 2024). Similarly, anxiety about not being able to obtain immediate information (Dimension_001) may reflect an over-reliance on mobile devices as a source of knowledge and a low tolerance for uncertainty (Dabhi et al., 2024).

The dimension "Loss of connectivity" (Dimension_004) presented a slightly lower correlation with anxiety ($\varrho = 0.31$). Although fear of not being connected to the Internet is also associated with anxiety, it is possible that this factor is less relevant than loss of comfort, inability to communicate, or inability to access information (Ernst et al., 2024). However, loss of connectivity can lead to feelings of vulnerability and dependence on technology, which contributes to the experience of anxiety (Gyorda et al., 2024).

Taken together, these findings support the idea that nomophobia is a complex and multifaceted phenomenon that can have a significant impact on people's mental health. Overdependence on mobile devices and pre-occupation with not being able to access them can generate anxiety and emotional distress, highlighting the importance of promoting a balanced and conscious use of technology (Akun & Andreani, 2017).

Limitations and Future Research.

It is important to recognize that this study has some limitations. The cross-sectional nature of the design does not allow establishing causal relationships between the variables analyzed and anxiety. In addition, the sample was limited to university students, which restricts the generalizability of the results to other populations. In future research, it would be valuable to explore the influence of other relevant factors, such as social support, academic stress and healthy lifestyle habits, on the relationship between demographic variables and anxiety. Longitudinal studies are also recommended to examine the evolution of anxiety over time and to evaluate the impact of specific interventions aimed at reducing anxiety symptomatology in vulnerable groups.

Practical Implications.

Despite these limitations, the findings of this study have important practical implications. The identification of specific groups with increased vulnerability to anxiety may guide the development of personalized preventive and therapeutic interventions. For example, universities could implement psychological support programs aimed at younger students, those in high-demanding careers, and those with intensive study days. It would also be valuable to promote effective coping strategies to reduce over-dependence on mobile devices and encourage healthy lifestyle habits that contribute to emotional well-being.

5. Conclusions

The findings of this study show a significant relationship between several demographic variables (age, academic career, study day, gender and socioeconomic level) and the anxious symptomatology of university students. In particular, younger students, those in academic areas with high demands, those with intensive study days and women showed higher levels of anxiety, which highlights the need for differentiated approaches to address risk factors.

The research reveals that younger students (18-21 years old) experience higher levels of anxiety, suggesting that the transition stage to university life and social and academic pressures may be determining factors. These findings are consistent with previous studies indicating that anxiety in young adults is linked to uncertainty about the future and the challenges of university life.

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It was observed that students in areas such as Health, Agri-Food and Social report higher levels of anxiety compared to those in areas such as Technology. This may be attributed to the intense academic demands and pressure to address complex social problems that characterize these disciplines. These differences suggest the need to adapt support strategies to the specific characteristics of each career.

Students with intensive study days showed higher levels of anxiety, highlighting the importance of balancing the academic load with time for rest and recreation. Universities might consider implementing more balanced study days to mitigate the impact of academic stress.

Consistent with previous research, women experienced significantly higher levels of anxiety than men. This may be due to biological, hormonal, and sociocultural factors. Psychological support programs should take into account these gender differences to more effectively address the mental health of female students.

The findings also indicate that students with incomes above $2000 showed higher levels of anxiety, which may reflect the pressures and expectations associated with maintaining a given standard of living. This finding underscores the importance of considering socioeconomic status in the design of preventive interventions.

This study has shown that there is a significant correlation between nomophobia and anxious symptomatology. Over-reliance on mobile devices, particularly the worry about losing connection or functionality of the phone, contributes significantly to the experience of anxiety. Dimensions of nomophobia, such as “Giving up convenience” and “Not being able to communicate”, showed strong correlations with anxiety, highlighting the need for strategies to reduce dependence on technology.

The identification of factors such as age, academic career, study day, gender and socioeconomic status, as well as the impact of nomophobia, has important implications for the design of psychological support programs. It is crucial to develop personalized interventions for different groups of students who are more vulnerable to anxiety.

The cross-sectional nature of the study limits the ability to establish causal relationships. In addition, the restricted sample of university students means that the results cannot be generalized to other populations. Longitudinal studies exploring the evolution of anxiety over time and the impact of specific interventions on the reduction of anxious symptoms are recommended. Future studies could also consider other factors such as social support and healthy lifestyle habits.

Universities should implement psychological support programs aimed at younger students, those in high-demanding careers and with intensive study days. In addition, it would be useful to promote strategies to reduce dependence on mobile devices and encourage the development of coping skills and the adoption of healthy lifestyle habits that contribute to the emotional well-being of students.

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Institutional Review Board Statement: The study was conducted in accordance with the principles described in the Declaration of Helsinki. Ethical review and approval was waived for this study because of its observational, non-interventional design using anonymized survey data without sensitive personal identifiers. All participants gave written informed consent before completing the questionnaires, thus ensuring knowledge of the purpose of the study and their voluntary participation. This exemption is in accordance with national regulations for minimal risk educational research in Ecuador (SENESCYT Ministerial Agreement 052-2023).”

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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