

Risk factors for using mobile phones and social media among students in higher education institutions

Factores de riesgo en el uso del teléfono móvil y de las redes sociales en los estudiantes universitarios



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How to cite this article:

Sánchez-Sánchez, A. M.; Sánchez-Sánchez, F. J. and Ruiz-Muñoz, D. (2024). Risk factors for using mobile phones and social media among students in higher education institutions. *Doxa Comunicación*, 38, pp. 19-39.

<https://doi.org/10.31921/doxacom.n38a1959>



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Abstract:

Mobile phones have become indispensable devices for young people, transforming traditional socializing spaces into virtual ones. Excessive use of mobile phones can lead to problematic or addictive behavior. This study analyzes the dependence of university students on new technologies, specifically mobile phones and social networks. It aims to identify correlations between various variables that influence this dependence and associate them with parameters characterizing other types of addiction, such as substance use. The study employed the “Mobile Phone Problem Use Scale” questionnaire along with a questionnaire developed by the researchers to collect data on socio-demographic, psychosocial, and social network variables. A total of 371 students from Pablo Olavide University in Seville participated in the study. The results showed that 53.4% of the participants considered themselves dependent on mobile phones, while 35.1% reported dependence on social networks. Interestingly, the age of the students did not appear to influence problematic mobile phone use, but there was a notable gender difference, with women being more likely to misuse mobile phones than men.

Keywords:

University students; mobile phones; dependence; social networks; addiction.

Resumen:

El teléfono móvil se ha convertido en un objeto indispensable para los jóvenes, transformando los espacios de socialización tradicionales en otros virtuales. Su utilización excesiva genera un uso problemático o adictivo. Nuestro estudio analiza la dependencia de los universitarios a las nuevas tecnologías (teléfono móvil y redes sociales), identificando correlaciones entre variables que condicionen esa dependencia, y asociándolos con parámetros que caracterizan a otras adicciones relacionadas con el consumo de sustancias. Aplicamos el cuestionario «Mobile Phone Problem Use Scale», y otro de elaboración propia para las variables socio-demográficas, psicosociales y de redes sociales. Participaron 371 estudiantes de la Universidad Pablo Olavide (Sevilla). El 53.4% y el 35.1% se consideraron dependientes al teléfono móvil y a las redes sociales respectivamente. La edad de los estudiantes no influye en el uso problemático de los móviles. La probabilidad de efectuar un mal uso de los móviles es mayor en las mujeres que en los hombres.

Palabras clave:

Universitarios; teléfonos móviles; dependencia; redes sociales; adicción.

1. Introduction

Addiction has various definitions. According to Griffiths (2010), it encompasses behaviors meeting six criteria: salience, mood swings, tolerance, withdrawal, conflict, and relapse. On the other hand, Koob and Volkow (2010) describe addiction as a chronic process characterized by:

- Compulsive search and consumption behavior.
- Loss of control.
- Rapid need for reduction of a negative or dysphoric emotional state (anxiety, irritability), resulting in a withdrawal syndrome only alleviated by substance use. It's essential to differentiate between use, abuse, and actual addictive behavior.

The DSM-4 (Diagnostic and Statistical Manual of Mental Disorders) initially recognized addictions with substances under the label “Substance Abuse Disorders.” It's crucial to distinguish between abuse and dependence. In the DSM-4, abuse was defined as a maladaptive pattern of use that led to significant and recurrent adverse consequences related to repeated substance use, with no identified dependence, tolerance, or compulsive use pattern. Conversely, addiction, classified under “Substance Use Disorders,” encompasses concepts like dependence, tolerance, and withdrawal.

1.1. Addiction without Substance

Addictive behaviors aren't limited to substances; they can include any pleasurable activity that, for some individuals, turns into an addiction. A core element of this disorder is losing control over the chosen activity, even if it leads to adverse consequences. The DSM-5 classifies pathological gambling, previously an "Impulse Control Disorder" in the DSM-4, as a form of addiction known as "Non-substance addiction." Non-substance addiction involves repetitive behaviors that provide pleasure and stress relief, particularly in their initial phases, leading to a loss of control and negatively affecting an individual's life in various domains –family, work, or social. It shares characteristics such as withdrawal syndrome, tolerance, and loss of control with "Substance-Related Disorders and Addictive Disorders."

1.2. Abuse or Addiction to Mobile Phones and Social Networks

Excessive mobile phone use has been widely discussed in the media, sparking debates on whether it should be considered an addiction (Caro, 2018). Many people exhibit problematic use patterns, especially adolescents and young adults, leading to extensive studies on mobile phone addiction. While the DSM-5 doesn't explicitly categorize excessive mobile phone use as a behavioral disorder, it shares significant similarities with other addictive behaviors, like substance dependence. Several studies suggest that technology use can produce symptoms akin to other addictions. The term "addiction to new technologies" hasn't been officially recognized by organizations like the American Psychiatric Association (APA) or the World Health Organization, but it's considered part of social or behavioral addictions in the specialized literature. (Prieto and Moreno, 2015).

While there is no specific category in the DSM-5 that includes excessive mobile phone usage as a behavioural disorder, it is apparent that there are traits that exhibit significant resemblances with other disorders, like substance dependence. However, a number of studies suggest that the use of technology may lead to symptoms similar to those seen in other addictions (Echeburúa and de Corral, 2010; Labrador and Villadangos, 2010). The concept of addiction or dependence to mobile phones or the internet has been proposed to explain the harmful use and lack of control over technology, which can result in behavioural, emotional, and social issues (Shi et al., 2023). However, the term 'addiction to new technologies' has not yet been officially recognised by organisations such as the American Psychiatric Association (APA) or the World Health Organisation. Nevertheless, specialised literature regards it as a social or behavioural addiction analogous to other types of already established addictions (García del Castillo, 2013; Marciales and Cabra, 2010; Young, 2005).

One potential definition of mobile phone addiction, or an individual who is addicted to using a mobile phone, is someone who experiences a fear of not being able to utilise their device (Kara et al., 2021). This form of addiction could result in significant maladaptive reactions in the addicted individual (Anshari et al., 2019; Zwilling, 2022), including anxiety, depressive states, emotional imbalances, or disruptions to sleep and eating patterns (Elhai et al., 2017; Jahrami et al., 2021).

The issue does not stem from reliance on devices, but rather from the factors that lead to their misuse (Ahmed et al., 2011; Buchinger et al., 2011). Individuals prioritise social interaction through various online platforms, such as social networks, over more traditional forms of communication (Chóliz, 2010, 2012; Echeburúa et al., 2009; Ontiveros, 2015). Dependence on social networks is characterized by excessive usage leading to loss of control, withdrawal symptoms such as anxiety, depression, and irritability when unable to access the network temporarily, tolerance for increased online time, and negative impacts on daily

life (Sharma et al., 2023). While instruments have been developed to assess the addictive potential of these platforms, there is a lack of conclusive evidence (Chi et al., 2022).

1.3. Young People's Vulnerability to Mobile Phone and Social Media Abuse

Not all individuals become addicted to substances or behaviors, even if they engage in abusive behaviors. People are exposed to rewarding environments and stimuli, and not all cases lead to addictions, as each individual has a certain degree of vulnerability, which determines addictive behaviors. Vulnerability is influenced by different personality characteristics, such as impulsivity, sensitivity to immediate reinforcement, which conditions the inability to postpone (Hogarth, 2011), the need for seeking sensations or experiences, especially during adolescence (Zuckerman et al., 1993), low self-esteem, intolerance to frustration, the absence or difficulty of coping with daily challenges, as well as specific emotional variables, including a tendency to dysphoric moods, lack of affection, and poor social or family relationships (Echeburúa et al., 2009).

The rapid progress of new technologies and their easy accessibility has led young people to develop an intense relationship with the Internet and mobile telephony. This has made them the first generations in which changes in customs, habits, and attitudes are evident (Figueredo and Ramírez, 2008).

New technologies are integral to people's socialization process, influencing their way of life, attitudes, behaviors, customs, and more (Castellana et al., 2007). This is facilitated by the characteristics of the Internet itself, such as anonymity and flexibility, which encourage interaction. These features are particularly advantageous for communication among introverted individuals (Williams and Merten, 2008). Young people's virtual communication is influenced by their own perception, self-esteem, and the social benefits they derive from it (Bianchi and Phillips, 2005).

Numerous studies analyze the relationship between young people and new technologies, focusing on attitudes toward these technologies, their most common uses, the associated risks, and resulting addictions, as well as security systems (Vidales-Bolaños and Sádaba-Chalezquer, 2017), and different types of parental control (Wang et al., 2023).

The use of mobile phones in the field of learning is currently on the rise (Lepp et al., 2015), with young university students using them as tools to find information about their studies, organize, and communicate with their peers (Deribigbe et al., 2022; Zogheib and Daniela, 2022). This trend highlights potential differences in usage based on gender, age, or the field of study among university students. Adolescents and university students are considered the most at risk regarding new technologies. University students are an interesting population for studying technology dependence, especially since this university period represents a transition, often involving independence from the family and the start of new friendships and relationships, which can lead to changes in technology use habits (Fernández-Villa et al., 2015).

Regarding the analysis of social networks by young people, two main issues are addressed: the frequency of use and motivations for using them (Zheng and Cheok, 2011). Young people increasingly express themselves via mobile phones using virtual communication systems and social networks (Aguado and Martínez, 2006). Psychological motivations for their use are also being explored (Zheng et al., 2009), with a social approach seeking to analyze concepts like social capital and social well-being (Vidales-Bolaños and Sádaba-Chalezquer, 2017; Appel et al., 2014).

A significant portion of these studies involve university students as they are considered the most at-risk population (Polo et al., 2017). Based on these theoretical contributions and previous research, this study established various objectives. It aims to assess the degree of addiction to smartphones and social networks among university students at Pablo de la Olavide University and determine the sociodemographic and psychosocial factors favoring inappropriate use of smartphones and social networks. In accordance with the results of other studies (Álvarez & Moral,2020; Haro et al.,2022), the following research questions were formulated:

- Does student gender influence possible addictive use of mobile phones?
- Does the age of the student influence a possible addictive use of mobile phones?
- Does problematic mobile phone use lead to dependence on social media?

The study is conducted among students who evaluate their dependence on mobile phones using a questionnaire, a method employed in similar studies (Fekih-Romdhane et al., 2023; Li et al., 2023). This approach will help in developing profiles of university students' dependence on mobile phones and social networks, identifying potential correlations between various variables that may influence their use. It also contributes to the ongoing debate about whether excessive technology use should be considered as addictions.

2. Sample Design and Methodology

A quantitative methodology was employed to describe the observed reality (Hernández et al., 2016). Internationally standardized scales were used as data collection instruments to quantify addiction to mobile phones and social networks as the primary variables of analysis.

The questionnaire used is divided into three blocks that collect information on:

- Self-generated socio-demographic variables that gather information on population characteristics such as age, gender, self-assessment of socio-economic level, family situation, family independence, area of residence, smoking habits, and alcohol consumption.
- Variables analyzing mobile phone use based on the Spanish adaptation of the Mobile Phone Problem Use Scale (MPPUSA) (López-Fernández et al., 2012). The components that make up the questions on mobile phone use include: 1) frequency of use, 2) time of use, 3) purpose of use, 4) impact on other activities, 5) relationships and friendships, 6) emotional state, 7) habit, and 8) costs.
- Self-generated variables that analyze the use of social networks. Information is collected on the social networks used, frequency of publication of news or photos, the importance of the number of followers, and self-assessment of dependence on social networks, with the aim of assessing the possible consideration of problematic use of mobile phones and social networks as an addiction.

The last two blocks of questions provide certain items that facilitate the analysis for the possible consideration of problematic use of mobile phones and social networks as an addiction.

The study population comprises the students of Pablo Olavide University (UPO) in Seville, Spain.

For the collection of research data, ethical guidelines were adhered to. Research participants were made aware of the entire process and were informed about the research objectives, the type of participation required, or expected, and the use that will be made of the results obtained (Abad, 2016). Independent of the data collection function, accountability was addressed to the group of students who responded to the questionnaires, with the aim of informing them through classroom comments based on the results and the existence of a previous report. Among the ethical principles considered, informed consent was ensured, guaranteeing the autonomy and the right to privacy of the informant's data. Participants were made aware of the benefits and consequences that could arise during their participation in the research (Vargas et al., 2007). Data collection through questionnaires was conducted during April and May 2022.

The sampling design used is simple random sampling at a confidence level of 95%. The maximum sample error considered is 5%. The sample size consists of 371 students from different degree programs, including Business Administration and Management, Double Degree in Business Administration and Management and Law, Physical Activity and Sport Sciences, Environmental Sciences, and Labour Relations and Human Resources. The participating degree programs were randomly selected. The application was carried out in the classroom, with a member of the research team present to explain the study's aim, the privacy of the data collected, and to invite students to participate voluntarily. They were also provided with an explanation of the concept of dependence on mobile phones and social networks to assess their usage properly.

For data analysis, a descriptive study of the variables was conducted. The Chi-Square (Chi²) test of independence was used to examine the dependence between variables, complemented by Yule's Q coefficient to measure the association between dichotomous nominal variables.

Once the variables that show a relationship were identified, binary discrete choice models were applied to explain this relationship and quantify it. These models reflect an individual's choice between various possible alternatives. In our study, as there are only two alternatives, we used binary choice models, specifically the Probit model. This model helps identify the characteristics or factors that influence an individual's behavior in response to a specific decision process.

The Probit model is a non-linear binary choice model based on the Normal distribution function. It provides a measure of the probability of choosing the alternative under study. In our case, we quantify the probability of self-rated dependence on mobile phones and the probability of dependence on social networks.

IBM SPSS Statistics v27.0.0.0 and Econometrics E-views 9.5 were used for the statistical processing of the data.

3. Results

The results can be divided into two parts: descriptive analysis of the variables and analysis of the dependence between variables.

3.1. Descriptive analysis of the variables

The following tables show the percentage of positive responses to the items analyzing variables referring to mobile phone use.

Table 1. Mobile phone usage

Frequency of use	Percentage (%)
Mainly on working days	3
Mainly at weekends	1.3
Every day	95.7
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Time of use	Percentage (%)
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Less than 30 minutes a day	.8
30 minutes to 1 hour per day	6.5
1 to 2 hours per day	21.8
2 to 3 hours per day	22.4
More than 3 hours a day	48.5
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Purpose of use	Percentage (%)
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Calls	14.5
WhatsApp	33.3
SMS	.1
Entertainment with gaming applications	6
Social media	32.1
Surfing the internet	14
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Source: own elaboration

Table 2. Psychosocial aspects of mobile phone use

Impact on other activities	Percentage (%)	
	Yes	No
Stops activities (study or work)	32.6	67.4
Spending time on your mobile phone when you should be doing other things and this is causing you problems	36.1	63.9
Mobile phone use has taken away hours of sleep	48.8	51.2
When he is on the phone and doing something else, he gets carried away with the conversation and I don't pay attention to what he is doing.	55.3	44.7
Decrease in performance	17.5	82.5
Discomfort associated with mobile phones	5.9	94.1
Preference of mobile phone use over other more pressing issues	13.7	86.3
Arriving late when you are hooked on your mobile and you shouldn't be	4.3	95.7
In a hurry because the mobile phone has rung in class, cinema or theatre.	31.8	68.2
Relationships and friendships	Percentage (%)	
	Yes	No
Hiding time spent on mobile phones from others	4.3	95.7
Friends and family complain about mobile phone use	27.8	72.2
If I didn't have a mobile phone, it would be difficult for friends to get in touch.	77.6	22.4
Friends don't like it when my mobile phone is switched off.	32.1	67.9
Emotional state	Percentage (%)	
	Yes	No
Able to bear not having a mobile phone	62.3	37.7
Feels impatient and annoyed when not holding a mobile phone	14.3	85.7
Keeping your mobile in mind even when you're not using it	10	90
Difficulty concentrating in class while working or doing homework	27.8	72.2
When he has felt bad he has used his mobile phone to feel better.	32.3	67.7
When you are not reachable on your mobile phone, it makes you nervous.	21.8	78.2

Using the mobile phone to talk when feeling lonely or isolated	66	34
Nervousness when not checking the mobile phone for a long time	22.4	77.6
Dreaming of mobile phones	.8	99.2
Bad mood when you switch off your mobile phone	3.8	96.2
Feeling lost without a mobile phone	25.9	74.1
Impatience for the latest technology in mobile devices	18.9	81.1
	Percentage (%)	
Habit	Yes	No
Never enough time for the mobile phone	18.3	81.7
Time spent on mobile phones has increased in the last 12 months.	28.8	71.2
Tries to spend less time on mobile phones but is unable to do so	12.1	87.9
He finds it difficult to switch off his mobile phone	29.1	70.9
You find yourself hooked to your mobile phone more than you would like to be	37.5	62.5
He has been told that he spends too much time on his mobile phone.	31.5	68.5
	Percentage (%)	
Costs	Yes	No
You have spent more on mobile than you should or could afford to pay for.	8.6	91.4
	Percentage (%)	
Self-assessment of the unit	Yes	No
To mobile phone	46.6	53.4
To social networks	34.7	65.3

Source: own elaboration

Self-assessment of Dependence: 46.6% of university students self-assess themselves as dependent on mobile phones, while the percentage drops to 34.7% in the case of dependence on social networks.

Social Networks: In the analysis of social network usage, 35.1% of university students acknowledge excessive use of them, with 91.4% of students using social networks. Among those who use them, 30.9% say they use Instagram, 26.2% use Facebook, 24.9% use Youtube, 12.6% use Twitter, 1.1% use LinkedIn, and 4.2% say they use other social networks. 60.8% post news or photos

on social networks from time to time or when they have time, 18% post news or photos 2 or 3 times a week, 13.9% mostly on weekends, 5.9% every day, and 1.5% several times a day. 89.1% do not attach any importance to the number of followers they have on social networks, compared to 10.9% who do.

3.2. Analysis of the Dependence Between Variables

We investigated the relationship between university students' self-assessment of their dependence on mobile phones and social networks with respect to socio-demographic variables. For this analysis, the Chi2 test of independence was applied, and the results are presented in Tables 3 and 4.

The Chi2 statistic and the significance level indicate that the dependence of university students on mobile phones is associated with the variables of gender and social network dependence. The results reveal a strong positive relationship between mobile phone dependence and social network dependence, implying that problematic mobile phone use leads to social network dependence. On the other hand, the association between mobile phone dependence and gender is negative, indicating a greater dependence on mobile phones in women than in men.

Table 3. Analysis of independence with respect to the assessment of mobile phone dependence

Variables	Chi2	Significance level	Q Yule
Age	8.289	.082	-
Gender	10.381	.001*	-.3262
Socio-economic level	2.478	.290	-
Family situation	5.882	.117	-
Family independence	.036	.850	-
Area of residence	.019	.890	-
Alcoholic beverages	1.099	.294	-
Smoker	2.537	.111	-
Dependence on social networks	146.637	.000*	.9315

* $p < .01$

Source: own elaboration

The relationship between university students' assessment of dependence on social networks and socio-demographic variables was studied. The results indicate the existence of an association between age and dependence on social networks, as well as between gender and dependence on social networks (see Table 4). The association between age and social network dependence

is weak, while the relationship between social network dependence and gender is moderate and negative, indicating that women are more dependent on social networks than men.

Table 4. Analysis of independence with respect to dependence on social networks

Variables	Chi2	Significance level	Q for Yule
Age	9.612	.047*	-
Gender	25.144	.000**	-.5097
Socio-economic level	3.441	.179	-
Family situation	2.939	.401	-
Family independence	.090	.764	-
Area of residence	.495	.482	-
Alcoholic beverages	.276	.599	-
Smoker	.973	.324	-

* $p < .05$. ** $p < .01$

Source: own elaboration

The analysis now focuses exclusively on those variables that exhibit statistically significant dependence. These variables determine and quantify the categories between which this relationship is established, and different Probit models are proposed and estimated. The first of these has the dependent variable as the assessment of dependence on the mobile phone, with gender as the independent variable (Model I).

Table 5 provides the estimated coefficients of Model I, which are used to construct the Probit model equation. The estimation of the model provides the probability that a student is defined as mobile phone dependent. It also includes the test statistics (Z-statistic) and the significance level to evaluate the hypothesis of statistical significance associated with each variable. The gender variable is statistically significant in explaining the mobile phone dependence variable. It can be concluded that the model constructed is globally significant (LR level of significance).

The coefficients estimated by Model I indicate that the probability of a student considering themselves dependent on a mobile phone is higher for females than for males.

Table 5. Summary of Model I

Variables	Estimated coefficients	Z-statistic	Significance level
Constant	.1349	1.4277	.1534
Gender	-.4231	-3.2190	.0013*
Statistician LR	10.4243		
Significance level (LR)	.0012*		

p<.01*Source: own elaboration**

The marginal effect of each variable is quantified by the product of the value of the Normal density function at a given point (the mean will be taken as the reference point) and the corresponding parameter. In our study, the average marginal effect of gender on the probability of mobile phone dependence is -16.70%, indicating that the average probability of mobile phone dependence is 16.70% higher for females than for males.

In Model II, dependence on social networks is proposed as a dependent variable, with gender and dependence on mobile phones as independent variables. Age has not been included as an independent variable in the Probit model, despite showing dependence on social networks in the Chi2 test analysis. This is because including it in the model indicates that it is not statistically significant, and the results derived from its inclusion would be erroneous. Therefore, it has been excluded from the analysis.

Table 6. Summary of Model II

Variables	Estimated coefficients	Z-statistic	Significance level
Constant	-1.2056	-7.5928	.0000*
Gender	-.5744	-3.5110	.0004*
Self-assessment of mobile phone dependence	1.9170	11.1381	.0000*
Statistician LR	176.6049		
Significance level (LR)	.0000*		

p<.01*Source: own elaboration**

The coefficients estimated by the model indicate that the probability of considering oneself as dependent on social networks is higher for women than for men, and that the probability of dependence on social networks is higher for those with mobile phone dependence. Gender and mobile phone dependence are statistically significant, confirming the validity of the model (see Table 6).

The analysis of the average marginal effect that gender has on the probability of dependence on social networks is -14.17%, indicating that the average probability of dependence on social networks is 14.17% higher for women than for men.

The study of the average marginal effect of mobile phone dependence on the probability of social network dependence is 58.22%, with the average probability of social network dependence being 58.22% higher for students with mobile phone dependence.

4. Discussion

In relation to our first research proposal, which aims to determine both personal and psychosocial variables related to dependence on mobile phones and social networks among university students, we can highlight the high percentage of students who recognize that they are dependent on mobile phones (46.6%). This finding suggests that when young people have access to this technology, it is challenging for them to do without it, leading to prolonged usage hours and increased vulnerability to excessive and addictive use (Ertemel et al., 2023). Approximately 30% of them reported difficulties in switching off their handsets, indicating that they have recognized the significant increase in mobile phone use over the past year and have received comments from their peers and environment regarding their excessive mobile phone usage.

The coexistence of smartphone addiction and depressive symptoms among university students is notable, as these aspects are highly correlated (Shi et al., 2023). This is consistent with the results of our study, as mobile phone use is linked to emotional states. For instance, students reported using mobile phones to cope with loneliness (66%) or when feeling down (32.3%). These findings align with previous studies (Romero and Aznar, 2019; Echeburúa, 2012; Pourafshari et al., 2022; Wei et al., 2023).

It's important to note that percentages of mobile phone dependence in the literature vary widely, with figures ranging from 2.8% to 26.1% for different studies, making direct comparisons challenging due to differences in the basic concept of dependence. In our study, the primary uses of mobile phones are connecting to the internet, particularly through WhatsApp (33.3%), social networks (32.1%), and general internet browsing (14%). Traditional phone calls appear to be a lower priority, with only 14.5% of students using their phones for this purpose.

Problematic internet use rates also vary across studies, with percentages between 3.7% (Estévez et al., 2009), 6.1% (Carbonell et al., 2012) and 9.9% (Muñoz-Rivas et al., 2010). In our analysis, the percentages of social network use are very high, with 91.4% of students using them, and 35.1% of these students consider themselves dependent on social networks. The most frequently used social networks include Instagram (30.9%), Facebook (26.2%), Youtube (24.9%), Twitter (12.6%), LinkedIn (1.1%), and other social networks (4.2%).

The results of our study indicate a strong relationship between dependence on mobile phones and social networks, suggesting that university Students dependent on mobile phones are more likely to be dependent on social networks (58.8%).

In terms of socio-demographic variables, we did find statistically significant differences between men and women with regard to the use of mobile phones and social networks. Specifically, women are 16.7% more likely to engage in problematic mobile phone use than men, and 14.17% more likely to exhibit social network dependence (Tu et al., 2022). While a mild correlation between social network dependence and age is observed, this relationship does not attain statistical significance in the regression model that explains this association, which differs from Labrador and Villadangos (2010).

Other socio-demographic variables, such as socio-economic level, family situation, family independence, area of residence, and alcohol and tobacco consumption, do not appear to be determinants of dependence on mobile phones and social networks in our results. This contrasts with the findings of Sánchez-Martínez and Otero (2009), which highlighted the role of certain socio-demographic variables in determining intensive mobile phone use. Consequently, we conclude that only gender is a predisposing factor for dependence on mobile phones and social networks.

Based on our results, university students who admit to problematic mobile phone use and dependence on social networks are aware of their excessive or addictive use of new technologies. Approximately half of the students acknowledge dependence on mobile phones, and more than a third admit dependence on social networks. This emotional connection plays a crucial role, and there is a strong correlation between dependence on mobile phones and social networks (Moral and Suárez, 2016).

University students who recognize problematic mobile phone use are nearly 60% more likely to engage in excessive use of social networks. Additionally, women are more likely to be dependent on either of the two technologies analyzed.

In terms of considering the abusive use of these technologies as a potential addiction, the questionnaire we used introduced parameters to identify addictive behaviors, such as salience, mood changes, tolerance, withdrawal, conflict, and relapse (Griffiths, 2010).

Our results align with these parameters as they identify certain psychosocial aspects related to salience. More than 30% of respondents acknowledged that they spend excessive time on their mobile phones when they should be engaging in other activities like studying, working, or physical activities (Huang et al., 2022). This behavior led to problems such as sleep deprivation (48.8%) (Brautsch et al., 2023) or neglect of other, more urgent matters (13.7%) (Aydın and Aydın, 2022). Other aspects analyzed are linked to the withdrawal syndrome. For instance, 37.7% of university students do not believe they can go without their mobile phones, 14.3% become impatient or irritable when not holding their phones, and 22.4% experience nervousness when not checking their mobile phones for some time (Wong et al., 2022). Additionally, 3.8% experience irritability or moodiness when switching off their phones. Aspects associated with conflict were also explored. Approximately 27.8% of respondents reported that their friends and family have complained about their excessive mobile phone use, and 4.3% admitted that they hide the time spent on their mobile phones from others. These findings align with other studies indicating an inverse relationship between social skills and social network addiction (Vásquez et al., 2020).

These results demonstrate significant similarities between problematic use of these technologies and what is traditionally termed substance-related addictions.

5. Conclusions

The results of this study underscore the importance of focusing on the education of young people to promote controlled and responsible technology use. Preventing and educating about attitudes towards technology is fundamental and should commence from an early age. With the increasing access to mobile devices at younger ages, it is imperative to develop prevention and treatment programs that provide comprehensive interventions, such as psychosocial support, self-control techniques, psychoeducation, stress management, and emotional re-education. These interventions can foster adaptive technology use, particularly among vulnerable populations like adolescents.

Regarding the potential classification of problematic mobile phone and social network use as an addiction, it's important to acknowledge that this remains a topic of debate within the scientific community. As technology continuously evolves, users adapt, and distinguishing between transient disruptions inherent to any evolutionary process and those that may constitute a behavioral addiction becomes challenging. Currently, no behaviors resulting from technology use are considered addictive diseases. However, the introduction of "non-substance related addictions" in DSM-5 is a significant step toward incorporating behavioral addictions into diagnostic classifications. As these behaviors evolve, their inclusion in mental health categories will elevate their importance and spur the development of multidisciplinary techniques and resources for diagnosis and comprehensive treatment.

The primary limitation of this study is its limited scope, given that the sample consists of students from a single university. This limitation reduces the generalizability of the findings and introduces the possibility of bias. Future research could build upon these findings by expanding the study to include students from other regional, national, or international universities.

Further investigations could delve into the types of social relationships that university students maintain through mobile phones and social networks, exploring how these relationships can be positive without rendering the mobile phone indispensable.

Additionally, it would be beneficial to examine the habits and activities of university students who are less dependent on new technologies, such as participation in sports, social or cultural activities, or involvement in associations. This analysis could provide insights into whether promoting these alternative activities among students with problematic mobile device use might reduce their level of dependence.

6. Acknowledgments

The English version of this article has been reviewed by Marvellous Adebayo to whom we are grateful for his work.

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8. Conflict of interest

The authors declare that there is no conflict of interest contained in this article.

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