

# Emotional (Dys)regulation in University Students. When Mobile Device Addiction takes its Toll

(Des)regulación emocional en estudiantes universitarios: cuando la  
adicción a dispositivos móviles pasa factura

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## Summary

The research addresses the link between emotional dysregulation, nomophobia, and Instagram addiction in Chilean university students. A quantitative study of correlational scope was conducted with a non-experimental cross-sectional design. The sample consisted of 218 university students from south-central Chile, who answered the Difficulties in Emotional Regulation Scale (DERS-E), the Nomophobia questionnaire NMP-Q, the Berger Instagram Addiction Scale (BIAS) and reported some parameters of their Instagram account activity. The results account for multiple correlations between nomophobia and Instagram addiction with all dimensions of emotional dysregulation. The number of followers and posts on the Instagram platform did not correlate with the dimensions of emotional dysregulation, although they did show correlations with nomophobia and Instagram addiction. The number of followers, on the other hand, showed correlations with some dimensions of emotional dysregulation. The article closes with a discussion of the implications of the excessive use of mobile devices on the mental health and functioning of university students.

**Keywords:** Emotional regulation; Nomophobia; Instagram; Social media; University.

## Resumen

La investigación aborda el vínculo entre la desregulación emocional, nomofobia (miedo a quedar sin dispositivo móvil) y adicción a Instagram en estudiantes universitarios chilenos. Se condujo un estudio cuantitativo de alcance correlacional con un diseño no experimental de corte transversal. La muestra consistió en 218 universitarios de la zona centro sur de Chile, quienes respondieron la Escala de Dificultades de Regulación Emocional (DERS-E), el cuestionario de Nomofobia NMP-Q, la Escala de Adicción a Instagram de Berger (BIAS) e informaron algunos parámetros de la actividad de sus cuentas en Instagram. Los resultados arrojaron correlaciones significativas entre nomofobia, adicción a Instagram y las dimensiones de la desregulación emocional. El número de seguidos y de publicaciones en la plataforma de Instagram no tuvo correlación con las dimensiones de la desregulación emocional, aunque sí evidenciaron correlaciones con la nomofobia y la adicción a Instagram. La cantidad de seguidores, por otra parte, mostró correlaciones con algunas dimensiones de la desregulación emocional. El artículo cierra con la discusión de las implicancias del uso desmedido de dispositivos móviles en la salud mental y funcionamiento de los estudiantes universitarios.

**Palabras claves:** Regulación emocional; Nomofobia; Instagram; Plataformas de redes sociales; Universidad.

## INTRODUCTION

As we enter the 21st century, psychological research has been fruitful in finding links between subjective experience and psychological functioning as response variables in the face of increasingly diverse technological stimuli. This development has been evidenced at a conceptual and empirical level in issues such as video game addiction, cyberbullying and the impact of the Internet on individuals and society. With this scenario as a background, the study of the specific uses adopted by technology users in relation to different constructs of interest for Psychology has become more relevant. Currently, social participation in virtual networks and the ubiquitous use of mobile devices constitute a research topic in full development, with multiple gaps in both the psychological variables with which they are associated, as well as the specific networks in which users sign up.

Emotional regulation, broadly understood as a modulating process of psychophysiological reactions (Gómez & Calleja, 2016) plays a role of capital importance in the configuration of mental health (Caqueo-Urizar et al., 2020), constituting a valuable resource for psychotherapeutic practice. This process is mediated by cognitions, and by the revaluation that people make about their context, whose emotional expression would ultimately be the trigger for behavior (Godínez & Flores, 2019). Adequate emotional regulation favors the positive processing of experiences, contributing to the ability to cope with stressful events, tolerate frustration, resolve conflicts, improve interpersonal relationships and increase well-being and happiness (Wills et al., 2016).

Conversely, an emotionally dysregulated system is often associated with psychological dysfunctions of various kinds, as well as with the manifestation of disruptive behaviors, especially in young population (Caqueo-Urizar et al., 2020). Under this perspective, emotional dysregulation represents a poor management of emotions that has a negative impact on personal and social functioning with clear implications for the development and progression of psychopathologies. The predictive role of emotional dysregulation on mental health indicators has been strongly supported by scientific evidence, which has justified its consideration as a cross-cutting factor in psychological diagnoses (Cludius et al., 2020).

In young people and adolescents, emotional dysregulation has been observed to predict multiple behavioral manifestations of impulsivity (Miller & Racine, 2022), highlighting its link with drug dependence (Kober, 2014), sexual risk behaviors (Kuo et al., 2014), eating disorders (Monell et al., 2015; Monell et al., 2018; Racine & Horvath, 2018) and self-injury (Gratz & Roemer, 2008; Shafti et al., 2021). Applied research, however, has shown that therapies and programs that strengthen emotional regulation skills are effective in reducing such manifestations (Berking et al., 2008; Houck et al., 2018).

More broadly, emotional regulation can be interpreted as an indicator of emotional intelligence, being associated with a set of skills that facilitate the control and expression of emotions (Santoya et al., 2018). Currently, the conceptualization of emotional regulation points to a multidimensional and integrative vision, under which multiple dimensions underlie, as identified in the various measurement instruments that have been created in its name (Guzmán-González et al., 2020).

According to Gratz and Roemer's (2004) model, emotional regulation involves an awareness and understanding of emotions, their acceptance, the ability to control behavioral impulses and the ability to apply strategies according to each situation. The authors add that the absence of these elements, whether partial or total, would constitute indicators of emotional dysregulation. The psychometric expression of this model is translated into five factors, whose validity and reliability has been satisfactorily tested in different populations (Cancian et al., 2019; Guzmán-González et al., 2014; Marín et al., 2012). Emotional dyscontrol refers to the difficulty in controlling impulses and a limited repertoire of regulation strategies. People with difficulties in this area convince themselves of the impossibility of carrying out actions to regulate their emotions and are unable to maintain control of their own behavior when experiencing negative emotions. Emotional Confusion refers to the lack of clarity that the person experiences in relation to their emotions. People with difficulties in this area find it difficult to identify and understand their emotions. Emotional Inattention corresponds to a lack of awareness and inattention to emotional responses. A typical case of difficulty in this area consists in downplaying one's own emotions and feelings. Emotional Interference refers to the difficulty to engage in behaviors oriented to the achievement of certain goals or activities. This condition implies lack of concentration and difficulties to perform tasks when experiencing negative emotions. Finally, Emotional Rejection corresponds to a tendency to present negative emotional responses towards oneself, presenting feelings of shame, guilt and self-loathing.

The literature also shows the role that emotional regulation plays in specific stages of life and in populations exposed to greater stress conditions. In this regard, the university population constitutes a group of special interest, since the transition and permanence in higher education is in itself a demanding process (Castillo et al., 2021), which is usually accompanied by relevant changes and milestones that may alter the sense of stability and identity, so that the negative perception of being located in a transitional phase between adolescence and adulthood prevails (Barrera & Vinet, 2017). Although this group seeks to achieve greater levels of autonomy and participation, they remain emotionally and financially dependent on their families. The responsibilities of adulthood generate greater uncertainty in decision making and in the development of their life projects, postponing significant milestones such as leaving home, marriage and parenthood.

In addition to the above, the university constitutes a scenario where students deploy their competencies and skills to achieve their academic objectives, and where they must adapt to the pressure of the environment and face new responsibilities (Juárez & Silva, 2019). All these changes can be a source of emotional instability, especially when negative perceptions are added, such as helplessness to cope with the academic load and uncertainty about permanence in the institution (Duche et al., 2020). Consequently, it is not surprising that in the university population there is a high prevalence of mental disorders, as illustrated by multiple studies (Baader et al., 2014). In Chile, it has been estimated that more than 40% of university students present symptoms of stress, depression and anxiety (Barrera et al., 2019).

Although emotional regulation has been extensively studied by psychology (Caqueo-Urizar et al., 2020), its link with the impact of digital technologies on people's lives has been scarcely addressed. The accelerated transformation of social life due to technological changes implies a necessary update of the frameworks of analysis for psychological science. The gaps in

knowledge form a minefield for studies that relate psychological constructs to facets of the technological realm, whose speed of change far exceeds the pace of reading that social researchers can provide (Castillo, 2021). This dynamism can be well exemplified by the use of virtual platforms and participation in social networking communities, which are both a cause and a consequence of the new trends permeating among young users. In this regard, although there have been studies that analyze dependence on mobile devices, there is still little information about the specificity of these uses in terms of users' emotional regulation (Amendola et al., 2019; Gioia et al., 2021).

Most studies have focused on the addictive use of Facebook (Gracia et al., 2020), a platform that has been the leader in attracting users worldwide but is gradually being displaced by other networks such as Instagram, TikTok and Snapchat (Giraldo & Fernández, 2020). Few studies have pointed out the link between emotional difficulties and nomophobia, understood as the dependence associated with the compulsive use of mobile devices (Catone et al., 2020; Celik & Atila, 2018; Enez, 2021). In addition, most of the studies come from the North American and European context (Ercengiz et al., 2020; Santl et al., 2022; Valenti et al., 2022).

Nomophobia would be characterized by the presence of anxiety, discomfort and stress when access to a mobile device and the functionalities it provides, mainly the internet, are not freely available (King et al., 2013). According to Gonçalves et al. (2020) the use of mobile devices can interfere with several aspects of daily life and trigger pathological dependence, affecting health and well-being. Evidence highlights the link between nomophobia and psychosocial conditions such as obsession, hostility, somatization, anxiety, psychoticism and depression (Gonçalves et al., 2020). It has recently been hypothesized that those with nomophobia present greater psychological problems due to deficient or maladaptive emotional regulation strategies (Santl et al., 2022). Although nomophobia is not officially recognized as a psychological disorder in clinical manuals, it is evident that it has characteristics in common with behavioral addictions, so correlations similar to those found between other addictions and emotional dysregulation could be expected.

Considering that the excessive use of mobile devices is largely driven by participation in social networking platforms, we are interested in knowing the relationship and magnitude between emotional regulation and nomophobia, specifically in active Instagram users. This social network is one of the most used by the university population, however, it is also one of those that can cause the most negative impacts on its users. The use of Instagram can enhance anxiety and depression, alter sleep hours, distort body self-image, and increase the need to stay connected so as not to miss out on social events that happen on the network (Royal Society for Public Health [RSPH], 2017).

By virtue of the above, this research aims to provide relevant knowledge that highlights the impact of technologies on the socioemotional configuration of the university population. The objective has been to establish the correlation between the dimensions of emotional dysregulation with the levels of nomophobia, Instagram addiction and account activity parameters in users of that platform. In addition, differential effects based on gender and the affective-sexual situation of the users are also considered. The socialization of the findings may be an input for decision making and for the planning of intervention programs.

## METHOD

### Type of Study

Quantitative research was conducted with correlational and group comparison procedures. According to the temporary nature of the study, the study was adapted to a cross-sectional design, with data collection taking place between March and June 2022. According to the classification system proposed by Ato et al. (2013), the research was framed within the logic of cross-sectional correlational studies, which prioritize the exploration of relationships between variables without any pretension to assume causality between them. Given these characteristics, the study is in line with the classical quantitative tradition with a non-experimental design, where the researchers assume a passive role in the treatment of the variables, without any deliberate manipulation of them, but rather they are studied in their natural context. The variables were measured through structured instruments within a single sample of participants.

### Participants

Data collection was carried out by means of quota sampling, taking as a reference the proportionality of the enrollment based on sex and institution. In addition to the above, inclusion criteria were established to ensure the following conditions: have a current enrollment in a university in the city of Los Angeles in 2022, active Instagram user and an informed consent signed prior to the implementation of the questionnaire. Students under the age of 18 and those who did not have an Instagram account at least one month old or did not use a personal account were excluded.

The minimum sample size was calculated a priori through the formula proposed by Browner et al. (2013), establishing a referential size of 194 elements, based on a significance level of 0.05 ( $\alpha$ ), a statistical power of 0.8 ( $1-\beta$ ) and an expected correlation of 0.2 ( $r$ ). These parameters were chosen according to the conventional intervals for  $\alpha$  and  $\beta$  in social science research (Quispe et al., 2020). The final sample consisted of 218 participants, who presented a mean age of 22.57 within a range of 18 to 36 years old. The majority identified themselves as female (55.5%). In turn, regarding the distribution of the participants' residence, the county of Los Angeles prevailed (83.0%), followed by some neighboring counties such as Nacimiento (6.0%), Cabrero (1.8%) and Laja (1.8%), among others.

### Instruments

#### *Instagram account activity parameters.*

A pool of five ad-hoc formulated questions was developed in relation to user account information on Instagram. We inquired about the privacy settings of the account (public / private), the frequency with which the user publishes stories on his profile (Almost never / Once or several times a month / Once or several times a week / Once or several times a day), the number of posts visible on their *feed* or wall, the number of followers and followed. To answer these questions, participants were asked to review their profile and provide accurate information at the time the survey was applied. Additionally, an ex-post variable called follower to following ratio was

created, which measures the number of followers as a function relative to the number of followed accounts, where a ratio greater than 1 indicates that an account has more followers than following accounts, while a ratio less than 1 would imply the opposite. A ratio equal to 1 means the equivalence between followers and followed accounts. The choice of these indicators is in line with the information that the Instagram page itself displays on its interface. In addition, according to Harrell and King (2021), the follower to following ratio is an indicator of user status and popularity, while the number of publications and frequency of use are variables of activity widely used in studies of social media (e.g., Longobardi et al., 2020).

#### ***Difficulties in emotional regulation scale (DERS-E).***

The original version was designed by Gratz and Roemer (2004) to measure emotion dysregulation from a multidimensional perspective, integrating awareness and understanding of emotions; acceptance; the ability to engage in goal-directed behaviors and control impulses in the face of negative emotions; and access to emotion regulation strategies perceived as effective. It was subsequently translated by Hervás and Jódar (2008) and adapted to the Chilean context by Guzmán-González et al. (2014). The adapted version consists of a set of 25 items distributed in five dimensions: a) Emotional Dyscontrol; b) Emotional rejection; c) Emotional interference; d) Emotional inattention; e) Emotional confusion. In the study by Guzmán-González et al. (2014) the scale as a whole presented a Cronbach's alpha coefficient of 0.92, while in its dimensions, reliability ranged between 0.71 and 0.89. Similarly, the authors confirmed the factor structure of the five-dimensional model ( $\chi^2 = 858.06$ ,  $df = 265$ ,  $p < .001$ ; RMSEA = .04; CFI = .92; NFI = .91; NNFI = .89) and presented evidence in favor of the criterion validity of the adapted scale.

#### ***Nomophobia Questionnaire NMP-Q.***

This instrument was originally developed by Yildirim and Correia (2015) to measure the fear of losing one's mobile device. The version used in the study corresponded to the Spanish translation by Ramos-Soler et al. (2017). This version consists of a battery of 21 items presented in Likert format with five options ranging from strongly disagree to strongly agree. Reliability and validity analyses in previous studies have shown that it meets adequate psychometric guarantees, thus, for example, González-Cabrera et al. (2017) highlight the correlation that this instrument yields with the scores of the *Mobile Phone Problem Use Scale* and the *Generalized Problematic Internet Use Scale*. Both the study by González-Cabrera et al. (2017) and Ramos-Soler et al. (2017) estimated an overall reliability with a Cronbach's alpha value around 0.9. For analysis purposes, only the overall scale score was used because the Ramos-Soler et al. (2017) version does not specify factor loadings for the theoretical dimensions of the construct.

#### ***Berger's Instagram Addiction Scale (BIAS).***

It corresponds to a unidimensional scale of six items presented in Likert format with responses ranging from 1 (very rarely) to 5 (very often). It was modified and validated by Chávez and Vallejos-Flores (2021) based on the review and adaptation of a counterpart version for Facebook (BFAS) developed by Andreassen et al. (2012) and adapted to Spanish by Vallejos-Flores et al. (2018). The BIAS scale assesses dependence on Instagram use by taking into account the six criteria typical of behavioral addictions, i.e., that the activity dominates thinking and behavior; that the activity modifies mood; that the activity develops the need for a greater amount of use to achieve prior reward; that the absence of the activity generates feelings of discomfort; that the activity causes conflicts with personal and social life; that there is a tendency to relapse into the

activity after a period of abstinence. In terms of its psychometric properties, the BIAS scale has presented a good fit to the unidimensional structure and a Cronbach's alpha coefficient of 0.925. Likewise, evidence of convergent validity has been found for the scale based on its relationship with addiction to other social networks (Chávez & Vallejos-Flores, 2021).

## Procedure

The project was evaluated by the macro-zoning Ethics Committee of a Chilean university (Universidad Santo Tomás - UST) with positive resolution gloss 22-19. The web calculator <https://sample-size.net/correlation-sample-size/> was used to calculate the sample. The data for establishing participant quotas were calculated proportionally based on enrollment data from the National Council of Education. Based on the above, a double-entry table was constructed considering the population distribution based on sex and institution, obtaining for each box the percentage to be used as a quota in the sample. Data were collected using the CAWI procedure (Computer Aided Web Interviewing) based on the socialization of a link in Google Forms. The link was disseminated on social media platforms, institutional accounts, as well as in public spaces and universities. The form included a description of the informed consent, and acceptance of the consent form led to the questions section.

## Data Analysis

The exploration of the data was guided by descriptive techniques based on the calculation of frequency distributions for categorical variables and summary statistics for quantitative variables. Depending on the properties of each distribution, the statistician and hypothesis test that best fit the characteristics of the data were defined. Three variables were used to establish comparisons between groups: Gender (Female / Male), Sex-affective relationship (With relationship / Without relationship) and Nomophobia level (Low / Medium / High). For this last variable, a recoding was performed establishing three levels with homogeneous percentages of participants. The quantitative variables associated with the parameters of the Instagram account showed high levels of asymmetry, with extreme values in the right side of each distribution, which is why these variables were analyzed using nonparametric tests, such as the Mann Whitney U test, Wilcoxon's H test and Spearman's correlation. The measures associated with the emotional dysregulation, nomophobia and Instagram addiction scales, although they did not obtain a significant fit to normality, showed reasonably symmetrical distributions, which is why they were analyzed by means of parametric statistics. The t-test and Anova tests were used to compare means between groups, an analysis that was accompanied by the post-hoc Bonferroni test. According to McDonald (2014) t-tests and Anova are considered robust to small deviations from normality. The relationship between categorical variables was analyzed by means of the chi-square test.

The analyses were performed with SPSS v. 25 software.

## RESULTS

Table 1 presents the characterization of Instagram account activity parameters in university students, also presents comparisons according to gender, sex-affective relationship and nomophobia level. At a general level, it is observed that participants set up their accounts mainly as private (71.6%) and upload content in stories on a daily basis (39.4%), followed by once or



several times a week (32.6%). Participating users have a median of 31.5 posts in their feed, 860 followers and 770 followings. The median followers/following ratio was .92 and only 39% of participants have more followers than followings. Gender differences were shown in the comparison of the frequency with which stories are shared and the number of followers, observing that the female group publishes stories more frequently [ $X^2(3, N = 218) = 11.82, p < .01$ ] and follows more Instagram users [ $U = 4642.5, p < .01$ ]. There were no differences in any of the parameters of the account for the groups with and without a sex-affective relationship. Finally, in relation to the level of nomophobia, significant differences were found both in the frequency of publication of stories [ $X^2(6, N = 218) = 54.10, p < .01$ ] and in the parameters of number of followers [ $H = 17.09, p < .01$ ], followings [ $H = 23.41, p < .01$ ] and followers/following ratio [ $H = 7.67, p = .022$ ]. In all cases, it is evident that high level of nomophobia is linked to the great amount of time spent on Instagram.

**Table 1.**

*Parameters of Instagram account activity according to Gender, Sex-Affective Relationship and Nomophobia level.*

	Gender		U/X <sup>2</sup>	Sex-affective relationship		U/X <sup>2</sup>	Nomophobia			H/X <sup>2</sup>	Total
	F	M		SR	CR		Low	Medium	High		
Privacy (%)			0.03			0.52				5.38	
- Public	28.9	27.8		30.1	25.6		35.6	19.2	31.3		28.4
- Private	71.1	72.2		69.9	74.4		64.4	90.8	68.7		71.6
Stories (%)			11.82**			4.04				54.10**	
- Never / Once or several times a year	7.4	12.4		9.6	9.8		19.2	7.7	1.5		9.6
- Once or several times a month	15.7	21.6		14.7	24.4		32.9	14.1	7.5		18.3
- Once or several times a week	27.3	39.2		32.4	32.9		23.3	48.7	23.9		32.6
- Once or several times a day	49.6	26.8		43.4	32.9		24.7	29.5	67.2		39.4
Posts (Me)	37.0	25.0	5359.5	30.0	33.0	5098.0	24.0	26.0	40.0	4.29	31.5
Followers (Me)	896.0	808.0	5384.0	860.0	860.0	5375.5	628.0	901.5	974.0	17.09**	860.0
Following (Me)	890.0	700.0	4642.5**	759.0	794.5	5375.0	558.0	697.0	1005.0	23.41**	770.0
Ratio of followers / following (Me)	.98	.87	5121.5	.90	.95	5315.0	.98	.85	.99	7.67**	.92

*Note.* \* =  $p < .05$ ; \*\* =  $p < .01$ ; F (feminine); M (masculine); SR (without relationship); CR (with relationship).

*Source.* Elaborated by the author.

Table 2 shows that when comparing Emotional Dysregulation based on gender, there are no significant differences, except in the dimension of Emotional Dyscontrol, where the female group scores slightly higher than the male group [ $t(215,1) = 2.671, p = .008, IC: 0,525- 3,484$ ]. Similarly, when comparing Instagram Addiction scores based on gender, no significant differences were found. Regarding the Sex-Affective Relationship, there were no differences between university students with and without a partner for Emotional Dysregulation both at the global level and for its dimensions, however, couple status did reveal significant differences for Instagram Addiction scores, with people without a Sex-Affective Relationship scoring higher [ $t(216) = 2,021, p = .044, IC: 0,057- 4,593$ ]. Finally, when comparing Emotional Dysregulation as a function of nomophobia levels, significant differences were found, which were expressed both in the overall scores [ $F(2, 215) = 25.77, p < .01$ ] as well as in the dimensions of Emotional Rejection [ $F(2, 215) = 13.68, p < .01$ ], Emotional Dyscontrol [ $F(2, 215) = 15.30, p < .01$ ], Emotional

Interference [ $F(2, 215) = 11.58, p < .01$ ], Emotional Inattention [ $F(2, 215) = 19.01, p < .01$ ] and Emotional Confusion [ $F(2, 215) = 27.67, p < .01$ ]. In all cases it was observed that the Low Nomophobia level group had significantly lower scores compared to those found for the Medium and High Nomophobia level groups. However, post-hoc contrasts showed that there were no significant differences when comparing the Medium and High Nomophobia level groups in the dimensions of Emotional Rejection ( $p = .11$ ), Emotional Dyscontrol ( $p = .06$ ), Emotional Interference ( $p = 1.00$ ) and Emotional Inattention ( $p = .16$ ).

**Table 2.**

*Mean differences according to Gender, Sex-affective Relationship and Nomophobia level for DERS-E and Instagram Addiction scales*

	Gender			Sex-affective relationship			Nomophobia				Total
	F (n=121)	M (n=97)	t	SR (n=136)	CR (n=82)	t	B n=73	M n=78	A (n=67)	F	
Emotional dysregulation	73,2	67,1	1,9	71,2	69,4	0,5	56,4	73,3	82,7	25,8**	70,5
- Rejection	16,9	15,2	1,6	16,3	15,8	0,5	12,8	16,6	19,2	13,7**	16,1
- Dyscontrol	13,1	11,1	2,7**	12,3	12,1	0,1	9,6	12,5	14,7	15,3**	12,2
- Interference	11,8	10,7	1,8	11,3	11,5	0,6	9,4	12,0	12,6	11,6**	11,3
- Inattention	16,4	16,6	0,3	16,8	15,9	1,2	13,6	17,2	18,8	19,0**	16,5
- Confusion	7,6	7,0	1,3	7,5	7,0	1,3	5,5	7,6	9,0	27,7**	7,3
Instagram addiction	19,8	18,6	1,1	20,2	17,8	2,0*	11,0	19,7	27,8	207,9**	19,3

Note. \* =  $p < .05$ ; \*\* =  $p < .01$ . Gender: F (feminine); M (masculine). Sex-affective relationship: SR (without relationship); CR (with relationship). Nomophobia: B (low); M (medium); A (high).

Source. Prepared by the author.

**Table 3.**

*Spearman correlation matrix between DERS-E, Nomophobia, Instagram Addiction scales and Instagram account activity parameters*

	1	2	3	4	5	6	7	8	9
1. Emotional rejection	—								
2. Emotional dyscontrol	.763***	—							
3. Emotional interference	.698***	.642***	—						
4. Emotional inattention	.382***	.305***	.196**	—					
5. Emotional confusion	.631***	.592***	.468***	.669***	—				
6. Nomophobia	.349***	.363***	.301***	.396***	.505***	—			
7. Instagram addiction	.371***	.388***	.322***	.438***	.545***	.842***	—		
8. Following	.074	.061	.031	.069	.113	.309***	.358***	—	
9. Followers	.198**	.151*	.132	.177**	.213**	.299***	.361***	.659***	—
10. Posts	-.002	.023	-.015	-.001	.014	.144*	.175**	.301***	.282***

Note. \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

Source. Prepared by the author.

Table 3 presents the Spearman correlation matrix between the scores of the emotional dysregulation scale, Nomophobia, Instagram addiction and the amounts of followers, followings and posts. Beyond the expected correlations between the dimensions of the emotional dysregulation scale, there is evidence of a significant link between them and the Nomophobia score. In order of magnitude, the most relevant correlation was between Nomophobia and Emotional Confusion [ $\rho(216) = .505, p < .00$ ]. In addition, there were positive and statistically

significant correlations between Nomophobia and the other facets of emotional dysregulation, such as inattention [ $\rho(216) = .396, p < .00$ ], dyscontrol, [ $\rho(216) = .363, p < .00$ ], rejection [ $\rho(216) = .349, p < .00$ ] and interference [ $\rho(216) = .301, p < .00$ ]. In line with the above, all dimensions of emotional dysregulation also presented direct correlations with Instagram addiction scores, where again the emotional confusion factor presented the highest magnitude [ $\rho(216) = .545, p < .00$ ]. Other significant correlations were present between Instagram addiction and inattention [ $\rho(216) = .438, p < .00$ ], dyscontrol [ $\rho(216) = .388, p < .00$ ], rejection [ $\rho(216) = .371, p < .00$ ], and interference [ $\rho(216) = .322, p < .00$ ]. While each dimension of emotional dysregulation had significant links with Nomophobia and Instagram addiction scores, there were no correlations with the number of followings within the platform nor with the number of posts. In addition, low magnitude correlations were found between the dimensions of emotional dysregulation and the number of followers, except for the dimension of interference. Particularly, it was observed that a higher number of followers on Instagram is found to be associated with higher scores on emotional confusion [ $\rho(216) = .213, p = .002$ ], rejection [ $\rho(216) = .198, p = .003$ ], inattention [ $\rho(216) = .177, p = .009$ ] and dyscontrol [ $\rho(216) = .151, p = .025$ ].

## DISCUSSION

The university population is one of the main targets for social media platforms. It has been observed that this group tends to spend a significant amount of time browsing and consuming content on these platforms. Specifically, Instagram has achieved a strong acceptance among university users, progressively displacing in popularity others such as Facebook and Twitter, however, it is also one of the most affecting platforms in psychosocial terms. Beyond the functionality to preserve and build social ties, facilitating a digital meeting space between users, it is also a breeding ground for a number of risks that threaten mental health and cognitive-emotional well-being. Considering the above, it should be noted that, although technology is apparently innocuous among its users, there are benefits and risks, which depend on the way it is used. Spending a lot of time in front of a social network would mean neglecting other aspects of daily life, facilitating procrastination, altering the sense of co-presence in interpersonal relationships, decreasing academic or work performance due to a redistribution of time once assigned to the family, friendships, bonding, self-care and personal development. Moreover, regardless of the hours of consumption on the platforms, the content that is viewed and the form and intention with which these platforms are used have the potential to undermine the emotional regulation of users, promoting toxic experiences of digital absorption. In this regard, it is necessary to distinguish when the use of social networks is maladaptive. It is not the same to use social networks as work platforms, as learning devices, as a means to preserve social ties, as to use them to stalk or become obsessed with the activities of another user on the network, to evade the problems of daily life, to become absorbed in accounts that promote discouragement and a pessimistic view of the world and the self, altering perceptions of self-image and sowing a sense of failure in the face of the excessive eagerness for success and idealization of their peers. Indeed, some users conceive some parameters of social networks as a barometer to measure their self-esteem and influence in their community. Thus, the number of likes, replies and reactions to comments, as well as the number of followers and the number of views of their stories would be assumed as satisfiers of attention needs, which is why failure to meet these expectations would affect self-perceptions if they were not adequate emotional regulation.

Consequently, emotional dysregulation is hypothetically presented as a cause and consequence of nomophobia and social network addiction. This statement is supported by the high correlations found between each of the dimensions of emotional dysregulation, especially the emotional confusion factor, and the scores obtained on the nomophobia and Instagram addiction scales. Thus, users who express greater dependence on their mobile devices are precisely those who have higher Instagram addiction scores and at the same time are those who score higher on all dimensions of emotional dysregulation. It is likely that difficulties in modulating emotions impact the ability to inhibit impulsive behaviors, which, for the purposes of mobile device dependence, would result in over-checking social network accounts and misuse in contexts that violate expectations of etiquette and good manners. However, the effect of emotional dysregulation on nomophobia and addiction to Instagram is fed back by the conditions that these platforms set on users, which would lead to a vicious circle between dysregulation, nomophobia and addiction.

The Instagram platform has a conglomerate of stimuli that enhance psychological dependence and eventual addiction among its users. Likes, reactions and replies provide real-time feedback, generating gratification similar to that of drug use and gambling, activating the same brain circuits (Turel et al., 2018). Furthermore, the algorithmic tools employed by META are not only capable of predicting online behavior, but also of making it more attractive to the user, maximizing their engagement and time on the network. Nevertheless, the discussion around considering nomophobia and social network addiction as behavioral disorders remains open (Wilcockson et al., 2019). Regardless of the above, the indiscriminate use of mobile devices and the sense of dependence derived from them has become an increasingly frequent cause of psychological consultation (Jiménez-Murcia and Farré-Martí, 2015) and, Therefore, it is not trivial to analyze the relationships that nomophobia may have with mental health indicators, as illustrated in the case of emotional dysregulation.

The results found in our study allow us to corroborate the hypotheses raised around the bidirectional links between emotional dysregulation, nomophobia, Instagram addiction, but not our assumptions regarding the differences of these variables based on gender and sex-affective relationship. The differences found in the levels of emotional dysregulation as a function of nomophobia levels are in line with the emerging repository of studies that relate dependence on mobile devices to multiple variables of psychosocial functioning (Santl et al., 2022; Valenti et al., 2022; Ercengiz et al., 2020; Yavuz et al., 2019). Likewise, if Instagram addiction is considered one of the main motivators of nomophobia, it was expected that it would also present significant links with emotional dysregulation. However, because the correlations between Instagram addiction and multiple dimensions of emotional dysregulation were in all cases higher than the correlations between nomophobia and emotional dysregulation, it is possible to conclude that this platform would affect mental health more than the simple use of mobile devices; this situation is consistent with the Royal Society for Public Health (2017) report, which lists Instagram as the most harmful social network for the well-being and mental health of young people. Since no significant differences were found based on gender, it can be assumed that dependence on social networks is transversal, an aspect that would be facilitated by greater accessibility to smartphone devices with Internet connection. These results are also consistent with previous research (Valenti et al., 2022; Humood et al., 2021; Argumosa-Villar et al., 2017). Notwithstanding the above, the sex-affective relationship does constitute a differentiating characteristic of Instagram addiction

scores, showing in single people a tendency to present a greater dependence and participation in digital platforms.

For the Psychological Sciences, it is imperative to integrate knowledge about the excessive use of mobile devices and to propose strategies to reduce their impact on the psychosocial development and adaptive functioning of users. Although the articulation of therapeutic programs that directly address problems such as nomophobia is still in its infancy, some studies have already shown some signs of the effectiveness of strategies based on digital detoxification (Radtke et al., 2021; Schmuck, 2020). Our research, in turn, has allowed us to establish the basis for the development of a line of research that integrates the maladaptive facets induced by digitalization and the emotional resources of the university population, a situation that sheds light on the role that emotional regulation plays in the psychotherapeutic processes of problems interfered with by technologies. Since our results are far from conclusive because of the limitations of the study design and the reduced set of variables measured, it is proposed that future research may contribute to the study of these relationships from both a pure and applied perspective. Applied studies can assess the impacts of self-control in the use of mobile devices in the short, medium, and long term on well-being and mental health variables, as well as test different intervention strategies to achieve awareness in users and reduce their levels of dependence on networks. Moreover, pure research can contribute to generate a better understanding of the role played by emotional regulation within the circuit of relationships between the uses of ICTs and mental health. Future studies with larger numbers of participants can test mediating, moderating, and moderately mediation models to clarify these relational circuits.

In conclusion, this study showed strong correlations between nomophobia, Instagram addiction and emotional dysregulation in university students, constituting one of the few studies that addresses these variables simultaneously in a Latin American population. It is established that there is a high shared variability between nomophobia and Instagram addiction, which would imply that this platform could be one of the main causes of the maladaptive use of mobile devices, especially in the university population, which participates in this social network on a comparatively higher level than other groups. The consequences of this not only have an impact on the conditions to successfully face university, for example, by neglecting studies, increasing procrastination and introducing stimuli that constantly interfere with the teaching-learning process, but also affect mental health, to the extent that it contributes to the dysregulation of emotions, which is one of the main factors that trigger dysfunctional behavior and psychopathologies. Under this understanding, the use of social network platforms should be cautious based on awareness and self-regulation strategies by users, otherwise, our results warn that the unrestricted use of these social technologies could take its toll on.

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