Social Media Addiction, Fear of Missing Out (FoMO) and Online Vulnerability in university students

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Abstract

Despite the growing research on social networks sites (SNS), the associations between the abuse of these platforms, the phenomenon of Fear of Missing Out (FOMO) and Online Vulnerability has been understudied. The aim of this research was to provide a framework of attitudes and behaviors related to the use of the social network in young university students. In this study, the sample was composed to 306 Italian university students aged 18 to 30 (152 women; mean of age = 21.8; standard deviation = 3.19) who responded to an online survey regarding their SNS behaviors, Fear of Missing Out (FOMO), Basic Psychological Needs, Self-Esteem and Online Vulnerability. Correlations analysis showed a positive relationship between FOMO, Online Vulnerability, and Social Media Addiction. The results showed that women have a higher level of Social Media Addiction and the Need for Relatedness. The regression analysis showed that FOMO is the best predictor of Social Media Addiction. Implications of the findings in the educational field are discussed.

Keywords: Social Media Addiction; FOMO; Online Vulnerability; Human motivation; University students.

Adicción a redes sociales, Miedo a perderse experiencias (FOMO) y Vulnerabilidad en línea en estudiantes universitarios

Resumen

Si bien existe un crecimiento en investigación sobre las redes sociales, es necesario señalar que las asociaciones entre el abuso de estas plataformas, el fenómeno del *Fear of Missing Out* (FOMO) o Miedo a perderse experiencias y de la Vulnerabilidad en línea han sido poco estudiadas. En ese sentido, esta investigación tiene como objetivo proporcionar un marco de las actitudes y comportamientos relacionados con el uso de las redes sociales en jóvenes universitarios. Para ello, se realizó una muestra que contó con la participación de 306 estudiantes universitarios de 18 a 30 años (152 mujeres y 154 hombres; edad promedio = 21.8; desviación estándar = 3.19) y respondió a un cuestionario en línea, respecto al uso de

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las redes ociales, *Fear of Missing Out* (FOMO), Necesidades psicológicas básicas, Auto-estima y Vulnerabilidad en línea. El análisis de correlaciones mostró una relación positiva entre el FOMO, la Vulnerabilidad en línea y la Adicción a redes sociales. Los resultados evidenciaron que las mujeres tienen mayores niveles de adicción a redes sociales y de necesidad de apoyo. El análisis de regresión mostró que el FOMO es el mejor predictor de la Adicción a redes sociales. Finalmente, se discuten las repercusiones en el ámbito educativo de los resultados.

Palabras clave: Adicción a redes sociales; FOMO; Vulnerabilidad en línea; Motivación humana; Estudiantes universitarios.

Dependência de Redes Sociais, Fear of Missing Out (FoMO) e Vulnerabilidade Online em estudantes universitários

Resumo

Apesar da crescente pesquisa sobre as redes sociais, as associações entre o abuso destas plataformas, o fenômeno do *Fear of Missing Out* (FOMO) e da Vulnerabilidade Online foram pouco estudadas. Esta investigação destina-se a proporcionar um quadro de atitudes e comportamentos relacionados com a utilização das redes sociais em jovens universitários. Neste estudo, a amostra foi composta por 306 universitários de 18 a 30 anos (152 mulheres; idade média = 21,8; desvio padrão = 3.19) e respondeu a um questionário on-line sobre o uso das redes sociais, *Fear of Missing Out* (FOMO), Necessidades psicológicas básicas, Auto-estima e Vulnerabilidade online. A análise de correlação mostrou uma relação positiva entre o FOMO, a Vulnerabilidade online e a dependencia de redes sociais. Os resultados mostraram que as mulheres têm um nível mais alto de dependência de redes sociais e de necessidade de apoio. A análise de regressão mostrou que o FOMO é o melhor preditor da Dependencia de redes sociais. Finalmente, discutem-se as implicações em âmbito educativo dos resultados.

Palavras-chave: Dependência de redes sociais; FOMO; Vulnerabilidade Online; Motivação Humana; Estudantes universitarios.

The development of the World Wide Web has completely changed the way people communicate with each other and disseminate information (Krämer & Winter, 2008). The most successful sites on the virtual scene include social networks. Considered a dominant force in today's digitally-based society, they offer the opportunity to develop and maintain their social sphere in interactive online environments rich in multimedia content (Boyd & Ellison, 2007). The use of social networks can provide a wide range of opportunities for their users: it promotes social capital, which in turn strengthens connections with people and networks; it can improve communication between family members and close friends (Li & Chen, 2014); it can be used to maintain relationships and connect with each other (Joinson, 2008); and they are associated with connection, increased social support, and reduced loneliness (Burke, Marlow, & Lento, 2010; Kim & Lee, 2011; Kim & Tussyadiah, 2013). In addition, the use of social networks is considered one of the tools available to promote global citizenship among young people (UNESCO, 2014).

It is also important to note that the use of some applications may be motivated by different reasons. For example, Villacampa, Ingram, Martí-Vilar, & Oliver-La Rosa (2018), have observed that Facebook can be a tool that leads to further interest in prosocial activities rather than in sexual

ones, which would not differ by the participants' gender. Instead, emerging research on Tinder, a mobile dating application, suggests that users see this application as a useful tool for finding casual sex (Lefebvre, 2017; Sumter, Vandenbosch, & Ligtenberg, 2017). It is possible to verify that Tinder can be used to search for sexual activities outside the context of a romantic relationship, (Weiser, Niehuis, Flora, Punyanunt-Carter, Arias, & Baird, 2017).

On the other hand, the dynamics that the technological scene experienced caused a series of deficiencies in the real world, and consequently, the continuous search for virtual experiences. In fact, the perception of the need to be online can lead to the compulsive use of social networks, which in extreme cases can cause symptoms and consequences traditionally associated with substance abuse (Kuss & Griffiths, 2011; Andreassen, 2015). This would put family and social relationships, as well as psychophysical health at risk. Recently, increasing attention has been paid to a new social phenomenon, the Fear of Missing Out (FOMO). This term refers to the often intense sense of unease, triggered by the concern that friends or others may be experiencing certain rewarding events from which one is absent (Przybylski, Murayama, DeHann, & Gladwell, 2013). It is the fear of being left out, constantly thinking that others are doing something more interesting and rewarding than we are, and that we are missing out on something. It is characterized by a desire to remain socially connected and may manifest itself as a form of social anxiety (Przybylski et al., 2013).

Deci & Ryan's (1985) Self-Determination Theory (SDT), a macro theory of human motivation, provides a useful perspective for framing an empirical understanding of FOMO. According to SDT, self-regulation and psychological health are based on the satisfaction of three basic psychological needs: Competence, i.e., the ability to act effectively in the world; Autonomy, i.e., authorship or personal initiative; Support, i.e., closeness or connection with others.

Research in educational (Deci & Ryan, 2000) and video game contexts (Przybylski, Weinstein, Ryan, & Rigby, 2009) indicates that the satisfaction of these basic needs is strongly associated with behavioral regulation. In this theoretical framework, the FOMO phenomenon can be understood as a kind of "self-regulatory limbo" (Przybylski et al., 2013), resulting from situational or chronic deficits in the psychological satisfactions of basic needs. Furthermore, it has been suggested that people with higher levels of FOMO may behave in ways that seek to reaffirm their own identity and self-esteem by spending a greater amount of time online. This, in turn, can lead to a greater fear of missing out on rewarding experiences, a greater capacity for revealing and friendly behaviors, and ultimately a further decline in social and psychological well-being (Przybylski et al., 2013).

The preference for online communication, characterized by the absence of non-verbal language, facial expressions, gestures, etc., could increase the risk of not reaching adequate emotional maturity, especially for young people. Goleman (1995) recalls how the basis of emotional literacy is empathy, i.e., the ability to recognize emotions and feelings in others. Ideally, by putting themselves in other's shoes and managing to connect behaviors and emotional states, subjects learn to recognize and make sense of their emotions. On the contrary, the inability to recognize others' emotions prevents people from understanding their own emotions, leading to emotional disinterest and, in the worst case, antisocial behavior. The exchange of images, videos, and comments behind a screen, in total absence of direct human contact, may result in interactions characterized by mechanisms of lack of empathy, which is the basis of certain mechanisms of moral disconnection and dehumanization towards the interlocutor (Sgalla & Giannini, 2018).

Excessive network use in practices such as self-presentation and participation in large online networks can make users become more vulnerable to experiencing forms of cyberbullying such as those mentioned before (Buglass, Binder, Betts, & Underwood, 2016; Staksrud, Ólafsson, & Livingstone, 2013). In this respect, the term online vulnerability is defined as the tendency of an individual to experience damage that undermines his or her psycho-physical well-being and reputation (Davidson & Martellozzo, 2012) for participating in some online activities. Exposure

to online vulnerability does not automatically imply basic psychological vulnerability (Livingstone & Smith, 2014). However, there is compelling evidence to suggest that exposure to episodes of online vulnerability can have negative consequences for the users' psychological well-being (Patchin & Hinduja, 2010; Keipi, Oksanen, Hawdon, Näsi, & Räsänen, 2015). Recent and substantial increase in the prevalence of such negative online experiences (Jones, Mitchell, & Finkelhor, 2013) have been linked to harmful consequences such as depression (Landoll, La Greca, Lai, Chan, & Herge, 2015) and even suicide (Patchin & Hinduja, 2010, Washington Post, 2013).

This research aims to provide a framework of attitudes and behaviors related to the use of social networks by young Italian university students; to study the psychological variables that can be related to such use and to each other; and to explore their possible differences according to gender. In addition, the study seeks to check to what extent FOMO, applied to the use of social networks during the main daily activities, can predict the appearance of addiction symptoms associated with the use of these networks.

Method

Design

This research had a cross-sectional descriptive design because the modalities, characteristics, and frequencies of network use were studied in depth, and possible gender differences in the variables studied were studied. Likewise, it is correlational, since the relationship between the use of social networks, FOMO, basic psychological needs, self-promotion behavior, and online vulnerability is explored.

Participants

A non-probabilistic and convenience sampling technique was used. Participants were selected by means of two criteria: being university students and being between 18 and 30 years old. Three hundred six (306) university students from Sapienza Università di Roma, in Italy, participated in the research. The sample comprised 152 women

(49.7%) and 154 men (50.3%), with an average age of 21.80 (SD = 3.19). Almost all participants stated they were single (96.1%). No differences were considered regarding the school each student belonged to.

In Italy, degree programs last three years. Master's or postgraduate programs last two years (first university term: 70.3%; master's or postgraduate: 29.7%).

Instruments

The online survey consisted of three sections. In the first section, socio-demographic information was requested: age, gender, marital status, and year of university studies (undergraduate; master's/postgraduate). The second section requested information on the use of technology: frequency of use of social networks during university hours (answer options between 1 = Never and 5 = Always); preference of use of social networking applications (Facebook, Instagram, WhatsApp, etc.); and time of use of social networks (different answer options between 1 = I don't use it and 5 = more than 5 hours).

In the third section, a battery of preset scales was used:

Social Media Engagement Scale, SMES (Przybylski, Murayama, DeHann, & Gladwell, 2013)

The scale presents 5 items with the aim of quantifying the frequency of social network use during the main daily activities. Participants used an eight-point Likert-type scale from 1 (No day last week) to 8 (Every day last week). The main component analyses showed all five items loaded on a single factor, explaining the 59.27% of the observed variability (Przybylski et al., 2013), so the scores were added up to create a mean score for each participant (a = .82).

Bergen Social Media Addiction Scale, BSMAS (Andreassen, Billieux, Griffiths, Kuss, Demetrovics, Mazzoni, & Pallesen, 2016)

It is an adaptation of the Bergen Facebook Addiction Scale (BFAS; Andreassen, Torsheim, Brunborg, & Pallesen, 2012). The reliability and internal consistency of the BSMAS was supported by several indicators (Andreassen et al., 2012; Andreassen, Billieux, et al., 2016). It contains six

elements that reflect basic elements of addictions (Griffiths, 2005). Participants responded to the items (e.g., "Did you use social networks so much that their use has had a negative impact on your studies?"; "Did you try to stop using social networks without success?") using a 5-step Likert scale, from 1 (Very rarely) to 5 (Very often), producing a composite score from 1 to 5. The Italian translation of BSMAS results in a psychometrically robust instrument, with good internal consistency, with a Cronbach alpha equal to .88 (Monacis, De Palo, Griffiths, & Sinatra, 2017).

Fear of Missing Out Scale, FOMOs (Przybylski, Murayama, DeHann, & Gladwell, 2013)

The scale shows good internal consistency (a = .90) and validity (Przybylski et al., 2013). The instrument offers 10 items in a statement fashion (e.g., "When I go on vacation, I watch what my friends are doing; when I do something fun, it is important that I share details online"). To answer, a five-step Likert scale was used (1 = Not true for me; 5 = Extremely true for me). The scale produced an average score of 1 to 5, with higher scores indicating higher levels of FOMO.

Basic Psychological Needs Scale, BPNS (La Guardia, Ryan, Couchman, & Deci, 2000)

The scale has 21 items presented on a 5-point Likert scale from 1 (Not true at all) to 5 (Totally true). The Italian version of the scale has good psychometric properties (a = .82) and convergent validity with different measures of prosocial behavior, secure attachment, and well-being (Szadejko, 2003). The scale deals with three dimensions: Autonomy (I can freely decide how to live my life); Competence (I often do not feel very competent); Support (in general, people are friendly enough to me). We calculated the scores for each participant by scoring the negatively worded items inversely and then averaging the responses.

Rosenberg Self-Esteem Scale, CSR (Rosenberg, 1965) in the Italian version of Prezza, Trombaccia, & Armento (1997)

The CSR contains 10 items written positively (e.g., I am generally satisfied with myself) and negatively (e.g., sometimes I think I am not good at all). Responses were given on a 4-point Likert

scale ranging from 0 (Strongly disagree) to 3 (Strongly agree). Negative items were recoded and calculated backwards. The CSR was originally developed to be used with adult samples for which it has demonstrated good internal consistency (= .86). and construct validity (Robins & Trzesniewski, 2001). The scale ranges from 0 to 30. Scores between 15 and 25 are in the normal range. Scores below 15 indicate low self-esteem.

Online Vulnerability Scale (Buglass, Binder, Betts, & Underwood, 2017)

The scale includes 6 items combining questions and theories presented by Binder, Howes, & Smart (2012). The instrument explores how often people personally experience or see others encounter situations or content of a violent, embarrassing, harmful or unwanted nature (e.g., critical and/or offensive comments; sexual or violent content; online stalking or abuse) when using social networks. The response method referred to a 5-step Likert scale from 1 (Very rarely) to 5 (Very often). The scale showed good psychometric properties with a Cronbach a equal to .91 (Buglass et al., 2017). Responses produced an average score of 1 to 5, with higher scores indicating greater exposure to vulnerability while using social networks.

Procedures

Participants completed a secured online survey, optimized for its use in computers, tablets, and mobile devices. Google's Moodle platform was used to disseminate the questionnaire. After reading the informed consent, each person was able to voluntarily decide to participate in the research and start answering the survey digitally. They were guaranteed maximum confidentiality in the handling and analysis of the responses. The data was collected over a period of 6 months, from February 2019 to July 2019.

The completion of the full survey lasted about 15 minutes.

Data Analysis

The IBM SPSS version 25 software was used for the statistical analysis. In a first phase of analysis, the main descriptive statistics (frequency, mean

and standard deviation) were carried out with regard to the general information and scales used. Subsequently, correlation analyses were carried out using Pearson's *r* coefficient. In addition, Pearson's correlations were calculated for the male and female groups separately and compared using Fisher's Z-test (Lenhard & Lenhard, 2014) to verify the significance of the differences between both groups. Student's T-Test was applied to check for gender differences in the variables analyzed. The effect size was calculated using Cohen's d. Finally, a linear regression analysis was performed to check whether the independent variables SMES and FOMO were able to significantly predict the BSMAS dependent.

Results

Seventy point nine percent (70.9%) of participants often and always use social networks during university hours. Only 2% stated not to use them. Among the most used applications, we found WhatsApp (96.4%), used for more than 3 hours a day by 63% of the total sample; Instagram (95.1%), visited more than 3 hours a day by 41.8% of the sample; and Facebook (69.9%), used less than 1 hour a day. 77.5% of participants used social networks "every day" within 15 minutes before going to bed and 55.6% within 15 minutes after

waking up.

The global correlations between the observed variables and the average scores obtained in the scales are presented in Table 1. In general, the FOMO is directly correlated, with high intensity, with the BSMAS variable ($r = .73$, $p < .01$). Moderately positive correlations are observed between FOMO and Online Vulnerability ($r = .38$, $p < .01$).

In addition, BSMAS is positively correlated, with moderate intensity, with Online Vulnerability ($r = .32$, $p < .01$).

Table 2 shows the correlations of men below the diagonal and women above the diagonal. The correlation coefficients of both groups could be compared by Fisher's Z-Test. It can be seen how the relationship between SMES and FOMO variables is statistically higher in men ($z = 2.12$, $p = .017$). The same can be observed considering the relationship between BSMAS and FOMO ($z = 2.354$, $p = .009$), SMES and self-esteem ($z = 1.875$, $p = 0.03$), and between FOMO and the Competence dimension of BPNS ($z = 3.515$, $p < 0.001$). On the contrary, the relationship between BSMAS and Online Vulnerability seems to be significantly stronger in women ($z = -2,758$, $p = .003$).

Women showed significantly higher scores on the BSMAS scale: $t(306) = 2.07$, $p = .039$; $d = .24$; and on the BPNS Support dimension: $t(306) = 3.16$, $p = .002$; $d = .35$. In both variables, the effect size was of medium magnitude.

Table 1

Variables	M	DE	1	2	3	4	5	6	7	8
1. SMES	4.88	1.75	-							
2. BSMAS	2.21	0.81	.53**	-						
3. FOMO	2.23	0.80	.43**	.73**	-					
4. BNPS (Autonomy)	3.74	0.64	-.15**	-.49**	-.50**	-				
5. BNPS (Competence)	3.41	0.72	-.16**	-.45**	-.46**	.65**	-			
6. BNPS (Support)	3.78	0.68	-.11	-.36**	-.43**	.69**	.57**	-		
7. Online Vulnerability	2.78	0.99	.24**	.32**	.38**	-.34**	-.19**	-.30	-	
8. Self-Esteem	19.61	5.43	-.12*	-.12	-.38**	.63**	.73**	.60**	-.17**	-

Descriptive Statistics and Correlations Between Variables. Notes: n = 306: M= mean; SD= standard deviation

*** p < 0.01. * p < 0.05.*

Table 2

Variables	1	2	3	4	5	6	7	8
1. SMES	-	.48**	.36**	-.14	-.16	-.10	.25**	-.19*
2. BSMAS	.57**	-	.68**	-.53**	-.44**	-.37**	.42**	-.35**
3. FOMO	.50**	.77**	-	-.53**	-.36**	-.45**	.39**	-.36**
4. BNPS (Autonomy)	-.18*	-.48**	-.49**	-	.62**	.73**	-.39**	.65**
5. BNPS (Competence)	-.15	-.46**	-.58**	.70**	-	.59**	-.16*	.74**
6. BNPS (Support)	-.16*	-.42**	-.42**	.65**	.59**	-	-.28**	.65**
7. Online Vulnerability	.24**	.22**	.38**	-.29**	-.22**	-.34**	-	-.20*
8. Self-Esteem	-.04	-.36**	-.40**	.61**	.71**	.59**	-.15	-

*Correlations of Men below Diagonal and Women above Diagonal. Notes: n = 306; ** p < 0.01. * p < 0.05.*

As for the other variables, no statistically significant differences were observed between the groups (Table 3).

Similarly, significantly higher mean scores of were observed in women regarding the frequency of use of social networks during university hours, $t(306) = 3.92$, $p < .001$, with a half-size effect ($d = .43$). In addition, women showed significantly higher mean scores than men regarding the time spent on Instagram, $t(306) = 3.84$, $p < .001$. The effect size was of medium magnitude ($d = .42$). The same

is true for WhatsApp, $t(306) = 2.99$, $p = .003$; $d = .33$. No statistically significant gender differences were found in Facebook usage time (Table 4).

Finally, the linear regression analysis showed how FOMO ($b = .61$, $p < .001$) and SMES ($b = .27$, $p < .001$) were statistically significant predictors of the BMSAS variable, that is, of potentially social network-dependent behavior (Table 5). The two variables explain the 58.6% of the total variance of the criterion variable BSMAS ($R2 = .586$, $F(2, 303) = 214.38$, $p < .001$).

Table 3.
Comparison of Mean Scores and Standard Deviation of Variables According to the Participants' Gender.

Variables	Male (n=154) M (SD)	Female (n=152) M (SD)
SMES	4.70 (1.73)	5.05 (1.76)
BSMAS	2.11 (0.82)	2.30 (0.78)
FOMO	2.22 (0.81)	2.25 (0.79)
BPNS (Autonomy)	3.70 (0.62)	3.80 (0.67)
BPNS (Competence)	3.45 (0.69)	3.38 (0.75)
BPNS (Support)	3.66 (0.67)	3.90 (0.66)
Online Vulnerability	2.79 (0.96)	2.77 (1.01)
Self-Esteem	19.87 (5.14)	19.34 (5.71)

Notes: M= mean; SD = standard deviation;

Table 4.

Comparison of Mean Scores and Standard Deviation in Time Spent Using Applications and Frequency of Use of Social Networks During University Hours According to the Participants' Sex

Variables	Male (n=154) M (DE)	Female (n=152) M (DE)
Instagram*	3.11 (0.96)	3.53 (0.97)
WhatsApp*	3.63 (0.94)	3.95 (0.92)
Facebook*	2.12 (0.90)	2.14 (0.86)
Use of social networks during university hours**	3.58 (1.00)	4.00 (0.85)

Notes: M= mean; SD = standard deviation.

Table 5

Análisis de regresión

Variables	Model 1				
	B (β)	N	t	p	95% CI
(Constant)	0.22	0.10	2.14	0.033	[0.02 0.42]
FOMO	0.62 (0.61)	0.04	14.94	0.000	[0.54 0.70]
SMES	0.12 (0.27)	0.02	6.60	0.000	[0.09 0.16]

Note: Dependent variable: BSMAS

Discusión

Almost 71% of participants reported using social networks very often during university hours. This behavior appears to be normal because those who do not implement it represent only 2% of the sample. Specifically, women revealed a higher frequency of use of social networks during university hours. Ninety-six point four percent (96.4%) of participants use WhatsApp, 95.1% have at least one Instagram account, and 69.9% report using Facebook. The first two applications show an average daily usage of approximately 3 hours, while the third one appears to be the least visited in terms of hours per day. For the reference sample, women show a higher frequency of use of WhatsApp and Instagram.

Most participants stated that, over the past seven days, they checked their social networking sites every day within 15 minutes before going to bed and 15 minutes after waking up. In practice, for 77.5% of participants, regardless of their gender, social networks are the last thing they check before going to bed, and, for 55.6%, they are the first thing they check when they wake up.

Women seem to show a greater tendency to experience symptoms of addiction associated with the use of social networks, as already noted in Andreassen, Torsheim, Brunborg, & Pallesen (2012), and in Monacis, De Palo, Griffiths, & Sinatra (2017), and to perceive a lower satisfaction of the need for support in the BPNS scale. Similar results were found in the Italian adaptation of the BPNS questionnaire (Szadejko, 2003). It is plausible that one of the reasons behind these results lies in their willingness to perceive a greater need for meaningful social relationships. This aspect can be partially satisfied by the search for virtual relationships.

Finally, it is interesting to note how 72.9% of the participants stated that they had been victims of or had seen others stumble upon critical or offensive comments. Likewise, 70.6% stated having suffered from gossip that was detrimental to their own or others' reputation. There are no gender differences for the area analyzed.

Increasing levels of addiction to social networks also increase the fear of being excluded and that others are living rewarding experiences in one's absence.

High levels of addiction to social networks are related to a low perception of satisfaction of basic psychological needs and low self-esteem. The link between levels of social network addiction and self-esteem had already become evident in several previous research works (Wilson, Fornasier, & White, 2010; Hong, Huang, & Chiu, 2014). The indirect correlation between the three dimensions of BPNS and FOMO is even stronger.

As BSMAS scores increase, so does the risk of experiencing potentially reputational, psychological, and physical harm as a result of online activities (Online Vulnerability). The same applies to the FOMO, whose levels are directly related to those of the Online Vulnerability Scale. High scores on this dimension may seem to be related to lower levels of self-esteem. These relationships may be stronger or weaker depending on the gender of the participants.

Finally, another result showed that FOMO and the intensity of use of social networks during daily life (SMES) can be considered significant predictors of social network addiction, which explain the 58.6% of the total variance.

The self-selection of respondents and the relatively low number of participants does not allow a generalization of the results. In addition, participants may have responded more or less consciously following the bias of social desirability.

To compensate these data, it may be useful in future studies to create journals in which all participants can provide a detailed description of the time spent on social networks, methods, and motivations. This can be done in order to clarify the underlying psychological variables and identify the modalities of publication.

This is a relatively young field of research in continuous evolution due to the rapid change that accompanies the digital world. That is why the results obtained should also be replicated in other cultural contexts to acquire more validity and reliability. By implementing better methodological projects, including more representative and heterogeneous samples, current gaps in knowledge of the phenomenon can be filled.

Conclusions

Social networks facilitate the dissemination of information, foster social relationships, and allow a connection between people beyond space-time limits. However, any excessive inclination towards an activity may result in addiction, regardless of whether a chemical substance is involved or not. Xu & Tan (2012) suggest that the transition from normal to problematic use of social networks occurs when the individual begins to view them as an important (or even exclusive) mechanism for relieving stress, loneliness, or depression. The use of social networks can provide a series of continuous rewards (perks, self-efficacy, satisfaction of some needs) that push people to get each time more involved in the same activity, even ignoring their real relationships and finding different problems in their daily lives.

In fact, there is emerging evidence that a minority of social network users show symptoms of addiction as a result of the excessive use of different applications (Griffiths, Kuss, & Demetrovics, 2014).

The fear of missing out on experiences (FOMO) and being excluded seems to be the main motivating factor that encourages people to constantly and excessively use social networking sites: the desire to always stay connected to others for fear of missing out rewarding experiences could lead people to compulsively check their social networking sites, even during activities that require a certain degree of concentration, with the risk of dealing with problems related to individual performance (Andreassen, Torsheim, & Pallesen, 2014), job loss (Karaiskos, Tzavellas, Balta, & Paparrigopoulos 2010), lower grades in school, and worse performance in the workplace (Çam & Isbulan, 2012; Koc & Gulyagci, 2013).

The vast majority of participants stated that they use their social networking sites during major daily activities. For many, it represents the first thing to check after they wake up and the last thing to check before they go to sleep. About one-third of participants also check their profiles during main meals and during college hours, behavior that could be attributed to the Phubbing category. Therefore, it seems that most participants focus on their smartphone even

when—depending on the context and social conventions—interacting with and/or paying attention to those present would be considered. This could suggest a kind of social withdrawal driven by a preference for virtual relationships at the expense of real ones.

The excessive use of social networks and the desire not to miss even one update or the exchange of virtual friends increase the risk of finding inappropriate content, cyberbullying, and privacy management problems. It may be easier to access pornographic, violent, or racist content, or to visit blogs that may push children to commit criminal actions, induce them to show courage (taking selfies in risky conditions), promote anorexic behavior, and encourage the abuse of alcohol or drugs (Sgalla & Giannini, 2018).

The results obtained have allowed us to outline a picture of the online and offline lifestyles of young people in the digital age, providing useful indications for proposing specific interventions to meet people's real needs. For prevention strategies, young people and adults have mutual responsibilities: the former can train the latter in the use of new technologies, their language, and their possibilities; the latter, in turn, must teach young people to use them to their appropriate extent and help them develop the ability of communicating face to face (Ramón-Cortés, 2010). The work towards achieving the goal of a potential educational program that can correctly direct the university population towards a positive use of technology must begin by accepting that the use of such applications represents an integral element of today's professional and leisure culture (Kuss & Griffiths, 2011). In this sense, Estrada (2004) emphasizes that it is necessary to develop practices that begin with a critical analysis of certain cultural aspects, of accepted discourses, and by reflecting on the effects of power on discourses in institutions. It is necessary to identify the cognitive distortions, emotions, motivations, and risk factors that underlie these maladaptive behaviors. To recover the control of behavior and to prevent any immoral act, the following techniques and methods are suggested: self-construction (better understanding of dialogues, self-expression, self-regulation); socio-moral reflection (critical analysis of the situation,

construction of concepts, use of moral dilemmas), and coexistence (role-playing techniques). The development of social abilities is also recommended (Martí-Vilar, 2008). It could also be useful to limit the use of devices and schedule the use of electronic devices, promote hobbies, practice sports, and participate in volunteer activities (Echeburúa & De Corral, 2010).

A continuous comparison of models, theories, and prevention and contrast strategies is necessary to ensure that the network is a safe and helpful place that does not hinder its users (Sgalla & Giannini, 2018). In this area, research has a fundamental task, which should not be to hyperpathologize daily behavior, but to make increasingly reliable data available to provide support to those who need it. With greater awareness of such mechanisms and the frequency of those negative behaviors, it will be possible to work on their strengths and weaknesses, both at the collective and individual level, with the aim of improving the work and study environment by promoting cooperation and professional ethics values.

Since theoretical knowledge is not enough, the University is the most suitable entity to achieve these objectives. It is supported by a strong social involvement and impact on its environment. University Social Responsibility (USR) must be implemented so as to guarantee a constant commitment to structural changes in its four basic pillars, i.e., its organization, faculty, students, and administrative staff (Vallaeys, 2007).

It is important that the university undertakes teaching students ethical and social responsibility competencies, increasing their empathy and enhancing their moral link with society (Martí-Vilar, Almerich, Cifuentes, Grimaldo, Martí, Merino, & Puerta, 2011).

References

Andreassen, C. S. (2015). Online social network site addiction: A comprehensive review. *Current Addiction Reports, 2*(2), 175-184. https://doi.org/10.1007/s40429-015-0056-9

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Deme-

trovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252. https://doi.org/10.1037/adb0000160

Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). Use of online social network sites for personal purposes at work: Does it impair self-reported performance?. *Comprehensive psychology*, *3*, 01-21. https://doi.org/10.2466/01.21.CP.3.18

Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook addiction scale. *Psychological reports, 110*(2), 501-517. https://doi.org/10.2466/02.09.18.PR0.110.2.501-517

Binder, J. F., Howes, A., & Smart, D. (2012). Harmony and tension on social network sites: Side-effects of increasing online interconnectivity. *Information, Communication & Society, 15*(9), 1279-1297. https://psycnet.apa.org/doi/10.1080/1369118X.2011.648949

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of computer-mediated Communication*, *13*(1), 210-230. https://doi.org/10.1111/j.1083-6101.2007.00393.x

Buglass, S.L.; Binder, J.F.; Betts, L.R.; Underwood, J.D.M. (2016). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior*, *66*, 248–255. https://doi.org/10.1016/j.chb.2016.09.055

Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. *In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1909–1912). https://doi.org/10.1145/1753326.1753613

Çam, E., & Isbulan, O. (2012). A New Addiction for Teacher Candidates: Social Networks. *Turkish Online Journal of Educational Technology-TOJET*, *11*(3), 14-19. Recuperado de https://www.researchgate.net/publication/267556427_A_new_addiction_for_teacher_candidates_Social_networks

Davidson, J., & Martellozzo, E. (2013). Exploring young people's use of social networking sites and digital media in the internet safety context: A comparison of the UK and Bahrain. *Information, Communication & Society*, *16*(9), 1456-1476. https://doi.org/10.1080/1369118X.2012.701655

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum. https://doi.org/10.1007/978-1-4899-2271-7

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

Echeburúa, E., & De Corral, P. (2010). Adicción a las nuevas tecnologías ya las redes sociales en jóvenes: un nuevo reto. *Adicciones, 22*(2), 91-96. https://doi.org/10.20882/adicciones.196

Estrada, A. M. (2004). La psicología social en el concierto de la transdisciplinariedad. *Retos latinoamericanos. Revista De Estudios Sociales*, *18*, 51-58. https://doi.org/10.7440/res18.2004.04

Goleman, D. (1995). *Emotional intelligence.* New York: Bantam Books.

Griffiths, M. D., Kuss, D. J., & Demetrovics, Z. (2014). Social networking addiction: An overview of preliminary findings. *Behavioral addictions* (pp. 119-141). Academic Press. https://doi.org/10.1016/B978-0-12-407724-9.00006-9

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of suicide research, 14*(3), 206-221. https://doi.org/10.1080/13811118.2010.494133

Hong, F. Y., Huang, D. H., Lin, H. Y., & Chiu, S. L. (2014). Analysis of the psychological traits, Facebook usage, and Facebook addiction model of Taiwanese university students. *Telematics and Informatics, 31*(4), 597-606. https://doi.org/10.1016/j.tele.2014.01.001

Joinson, A., McKenna, K.Y.A., Postmes, T. & Reips, U.D. (2007). *The Oxford Handbook of Internet Psychology.* New York: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199561803.001.0001

Jones, L. M., Mitchell, K. J., & Finkelhor, D. (2013). Online harassment in context: Trends from three Youth Internet Safety Surveys (2000, 2005, 2010). *Psychology of Violence*, *3*(1), 53. https://psycnet.apa.org/doi/10.1037/a0030309

Karaiskos, D., Tzavellas, E., Balta, G., & Paparrigopoulos, T. (2010). P02-232-Social network addiction: a new clinical disorder?. *European Psychiatry, 25*, 855. https://doi.org/10.1016/S0924-9338(10)70846-4

Keipi, T., Oksanen, A., Hawdon, J., Näsi, M., & Räsänen, P. (2015). Harm-advocating online content and subjective well-being: a cross-national study of new risks faced by youth. *Journal of Risk Research*, 1-16. https://doi.org/10.1080/13669877.2015.1100660

Kim, J., & Lee, J. E. (2011). The Facebook paths to happiness: Effect of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychology, Behavior, and Social Networking*, *14*, 359-364.

https://doi.org/10.1089/cyber.2010.0374

Kim, J., & Tussyadiah, I. P. (2013). Social networking and social support in tourism experience: The moderating role of online self-presentation strategies. *Journal of Travel & Tourism Marketing*, *30*(1-2), 78-92. https://doi.org/10.1080/10548408.2013.751220

Koc, M., & Gulyagci, S. (2013). Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. *Cyberpsychology, Behavior, and Social Networking,* *16*(4), 279-284. https://doi.org/10.1089/cyber.2012.0249

Krämer, C. N., & Winter, S. (2008). Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. *Journal of Media Psychology*, *20*, 106-116. https://doi.org/10.1027/1864-1105.20.3.106

Kuss, D. J., & Griffiths, M. D. (2011). Online social networking and addiction—a review of the psychological literature. *International journal of environmental research and public health*, *8*(9), 3528-3552. https://doi.org/10.3390/ijerph8093528

La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Basic Psychological Needs Scales. *Journal of Personality and Social Psychology*, *79*, 367-384. https://doi.org/10.1037/0022-3514.79.3.367

Landoll, R. R., La Greca, A. M., Lai, B. S., Chan, S. F., & Herge, W. M. (2015). Cyber victimization by peers: Prospective associations with adolescent social anxiety and depressive symptoms. *Journal of adolescence*, *42*, 77-86. https://doi.org/10.1016/j.adolescence.2015.04.002

LeFebvre, L. E. (2018). Swiping me off my feet: Explicating relationship initiation on Tinder. *Journal of Social and Personal Relationships*, *35*(9), 1205-1229. https://doi.org/10.1177%2F0265407517706419

Lenhard, W., & Lenhard, A. (2014). Hypothesis tests for comparing correlations. *Bibergau: Psychometrica*. Recuperado de https://www.psychometrica.de/correlation.html.

Li, X., & Chen, W. (2014). Facebook or Renren? A comparative study of social networking site use and social capital among Chinese international students in the United States. *Computers in Human Behavior*, *35*, 116–123. https://doi.org/10.1016/j.chb.2014.02.012

Livingstone, S., & Smith, P. K. (2014). Annual research review: Harms experienced by child users of online and mobile technologies: The nature, prevalence and management of sexual and aggressive risks in the digital age. *Journal of child psychology and psychiatry*, *55*(6), 635-654. https://doi.org/10.1111/jcpp.12197

Martí-Vilar, M. (2008). Las necesidades humanas desde la psicología moral. *Papeles de relaciones ecosocialesy cambio global*, *102*, 89-101. Recuperado de https://dialnet.unirioja.es/servlet/articulo?codigo=2698952.

Martí-Vilar, M., G. Almerich, J. Cifuentes, M. Grimaldo, Martí, J., Merino, C., & Puerta, I.C. (2011). Responsabilidad Social Universitaria: Estudio iberoamericano sobre la influencia de la educación en la formación de profesionales responsables con la sociedad. *Técnica Administrativa*, *10*(47), 3-10. https://doi.org/10.1016/S0120-0534(14)70019-6

Monacis, L., De Palo, V., Griffiths, M. D., & Sinatra, M. (2017). Social networking addiction, attachment style, and validation of the Italian version of the Bergen Social Media Addiction Scale. *Journal of Behavioral Addictions*, *6*(2), 178-186. https://doi.org/10.1556/2006.6.2017.023

Patchin, J. W., & Hinduja, S. (2010). Changes in adolescent online social networking behaviors from 2006 to 2009. *Computers in Human Behavior*, *26*(6), 1818-1821. https://psycnet.apa.org/doi/10.1016/j.chb.2010.07.009

Prezza, M., Trombaccia, F. R., e Armento, L. (1997). La scala dell'autostima di Rosenberg: Traduzione e validazione italiana. *Bollettino di Psicologia Applicata*, *223*, 35-44. Recuperado de https://psycnet.apa.org/record/1998-01058-003.

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, *29*(4), 1841-1848. https://doi.org/10.1016/j.chb.2013.02.014

Przybylski, A. K., Weinstein, N., Ryan, R. M., & Rigby, C. S. (2009). Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. *CyberPsychology & Behavior*, *12*(5), 485-492. https://doi.org/10.1089/cpb.2009.0083

Ramón-Cortés, F. (2010). ¿Internet amenaza el contacto real? *El país semanal, 1736*, 24-25. Recuperado de https://elpais.com/diario/2010/01/03/eps/1262503611_850215.html

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and social psychology bulletin, 27*(2), 151-161. https://doi.org/ 10.1177%2F0146167201272002

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press. http://doi.org/10.1126/science.148.3671.804

Sgalla, R., & Giannini, A.M. (2018). *La Violenza in un clic. Itinerari di prevenzione del cyberbullismo fra adolescenti*. Firenze: Hogrefe

Staksrud, E., Ólafsson, K., & Livingstone, S. (2013). Does the use of social networking sites increase children's risk of harm? *Computers in Human Behavior*, *29*(1), 40-50. https://doi.org/10.1016/j.chb.2012.05.026

Sumter, S.R., Vandenbosch, L., Ligtenberg, L., 2017. Love me Tinder: untangling emerging adults' motivations for using the dating application Tinder. *Telematics and Informatics*. *34* (1), 67e78. https://doi.org/10.1016/j.tele.2016.04.009

Szadejko, K. (2003). Percezione di autonomia, competenza e relazionalità. Adattamento italiano del questionario basic psychological needs scale. *Orientamenti pedagogici*, *50*(299), 853-872. Recuperado de https://dialnet.unirioja.es/servlet/articulo?codigo=3534145

UNESCO. (2014). Global citizenship education: Preparing learners for the challenges of the twenty-first century. Recuperado de http://unesdoc.unesco.org/images/0022/002277/227729E.pdf

Vallaeys, F. (2007). Responsabilidad social universitaria. Propuesta para una definición madura y eficiente. Programa para la formación en humanidades. Tecnológico de Monterrey. Recuperado de http://www.responsable.net/sites/default/files/responsabilidad_social_universitaria_francois_vallaeys.pdf

Villacampa, J., Ingram, G. P., Martí-Vilar, M., & Olivera-La Rosa, A. (2018). An investigation of Facebook users' implicit associations between Facebook, *sexual and prosocial behavior*. Heliyon, *4*(9), e00811. https://doi.org/10.1016/j.heliyon.2018.e00811

Washington Post, 2013. "Cyberbullying charges weighed after suicide of Florida girl, 12". Recuperado de http://www.washingtonpost.com/national/cyberbullying-charges-35

Weiser, D.A., Niehuis, S., Flora, J., Punyanunt-Carter, N.M., Arias, V.S., Baird, R.H., 2017. Swiping right: sociosexuality, intentions to engage in infidelity, and infidelity experiences on Tinder. *Examining Personality and Individual Differences in Cyberspace, Personality and Individual Differences*, *133*: 29-33. https://psycnet.apa.org/doi/10.1016/j.paid.2017.10.025

Wilson, K., Fornasier, S., & White, K. M. (2010). Psychological predictors of young adults' use of social networking sites. *Cyberpsychology, behavior, and social networking*, *13*(2), 173-177. https://psycnet.apa.org/doi/10.1089/cyber.2009.0094

Xu, H., & Tan, B. C. (2012). Why do I keep checking Facebook: Effects of message characteristics on the formation of social network services addiction. *International Conference on Information Systems, ICIS 2012*, *1*, 812–823. Recuperado de https://pdfs.semanticscholar.org/447a/7e658f27eab41279352ecac71b97f42abfc3.pdf