

A preliminary exploration on psychological variables related to online social network addiction

Exploración preliminar sobre las variables psicológicas implicadas en la adicción a redes sociales on-line

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Abstract

This study examined the roles of anxiety, experiential avoidance and meaning in life in the abusive use of social networks. Participants in the study (N = 235: 172 women, 62 men, 1 non-binary) volunteered to complete a brief online survey measuring experiential avoidance, anxiety and meaning in life. Correlational and linear regression analyses were performed controlling for age in both the total sample and the subsamples of men and women. The partial correlation analyses showed that, once age was controlled for experiential avoidance, anxiety and meaning in life were related to the abusive use of social networks in women, while for men, only anxiety was significant. For women the linear regression equation which best predicted abusive use of social networks included little meaning in life and high experiential avoidance. For men, only anxiety was a possible predictive factor of abusive use of social networks. These results are discussed with regard to existing research on abusive use of social networks, noting the possible protective effect of meaning in life and calling greater attention to gender differences in behaviors related to online social networks.

Keywords: Anxiety; experiential avoidance; meaning in life; internet; addictive behavior.

Resumen

El presente estudio examinó el papel de la ansiedad, la evitación experiencial y el sentido vital en el uso abusivo de redes sociales. Los participantes (N = 235: 172 mujeres, 62 hombres, 1 no-binario) completaron una breve encuesta dirigida a medir la evitación experiencial, la ansiedad y el sentido vital. Se llevaron a cabo análisis de regresión lineal y correlaciones controlando la influencia de la edad tanto para hombres como para mujeres. Los análisis de correlación parcial mostraron que, una vez controlada la edad de los participantes, tanto la evitación experiencial como la ansiedad y el sentido vital estuvieron relacionados con el uso abusivo de redes sociales en mujeres; sin embargo, para los varones, sólo la ansiedad se relacionó con un mayor uso de redes sociales. Para las mujeres la ecuación de regresión lineal que mejor predijo el uso abusivo de redes sociales incluyó un bajo sentido vital y una elevada evitación experiencial, mientras que para los varones sólo la ansiedad predijo el mayor uso de redes sociales. Los resultados obtenidos se discuten en relación con la investigación existente sobre el uso de las redes sociales, destacando el sentido vital como un posible factor protector y la importancia de una perspectiva de género para estudiar las redes sociales en línea.

Palabras clave: Ansiedad; evitación experiencial; sentido vital; internet; conducta adictiva.

Received: October 2021; Aceptado: January 2022.

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According to Wasserman & Faust (1994), a social network is a social structure containing a set of actors and a set of dyadic ties identifying social relationships existing between these actors in the social context considered. Online social networks are widespread throughout society. Facebook is now, by a very wide margin, the biggest social network worldwide. As of the third quarter of 2021, Facebook had over 2.9 billion global monthly active users (Statista Research Department, 2021a). As of January 2021, the average time spent by day by American users on Facebook was 33 minutes, and that was the platform with the largest amount of time spent daily, followed by TikTok and Twitter (Statista Research Department, 2021b). In Spain, in 2020, there were 22 million Facebook profiles (the most popular social network), 4.1 million Twitter profiles, 20 million Instagram profiles, and 14 millions of LinkedIn profiles (The Social Media Family, 2021). It is therefore not surprising that “social network addiction” and even “Facebook addiction” may be spoken of (Karaiskos, Tzavellas, Balta & Paparrigopoulos, 2010; Lozano Blasco, Latorre Cosculluela & Quílez Robres, 2020; Ryan, Chester, Reece & Xenos, 2014).

In fact, it has been questioned whether it is possible to talk about an addiction to online social networks and what the criteria would be for differentiating “normal” from “pathological” use. Social network addiction can be defined as excessive participation or attachment in Social Network Sites (SNS) activities causing difficulties in everyday social functioning (Alzougool, 2018). In this direction, a comprehensive review carried out by Andreassen showed that the idea that some people show compulsive and uncontrollable behavior related to the social networks has empirical support and that the best way to understand such behavior is through the classic concept of addiction (Andreassen, 2015). Following this view, AlBarashdi (2020) found that 78% of the studies reviewed showed some negative consequences of social network addiction in young university students, especially, the impact on their academic performance. Furthermore, 18.4% of studies reviewed found that social network addiction is significantly positively related to depression and neuroticism.

The subject is not even close to being closed, and Koç & Akbiyik (2019) concluded that, although excessive use of social networks cannot be accepted as a behavioral addiction, some individuals with certain characteristics (timidity, loneliness, etc.) are more prone to develop addictive behavior to the social networks in everyday use.

Some demographic variables have also been shown to be relevant in regard to compulsive use of social networks. Thus, De Cock et al. (2014) found in a sample of 1,000 Belgian participants over 18 years of age, that gender and age explained 5% of use of social networks. Previously, Acar (2008) had already found that gender was one of

the strongest and most ample predictors of time spent on online social networks. Furthermore, it seems that the use made by men and women is different. Thus, for example, Tifferet (2018) performed a meta-analysis of privacy-seeking tendencies on social networks by men and women, and found that there were important differences, in that women were more worried about their privacy. Mazman & Usluel (2011) also found significant differences between women and men, with regard to four categories in which the most common uses of social networks were grouped (maintaining existing relationships, making new relationships, use for academic purposes and following specific agenda). In this sense, women use social networks more than men to keep up already existing relationships, while men use them more for making new relationships. That is, in addition to the quantitative differences concerning the use of social networks by men and women, there are also other qualitative differences.

Among the psychological factors which have been studied the most with regard to developing addiction to social networks loneliness is the most widely studied (Savolainen, Oksanen, Kaakinen, Sirola & Paek, 2020). Indeed, Savolainen et al. (2020) concluded that loneliness is consistently linked to compulsive internet use across countries. This important role of loneliness in developing problematic behaviors related to social networks has also been confirmed in Spain in a sample of male and female university students (Aparicio-Martínez et al., 2020). On the contrary, a systematic review concluded that, in general, “social aspects, including feelings of social support, social connectedness, and positive interaction quality, emerged as protective factors for SNS users” (Seabrook, Kern & Rickard, 2016, p. 9-10). Other factors concerning problematic use of social networks are relief from suffering and search for social relationships. Thus, Stockdale & Coyne (2020), in a three year follow-up longitudinal study found that the starting levels of use of social networks to relieve boredom were associated over time not only with greater problems in regard to the networks, but also to greater financial stress and higher levels of anxiety. In general, it has been proposed that the transition from normal to problematic use of the social networks takes place when the person uses them as a predominant means (sometimes the only one) of relieving stress, anxiety, loneliness or depression (Cheikh-Ammar, 2020; Griffiths, 2013; Xu & Tan, 2012). This use of social networks as an escape from unpleasant emotional states could be considered a case of what in recent years has been called “Experiential Avoidance” (EA).

The concept of EA is proposed by contextualism as a functional diagnostic dimension explaining the appearance and worsening of several psychological disorders (Hayes, Wilson, Gifford, Follette & Strosahl, 1996), among them addictions (Shameli & Sadeghzadeh, 2019). EA involves the unwillingness to remain in contact with private experiences,

such as painful thoughts and emotions (Chawla & Ostafin, 2007). With regard to technology, García-Oliva & Piqueras (2016) found that EA largely explained addictive use of the internet, mobile phones and video games. In a similar direction, Lee (2017) found that the relationship between stress and internet and mobile phone addiction were mediated by certain EA factors. Recently, Faghani, Akbari, Hasani & Marino (2020) studied the relationship between several emotional and cognitive factors in predicting problematic internet use in a sole model. Results revealed full mediation of experiential avoidance and wishful thinking in the relationship between difficulties in emotion regulation and problematic internet use.

Although EA may be a basic psychological factor contributing to abuse of social networks, the predominant emotion or feeling it is desired to escape from through abuse of the networks would still have to be determined. As mentioned above, it has been proposed that people who abuse social networks could be escaping from loneliness (Morahan-Martin & Schumacher, 2003), stress (Brailovskaia, Rohmann, Bierhoff, Schillack & Margraf, 2019; Cheikh-Ammar, 2020), social anxiety (Lee & Stapinski, 2012), low self-esteem (Tazghini & Siedlecki, 2013), or general emotion regulation problems (Faghani et al., 2020), or a combination of these (e.g., Caplan, 2007). One factor studied little has to do with meaning in life. Zika and Chamberlain (1992) already highlighted the importance of vital meaning for psychology in the 1990s, although they also highlighted that such a construct has been the subject of few studies. Meaning in life may be defined as, "...the cognizance of order, coherence and purpose in one's existence, the pursuit and attainment of worthwhile goals, and an accompanying sense of fulfillment" (Reker & Wong, 1988, p. 221). Several studies have recognized the relationship between a low meaning in life and drug abuse (e.g., Nicholson et al., 1994). With specific reference to addictions to technology, Ghaderi Rammazi, Askarizadeh, Ahmadi & Divsalar (2018) found a lower meaning in life was related to stronger addiction to the Internet in an Iranian population.

The objective of this study was to find out any possible relationship existing between addiction to social networks on one hand, and on the other, certain factors that could account for its problematic use, such as experiential avoidance, anxiety, and meaning in life.

In the light of the literature reviewed, we started out from the hypothesis that the three variables considered in this study would be related to addiction to social networks. Both anxiety and experiential avoidance would do so directly, while meaning in life would show a negative relationship with addiction to social networks. Regarding the sociodemographic variables, it is postulated that gender and age would be relevant to explain the variability in addiction to social networks.

Method

Participants

This study was performed with a sample of 235 participants from a Spanish population aged 18 to 62 ($M = 30.35$; $SD = 10.54$). Of these, 172 were women (73.2%), 62 were men (26.4%) and one participant identified as non-binary (0.4%). Of the total participants, 117 received or had received psychological and/or psychiatric care (49.8%), and the remaining 118 participants had never received psychological and/or psychiatric care (50.2%).

Twenty participants were currently taking psychotropic medication (8.5%) and 215 were not (91.5%). Finally, concerning use of medication, under some of the above conditions, 67 participants had previously taken psychotropic medication (28.5%), and 168 participants had not (71.5%).

Instruments

Acceptance and Action Questionnaire II (AAQ-II; Bond et al., 2011). This questionnaire assesses the construct referred to variously as acceptance, experiential avoidance, and psychological inflexibility. It contains seven items which are answered on a seven-point Likert scale. The items reflect an unwillingness to experience unwanted emotions and thoughts (e.g., "I worry about not being able to control my worries and feelings") and the inability to be in the present moment and behave towards value-directed actions when experiencing psychological events that could undermine them (e.g., "My painful memories prevent me from having a fulfilling life"). Results with 2,816 participants across six samples indicated the satisfactory structure, reliability and validity of this measure. This study used the Spanish version by Ruiz, Langer Herrera, Luciano, Cangas & Beltrán (2013). The psychometric data for this Spanish version were similar to those for the original version of the AAQ-II. The internal consistency across the different samples was good (between $\alpha = .75$ and $\alpha = .93$). The AAQ-II scores were significantly related to general psychopathology and quality of life measures. The internal consistency of the AAQ-II in the work presented here was measured by Cronbach's alpha ($\alpha = .90$).

Beck Anxiety Inventory (BAI; Beck & Steer, 1993). This instrument is made up of 21 items which are answered on a Likert-type scale from 1 (*not at all*) to 4 (*severely*). All the answers make statements about symptoms referring to anxiety, such as "feeling hot", "wobbliness in legs", etc. This study used the Spanish version by Sanz & Navarro (2003). The psychometric properties of this questionnaire in the general population were studied in depth by Magán, Sanz & García-Vera (2008). Factor analyses suggested that the BAI taps a general anxiety dimension. The estimated internal consistency for the BAI was high ($\alpha = .93$). The BAI correlated .63 with the BDI-II and .32 with the Trait-Anger scale of the STAXI 2 (Magán et al., 2008). The

internal consistency of the BAI in our study was measured by Cronbach's alpha ($\alpha = .91$).

Purpose-In-Life Test (PIL, Crumbaugh & Maholick, 1969). This is the most widely used instrument for studying meaning in life based on the assumptions of Logotherapy by Victor Frankl (García-Alandete, Martínez & Sellés Nohales, 2012). It consists of 20 items answered on a seven-point Likert scale between two extremes (e.g., "Life seems: completely routine/always exciting"; "My life is: out of my hands and controlled by external factors/in my hands and under my control"). This study used the Spanish version by García-Alandete et al. (2012). A coefficient of $\alpha = .862$ for the scale indicates high internal consistency, similar to previous studies. The internal consistency of the PIL was measured in our investigation by Cronbach's alpha ($\alpha = .93$).

Test de Adicción a Redes Sociales [Social Network Addiction Test] (TARS; Basteiro Monje, Robles-Fernández, Juarros-Basterretxea & Pedrosa, 2013).

This instrument has 36 items with two answer choices (true/false) evaluating abuse of social networks. Examples of some of the items are: "The use of social networks helps me be a more complete person", or "I am not as shy when I relate on the social networks". The questionnaire enjoys a unifactorial structure, with adequate fit indices ($\chi^2/df = 2.74$; Goodness-of-Fit Index [GFI] = .94). Its reliability is $\alpha = .90$. Although the authors found no statistically significant differences by sex, education or geographic area of the participants, the addiction decreased with age. The internal consistency of the TARS in our work was measured by Cronbach's alpha ($\alpha = .86$).

Procedure

This research was developed during the second semester of 2020 and received the approval of the Bioethics Committee of the University of Almería a few months before (UALBIO2020/007). The questionnaire was implemented on the Google Forms virtual platform so they could be administered without participants having to attend in person. Sampling was incidental and snowball, since participants were sought precisely through the social networks. On the first page of the questionnaire, after an explanation of the purposes of the study (informed consent) and participants' rights to data provided, demographic data were collected: nickname (optional), age, gender, education, residence in Spain or other territory, whether they had sought psychological and/or psychiatric attention previously, whether they were currently taking psychotropic medication and whether they had previously taken psychotropic medication. The second page of the questionnaire contained the AAQ-II and the BAI. The PIL was on the third page, and the TARS was on the last page. At the end a message appeared thanking them for their participation in the study and an

email address they could contact for any questions about the study or use of their data.

Data were analyzed using IBM SPSS Statistics software for Windows (Version 26).

Results

Descriptive data

Table 1 presents the means and standard deviations for participant age and their scores on the AAQ, BAI, PIL, for the total sample and for men and women separately. The person who was identified as non-binary gender was excluded from the analyses because there was only a single case.

Table 1. Means, standard deviations and comparison of means on AAQ-II, BAI, PIL and TARS in the subsamples of men and women.

	Total	Women	Men	Student's t-test	p
Age	30.35 (10.54)	30.88 (10.69)	29.02 (10.20)	1.19	.23
AAQ-II	20.05 (8.42)	20.67 (8.46)	18.45 (8.15)	1.78	.07
BAI	11.83 (9.72)	12.97 (10.47)	8.55 (6.303)	3.91	.00
PIL	101.24 (19.63)	102.34 (20.20)	98.47 (17.85)	1.33	.18
TARS	8.85 (6.00)	9.05 (6.08)	8.32 (5.84)	1.41	.41

Note: AAQ-II: Acceptance and Action Questionnaire; BAI: Beck Anxiety Inventory; PIL: Purpose-in-Life Test; TARS: Addiction to Social Network Test.

The Student's *t*-test was calculated to check whether there were any statistically significant differences between men and women for the variables in the table above. The only variable in which men and women differentiated was on the BAI score ($t = 3.91$; $p < .01$), which was higher for women than for men.

Correlations between variables by gender

Table 2 shows the correlations between the variables studied, for the entire sample, controlling for the age of participants.

Due to the influence that participant gender could have, the same analyses were repeated for participants who identified themselves as women and for those who identified themselves as men. The data found are shown in Tables 3 and 4, respectively.

Variables predicting abusive use of social networks by gender

To determine which variables could predict addiction to social networks, three linear regression analyses were done: One for the general sample, another for participants who identified themselves as women and a third for those who identified as men. In the three linear regression analyses, the dependent variable was participant score on the social network addiction test. To control for the effect of age, in

Table 2. *Partial correlation for the total sample (controlling the age).*

	AAQ-II	BAI	PIL	TARS
AAQ-II		.557**	-.626**	.383**
BAI			-.456**	.357**
PIL				-.402**

** $p < .01$.
 Note: AAQ-II: Acceptance and Action Questionnaire; BAI: Beck Anxiety Inventory; PIL: Purpose-in-Life Test; TARS: Addiction to Social Network Test.

Table 3. *Partial correlation for women (controlling the age).*

	AAQ-II	BAI	PIL	TARS
AAQ-II		.588**	-.645**	.446**
BAI			-.483**	.368**
PIL				-.478**

** $p < .01$.
 Note: AAQ-II: AAQ-II: Acceptance and Action Questionnaire; BAI: Beck Anxiety Inventory; PIL: Purpose-in-Life Test; TARS: Addiction to Social Network Test.

Table 4. *Partial correlation for men (controlling the age).*

	AAQ-II	BAI	PIL	TARS
AAQ-II		.427**	-.702**	.168
BAI			-.526**	.303*
PIL				-.206

* $p < .05$; ** $p < .01$.
 Note: AAQ-II: AAQ-II: Acceptance and Action Questionnaire; BAI: Beck Anxiety Inventory; PIL: Purpose-in-Life Test; TARS: Addiction to Social Network Test.

Table 5. *Multiple regression analysis for the total sample controlling the age of participants.*

Step	Variables entered	Adjusted R ²	Std. error of the estimates	β	t	p	Collinearity statistics	
							Tolerance	VIF
Step 1	Age	.025	5.926	-.170	-2.637	.009	1.000	1.000
Step 2	Age	.179	5.439	-.143	-2.412	.017	.995	1.005
	PIL			-.397	-6.678	.000	.995	1.005
Step 3	Age	.212	5.326	-.130	-2.234	.026	.991	1.009
	PIL			-.298	-4.560	.000	.789	1.268
	BAI			.217	3.317	.001	.786	1.272

Note: PIL: Purpose-in-Life Test; BAI: Beck Anxiety Inventory.

the first step of these analyses, the age variable was entered using the “enter” method. In the next step, participant scores on the AAQ-II, on the Beck Anxiety Scale and on the PIL were entered as predictor variables. In this second step, stepwise regression analysis was used with a probability of F for inclusion of $<.05$ and of $F > .100$ for exclusion.

The equation resulting for the total sample was significant ($F(3, 234) = 22, 04; p < .01$), explaining over 20% of the variance (adjusted $R^2 = .212$). Table 5 shows the results of the linear regression analysis for the total sample.

It may be observed that age was a variable that did in fact determine addiction to social networks. Once this variable was controlled for, the variables included in the equation were participant scores on the PIL and the BAI, leaving experiential avoidance out. It should be mentioned that the PIL was entered in the equation with a negative β weight, while the BAI had a positive β weight. Validity of the model was confirmed by checking independence of errors with the Durbin-Watson test, which found a result of 1.89, located between the critical values of 1.5 and 2.5.

When the analyses were repeated for the subsample of women, the resulting regression equation was equally significant ($F(3, 168) = 23.42, p < .01$). This equation explained over 28% of the variance in the scores of the participants on the Social Network Addiction Scale (adjusted $R^2 = .282$). Table 6 shows the results of the linear regression analysis for women:

It may be seen that age is again significant in predicting addiction to social networks in the subsample of women. And, again, the relationship is negative, that is, the older, the less addiction there is to the social networks. Once age was controlled for, the score of the participants in the Purpose-

Table 6. Multiple regression analysis for the sample of women controlling the age.

Step	Variables entered	Adjusted R ²	Std. error of the estimates	β	t	p	Collinearity statistics	
							Tolerance	VIF
Step 1	Age	.041	5.953	-.216	-2.879	.004	1.000	1.000
Step 2	Age	.255	5.245	-.197	-2.289	.004	.997	1.003
	PIL			-.467	-7.066	.000	.997	1.003
Step 3	Age	.282	5.149	-.131	-1.917	.057	.894	1.118
	PIL			-.318	-3.750	.000	.583	1.716
	AAQ-II			.240	2.717	.007	.583	1.859

Note: PIL: Purpose-in-Life Test; AAQ-II: Acceptance and Action Questionnaire II.

Tabla 7. Multiple regression analysis for the sample of men controlling the age.

Step	Variables entered	Adjusted R ²	Std. error of the estimates	β	t	p	Collinearity statistics	
							Tolerance	VIF
Step 1	Age	-.14	5.887	-.054	-.423	.674	1.000	1.000
Step 2	Age	.064	5.658	-.042	-.340	.735	.998	1.002
	BAI			-.303	2.440	.018	.998	1.002

Note: BAI: Beck Anxiety Inventory.

in-Life Test, with a negative β weight, took first place in the regression equation. In second place, participants score on the AAQ-II with a positive β weight, indicating a direct relationship between experiential avoidance and addiction to social networks. Again, the independence of errors was checked by the Durbin-Watson test, which found a score of 1.85, between the critical points of 1.5 and 2.5.

Finally, a third linear regression analysis was carried out for the subsample of men. The model just brushed statistical significance, but did not reach it (F (2, 59) = 3.073, p = .54). This regression equation explained a little over 6% of the total variation recorded in addiction to social networks among men (R² adjusted = .064). Table 7 summarizes the main results of the regression analysis for the subsample of men.

It may be observed in this subsample of men that age was not statistically significant in predicting the score on the scale of addiction to social networks. The score of the participants on the BAI is statistically significant. The Durbin-Watson test result was 2.25, below the critical point of 2.5.

Discussion

This study was based on the hypothesis that abusive use of social networks is related to high experiential avoidance, high anxiety and low meaning in life. This starting hypothesis was partially confirmed. The correlations found between the variables confirmed these relationships, for both the total sample and for the subsample of women.

However, in the subsample of men, only anxiety had a statistically significant relationship with social network addiction. It should be emphasized that when the linear regression analyses were done controlling for participant age in the sample of women, both meaning in life and experiential avoidance were included in the regression equation. Although due to the study design, causal relationships cannot be established between the variables, the data suggest the possibility that, at least to some extent, the use of social networks by the female population may be seen as an avoidance of some type of emotion, thoughts or other private events related to the loss of meaning in life. In any case, the combination of high experiential avoidance and low meaning in life seems to especially favor anxiety (Kelso, Kashdan, Imamoğlu & Ashraf, 2020). The results of this study suggest that this combination also has harmful effects insofar as abusive use of the social networks.

As mentioned above, a good part of psychological research on social networks has focused on loneliness as a major variable for explaining its abusive use (e.g., Savolainen et al., 2020). With regard to the results found in the regression analyses, it may be important to mention that previous studies have confirmed that social exclusion reduces the global perception of life as meaningful (Stillman et al., 2009). In this regard, meaning in life reduces the negative impact of loneliness (Cole et al., 2015). The study by Cole et al. (2015) is consistent with the possibility that psychological resilience factors, like meaning in life, can outweigh the effects of a well-established psychological risk factor, such as social

isolation. Thus, more attention to meaning in life as a protective psychological variable could be beneficial in understanding abusive use of social networks.

Concerning the regression analysis of the subsample of men, it should be underlined that anxiety has some relationship, although of little magnitude, with the abusive use of social networks. In the first place, it would have to be emphasized that among the participants in this study, the level of anxiety of men was significantly lower than in women. These results are contrary to those found by Azher et al. (2014) in a sample of Pakistani university students who habitually used the internet. In the second place, it would have to be considered that anxiety is precisely one of the psychological disorders which has been the most studied with regard to the consequences of problematic social networking site use (Hussain & Griffiths, 2018). Thus, it has been hypothesized that social media sites may become a source of stress contributing to elevated anxiety symptoms and related impairment (Vannucci, Flannery & Ohannessian, 2017), suggesting factors as diverse as communication overload (Chen & Lee, 2013), social comparison promoted by the networks (Chou & Edge, 2012) or the possibility of experiencing some type of cyber-victimization (Rose & Tynes, 2015).

In any case, the results of this study seem to indicate the need to consider differential abusive use of the social networks by men and women. In previous studies, done from a gender perspective, it has been emphasized that women and men are motivated to continue using social networking sites for different reasons. It seems that women are motivated by the ability to maintain close ties and gain social information, while men are by the ability to gain general information (Krasnova, Vitri, Eling & Buxmann, 2017). Similarly, it has been observed that women usually use social networks to maintain relationships, while men use them to create new relations (Muscanell & Guadagno, 2012). This study shows that the loss of meaning in life and experiential avoidance could be key factors in explaining abusive use of the social networks by women, while anxiety would be a more important factor in explaining it in men.

When interpreting the results, it should be kept in mind that considerably fewer men participated in this study than women. It would be advisable to raise the number of male participants in future studies in order to be able to establish more robust comparisons between genders. Similarly, the nature of the design, which was correlational, impedes establishing causal relationships between the variables studied. Although it has been proposed that women may make abusive use of the network as a response to scant meaning in life, it could well be the opposite relationship. That is, that based on abusive use of social networks a loss of meaning in life is generated. Likewise, both variables could depend on a third which was not considered in this study. To overcome this limitation, longitudinal studies should be

undertaken to establish the direction of the relationship found between the variables. Nor can it be ignored that the population that participated in this study was in large part recruited from the very social networks for which we were studying abusive use. Therefore, it would not be surprising that the participants were not representative of the general population, and in some way, individuals with a higher probability of making heavy use of the social networks were already self-selected. In this sense, the generalizations that could be made to the general population might not be entirely right.

Future lines of work could concentrate on the role of meaning in life as a protective variable against adverse situations, such as loneliness or isolation, especially for women. It would be expectable that people with a higher meaning in life, in spite of going through difficult social situations, could have response options other than abusive use of the social networks. A line of intervention consistent with working indirectly on abusive use of social networks could be opened, by highlighting the subjects which are important to a person's life without needing to focus necessarily on abusive behavior involving social networks.

The results enable us to open a line of research and of novel intervention in regard to abusive use of social networks, emphasizing the psychological role, and especially meaning in life as a protective factor. The importance of considering abuse of social networks, and behavioral addictions in general, from a differential gender perspective should also be mentioned.

Acknowledgments

The authors would like to thank the University of Almería's Contextual Therapies training program for the suggestions about the content of this article and financial support.

Conflict of interests

The authors declare no conflicts of interest.

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