

## Facebook Usage: How Narcissism, Loneliness and Wellbeing are Expressed

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**Citation:** Acosta-Rodas, P., Schmelowszky, A., Ramos-Galarza, C., Ceballos-Espinoza, F., Pozo, N. Q. and López-Ambi, V. (2025). Facebook Usage: How Narcissism, Loneliness and Wellbeing are Expressed, *Journal of Cultural Analysis and Social Change*, 10(2), 1696-1705. <https://doi.org/10.64753/jcasc.v10i2.1864>

**Published:** November 15, 2025

### ABSTRACT

Facebook currently has 3.07 billion active users (Kepios, 2025) and is associated with psychological variables such as narcissism, loneliness, and well-being. Narcissism is reflected in idealized self-presentation and the pursuit of validation (Buffardi, 2011; Blachnio et al., 2016), whereas loneliness is linked to compensatory use and social seeking (Song et al., 2014; Rubin, 2002). The impact on well-being is mixed, potentially enhancing social support or lowering life satisfaction (Burke & Kraut, 2016; Grieve et al., 2013). This study examined associations between Facebook use, narcissism, loneliness, well-being, self-esteem, and extraversion in 214 adults from Ecuador, the United States, and Norway through online surveys. Ecuadorian participants reported greater Facebook use and higher levels of narcissism and subjective well-being. Narcissism was the main predictor of Facebook use, while loneliness, well-being, self-esteem, and extraversion showed no significant effects. These findings underscore the importance of considering cultural and psychological factors in understanding social media behavior.

**Keywords:** Facebook, Narcissism, Loneliness, Wellbeing, Ecuador, USA, Norway.

### INTRODUCTION

Facebook is the most widely used social media platform worldwide, serving as a significant context for exploring complex psychological and social dynamics. Numerous studies have examined the relationships between Facebook use and variables such as narcissism, loneliness, and self-esteem, primarily within individualistic cultural settings. However, a notable gap remains regarding how these associations manifest in collectivistic societies like Ecuador, where social norms and interpersonal relationships differ substantially. This gap limits the global understanding of the psychosocial impact of social media and the development of culturally appropriate mental health strategies.

Narcissism is a personality trait characterized by grandiosity, a persistent need for admiration, attention seeking, exhibitionism, and lack of empathy, whose full expression requires social interaction (Clifton, 2011) this

regard, Facebook provides an ideal environment for individuals with high narcissistic traits to build an idealized self-image and obtain external validation through “likes,” comments, and followers (Buffardi, 2011; Blachnio, Przepiorka & Rudnicka, 2016). Several studies have shown that these individuals tend to have more online connections, use social media more frequently, and post more self-referential content, exhibiting self-promotional behaviors (Bergman et al., 2011; Hawk et al., 2015; Ryan & Xenos, 2011). However, such strategies may lead to negative consequences, including decreased interpersonal liking, social rejection, and lower reciprocity in virtual interactions (Ljepava et al., 2013; Kauten et al., 2015; Choi et al., 2015). Although digital environments facilitate control over the projected image, they can also amplify interpersonal vulnerabilities inherent to narcissism (Carlson et al., 2011; Brailovskaia & Bierhoff, 2016).

A longitudinal study of adolescents found that, at the interpersonal level, those with higher narcissism tend to post more positive self-presentations and exhibit greater attachment to peers. However, at the intrapersonal level, only narcissism predicted an increase in appearance-focused posts (Marengo et al., 2020). These findings suggest that attention seeking on social media as a coping mechanism for social rejection may be counterproductive, ultimately contributing to a persistent pattern of self-destructive behavior (Evangelou et al., 2024). Personality traits such as neuroticism, extraversion, agreeableness, and pathological narcissism play a key role in excessive social media use. In both extraverts and neurotics, increased online activity and positive feedback are associated with a higher risk of addiction (Rogier et al., 2022).

Exposure to negative comments elicits emotional and physiological responses, and traits like agreeableness or low neuroticism are linked to distinct usage patterns (Mohd Nor et al., 2025). Grandiose narcissism and alexithymia also contribute to problematic Facebook use, highlighting the need for interventions focused on emotional self-regulation (Lyvers et al., 2022).

Moreover, false self-presentation and social comparison increase fear of negative evaluation and reinforce validation seeking behaviors, with gender moderating the link between comparison and self-esteem (Novara et al., 2025). Taking selfies and posting them on social media has become a widespread cultural trend, but excessive engagement in this behavior can harm mental health. A study with medical students in South India found a high prevalence of selfitis, with many exhibiting borderline to chronic levels. There was a mild positive correlation between selfitis and appearance anxiety, likely reflecting a need for approval regarding appearance. Excessive selfie taking may negatively affect academic performance and social interactions. The study recommends educating adolescents about the risks of excessive selfie behavior and its impact on self-image (Hedge et al., 2024).

Regarding loneliness, evidence suggests that individuals experiencing loneliness tend to use Facebook more frequently as a form of social compensation (Song et al., 2014). Three hypotheses have been proposed to explain this phenomenon: the social enhancement hypothesis, which posits that social media expands interaction opportunities beyond face-to-face relationships (Bessière et al., 2008) the social compensation hypothesis, which suggests that individuals with limited offline networks compensate through online platforms; and the uses and gratifications theory, which states that digital media satisfy unmet social needs in other contexts (Song et al., 2014; Rubin, 2002).

However, compensatory use shows ambivalent effects: some individuals experience emotional gratification, while others report increased loneliness over time (Teppers et al., 2014; Wohn & LaRose, 2014). Additionally, a curvilinear relationship has been found between the number of Facebook friends and perceived loneliness, indicating that a moderate number of contacts is more beneficial than very high or low numbers (Wohn & LaRose, 2014). Likewise, lonely users tend to share more personal and emotional information to foster connections, though this also exposes them to risks such as cyberbullying (Jin, 2013; Skues et al., 2012; Al-Saggaf & Nielsen, 2014). In summary, while Facebook use may provide temporary relief from loneliness, it does not eliminate it completely, and online friendships tend to be more superficial than offline ones (Ryan & Xenos, 2011; Sheldon, 2008). Recent metaanalyses confirm that loneliness predicts increased Facebook use, but not the reverse, ruling out the notion that Facebook causes loneliness (Song et al., 2014).

Findings on the impact of Facebook use on well-being are mixed and depend on the type and quality of interaction. Meaningful communication with close ties can improve well-being and strengthen perceived social support (Burke & Kraut, 2016), whereas passive use or exposure to idealized content is associated with reduced life satisfaction and increased negative social comparison (Kross et al., 2013; de Vries & Kühne, 2015; Garcia & Sikström, 2014). Personalized and directed interactions enhance well-being, in contrast to superficial reactions like “likes,” which have no significant effect (Burke & Kraut, 2016; Burke et al., 2010). Likewise, compulsive Facebook use correlates with lower life satisfaction (Blachnio, Przepiorka & Pantic, 2016). Thus, the psychosocial impact of Facebook use depends more on how and with whom individuals interact rather than on the amount of time spent.

Finally, the COVID-19 pandemic highlighted the complex role of social media: although intended to mitigate isolation, increased social media use was paradoxically linked to greater loneliness, an effect moderated by richer digital communication modes such as video calls (Jütte et al., 2024). Among university students, intense Facebook use and self-disclosure to unknown contacts correlated with loneliness, with resilience serving as a protective factor

(Touloupis et al., 2023). Social media increasingly impacts young adults, showing addictionlike behaviors. The study finds higher addiction levels among women, users with many followers, fake accounts, and bullies. Lower self-esteem is also linked to greater addiction (Köse & Dogan, 2019). In the post-pandemic period, smartphones continue to influence the experience of loneliness, but differently depending on age. While they strengthen social connections and reduce isolation among younger people, they may fail to replace physical contact for older adults, potentially increasing feelings of loneliness (Kuramoto et al., 2024).

In this context, it is crucial to explore these relationships between narcissism, Facebook use, loneliness, and self-esteem in collectivistic populations such as Ecuadorian society to generate culturally relevant knowledge and support the development of promotion and prevention strategies for mental health in the digital age. The present study aims to contribute novel evidence regarding these links, providing a comprehensive understanding of digital behavior and psychosocial well-being in Latin American contexts.

## METHOD

### Participants and Procedure

This study employed a self-reported, web-based, cross-sectional, correlational survey design conducted between January to March 2017.

Participants were recruited through convenience sampling via Facebook, using posts shared by friends and acquaintances. No monetary or material compensation was provided.

Two independent samples were collected. The Ecuadorian sample that comprised 113 participants ( $N = 113$ ), aged between 19–66 years, ( $M = 32.9$ ,  $SD = 9.26$ ), 38.19% were males and 61.81% were females; 95.84% identified themselves as Latino. The second sample consisted of participants from the United States and Norway, the sample comprised 101 participants ( $N = 101$ ) aged between 18–72 years ( $M = 31.15$ ,  $SD = 11.75$ ), 23.64% were males and 76.36% were females; 62.73% Identified themselves as White.

The inclusion criteria was being at least 18 years old and possessing an active Facebook account.

The survey was conducted via Qualtrics software. Participants completed the questionnaire in Spanish (Ecuador) or English (USA and Norway), depending on their location.

### Measurements

**Demographic Information.** Seven items collected data on age, gender, nationality, ethnicity, occupation, relationship status, and Facebook use.

**Facebook Usage.** A 21-item scale developed specifically for this study, employing a 5-point Likert scale. It assessed daily time spent on Facebook, the number of friends, types and frequency of posts, photo and selfie uploads, and motives for using Facebook. Several items were reverse scored.

**Narcissism.** Assessed using the 16 item Narcissistic Personality Inventory–Short Form (Ames et al., 2006). Respondents selected between two options per item; one point was awarded for the narcissistic response. Higher scores indicated greater narcissism. Reported reliability ranged from  $\alpha = .68$  to  $.78$ ; Spanish version reliability was  $\alpha = .72$ .

**Loneliness.** Measured by the 15 item Social and Emotional Loneliness Scale for Adults–Short Form, using a 5 point Likert scale (DiTomasso & Spinner, 1993). Higher scores indicated lower loneliness. Reverse scoring varied by language version. Reliability for the English version ranged from  $\alpha = .87$  to  $.90$ ; for the Spanish version,  $\alpha = .71$  to  $.84$ .

**Well-being.** Evaluated using the 8 item Oxford Happiness Questionnaire–Short Form on a 6 point Likert scale (Hills & Argyle, 2002). Higher scores reflected greater subjective well-being. Three items were reverse scored. Reported reliability was  $\alpha = .93$ ; Spanish version  $\alpha = .73$ .

**Self-esteem.** Measured via the 10-item Rosenberg Self-Esteem Scale, employing a 4 point Likert scale. Higher scores indicated higher self-esteem (Rosenberg et al., 1995). Five items were reverse scored. The Spanish version demonstrated consistent reliability across contexts.

**Extraversion.** Assessed using the Extraversion subscale of the NEO Five-Factor Inventory (McCrae & Costa, 2004). The 12 item scale used a 5-point Likert format; four items were reverse scored. Spanish version reliability ranged from  $\alpha = .85$  to  $.89$ .

**Comprehension Accuracy.** A single item asked non-native English speakers from the USA and Norway to rate their understanding of the survey on a 1–10 scale (1 = not at all; 10 = completely understood).

## STATISTICAL ANALYSIS

Data was collected via Qualtrics and exported to IBM SPSS Statistics for Windows, Version 22.0. Following data cleaning, reverse scoring was applied according to each instrument's manual, and composite scores were computed. Descriptive statistics were calculated for all variables. Internal consistency of scales was assessed using Cronbach's alpha. Normality was evaluated through the Shapiro-Wilk test and visual inspection of Q–Q plots and histograms. As most variables deviated from a normal distribution, non-parametric tests were employed following standard recommendations (Pallant, 2011). Between-group comparisons were conducted the Mann–Whitney U test. To compare the Ecuadorian and international samples (USA/Norway), z scores were calculated for three scales (Loneliness, SelfEsteem, and Extraversion) to adjust for language-related differences. Subsequently, datasets were merged. Spearman's rho correlation analyses were performed to examine associations between variables and to test the hypotheses. Finally, a forced-entry multiple linear regression was conducted with Narcissism, Loneliness, and Well-being as predictors and Facebook Usage as the dependent variable, addressing the primary research question.

### Ethical Considerations

This study was approved by the Research Ethics Committee of the ELTE Faculty of Education and Psychology in December 2016. Informed consent was obtained digitally; participants were required to read an information sheet and indicate their consent by selecting “OK.” Participants were explicitly informed about the confidentiality of their data and their right to withdraw from the study at any time without any consequences.

## RESULTS

Descriptive analyses revealed that participants from Ecuador reported significantly higher Facebook usage (mean [M] = 67.96, standard deviation [SD] = 9.40) compared to participants from the United States and Norway (M = 50.74, SD = 7.26;  $p < .001$ ). Similarly, narcissism scores were significantly higher in the Ecuadorian sample (M = 5.59, SD = 2.63) than in the U.S./Norwegian group (M = 3.50, SD = 2.59;  $p < .001$ ). No statistically significant differences were found between the groups in loneliness ( $p = .906$ ), selfesteem ( $p = .673$ ), or extraversion ( $p = .934$ ). However, Ecuadorian participants reported significantly higher levels of well-being (M = 35.30, SD = 7.87) than those from the United States and Norway (M = 32.94, SD = 7.56;  $p = .021$ ). (see **Table 1**).

**Table 1**

Variable	Mean	DS	Min	Max	Valid Cased	Missing Cases	Significant Differences (Mann-Whitney U, 95% CI)
Facebook Usage Ecuador	67.955	9.404	36.00	88.00	113	50	$p < .001^*$
Facebook Usage USA & Norway	50.737	7.259	35.00	72.00	99	14	
Narcissism Ecuador	5.588	2.627	1.00	12.00	107	56	$p < .001^*$
Narcissism USA & Norway	3.50	2.589	0.00	12.00	98	15	
Loneliness Ecuador	58.514	11.681	15.00	75.00	107	56	$p = .906^{**}$
Loneliness USA & Norway	59.00	13.799	15.00	75.00	100	13	
Wellbeing Ecuador	35.30	7.874	15.00	48.00			

Wellbeing USA & Norway	32.940	7.562	17.00	48.00	101	12	
Self-Esteem Ecuador	35.250	5.119	11.00	40.00	103	60	p = .673 **
Self-Esteem USA & Norway	30.120	6.089	13.00	40.00	95	18	
Extraversion Ecuador	39.592	7.398	23.00	58.00	108	55	p = .934 **
Extraversion USA & Norway	39.273	6.335	24.00	55.00	100	13	

**Descriptive Statistics (95% CI)**

Note. U= Independent Samples Mann-Whitney U Test across categories of Nationality.

\*p-value: significance level is .05

\*\* This values were calculated with Zscores of the scales of Loneliness, Self-Esteem and Extraversion.

Differences in the reliability coefficients between the Spanish and English versions of the scales. The Facebook Usage scale demonstrated acceptable reliability in the Spanish version ( $\alpha = .733$ ) but fell below the conventional threshold in the English version ( $\alpha = .591$ ). The Narcissism scale (NPI-16) showed reliability coefficients below .70 in both language versions, although the English version ( $\alpha = .648$ ) yielded a slightly higher value than the Spanish one ( $\alpha = .568$ ). The remaining scales showed acceptable to excellent internal consistency across both languages, with Cronbach's alpha values ranging from .699 to .9. (see **Table 2**).

**Table 2** Reliability test by coefficients of Cronbach's Alpha for each Scale (95% CI)

	Independent Samples T-Test	Gender (N)	Mean	Std. Deviation
Gender and Narcissism Ecuador	t (df) = - 3.058 (105) p-value = .003 < .05	Male (45)	6.46	2.34
		Female (62)	4.951	2.657
Gender and Narcissism USA & Norway	t (df) = 2.483 (96) p-value = .015 < 0.05	Male (20)	4.750	2.899
		Female (78)	3.179	2.421

Correlational analysis revealed that higher Facebook usage was significantly associated with higher levels of narcissism. However, no significant correlations were found between Facebook usage and loneliness, wellbeing, selfesteem, or extraversion. Higher levels of narcissism were positively associated with self-esteem and extraversion, but not with loneliness or wellbeing. It is important to note that in the Loneliness scale used in this study, higher scores indicate lower perceived loneliness. Based on this, wellbeing was positively correlated with loneliness scores, meaning that higher wellbeing was associated with lower perceived loneliness. Additionally, higher wellbeing was positively related to self-esteem and extraversion. Higher self-esteem was also associated with lower levels of loneliness and greater extraversion. (see **Table 3**).

**Table 3** Correlation Spearman's rho (95% CI)

	Usage	Narcissism	Wellbeing	Loneliness (Z- score)	Self- esteem (Z- score)	Extravers ion (Z- score)
Facebook Usage	1.000					
Narcissism	.330**	1.000				
Wellbeing	.09	.115	1.000			
Loneliness (Z-score)	-.020	.051	.288**	1.000		

Self-esteem (Z-score)	-.001	.145*	.565**	.282**	1.000	.346**
Extraversion (Z-score)	-.021	.206**	.468**	.139	.346**	1.000

Note. \*Correlation is a significant at the .05 level (2-tailed). \*\* Correlation is a significant at the .001 level (2-tailed)

An independent samples t-test was conducted to examine gender differences in narcissism across the three countries. Results showed that males scored significantly higher in narcissism compared to females in both the Ecuadorian sample ( $p = .003$ ) and the combined sample from the United States and Norway ( $p = .015$ ). (see **Table 4**).

**Table 4** Independent T- Test: Gender and Narcissism (95% CI)

Scale	Cronbach's Alpha Spanish	Cronbach's Alpha English	No. of Items
Facebook Usage	.733	.591	21
Narcissism Scale (NPI-16)	.568	.648	16
Loneliness Scale (SELSA-S)	.877	.911	15
Wellbeing Scale (OHQ)	.699	.793	8
Self-Esteem Scale (Rosenberg's)	.866	.864	10
Extraversion Scale (NEO-fii)	.734	.728	12

A multiple linear regression analysis was performed to predict Facebook Usage (dependent variable) based on Narcissism, Loneliness, and Wellbeing as independent variables. The results indicated a significant regression model,  $F(3, N) = 5.702$ ,  $p < .05$ , with an  $R^2$  of .095. Narcissism was found to be a significant predictor, associated with an average increase of 1.24 points on the Facebook Usage scale. This effect was consistent across samples from Ecuador, the United States, and Norway (Significance = .001,  $p < .05$ ). In contrast, Loneliness ( $\beta = .113$ ) and Wellbeing ( $\beta = .079$ ), when held constant, did not significantly predict Facebook Usage (both  $p$ -values  $> .05$ ). (see **Table 5**).

**Table 5** Multiple Regression Ecuador, USA & Norway (95% CI)

	B	Std. Error	$\beta$	t	Sig.		ANOVA	R-Square	VIF
Narcissism	1.239	0.316	.295	3.920	.000*	PREDICTOR	F= 5.02	.095	1.02
Loneliness	0.113	0.928	.009	0.121	.903	NOT PREDICTOR	Sig. = .001		1.09
Wellbeing	0.079	0.119	.052	0.665	.507	NOT PREDICTOR	p-value < .05		1.09

Note. \*p-value significant  $<.05$ . Dependent Variable: Facebook Usage.

## DISCUSSION

Facebook is the most widely used social network worldwide (Kempt et al., 2025) and has been the focus of extensive psychological research, with over 1,600 articles indexed in PsycInfo (Walters & Horton, 2015). Social media platforms have become essential tools for understanding unconscious psychological behaviors manifested through Facebook usage.

In our study, Facebook usage was significantly higher in Ecuador ( $M = 67.95$ ) compared to the United States and Norway. The Ecuadorian sample also exhibited significantly higher levels of narcissism ( $M = 5.58$ ) than the U.S. and Norwegian samples ( $M = 3.50$ ). This partially contradicts prior research that reported higher narcissism levels among Americans; instead, Ecuadorians emerged with the highest narcissism scores (Foster et al., 2003).

Although Ecuador is traditionally categorized as a collectivist culture, we had anticipated lower narcissism levels than those in more individualistic countries such as the U.S. and Norway. Contrarily, our results reveal heightened concern with self-presentation, achievement display, and resource exhibition—traits associated with collectivist societies that emphasize involvement in others' lives (Hui, 1988; Bhauk & Brislin, 1992).

Moreover, Ecuadorian Facebook users reported greater happiness and subjective well-being than their counterparts in the U.S. and Norway, despite Ecuador ranking lower on economic and social indicators per the 2017 World Happiness and Well-being Report (Helliwell et al., 2017). This suggests that perceived happiness may transcend economic conditions.

We also found that narcissism correlated significantly with gender: men displayed higher narcissism levels than women (Gabbard, 2005). Elevated narcissism was associated with more intensive Facebook usage, as the platform enables self-promotion and attention-seeking behaviors. High-narcissism users tend to share more personal content, post frequent status updates, upload attractive images, and maintain extensive friend networks (Ljepava et al., 2013).

Our data further support a positive correlation between narcissism and extraversion, potentially explaining why Facebook users are generally more extroverted than nonusers (Ryan & Xenos, 2011; Lee et al., 2014; Ross et al., 2009). Extraversion facilitates exhibitionism and self-promotion key components of narcissist behavior in the context of Facebook.

Unexpectedly, a significant positive relationship between narcissism and self-esteem was observed, aligning with research distinguishing grandiose narcissism (associated with high self-esteem) from vulnerable narcissism (associated with low self-esteem) (Brookes, 2015; Zeigler-Hill & Jordan 2011). This suggests that Facebook may serve as a channel through which individuals with grandiose narcissism express their high self-regard.

Importantly, self-esteem was controlled in our analyses to minimize conceptual overlap with narcissism, in line with recommendations from prior research (Carpenter, 2012). We confirmed a strong positive association between well-being and self-esteem across Ecuador, the U.S., and Norway. For individuals with low self-esteem, Facebook may function as a compensatory mechanism, improving self-image and reinforcing social support, thereby boosting both self-esteem and well-being (Blachnio, Przepiorka & Rudnicka, 2016).

Feelings of loneliness were found to negatively influence self-esteem and subjective well-being, generating perceptions of social rejection—such as unanswered Facebook posts that result in negative self-evaluations (Deters & Mehl, 2013). However, loneliness levels were low overall in our samples, consistent with previous findings that Facebook users report less loneliness than non-users (Sheldon, 2012).

No significant relationships were identified between Facebook usage and either loneliness or well-being, and hypotheses related to those variables were not confirmed. Regression analyses revealed that narcissism was the sole significant predictor of Facebook usage across all three samples.

In conclusion, our findings indicate that narcissism is clearly expressed through Facebook activity, while loneliness and well-being are not prominently manifested via this platform.

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