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## Instagram Stories Unveiled: Exploring Links with Psychological Distress, Personality, and Gender

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**Title: Instagram Stories Unveiled: Exploring Links with Psychological Distress, Personality, and Gender**

**Running Title: Insta Stories & Mental Wellbeing: Gender's Role**

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## **Abstract**

Instagram is one of the most used platforms, and ephemeral stories are proving to be the most used medium for users to share content on the platform. However, there have been few studies examining this type of content in relation to emotional well-being. The present study examined the association between the number of published Instagram stories, psychological well-being, personality traits, and gender in a sample of 734 Instagram users from Italy, including 281 men and 453 women, with a mean age of 25.19 years ( $SD = 7.08$ ). Participants were recruited online and asked to complete an online questionnaire. Differences were found between genders in terms of time spent on Instagram, but not in terms of the number of stories posted in the past week. In the overall sample, a small positive correlation was found between the number of Instagram stories posted and extraversion. When considering gender differences, small effect sizes were observed for emotional dysregulation, agreeableness, and neuroticism, indicating a stronger association with Instagram stories in the female group, and for openness, indicating a stronger association in the male group. Results of multiple regression analyses suggest that among females, psychological variables including personality and emotional distress may have a stronger association with Instagram Stories. To our knowledge, this is the first study to report these differences. The findings help to clarify how certain characteristics of social media platforms relates to psychological well-being and personality differently in men and women in their journey to using social media.

## Introduction

Instagram is currently one of the most used social networks in the world.<sup>1,2</sup> As of December 2021, the number of users was around 2 billion and has seen impressive growth over the past 10 years.<sup>3</sup>

Findings suggest that there is a relationship between Instagram use and personality.<sup>4</sup> <sup>13</sup> For instance, Instagram users with a higher level of openness and extraversion are likely to post more contents;<sup>5,13</sup> neurotic individuals report a more favorable attitude towards Instagram use than more emotionally stable individuals;<sup>13</sup> agreeableness, as well as conscientiousness, are negatively associated to addictive use of Instagram.<sup>6</sup> This is a complex relationship, as individuals with similar personality traits may also use social media differently depending on their motivations.<sup>6</sup>

Instagram use may also be related to psychological well-being,<sup>14-18</sup> with associations shown to vary by gender. In general, women tend to show stronger effects on self-esteem,<sup>19-20</sup> body satisfaction,<sup>21-22</sup> anxiety,<sup>23-24</sup> depression,<sup>8,23</sup> and Fear of Missing Out (FOMO).<sup>24</sup> Possible explanatory mechanisms for these associations could be the greater importance women place on social relationship,<sup>25</sup> social comparison and appearance-related comparison,<sup>26,27</sup> all of which are intensified by social media use in general,<sup>19,20</sup> and Instagram in particular.<sup>28</sup> In line with this, a study by Fioravanti and colleagues showed that women who stop using Instagram have higher levels of life satisfaction and positive affect.<sup>29</sup>

To understand the relationship between social media use and psychological well-being, it is also crucial to consider the link between emotional dysregulation and social media usage. Several studies have investigated the complex relationship between emotion regulation and social media use.<sup>30-33</sup> Difficulties in regulating emotions have been identified as predictors of excessive or problematic social media use,<sup>32,34</sup> suggesting a possible role of these platforms in emotion regulation.<sup>32</sup> Furthermore, social media use may serve as a mechanism for users to suppress or avoid negative emotions.<sup>30</sup> In addition, there is evidence that Instagram users have deficits in awareness and acceptance of their emotional responses or exhibit suboptimal impulse control,<sup>35</sup> all of which have an impact on psychological well-being and mental health.<sup>33</sup>

Although there are many studies examining the relationship between Instagram use, personality, and well-being, there are few studies that focus on the individual features of social media, particularly Instagram stories. Introduced in August 2016, Instagram stories consist of content (photos, videos, or live footage) that appears on the screen for 15 seconds and is automatically deleted from the profile 24 hours after posting.<sup>36</sup> Stories can be decorated with text, images, emoji, audio or links that can point to other websites, and can be shared by other users on their own profiles. Since their introduction, Instagram stories have become the most widespread way of sharing content,<sup>37</sup> such that in 2019 their daily

use was estimated to exceed 500 million users.<sup>38,39</sup> A study by Fidan and colleagues<sup>40</sup> on a sample of young people found that 'story' is the most present mental image when it comes to entertainment and sharing, both in terms of posting personal stories and viewing the stories of others. With their ephemeral and casual nature, Instagram Stories promote genuine self-expression that differs from static posts, emphasizing distinctive user experiences,<sup>7,10,36</sup> while providing users with increased control over privacy.<sup>41,42</sup> Indeed, Instagram Stories are seen as a low-pressure alternative to traditional social media posts, which may imply greater image care, as they remain visible for longer.<sup>41,43-45</sup> These aspects may lead users to be more relaxed and open up.<sup>46,47,48</sup> possibly showing different associations with users' individual characteristics than traditional posts<sup>49</sup>. With respect to this, it is important to consider that the relationship between Instagram Stories and psychological variables may also vary between genders. The ephemeral and interactive nature of stories might appeal differently to men and women, influencing their self-expression and engagement in ways that reflect distinct state and trait psychological characteristics.

Indeed, it is possible that, as with social media in general, motivations for posting Instagram Stories vary by gender. On social media, women tend to disclose more personal information than men, who are more likely to discuss abstract topics such as politics and are more likely to search for information.<sup>9,50-52</sup> Gender appears to be related to users' motivations for posting, with men more interested in self-expression and creativity in content creation,<sup>52</sup> while women are more likely to use social media to maintain social relationships.<sup>9,11,53</sup>

In light of the above, in the present study intend to 1) provide a detailed description of story production in terms of the number of stories posted, highlighting any gender differences; 2) explore the relationship between personality traits, psychological well-being, and story production, offering new insights into this complex interaction; and 3) uncover potential gender-specific patterns in how story production relates to personality and psychological well-being. Our study is distinct in its focus on Instagram Stories, a relatively underexplored area in social media research.

## **Material and Methods**

### *Participants and Procedure*

The sample was recruited online by sharing a link to an online survey. The survey was implemented using the LimeSurvey web application. Criteria for participation in the study were Italian residency with fluency in Italian, being an active Instagram user, and being of legal age (18 years old). As an incentive to participate in the study, participants were informed that after completing the survey they would receive a personalized feedback message based on the scores obtained in the study. Online dissemination of the study was

implemented using a snowball approach, beginning with a group of six students enrolled in a master's degree program in psychology. Invitations to participate in the study were shared online via public posts on several social media platforms (e.g., Facebook, Instagram). Data collection took place in January 2021. An initial sample of  $N = 846$  individuals accessed the survey, of which  $N = 85$  failed to proceed beyond the home page of the survey. After removing these observations, a sample of  $N = 761$  remained. In this sample, missing data was minimal and consisted of individual responses failing to fill in the survey in full (i.e., missing responses to the final section of the questionnaire;  $N = 20$ ). Note that in order to minimize the impact of missing data on quality of responses for specific sections of the questionnaire (e.g., due to fatigue, boredom, inattention, etc.), the order of study scales was randomized. Little's MCAR test confirmed the assumption for missing completely at random (MCAR) data, suggesting listwise deletion would not have a negative impact on subsequent analyses. After removing observations including missing data, the final sample consisted of  $N = 741$  participants. Regarding gender assessment, participants were asked to identify their gender with options including male, female, and non-binary. Because individuals identifying as non-binary were only  $N = 7$  (0.9% of the sample) these observations were not included in the final sample. The final sample consisted of  $N = 734$  participants, 281 men and 453 women, with a mean age of 25.19 years ( $SD = 7.08$ ).

### *Instruments*

Participants were also asked to report on the average time spent on Instagram and the number of published stories during the past week. To collect objective information about Instagram usage, participants had to retrieve this information by viewing the "My Activity" section of the Instagram app (average time spent on the platform each day) and by browsing their recent posting activity (number of Stories published in the last week).

We also administered Italian versions of several psychological measures. The Difficulties in Emotion Regulation Scale - Short Form (DERS-SF), consisting of 18 items describing varying degrees of emotion regulation difficulties and allowing for the scoring of six subscales (i.e., Lack of Emotional Awareness, Lack of Emotional Clarity, Nonacceptance of Emotional Responses, Limited Access to Emotion Regulation Strategies, Impulse Control Difficulties, Difficulty Engaging in Goal-Directed Behavior) (DERS-SF;  $\alpha = .86$ ; for subscales,  $\alpha$  ranged from .76 to .86).<sup>54-57</sup> The Patient Health Questionnaire-8 (PHQ-8), including 8 items describing depression symptoms whose frequency is rated on a 4-point response scale, ranging from 0 ("Not at all"), to 3 ("Nearly every day") ( $\alpha = .83$ ).<sup>58</sup> Fear of Missing Out (FOMO) was assessed using 10 items reflecting fears and worries about being out of touch with one's social environment, rated on a 5-point Likert scale ranging 1 ("Not at all true of me") to 5 ("Extremely true of me") ( $\alpha = .83$ ).<sup>59,60</sup> The Big Five Inventory - 10 item (BFI-10) was

administered to evaluate personality traits from the Big Five complex, namely Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness; the BFI-10 includes two statements per trait rated on a 7-point Likert scale ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree").<sup>61</sup> Being based on two items, reliability cannot be assessed using Cronbach's; however, based on findings by the original study, test-retest correlations over a period of 6 to 8 weeks are expected to vary between  $r = .65$  (Openness) and  $r = .79$  (Extraversion).<sup>61, 62</sup>

#### *Data analysis*

First, descriptive statistics (mean and standard deviation) of the study variables were calculated. Gender differences in the variables studied were examined using Student's t-test.

Next, we examined correlations between the number of Instagram stories posted in the past week and indicators of psychological distress (i.e., DERS, PHQ-8, and FOMO) and Big Five personality traits. To highlight potential differences in correlation between Instagram stories and the other study variables, correlations were calculated both in the total sample and by gender. To obtain an estimate of the effect size of the correlation differences between gender groups, we calculated Cohen's  $q$ , which is the difference between Fisher- $z$ -converted correlations. Emerging differences were evaluated following Cohen's conventions for  $q$  effects: small  $\geq 0.10$ , medium  $\geq 0.30$ , large  $\geq 0.50$  (Cohen, 1988). Fisher's  $z$ -transformation procedure was used to test the significance of the difference between the correlation coefficients in the two groups. As a last analytical step, in order to better understand the overall contribution of the psychological variables on the production of Instagram stories we conducted multiple regression analyses including all the psychological variables as predictors and number of produced stories as outcome variable. The analyses were conducted separately for males and females.

#### **Results**

Table 1 shows the descriptive statistics for the total sample and by gender. Time spent on Instagram was significantly higher in the female group, but there were no differences between genders in the number of stories posted in the past week. In terms of psychological variables, we found that females reported higher levels of depression and neuroticism than male participants. There were also minor differences in the emotional dysregulation subscales, indicating poorer awareness of emotions in males and poorer emotion regulation strategies in the female group. No other significant differences were found.

Table 2 shows the correlations found in the total sample and in the female and male subsamples. In the total sample, a small positive correlation was found between the number of posted stories and extraversion, while the other correlations had a negligible effect size ( $r$



< .10]). In the male sample, small positive correlations emerged between the number of Instagram stories posted and both extraversion and openness.

In the female subsample, however, we observed more significant results. Regarding the relationship between Instagram stories and psychological well-being, small positive correlations emerged with emotional dysregulation, including the total score and the two subscales of non-acceptance and impulse control, as well as with scores for FOMO and depression. For personality traits, small positive correlations emerged between the number of Instagram stories posted and extraversion and neuroticism, while a small negative correlation emerged with agreeableness. Finally, we examined the effect size of gender differences in the strength of the correlations: Based on Cohen's Q, a small effect size ( $Q \geq .10$ ) was observed for emotional dysregulation (total score, impulse control, and clarity subscales), agreeableness, and neuroticism, indicating a stronger association in the female group, and for openness, indicating a stronger association in the male group. Significant gender differences in correlation were found for the impulse control and clarity dimensions of emotional dysregulation, and for the personality traits neuroticism and agreeableness, indicating a stronger effect size in the female group.

As a final step, we conducted multiple regression analyses separately for females and males. The model for females accounted for a more substantial proportion of variance ( $R^2 = 0.16$ ) compared to the model for males ( $R^2 = 0.09$ ). For females, significant effects emerged for extraversion ( $\beta = 0.30$ ,  $p < .001$ ), agreeableness ( $\beta = 0.11$ ,  $p = .01$ ), neuroticism ( $\beta = .10$ ,  $p = .04$ ), and impulse control ( $\beta = .13$ ,  $p = .03$ ). For males only extraversion reached significance ( $\beta = 0.20$ ,  $p = .002$ ). Full results of the regression analysis are reported in Supplementary material (see Tables S1 and S2).

INSERT TABLE 1 AND 2 HERE

## Discussion

In the present study, we aimed to 1) describe the phenomenon of story production **in terms of the number of stories posted** and identify gender differences; 2) examine the relationship between personality traits, psychological well-being, and story production; 3) identify gender differences in the relationship between story production and psychological well-being. We found significant gender differences in time spent on Instagram but not in the number of posted stories. We also found a substantial difference between males and females regarding the presence and magnitude of significant associations between personality traits, psychological well-being, and the quantity of posted stories.

Our results show that for women, the number of stories posted is positively correlated with FOMO, depression, emotional dysregulation (and in particular, lack of impulse control

and clarity about one's emotions), and neuroticism. These findings are consistent with previous studies that have found a stronger link between social media use and psychological well-being in women than in men.<sup>8,23,36,40</sup> The observed positive correlation between the number of Instagram stories posted and FOMO suggests that there may be a stronger link between FOMO and the active sharing of experiences on social media among women. This is consistent with previous research indicating possible gender differences in social media use and its association with FOMO.<sup>24</sup> The positive correlation between Instagram stories and emotional dysregulation in women could be interpreted in the context of previous studies suggesting that social media may have a regulating function for emotions by providing a platform to express and modulate feelings.<sup>30,31</sup> In addition, the study by Senin-Calderón and colleagues<sup>35</sup> shows that Instagram users have deficits in the perception and acceptance of their emotional reactions or exhibit suboptimal impulse control. It can be assumed that these signs mainly characterize female users regarding Instagram stories production, although further investigation is warranted.

Previous studies<sup>23,40</sup> suggest that feedback and interactions on intimate content may correlate with a decrease in well-being, particularly in women, who tend to disclose more personal information on social media than men.<sup>50,53</sup> Thorisdottir and colleagues<sup>23</sup> suggest that girls are arguably more sensitive to the feedback they receive and internalize emotional distress and depressed mood. The study by Svensson and colleagues<sup>54</sup> also suggests that there are very strong negative effects on the psychological well-being of girls who share personal content online. In a similar way, our data showed that in women, stronger positive correlations could be observed between the number of stories posted and depression compared to men. Still, because of the correlational nature of the data, further evidence is needed to determine the direction of these associations.

As for the relationship with personality traits, both men and women showed a correlation between the number of stories posted and extraversion. This result is consistent with sociability and thus willingness to share content with others.<sup>10</sup> At the same time, it is consistent with the findings of other studies in which extraversion is associated with more active use of social media.<sup>9,65</sup> The association with openness, found only in the male subsample, can be interpreted in the context of using Instagram to share one's creativity.<sup>7,10</sup> Indeed, as mentioned in the introduction, Instagram stories offer many opportunities for personalization and creativity. This hypothesis is consistent with Huang and colleagues,<sup>66</sup> who report that men have a greater interest in self-expression and creativity. Regarding the negative correlation with agreeableness, which we found only in the female group, Kircaburun and colleagues<sup>6,67</sup> hypothesize that individuals low in agreeableness may be more likely to show problematic social media use tendency, including Instagram. This association has been suggested to be related to generally lower self-liking of individuals low

in agreeableness, which may lead them to increased content production as a way to obtain positive feedback from their online social networks.<sup>69</sup> Women, particularly those who feel less agreeable or less likable, might use social media platforms as a space to curate a desired image and seek approval or positive feedback.<sup>70</sup>

Finally, we found a positive correlation between Stories production with neuroticism only in the female group. This is coherent with findings by Hughes and colleagues,<sup>69</sup> indicating that neurotic individuals are more likely to open up emotionally, disclose personal problems, and use social media more for social interactions. **The gender disparity in this correlation could be a reflection of underlying differences in socialization, emotional expression norms, and even the way different genders respond to neurotic tendencies when online.**<sup>70</sup>

Overall, results of multiple regression analysis confirmed significant associations between psychological variables and Instagram stories posting frequency, with an overall strength of the association higher for females than males, highlighting gender-specific differences in the impact of psychological factors on Instagram story posting behavior. Note that given the partial overlap between predictors, some of the significant bivariate associations were not confirmed in the regression models.

The present study has several limitations. First, the generalizability of the results is in part compromised by the use of a convenience sample. In addition, there are limits to the implemented cross-sectional design. Due to its correlational nature, the possibility of drawing conclusions about the direction of the observed associations is limited. For these reasons, results from the present study should be considered descriptive and preliminary in nature. They offer initial insights but cannot definitively establish cause-and-effect relationships.

Despite these limitations, the current study contributes to understanding of the intricate interplay between content production on social media, psychological well-being, and personality traits. Furthermore, it offers valuable insights into the role played by gender in how these relationships manifest.

#### **Author Disclosure Statement**

No competing financial interests exist.

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**Table 1. Descriptive statistics in the total sample and by gender**

	Total (N = 734)		Male (N = 281)		Female (N = 453)	
	M	SD	M	SD	M	SD
Time spent on Instagram (minute/day)*	94.43	128.13	74.97	114.43	106.56	134.68
Number of Stories (last week)	4.41	7.72	3.90	9.08	4.72	6.73
Emotional Dysregulation	2.23	0.65	2.19	0.64	2.26	0.66
Non-acceptance	2.27	0.98	2.19	0.99	2.32	0.97
Goals	2.91	1.10	2.83	1.08	2.97	1.12
Impulse	1.85	0.95	1.81	0.90	1.87	0.98
Awareness*	2.07	0.88	2.21	0.91	1.99	0.85
Strategies*	2.25	0.96	2.12	0.93	2.32	0.97
Clarity	2.03	0.86	2.05	0.84	2.02	0.88
Fear of Missing Out	2.15	0.68	2.12	0.68	2.17	0.68
Depression*	8.31	4.85	7.50	4.87	8.81	4.77
Extraversion	4.11	1.35	4.11	1.29	4.10	1.39
Agreeableness	4.28	1.22	4.26	1.25	4.30	1.20
Conscientiousness	4.63	1.25	4.52	1.34	4.69	1.19
Neuroticism*	4.28	1.59	3.75	1.54	4.60	1.53
Openness	5.06	1.29	5.09	1.26	5.05	1.31

Note. \* Between group differences are significant at  $p < .001$

**Table 2. Correlations between of number of Instagram Stories and psychological variables in the whole sample and by gender group**

	Total (N = 734)	Female (N = 453)	Male (N = 281)	Cohen's q
Emotional Dysregulation (Total)	.09*	.13**	.03	.10
Non-acceptance	.10**	.14**	.05	.09
Goals	.07*	.04	.11	-.07
Impulse	.12**	.20**	.02	.18**
Awareness	-.04	.01	-.09	.10
Strategies	.06	.07	.04	.03
Clarity	.04	.10*	-.04	.14*
Fear of Missing Out	.08*	.12**	.04	.08
Depression	.08*	.11*	.04	.07
Extraversion	.25**	.27**	.22**	.06
Agreeableness	-.03	-.12**	.08	.20**
Conscientiousness	-.04	-.05	-.04	.01
Neuroticism	.07*	.14**	-.03	.18**
Openness	.09*	.05	.15*	.10

Note. \* p<.05, \*\* p<.01

## Supplementary Materials

**Table S1. Multiple Regression Model: Instagram Stories on Psychological Variables in the Male Sample ( $R^2 = .089$ )**

Effects	Beta	t	p
Neuroticism	-0.070	-0.983	0.327
Extraversion	0.200	3.161	0.002
Agreeableness	0.054	0.821	0.412
Openness	0.096	1.469	0.143
Conscientiousness	-0.027	-0.410	0.682
Depression	0.032	0.375	0.708
Fear of Missing Out	0.038	0.531	0.596
DERS - Non-acceptance	0.031	0.419	0.676
DERS - Goals	0.114	1.340	0.181
DERS - Impulse Control	0.016	0.209	0.835
DERS - Awareness	-0.042	-0.626	0.532
DERS - Strategies	-0.006	-0.066	0.948
DERS - Clarity	-0.077	-0.996	0.320

**Table S2. Multiple Regression Model: Instagram Stories on Psychological Variables in the Female Sample ( $R^2 = .160$ )**

Effects	Beta	t	p
Neuroticism	0.103	2.008	0.045
Extraversion	0.304	6.598	0.000
Agreeableness	-0.115	-2.498	0.013
Openness	0.018	0.386	0.700
Conscientiousness	-0.058	-1.166	0.244
Depression	0.070	1.123	0.262
Fear of Missing Out	0.046	0.926	0.355
DERS - Non-acceptance	0.093	1.623	0.105
DERS - Goals	-0.114	-1.909	0.057
DERS - Impulse Control	0.126	2.194	0.029
DERS - Awareness	-0.024	-0.485	0.628
DERS - Strategies	-0.094	-1.372	0.171
DERS - Clarity	0.048	0.887	0.376