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Research Article

Development and Validation of the Need for Online Social Feedback (NfOSF) Scale

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People are known to adjust their behavior based on social information. Starting from 2004, social media rapidly became a new social arena for human interaction, and scholars widely studied the effect of likes on people's psyche and behavior. However, likes are just one of the possible social feedbacks among many others on social media. Moreover, social feedback influence should be analyzed recognizing individual differences in people's needs and desires for them. This work was aimed at developing and validating (internally and externally) a scale able to capture people's perceived need for online social feedback (NfOSF) applicable to most social media platforms. Data coming from 1403 Italian participants were used for this purpose. Exploratory and confirmatory factor analyses appeared to support a two-factor structure for the NfOSF scale, while Pearson's correlation confirmed the expected positive relations of NfOSF factors with Narcissism, Need to Belong, FOMO, and Social media reputation perception. Eventually, NfOSF scale reliability appeared optimal.

1. Introduction

Human beings and their actions are deeply influenced by the social environment in which they live. Indeed, many different disciplines such as sociology, ecological psychology, and ethology emphasized the importance of social environments on human behaviors [1–4]. For instance, it is well known that individuals adjust their behavior based on the presence of others. Specifically, humans behave differently, in particular more cooperatively depending on their awareness of being observed, for example, through a simple image of eyes on a computer screen in social dilemma situations [5–8]. Most human behaviors appeared to be ineluctably based on external and social circumstances that also determined and affected human basic needs [9, 10]. On one side, primary needs such as biological, physiological, and safety requirements were supported by being in a group through an evolutionarily or psychological stable strategy [11–13]; on the other hand, emerging high-order needs such as love, self-esteem, and belongingness, are met only in the social context [10, 14, 15] and are usually linked to the individuals' adherence to the group expectations about their behaviors, attitudes, and opinions [16–18].

In fact, the acceptance of a member in a social environment by the others was communicated by several indicators such as cohesion dynamics [19, 20], sociometric status [21], social network centrality [22], and gossip and reputation dynamics [23–27]. For this reason, individuals actively monitored social signs coming from the group in order to avoid negative and pervasive phenomena such as ostracism [28–30], social exclusion [31–33], or other unfavorable outcomes related to social control and punishment of deviance behavior dynamics [34–37], as well as to potentially acquire status and more advantages linked to the adoption of expected behaviors [38–40]. In fact, there are some ways in which humans could approve or disapprove others' behavior to communicate social acceptance, people seemed to have a strong tendency to transmit social evaluations

and cues [41, 42]. Conversely, people seem to adapt their behavior based on social cues (e.g., photo editing behavior) [43]. At the level of face-to-face interactions, one of the most cost-effective modes to convey these social signs and gathering information about other's actions, behaviors, and attitudes is through gossip, social status, reputation, and legitimacy dynamics [36, 41, 44–46].

Nowadays, overcoming the physical constraint typical of face-to-face communications allows people to have a revolutionary way to process information, working together and optimizing time and space in order to interact economically with multiple groups [47, 48]. In fact, the possibility to "incarnate" and experience multiple social identities and to belong to a higher number of groups was enormously amplified thanks to the expansion of communication possibilities introduced by ICTs as personal computers, televisions, email systems, smart devices, and internet-enabled systems [49] that people promptly learned and become proficient in using for their purposes [50, 51]. In particular, one of these emerging technologies as social networks made the maintenance and the transmission of social evaluations much easier through some technical features such as the manifest approval of user's contents. Among these technical features, the virtual like was surely the most famous one [52–57] and allowed for the development of social dynamics usual of the offline contexts [58].

1.1. Like and Feedback Mechanism. The "Like" mechanism, which almost all social media sites have today, is one of the most popular ways for people to interact and give feedback to each other on social media sites [59]. This mechanism also allows individuals to interact with other individuals with a "single button" in terms of usage [60].

Scholars readily began to study how "Likes" may be associated with people's behaviors and psychology. For instance, the Narcissism trait was quite consistently associated with higher importance attributed to likes and consequently to the actions that can ease their achievement (e.g., content sharing and selfies) [57, 61–63]. Other studies stressed how "likes" and people's Need to Belong can be intertwined [64]. Indeed, in line with the Need to Belong theory [31] people can perceive and experience the fact of not receiving likes as an act of ostracism and social exclusion by their online network with negative consequences similar to those observed in offline dynamics [31, 64–66]. In a similar fashion, the Fear of Missing Out (FOMO) construct has been operationalized including those actions linked to receiving likes as the online sharing of experiences (e.g., updating status and posting photos) [64, 67–69]. Despite scholars' efforts, two issues appeared to deserve more investigation and critical attention. With a few exceptions, the literature mainly considered likes as the best stimulus to convey social feedback on social media [60, 70, 71]. Although certainly practical, likes are just one of the possible social feedbacks among many others. For instance, content resharing [72–74], receiving comments [75], and the number of followers [76, 77] and views [62, 78] have been considered possible sources of social evaluation. For this reason, an accurate assessment of online social feedback effects should entail the most common and invariant features across the most successful social media (e.g., Instagram, Facebook, YouTube, and TikTok) through which a social evaluation can be implicitly or explicitly expressed. Moreover, people can vary in the need to receive positive social feedback. As noted by Bernoulli in 1738 [79] a gain of one thousand ducats is more valuable for the poor than for the rich, although both earn the same amount. Therefore, we cannot consider feedback only as the number of Likes received, because the same number of Likes could have an impact on one person and not on another, depending on their perceived needs. The number of likes received and the way people behave to receive likes are the most common ways of studying feedback on social platforms [57, 67, 68]. However, the increase of other online interaction mechanisms (not limited to "likes") might subjectively change people's perception and psychology, and people's perceived need is certainly considered as one of the possible mediators of the effects of online social feedback.

Therefore, receiving a like (or any other possible positive feedback) could affect differently based on the psychology of the receiver. For this reason, scholars' focus should shift from studying likes and social feedback in general, as objective to more subjective entities.

1.2. Aim of the Study and Hypothesis Development. The aim of this study was to develop a scale able to capture people's perceived need for online social feedback (not limited to likes) on most social media and internally and externally validate it. Regarding external validation, the present study selected the following variables: Narcissism, Need to Belong, FOMO, and Social media reputation perception (i.e., how much individuals perceive as satisfactory their reputation achieved on social media) based on a preliminary effort by the authors in reviewing the literature on the topic that is summarized below. These dimensions resulted among the most frequently investigated in relation to likes, therefore offering a robust reference point to build our hypotheses on for external validity purposes.

According to the literature, Narcissism is referred to as a personality trait that is marked by the tendency to grandiosity, has unrealistically positive self-views, and exaggerates desired qualities through social feedback from others [80–83]. In our case, the recent studies about narcissism suggested that it was associated with a high frequency of sharing on all social platforms, a tendency to selfie-posting behavior, and the concern for receiving attention and feedback on online social media [62, 63, 84, 85].

For this reason, we could hypothesize that individuals who have high scores in Narcissism could prove higher associated scores in NfOSF (H1).

In line with the Maslow Needs Model [10], the sense of belonging is particularly and strongly perceived in situations where physiological and safety needs are met [9], like in most segments of our modern society [86]. According to the current works, individuals with a high Need to Belong considered the acceptance by others as a human behavior drive [28] as well as a high priority in all kinds of areas, including social media [64]. In particular, social media could

offer a wide variety of opportunities to improve belongingness satisfaction and social engagement [64], in addition to being an opportunity for a new kind of ostracism such as being untagged in others' online content, perceived as a strong threat and great decrease of the fulfillment of a sense of belonging [65]. Based on these considerations, we hypothesized that individuals with higher levels of Need to Belong are associated with higher scores in NfOSF (H2).

In line with the Social Comparison Theory [87], individuals have an innate drive to evaluate themselves, often in comparison to others, and this process is considered a relevant landmark to make accurate evaluations of themselves. Social media provide a lot of opportunities for social comparisons, and therefore, they may promote possible concerns, known as Fear of Missing Out (FOMO), about being excluded or missing others' rewarding experiences [68, 88–90]. According to recent studies, FOMO positively predicted social comparison and feedback-seeking [67] and, in particular, individuals who seek social acceptance and cues within their social network are more likely to feel FOMO than individuals who do not seek such inclusion [64]. It is, therefore, possible to assume that high levels of FOMO could be associated with high scores in NfOSF (H3).

The perception of achieving success or failure could influence people's behavior on social media. In fact, individuals will tend to limit their exposure to possibility other nonsuccess, after experiencing a failure [72, 91]. At the same time, in line with the theory of Cognitive Dissonance [92], and the Self-evaluation Maintenance Model (SEM) [93], people are expected to give importance to achieving success on social media if they succeed in it. Moreover, having success could be considered a potential positive reinforcement that is able to increase the relevance of receiving online feedback. Based on these reasons, we could hypothesize that high levels of social media reputation perception are associated with high scores in NfOSF (H4).

2. Methods and Procedure

2.1. Measures

2.1.1. Need for Online Social Feedback (NfOSF). The scale consists of 5 items measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This set of items was developed through a focus group with 4 psychologists with experience in social media and virtual environments (i.e., the authors). The experts agreed that mainly two objects of evaluation exist on social media: content (e.g., posts, videos, and pictures) and accounts. The two main objects of potential evaluation were identified through a three-step process involving brainstorming, data-driven clustering, and evaluation. In the first step, the authors brainstormed possible assessment objects (e.g., images and videos). After a week, the authors critically evaluated the list and came up with a clustering that had to be unanimously approved. Finally, each cluster was rated on a scale from 0 (to be excluded) to 2 (very important), and the ratings of the different raters were integrated. At the end of this process, "content" (as the first rated choice) and "account" (as the second rated choice) were selected as possible rating objects to be included in the NfOSF scale. After determining the possible assessment objects, the items were formulated to capture these two aspects simultaneously. To make this clear, the items were not developed and then assigned to the "content" or "account" categories, but they had to capture both aspects together as much as possible. The authors chose the word "contents" (plural) so that one could mean both the individual content and the "gestalt" that results from the sum of the content (i.e., the account). However, this linguistic choice (i.e., the use of "contents" in item wording) implies that the two aspects are not equally weighted, at least semantically. Nevertheless, the authors agreed that explicit mention of the word "account" when formulating items would have inhibited association with "content" more than the other way around.

The way in which social feedback on contents and accounts is delivered is obviously tied to the technical features included in each social media, but some of them appeared more widely adopted and thus common (e.g., views, likes, and comments). Based on that, the experts developed the items taking these features in mind, but they avoided explicitly referring to the specific technical feature if it could reduce the items' applicability to certain social media. Eventually, the experts asked an opportunistic sample of 20 people to assess the suitability of the developed items for Facebook, Instagram, TikTok, Twitter, and YouTube without detecting particular issues. The scale items are presented in Table 1.

2.1.2. Need to Belong. Participants' Need to Belong was assessed through the single-item need to belong scale [94]. The single-item (I have a strong need to belong) was derived from the 10-item need to belong scale (NTB) [95] and measured on a rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). The mean test-retest reliability of the single-item need to belong scale is 0.66 and Cronbach's alpha across time points is 0.84.

2.1.3. FOMO. Fear of Missing Out was measured through the FOMO scale [68] validated in Italian by Casale and Fioravanti [69]. The FOMO scale is constituted by 10 Likert-type items rated on a 5-point scale (from 1 = "not at all true of me" to 5 = "extremely true of me"). The following are the item examples from scale: "I fear others have more rewarding experiences than me" and "It bothers me when I miss an opportunity to meet up with friends." Discrepancies in the factorial structure are in place between the Italian (two-factor structure) and English versions (one-factor structure). The reliability in this study was acceptable (McDonald's ω fear = 0.86; McDonald's ω control = 0.78; McDonald's ω total = 0.86).

2.1.4. Narcissism. Narcissism was assessed through the Short Dark Triad (SD3) [96] consisting of 27 items with responses selected along a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). The following are the item examples from scale: "People see me as a natural leader," "Many group activities tend to be dull without me," and

Table 1: Descriptive statistics of the item pool used to build the NfOSF scale.

No.	Item	Min	Max	Mean	s.d.
1	ENG: I'm pleased that people view my online contents IT: Ho piacere che le persone visualizzano i miei contenuti online	1	5	3.55	1.11
2	ENG: I feel satisfaction when I receive positive feedback (eg the likes) on my contents IT: Provo soddisfazione quando ricevo feedback positivi (ad esempio like) ai miei contenuti	1	5	3.84	1.05
3	ENG: For me, it's important to receive appreciation for my online contents IT: Ricevere apprezzamenti per i miei contenuti online è importante per me	1	5	2.80	1.17
4	ENG: I would like my online contents to go viral IT: Mi piacerebbe che i miei contenuti diventassero virali	1	5	2.44	1.31
5	ENG: I would like to have a large online following IT: Mi piacerebbe avere un largo seguito online	1	5	2.58	1.33

$N = 1403$; s.d.: standard deviation; ENG: English version of the item not yet validated; IT: Italian version of the items that are actually validated in the paper.

"I have been compared to famous people." The SD3 is designed to measure the three dark traits (9 items per scale). The Italian version was used [97], and the reliability in this study was acceptable (McDonald's ω : Narcissism = 0.72).

2.1.5. Social Media Reputation Perception. This information was collected through an ad-hoc item, namely, "I feel I've achieved a/an … reputation on Social Media." Participants had to complete the sentence by selecting the option perceived as true for them, relying on a 5-point Likert scale ranging from 1 (unsatisfying) to 5 (satisfying).

2.2. Sample and Sampling. The authors identified an adequate sample size for this study before proceeding with the recruitment phase. For Exploratory Factor Analysis (EFA), since we expected 1 or 2 factors to represent the 5 items, a sample size slightly lower than 370 would be enough for conducting exploratory factor analysis even assuming quite-low factor loadings ($\lambda = 0.4$) based on de Winter and colleagues' work [98]. As for the sample size for confirmatory factor analysis (CFA), according to the literature, there should be at least 10 participants for each scale item [99]. To define the appropriate sample size for the external validity assessment, we performed power analysis through G*Power [100, 101]. For Pearson's correlation, the power analysis showed that a sample size of 782 would be required to achieve a statistical power of 0.80 while being able to capture even a small effect size as defined by Gignac and Szodorai [102] ($r = 0.10$) and assuming a significance level of 0.05. The sample obtained for this study was deemed adequate since a total of 1403 participants (74.6% women; average age = 25.50; s.d. = 8.45; age range = 14-69) took part in our data collection. Participation was promoted through posts and messages on social media platforms like Instagram and Facebook since being a social media user was requested to be eligible for participation. Data were collected following the Italian law's privacy requirements (Law Decree DL-101/2018) and EU regulations (2016/679).

2.3. Data Analysis. EFA and CFA were performed on two different datasets obtained from the random splitting of the whole sample to investigate NfOSF scale dimensionality. Internal reliability analysis was assessed through McDonald's omega. The external validity of the scale was investigated through Pearson's correlation.

3. Results

3.1. NfOSF Scale Item Descriptive Statistics. As a first step, we produced the descriptive statistics for all the items included in the NfOSF scale (Table 1).

3.2. Exploratory Factor Analysis (EFA). Before investigating the NfOSF factor structure (i.e., EFA and CFA), the whole sample was randomly split into two samples of different sizes. Approximately one-third of the original sample (i.e., $N_{(EFA)} = 493$) was employed for EFA. First, supposing a monofactorial structure, we used a Principal Axis Factoring extraction method with no rotation. The number of components to be extracted was checked through the scree plot examination [103] together with the Kaiser criterion (i.e., all factors with eigenvalues greater than one) [104]. The explained total variance was 63%, and all items were retained in this phase since they showed factor loadings above 0.50 [105]. Nonetheless, the wide gap in explained variance considering a second factor (from 63% to 80%) with an eigenvalue slightly below the 1 threshold (i.e., 0.90) suggested a possible two-factor structure to be checked together with the monofactorial one in CFA. The results of EFA Promax (oblique) rotation are reported in Table 2.

3.3. Confirmatory Factor Analysis (CFA). CFA was performed on the second sample (i.e., $N_{(CFA)} = 910$) to compare the factorial structures found previously and help identify the correct dimensionality of the scale. Because the EFA did not yield a final factorial structure, we decided to test the suitability of both the unidimensional and two-factorial structures in an "exploratory manner" through CFA. Before refuting any model structure, we resorted to widely used strategies to increase model fit, such as adding covariance between the error terms of items belonging to the same dimension/factor or removing underperforming items. Maximum Likelihood Estimation (MLE) was used for estimating the model's parameters.

Models fit was evaluated based on several goodness-of-fit indices: the chi-square to the degree of freedom ratio (χ^2/df; [106]), the Tucker-Lewis index (TLI; [107]), the comparative

Table 2: EFA results for NfOSF two-factor structure and factor loadings.

Item number and formulation	F1 loading	F2 loading
(1) I'm pleased that people view my online contents	0.64	
(2) I feel satisfaction when I receive positive feedback (e.g. the likes) on my contents	0.95	
(3) For me, it's important to receive appreciation for my online contents	0.52	
(4) I would like my online contents to go viral.		0.91
(5) I would like to have a large online following		0.88
Eigenvalues	3.15	0.90
Explained total variance	62.93%	17.53%
Cumulative total variance	80.46%	

Table 3: CFA results of the 7 models tested.

Models	χ^2/df	TLI	CFI	RMSEA	SRMR
Model 1 (unidimensional; no covariance allowed)	104.63	0.61	0.805	0.338	0.105
Model 2 (unidimensional; covariance between e1 and e2)	48.11	0.82	0.93	0.228	0.083
Model 3 (unidimensional; covariance between e1-e2 and e2-e3)	38.35	0.86	0.96	0.20	0.06
Model 4 (unidimensional; covariance between e1-e2, e2-e3, and e1-e3)	0.62	0.99	0.99	0.001	0.002
Model 5 (unidimensional; item 2 removal)	57.32	0.82	0.94	0.25	0.06
Model 6 (two factors)	16.84	0.94	0.98	0.13	0.041
Model 7 (two factors; covariance between e1 and e2)	2.43	0.99	0.99	0.04	0.010

fit index (CFI; [108]), the standardized root mean square residual (SRMR; [109]), and the root mean square error of approximation (RMSEA; [110]). For both CFI and TLI, values higher than 0.90 are acceptable whereas values above 0.95 are considered optimal. As for the RMSEA, values smaller than.08 express an acceptable fit, whereas an optimal fit is achieved with values close to.06. Finally, a cutoff value below.08 for SRMR is recommended [111, 112]. First, we used the five items as indicators of one latent variable. As shown in Table 3, the model fit was not adequate. Based on modification index (M.I.) analysis, we let item 1 and item 2 errors covary (Model 2), since covariated errors may arise from items that are similarly worded [113]. Modification indices are an estimate of the amount by which the chi-square would decrease if a single parameter restriction were removed from the model. In other words, MI reflects the improvement in the model fit that would result if a previously omitted parameter were added and freely estimated (e.g., factor loadings and correlated residuals). Higher MI values emphasize a greater increase in model fit when the parameter is added. In our case, we always preferred the larger MI to select the parameter to be added. In testing Model 1, the MI of covariance between e1 and e2 was the highest and equal to 277.92.

For Model 2, just the CFI was deemed acceptable whereas the other fit indices were unsatisfactory. In testing Model 2, the MI of covariance between e2 and e3 was the highest and equal to 68.59 Therefore, an additional covariance link between item 2 and 3 errors was added (Model 3) that slightly increased the model fit. Nonetheless, the chi-square to the degree of freedom ratio, TLI, and RSMEA indices were still under the cut-off values. In testing Model 3,

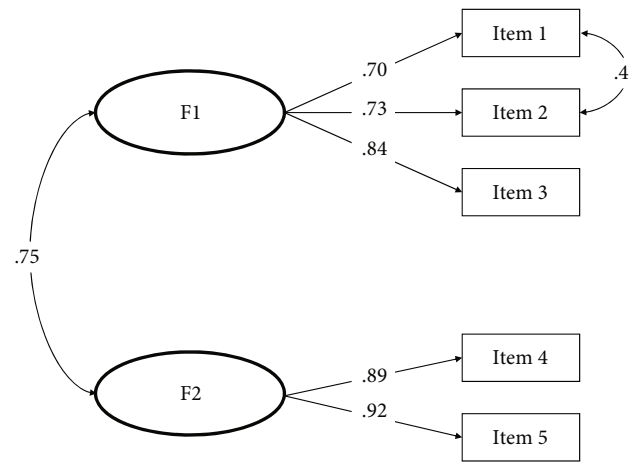

Figure 1: Results of confirmatory factor analysis of the NfOSF two-factor model (Model 7). In the figure, shown are the standardized factor loadings for the items in Model 7. Item 1: I'm pleased that people view my online contents. Item 2: I feel satisfaction when I receive positive feedback (e.g., the likes) on my contents. Item 3: For me, it's important to receive appreciation for my online contents. Item 4: I would like my online contents to go viral. Item 5: I would like to have a large online following.

the MI of covariance between e1 and e3 was the highest and equal to 65.93. The addition of a final link between item 1 and 3 errors (Model 4) met goodness-of-fit index thresholds, but the necessity of adding 3 covariance links with just five items suggested the existence of a different dimensionality for the scale. The removal of item 2 (Model 5) that was involved in 2 out of 3 covariance links did not lead to an acceptable fit and thus was re-integrated into the item pool.

Table 4: Descriptive statistics of the variables collected.

Variables	Min	Max	Mean	s.d.	Asym.	Kurt.
NfOSF-F1	3	15	10.20	2.88	-0.43	-0.30
NfOSF-F2	2	10	5.01	2.52	0.48	-0.85
Need to Belong	1	5	3.14	0.98	-0.12	-0.36
FOMO-fear	4	20	8.99	3.73	0.60	-0.26
FOMO-control	6	30	14.53	4.28	0.29	-0.09
FOMO-total score	10	50	23.52	7.14	0.47	0.06
Narcissism	1.22	4.56	2.67	0.59	0.17	-0.03
Social media reputation perception	1	5	2.84	1.09	-0.46	-0.50

In general, Models 2 to 5 were aimed at testing the adjustment of the unidimensional structure after applying strategies to increase model fit. Nonetheless, the higher need for modification typically underscores the inability of the identified structure to adequately explain the observed data. In this scenario, the model begins to contain noise stemming from quirks or spurious correlations (i.e., overfitting); for this reason, Model 4 was discarded although surpassing fit thresholds.

Eventually, we tested a two-factor model. Model 6 presented an optimal for TLI, CFI, and SRMR. However, the model still failed to reach a chi-square to the degree of freedom ratio below 3 and an RMSEA below 0.08. Nonetheless, Model 6 performed much better than Model 1 (i.e., pure two-factor structure vs pure monofactorial). In testing Model 6, the MI of covariance between e1 and e2 was the highest and equal to 13.40. An optimal fit for all fit indices was obtained by letting once again item 1 and item 2 errors covary. In comparison, the two-factor structure required only a single change to achieve an adequate fit (i.e., Model 7). Therefore, CFA appeared to support a two-factor structure for the NfOSF scale as shown in Figure 1, with Factor 1 grouping items related to the desire of receiving positive feedback and Factor 2 linked to a higher desire for fame.

3.4. Internal Reliability. The reliability analysis of the NfOSF two-factor model was assessed with McDonald's omega on the whole sample given the consensus in the psychometric literature that Cronbach's alpha is rarely appropriate [114–116]. Both factors showed an optimal reliability (F1 $\omega = 0.84$; F2 $\omega = 0.90$).

3.5. External Validity. The external validity was assessed through Pearson's r coefficient using the whole sample (i.e., $N = 1403$). Before proceeding with correlation analysis, we assessed the variable normality (asymmetry and kurtosis values), homoscedasticity, and linearity, and we produced descriptive statistics (Table 4).

Since all the metric variables were normally distributed, we performed Pearson's correlation as planned. As shown in Table 5, both factors entertained positive relationships with external validity measures as expected. Following Gignac and Szodorai's [102] interpretation rules for Pearson's correlation in social sciences, all the relationships were around typical (i.e., 0.20) and relatively large (i.e., 0.30) effect sizes. On average, Factor 1 was more strongly associated than Factor 2 with Need to Belong, FOMO, and Social media reputation perception. Factor 2 was instead more tied with Narcissism than Factor 1.

Table 5: Pearson's correlation analysis for external validity assessment.

	NfOSF-F1	NfOSF-F2
Need to belong	0.33***	0.21***
FOMO-fear	0.24***	0.17***
FOMO-control	0.33***	0.25***
FOMO-total score	0.33***	0.24***
Narcissism	0.21***	0.25***
Social media reputation perception	0.30***	0.18***

***$p < 0.001$.

4. Discussion

Starting with the VBulletin board system in the 1980s, with its increasing popularity and aggressive growth in the number of users in the following years, nowadays, "Social Media" has become one of the socialization tools that individuals spend considerable time in their daily lives in [117, 118]. The fact that social media plays such an active role in individuals' lives has resulted in various negative effects on their mental health, and as a result, it has become the focus of psychology scholars' studies [61, 119–122]. Many studies in the literature have examined the psychological dimension of the "Like" feature on social media platforms and its relationship with other variables [123, 124]. However, the proliferation of social media platforms over time and the increase of feedback mechanisms that users use for interaction show that not only likes but also other interaction mechanisms play an effective role today [125, 126]. Moreover, based on Maslow's Needs Model, we assumed that people may differ regarding the need for online social feedback [10, 64]. Therefore, the aim of this study was to create a scale that could measure the need for online social feedback that individuals perceive on most social media platforms without focusing only on the liking mechanism. In line with this purpose, the validation of the NfOSF scale was conducted with 1403 Italian participants. Exploratory and confirmatory factor analyses appeared to support a two-factor structure for the

NfOSF scale as shown in Figure 1, with Factor 1 grouping items related to the desire of receiving positive feedback and Factor 2 linked to a higher desire for fame. The factors' reliability appeared optimal (F1 $\omega = 0.84$; F2 $\omega = 0.90$).

Overall, our study showed that individuals who have high scores in Narcissism prove higher associated scores in NfOSF (H1). This result appeared in line with the previous literature regarding the relationship between Narcissism and Social media activities [58, 80]. Moreover, based on our findings, we confirmed our hypothesis (H2) that higher levels of Need to Belong are associated with higher scores in NfOSF. FOMO is an important concept for social media [127, 128], and existing literature showed that there is a significant relationship between FOMO and feedback-seeking [67]. It was considered that individuals try to meet their feedback-seeking behaviors on social media platforms with the opportunities provided by advanced technology [129]. Following the literature, our hypothesis was supported (H3), and high levels of FOMO were significantly associated with high scores in NfOSF. Eventually, high levels of social media reputation perception were associated with high scores in NfOSF, which we expected to emerge (H4) as a result of the interrelationship between the Self-Evaluation Maintenance Model [93] and Cognitive Dissonance [92]. Clearly, our results regarding external validation are correlational and no causation can be inferred. Moreover, our results are based on a biased sample due to a nonrandom sampling and self-selection bias. Therefore, the generalizability of our results may be limited. Future research should deal with these limitations and test the NfOSF scale's robustness in other countries and in particular referring to social media that are more popular in other parts of the world or that are more oriented towards chat-based interaction (e.g., WhatsApp, Telegram, and WeChat). Moreover, our paper focused mainly on the expectations of positive social feedback; however, social feedback could be, of course, also negative. Anger, bullying, hate speech, and other inappropriate online behaviors could take the form of negative social feedback (e.g., comments) that are known to threaten people's well-being [130–133]. Ideally, in the future, the NfOSF scale should be evolved or coupled with an instrument able to capture people's perceived exposure or fear of online negative feedback and consequently investigate the joint effect of positive and negative feedback on well-being and mental health. Furthermore, the relationship entertained by NfOSF with general mattering (i.e., the belief that individuals are important to others) should be explored in the future, since through the use of digital technologies general mattering could be enhanced [134] and well-being sustained [135].

In practical terms, high levels of NfOSF could be a manifestation of dissatisfaction with offline dynamics. This sort of social compensation may prompt people to develop or maintain dysfunctional emotional states and use technology, as highlighted by NfOSF's relationship with FOMO and Narcissism. Indeed, many studies on social media showed that FOMO is related to depression [136] and mental well-being [127]. At the same time, Narcissism appeared to be a driver of Internet and social media addiction [137].

In conclusion, despite these limitations, the NfOSF scale appears to be a reliable and valid instrument to help understand better the complex dynamics related to human psychology in social media environments.

Data Availability

The data presented in this study are available on request from the corresponding author.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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