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# THE ACTIVE AND PASSIVE USE OF SOCIAL NETWORKING SITES (APU-SNSS) SCALE: VALIDATION AND RELIABILITY ASSESSMENT AMONG YOUNG ADULTS

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Research into the use of Social Networking Sites (SNSs) has greatly increased over the last decade. However, there is a paucity of measures that investigate engagement styles across SNSs. The aim of the present study is to refine and examine the dimensionality, internal consistency, measurement invariance, and validity of an existing measure originally designed to quantify Facebook use behaviors and adopted to assess Active and Passive Use of SNSs (APU-SNSs). A sample of young adult participants was recruited in this study. The construct validity of the APU-SNSs was investigated through (multigroup) confirmatory factor analyses (CFA). The APU-SNSs showed an excellent fit to the data and good internal consistency. Also, our analyses of convergent and divergent validity showed significant associations with measures of Internet\SNSs use and addiction, attachment styles, personality, and temperament characteristics. Limits and practical implications of findings are discussed.

Keywords: Social media use; Active and passive use; Development; Measurement invariance; Psychometric validation.

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With over four billion active users worldwide, Social Networking Sites (SNSs) are ubiquitous in the daily life of many people (Kemp, 2021). Although Facebook (FB) remains the most frequently used SNS among most age groups (69%), results from a nationally representative survey showed that other social networks, most notably Instagram, Snapchat, and TikTok, are especially used among adolescents and young adults. In fact, a majority of 18- to 30-year-olds report a daily use of Instagram (71%) or Snapchat (65%), while roughly half say the same for TikTok (Pew Research Center, 2021).

Most researchers investigated Internet-related behaviors in terms of hours/minutes spent online per day (e.g., staying at computer, playing video games; Saiphoo et al., 2020; Vall-Roqué et al., 2021). However, this may lead to mixed research findings on the impact of SNSs use. For example, some studies which assessed SNS use in terms of hours spent per day (Vall-Roqùe et al., 2021) found a positive association between frequency of Instagram use and self-esteem, whereas a recent meta-analytic review found a nonsignificant association (Saiphoo et al., 2020). These contradictory results may stem from research using measures that do not consider specific types of activities and behaviors that users are engaging on SNSs, such as through active and passive SNSs use (Ryding & Kuss, 2020; Utz & Breuer, 2017; Wang et al., 2018).

Active SNSs use refers to direct interactions with others via commenting posts and stories, posting updates or new contents (Ryding & Kuss, 2020; Wang et al., 2018). In contrast, passive SNSs use entails users spending the majority of their time-consuming content created by others, but not actively engaging with SNSs (Ryding & Kuss, 2020; Wang et al., 2018).

Active use can enhance social connections by allowing users to increase feelings of connectedness and social support (Ellison et al., 2007). People who passively use SNSs, in contrast, perceive others as more successful or attractive than they themselves are, and report more social isolation and lack of sense of belonging (Burke et al., 2010; Shaw et al., 2015; Verduyn et al., 2022). Previous studies found that active use was associated with high perception of being loved and accepted by others (Monacis et al., 2021; Utz & Breuer, 2017; Verduyn et al., 2017) and with high levels of self-esteem (Oh et al., 2014; Ryding & Kuss, 2020; Valkenburg et al., 2021). In contrast, passive use has been associated with low self-esteem as well as to various forms of technology addictions, such as Internet and social media addiction (Hinojo-Lucena et al., 2020; Tazghini & Siedlecki, 2013). For instance, a recent study by Fioravanti and Casale (2020) found that passive users were more likely to report higher levels of FB addiction. Previous findings also evidenced that there are personality and temperamental differences that differentiate how individuals engage with SNSs (Gerson et al., 2017). For instance, Gerson et al. (2017) found that novelty seeking (i.e., the tendency to seek out new experiences, thrills, and excitement) was associated with both active and passive FB use, whereas persistence (i.e., the ability to maintain attention and direct behaviors toward an objective despite frustration and fatigue) was associated with active FB use. Empirical evidence has also supported the predictive role of attachment in the use of SNSs demonstrating that securely attached individuals have larger social networks and more social ties with others (Jenkins-Guarnieri et al., 2012). Anxiously attached individuals use FB more frequently and are constantly concerned about how they are perceived by others on FB (Lin, 2015). In contrast, attachment avoidance is associated with less interest in FB and mobile phone use (Jin & Peña, 2010; Oldmeadow et al., 2013). Taken together, these results suggest that different social network activities are differently associated with personality and temperament characteristics.

To our knowledge, there is currently a lack of research analyzing the associations between active and passive SNSs use and personality characteristics. For instance, Carpenter (2012) developed and validated an 18-item FB use scale to investigate FB-use behaviors, categorizing four different dimensions: (a) *self-promotion*, which conceives people's need for attention from a wide audience in order to gain a positive vision of the self; (b) *checking for comments about the self*, which conceives the use of SNSs to figure out

what other people are saying; (c) *offering social support*, which conceives helping others in coping with negative feelings and events, which in turn reduces personal stress and increases positive evaluations of the self; (d) *seeking self-support*, which conceives people's need for support in stressful situations to cope with their negative feelings and events. However, the original measure examines the use of one specific SNSs (i.e., FB), rather than the activity itself (i.e., social networking) and focuses on FB-use behaviors instead of on active and passive SNSs use (Carpenter, 2012). In this regard, Trifiro and Gerson (2019) have suggested using a more universal scale capable of measuring engagement style across platforms, so that current gaps in empirical knowledge can be more robustly developed.

Therefore, the aim of the present study was to refine and examine an assessment tool that captures Active and Passive Use of SNSs (APU-SNSs), starting from the original version developed by Carpenter (2012). The specific aims of this study were: (1) to evaluate its construct validity, (2) to assess its internal consistency, (3) to evaluate convergent validity, by examining its associations with other measures of Internet/SNSs use and addiction, and (4) to examine associations with measures of attachment styles, personality and temperament characteristics. In line with previous studies assessing FB-use behaviors, in the present study we expect positive relations between APU-SNSs, the temperament characteristic of novelty seeking and attachment insecurity (i.e., anxiety and avoidance dimensions) (Hypothesis 1). By contrast, we expect negative associations between APU-SNSs, the temperament characteristic of persistence, self-esteem, and attachment security (Hypothesis 2).

## METHOD

### Participants

A total of 781 Italian young adults (mean age 23.41 ± 3.00 years) volunteered for this cross-sectional study. Of the participants, 257 were males (32.9%) and 523 females (67%). One participant did not report his/her gender (0.1%). Most of the sample had completed a high-school or university degree ($n$ = 650, 83.2%); 624 participants were living with their parents (79.9%). Approximately half of the sample was unmarried or unengaged ($n$ = 380, 50.1%, taking into account that 22 participants did not report their civic status), resided in Northern Italy ($n$ = 555, 72.8%, considering that 19 participants did not report their city of origin), and reported a middle-to-high family income ($n$ = 703, 90.4%, considering that three participants did not report their family income).

### Procedure and Measures

The data were collected as part of a larger study on young Internet users (Remondi et al., 2022). Data collection occurred between November 2020 and April 2021, through an anonymous online survey. The study was conducted in accordance with ethical standards and approved by the local ethics committee.

*Sociodemographics.* The survey included questions concerning gender, age, young adults' relationship status, and educational level to obtain a profile of the respondents' sociodemographic features.

*Active and passive SNSs use.* We adapted the FB-use scale developed by Carpenter (2012) as a measure of Active and Passive Use of SNSs (APU-SNSs). The original scale contains four subscales (i.e., self-promotion, checking for comments about the self, seeking self-support, and offering social support) and three single items (i.e., accepting friend requests from strangers, retaliating against negative comments, and number of FB friends) concerning the frequency with which participants engaged in specific FB behaviors. Questions regarding self-

promotion, accepting friend requests from strangers, and retaliating against negative comments were presented on a 6-point scale from 1 = *never* to 6 = *all the time*. Questions regarding checking for comments about the self, offering social support, and seeking self-support utilized a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Self-promotion, seeking self-support, and offering social support subscales were considered measures of active use, whereas checking for comments about the self measured passive use. While the APU-SNSs retains most of the items from the FB-use scale, we dropped Item 3 "How often do you update your profile information on FB?," Item 6 "How often do you accept a friend request from a total stranger on Facebook?," Item 7 "How often do you make mean comments on someone's status if they said something negative about you on Facebook?," and Item 21 "How many friends do you have on FB (total number of people in your 'Friends')?," and we replaced "Facebook" with "social network" in order to create a more universal scale capable of measuring engagement styles across platforms and to maintain the main original four scales' dimensions.

*Social media and technology use.* The Media and Technology Usage and Attitudes Scale (MTUAS; Rosen et al., 2013) assesses self-reported frequency of media and technology use as well as attitudes toward technology use. For the purposes of this study, we selected the dimension of activities performed specifically on a mobile (i.e., searching for information, using apps, listening to music, taking photos) composed of 13 items ranging on a 10-point frequency scale from 1= *never* to 10 = *all the time*. McDonald's ω was .77.

*Social media addiction.* The Bergen Social Media Addiction Scale (BSMAS; Andreassen et al., 2016; Monacis et al., 2017) is a 6-item self-report measure that assesses six core addiction elements (salience, mood modification, tolerance, withdrawal, conflict, and relapse). Responses range on a 5-point Likert scale ranging from 1= *very rarely* to 5 = *very often*. McDonald's ω was .80.

*Internet addiction.* The Internet Addiction Test (IAT; Ferraro et al., 2007; Young, 1998) is a 20-item self-report questionnaire that examines the degree of preoccupation, compulsive use, behavioral problems, emotional changes, and impact on life related to Internet usage on a 5-point Likert scale ranging from 1 = *never* to 5 = *always*. McDonald's ω was .90.

*Problematic Internet use.* The Generalized Problematic Internet Use Scale-2 (GPIUS2; Caplan, 2010; Fioravanti et al., 2013) is a 15-item self-report measure that assesses problematic Internet use on an 8-point Likert scale ranging from 1= *definitely disagree* to 8 = *definitely agree*. McDonald's ω was .91.

*Attachment dimensions.* The Experiences in Close Relationships-12 (ECR-12; Brugnera et al., 2019; Lafontaine et al., 2015) is a 12-item self-report measure of attachment to romantic partners and responses are presented on a 7-point scale from 1 = *completely false* to 7 = *completely true*. The ECR-12 measures two dimensions of attachment to romantic partners, namely attachment avoidance (six items) and attachment anxiety (six items). McDonalds' ωs were .90 for attachment avoidance and .82 for attachment anxiety.

*Parent and peer attachment.* The Short-Form Inventory of Parent and Peer Attachment (S-IPPA; Baiocco et al., 2009; see also Armsden et al., 1987) is a self-report measure of attachment to parents and peers. For the purposes of the present study, we selected the dimension of secure attachment to peers, composed of 12 items ranging on a scale from 1 = *never true* to 5 = *always true*. McDonald's ω was .88.

*Self-esteem.* The Rosenberg Self-Esteem Scale (RSES; Prezza et al., 1997; Rosenberg, 1965) is a 10-item self-report questionnaire that assesses global self-esteem and self-worth on a 4-point Likert scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. McDonald's ω was .91.

*Novelty seeking and persistence.* The Temperament Character Inventory-Revised (TCI-R; Fossati et al., 2007; see also Cloninger et al., 1993) is a measure of temperament and character, which contains 240 items on a 5-point Likert scale ranging from 1= *completely false* to 5 = *completely true*. In the present study, only 26 items, measuring the temperament dimension of novelty seeking and persistence, were used. McDonalds' ωs were .78 for novelty seeking and .89 for persistence.

### Statistical Analyses

A multistep strategy was adopted for the translation of the FB-use scale starting from the original English version developed by Carpenter (2012). The scale was translated from English into Italian separately by two Italian authors of this study. The resulting Italian version was then backtranslated into English by a native speaker to establish the comparability and to resolve any discrepancies (Harkness et al., 2004)[1].

First, descriptive analyses were performed to detect univariate and multivariate outliers and identify cases with serious missing values (Tabachnick & Fidell, 2007). Second, construct validity was examined by using CFA, in which an optimal model fit was evaluated using the following criteria: a root-mean-square error of approximation (RMSEA) of .05 or less, an upper RMSEA's 90% confidence interval (CI) bound of .08 or less, a comparative fit index (CFI), and a Tucker-Lewis index (TLI) of .95 or more, and a standardized root-mean-square residual (SRMR) of .05 or less (Hu & Bentler, 1999). Third, internal consistency was assessed by using McDonald's ω coefficient (McDonald, 1999). Fourth, measurement invariance (MI) across age and gender was examined by using the changes in CFI (ΔCFI) with a critical level of .01 (Cheung & Rensvold, 2002). As Bollen (1989) suggested, metric invariance is an important prerequisite for meaningful cross-group comparison. Lastly, convergent validity was determined by estimating Pearson's *r* correlation coefficients between APU-SNSs subscale scores, IAT, GPIUS2, BSMAS, and MTUAS total scores. Moreover, we examined correlations between APU-SNSs subscale scores, ECR-12, S-IPPA, RSES, and TCI-R through Pearson's *r* correlation. The level of significance was set at $p < .05$. Statistical analyses were carried out using AMOS version 26.0 and Statistical Package for Social Sciences (SPSS) version 25.0.

## Results

### Preliminary Analyses

We evaluated the presence of univariate outliers using standardized scores, and the presence of multivariate outliers through Mahalanobis distance (Tabachnick & Fidell, 2007). Analyses did not reveal any univariate outliers; however, 19 cases were identified as multivariate outliers and were subsequently removed from the analyses. Univariate normality was assessed through skewness and kurtosis values. Log10 transformation was performed on IAT, GPIUS2, BSMAS, MTUAS, RSES, and S-IPPA scales to approach normal distribution. APU-SNSs Items 4, 5, 8, 9, 10, 17, 18, and 19 were moderately positively skewed, while Items 16 and 20 were strongly positively skewed: a log10 and reflect and inverse transformations corrected the violation of the assumption, respectively (Tabachnick & Fidell, 2007). The resulting variables were used in CFA.

### Construct Validity

The construct validity of the Italian version of the APU-SNSs was evaluated through a confirmatory factor analysis. The CFA evidenced an adequate fit to the data ($n = 762$): $\chi^2(113) = 451.497$; RMSEA [90% CI] = .063 [.057, .069]; CFI = .954; TLI = .944; SRMR = .085. As evidenced in Table 1, all factor loadings were significant and ranged from .52 to .89.

TABLE 1
Descriptive statistics of the APU-SNSs and standardized parameter estimates for the confirmatory factor analysis (CFA) on the revised model ($n$ = 762).

| | Descriptives | | | | Factor loadings | | | |
|---|---|---|---|---|---|---|---|---|
| Items | Mean | *SD* | Asymmetry | Kurtosis | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| Item 1 | 2.60 | 1.32 | 0.65 | –0.90 | .780 | | | |
| Item 2 | 2.65 | 1.17 | 0.64 | –0.03 | .801 | | | |
| Item 4 | 2.00 | 0.86 | 1.09 | 1.83 | .522 | | | |
| Item 5 | 1.80 | 1.00 | 1.30 | 1.38 | .591 | | | |
| Item 8 | 1.83 | 1.22 | 1.60 | 2.03 | | .806 | | |
| Item 9 | 1.96 | 1.33 | 1.43 | 1.29 | | .877 | | |
| Item 10 | 2.21 | 1.58 | 1.28 | 0.73 | | .698 | | |
| Item 11 | 2.78 | 1.84 | 0.81 | –0.42 | | .486 | | |
| Item 12 | 3.40 | 1.98 | 0.34 | –1.13 | | | .736 | |
| Item 13 | 3.03 | 1.87 | 0.50 | –0.99 | | | .875 | |
| Item 14 | 3.25 | 1.96 | 0.43 | –1.08 | | | .885 | |
| Item 15 | 2.86 | 1.89 | 0.72 | –0.71 | | | .889 | |
| Item 16 | 1.61 | 1.15 | 2.38 | 5.92 | | | | .825 |
| Item 17 | 1.69 | 1.13 | 1.96 | 3.82 | | | | .853 |
| Item 18 | 2.03 | 1.39 | 1.40 | 1.33 | | | | .740 |
| Item 19 | 1.91 | 1.37 | 1.67 | 2.30 | | | | .822 |
| Item 20 | 1.58 | 1.12 | 2.37 | 5.79 | | | | .832 |

*Note*. Factor 1 = self-promotion; Factor 2 = checking for comments about the self; Factor 3 = offering social support; Factor 4 = seeking self-support.

## Internal Consistency

The Italian version of APU-SNSs demonstrated a fair to excellent internal consistency (McDonald, 1999), with an ω of .83 for self-promotion subscale, .78 for checking for comments about the self subscale, .91 for offering social support subscale, and .91 for seeking self-support subscale.

## Measurement Invariance across Gender and Age Groups

To evaluate the generalizability of the model across males and females, young and older adults (with the sample split around the median age of 23 years), two multigroup CFAs were performed. The results indicated a good fit of the data for each subgroup. The measurement invariance of the 4-factor solution was supported at all levels for age, whereas at partial scalar level for gender (see Table 2). In particular, we released the intercept of Item 2, which was higher in group female than in group male (intercept = 2.77 vs. 2.37).

## Convergent Validity

The factors of the APU-SNSs were distinct but correlated (moderate Pearson's $r$ correlations positive correlations ranging from .37 to .49, all $p$s < .01). All APU-SNSs subscales were significantly and positively

associated with measures of Internet and social media use and addiction (IAT, GPIUS2, BSMAS, and MTUAS, with small to moderate positive correlations ranging from .18 to .38, all *p*s < .01) (see Table 3).

TABLE 2
Measurement invariance of the Active and Passive Use of Social Networking Sites (APU-SNSs) scale by sex and age (*n* = 762)

| Model | $\chi^2$ | *df* | *p* | CFI | TLI | RMSEA [90%CI] | | $\Delta\chi^2$ | $\Delta df$ | *p* | ΔCFI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Sex* | | | | | | | | | | | |
| Female | 360.253 | 113 | < .01 | .947 | .937 | .066 [.058, .073] | | | | | |
| Male | 247.548 | 113 | < .01 | .949 | .939 | .069 [.057, .080] | | | | | |
| M1. Configural | 607.892 | 226 | < .01 | .948 | .937 | .047 [.043, .052] | | | | | |
| M2. Metric | 619.422 | 239 | < .01 | .948 | .941 | .046 [.041, .050] | M2vs.M1 | 11.530 | 13 | .57 | .000 |
| M3. Scalar | 745.750 | 256 | < .01 | .933 | .929 | .050 [.046, .054] | M3vs.M2 | 126.328 | 30 | < .01 | .015 |
| M4. Scalar-p[1] | 795.101 | 255 | < .01 | .939 | .935 | .048 [.044 .052] | M4vs.M3 | 175.679 | 29 | < .05 | .009 |
| *Age* | | | | | | | | | | | |
| Young adults | 276.835 | 113 | < .01 | .953 | .944 | .060 [.051, .069] | | | | | |
| Old adults | 348.650 | 113 | < .01 | .940 | .928 | .076 [.067, .086] | | | | | |
| M1. Configural | 625.502 | 226 | < .01 | .946 | .935 | .048 [.044, .053] | | | | | |
| M2. Metric | 663.869 | 239 | < .01 | .943 | .935 | .048 [.044, .053] | M2vs.M1 | 38.367 | 13 | < .01 | .003 |
| M3. Scalar | 736.345 | 256 | < .01 | .935 | .931 | .050 [.046, .054] | M3vs.M2 | 72.476 | 30 | < .01 | .008 |

*Note*. M = model; [1]intercept of Item 2 was released. Models marked with a "p" are those in which partial invariance was tested. *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval.

TABLE 3
Zero-order correlations between the Active and Passive Use of Social Networking Sites (APU-SNSs) subscales and all other variables examined in the study (*n* = 762)

| Variables | *N* | Mean (*SD*) | 1. | 2. | 3. | 4. |
|---|---|---|---|---|---|---|
| 1. APU-SNSs self-promotion | 758 | 2.14 (0.80) | \ | | | |
| 2. APU-SNSs checking for comments about the self | 757 | 2.21 (1.20) | .37** | \ | | |
| 3. APU-SNSs offering social support | 757 | 3.13 (1.70) | .39** | .41** | \ | |
| 4. APU-SNSs seeking self-support | 757 | 1.78 (1.07) | .49** | .42** | .47** | \ |
| IAT | 761 | 2.00 (0.56) | .19** | .29** | .31** | .30** |
| GPIUS2 | 758 | 2.44 (1.15) | .21** | .35** | .36** | .38** |
| BSMAS | 755 | 2.34 (0.77) | .38** | .33** | .37** | .33** |
| MTUAS | 762 | 6.18 (0.87) | .33** | .20** | .20** | .18** |
| RSES | 747 | 4.42 (0.57) | .02 | .07 | –.05 | –.02 |
| TCI-R novelty seeking | 756 | 2.65 (0.60) | .09* | .16** | .05 | .09* |
| TCI-R persistence | 755 | 3.34 (0.59) | –.03 | –.10** | –.03 | –.03 |
| S-IPPA attachment security | 748 | 3.82 (0.64) | .14** | –.04 | .13** | .02 |
| ECR-12 attachment anxiety | 735 | 4.42 (1.31) | .16** | .16** | .16** | .20** |
| ECR-12 attachment avoidance | 734 | 2.33 (1.19) | –.05 | .02 | –.05 | .02 |

*Note*. IAT = Internet Addiction Test; GPIUS2 = Generalized Problematic Internet Use Scale-2; BSMAS = Bergen Social Media Addiction Scale; MTUAS = Media and Technology Usage and Attitudes Scale; RSES = Rosenberg Self-Esteem Scale; TCI-R = Temperament Character Inventory-Revised (novelty seeking and persistence subscales); S-IPPA = Short-Form Inventory of Parent and Peer Attachment (peer subscale); ECR-12 = Experiences in Close Relationships-12 (anxiety and avoidance subscales).
*$p \leq .05$; **$p \leq .01$.

Correlations with Attachment Styles, Personality, and Temperament Characteristics

We tested APU-SNSs subscales' associations with self-report measures of insecure and secure attachment dimensions (ECR-12 and S-IPPA), temperament characteristics (TCI-R), and self-esteem (RSES) total and subscales scores. Means, standard deviations, and zero-order correlation coefficients are reported in Table 3. Correlations divided by gender are reported in the supplementary materials (see Appendix).

## Discussion

The APU-SNSs showed good construct validity. The CFA model had an excellent fit to the data and suggested the presence of four factors, namely self-promotion, checking for comments about the self, offering social support, and seeking self-support, in line with the original observations (Carpenter, 2012). The APU-SNSs also demonstrated good internal consistency reliability (McDonald, 1999). In terms of MI, the results of multigroup analyses provided evidence of configural, metric, and scalar invariances for age groups, thus indicating that the items and the underlying construct had the same meaning among younger and somewhat older adults. By contrast, the equivalence across gender groups was established at configural, metric, and partial scalar levels. Consequently, the factor structure, the pattern of factor loadings, and item intercepts (except for Item 2) of the construct might be considered equivalent across males and females.

In our study, we administered four other valid measures of Internet\SNSs use and addiction, namely IAT, GPIUS2, BSMAS, and MTUAS. Pearson's *r* correlational analyses evidenced positive and significant associations between these variables and all APU-SNSs subscales. Taken together, our findings provide evidence of the convergent validity of the scale. This is consistent with the assumption that individuals who develop an addiction also score higher on social use and entertainment use, a finding similar to previous research (Hormes et al., 2014), that is, addicted users spend more time on social media.

In partial accordance with Hypothesis 1, we found that APU-SNSs subscales were positively related to attachment anxiety dimension and the temperament characteristic of novelty seeking. Instead, in partial accordance with Hypothesis 2, APU-SNSs subscales were negatively associated with the temperament characteristic of persistence and attachment security, whereas there were no significant associations between APU-SNSs subscales and self-esteem.

In particular, attachment anxiety was significantly and positively associated with all APU-SNSs subscales, whereas attachment avoidance did not show any significant associations. Individuals characterized by higher levels of anxious attachment manifest excessive desires and efforts for acceptance, and therefore, depend upon others. Consequently, they are more likely to engage in using SNSs for significant amounts of time to obtain approval and feedback (Monacis et al., 2017). These individuals may frequently check online comments posted by others and may seek self-support online because they are prone to concerns about social feedback. In line to previous findings, avoidant attachment was not associated with SNSs use, given that avoidant individuals may be more introverted and less concerned with socializing and meeting new people (Oldmeadow et al., 2013). Finally, attachment security (S-IPPA) was significantly and positively associated only with self-promotion and offering social support subscales. To some extent, these findings are in line with previous research that have reported a positive relationship between attachment security, social support, and self-promotion (Johnson, 2003; Stern et al., 2021).

The temperament characteristic of novelty seeking and persistence (TCI-R) were differently associated with APU-SNSs subscales. Novelty seeking was positively and significantly associated with all APU-SNSs subscales, except for offering social support. Because individuals who are high in novelty seeking are

motivated to seek out new relationships, places, and activities, one can assume that they might be also more likely to use SNSs for engaging with others. Moreover, individuals high in novelty seeking are sensitive to rewards and so to actively using SNSs, as creating content may lead to friends "liking" their posts (Gerson et al., 2017). Consequently, they may be less likely to offer social support because it is neither thrilling nor rewarding. Persistence, instead, was significantly and negatively associated only with checking for comments about the self subscale. This is in line with previous studies showing that individuals with higher abilities to maintain attention and direct behaviors toward an objective tend to use SNSs more passively (e.g., by checking comments of other) and to spend less time on SNSs (Caci et al., 2014; Ryan & Xenos, 2011).

Finally, self-esteem (RSES) was not associated with any of the APU-SNSs subscales. Previous research was mixed about the relationship between self-esteem and SNSs use. Some studies show a significant relationship, whereas other studies do not report a significant association (Skues et al., 2012; Wilson et al., 2010). Some of these differences may be due to inconsistencies with regard to which SNSs activity was measured. Nevertheless, more research is required to determine the associations between self-esteem and active and passive SNSs use.

## Conclusion

Taken as a whole, this study was the first to evaluate and refine the factor structure of the APU-SNSs since the original validation study (Carpenter, 2012) and results demonstrated that the testing of the APU-SNSs as an assessment tool for capturing individuals' active and passive SNSs use resulted in a psychometrically robust instrument. There were several strengths to the study, including verification of the underlying factor structure, the use of a wide array of well-validated measures for testing construct and convergent validity, invariance testing for gender and age, and investigation of associations with attachment styles, personality, and temperament characteristics.

However, findings should be considered alongside a few limitations. First, we did not assess test-retest stability, invariance across language or culture, or examine social desirability effects. To establish the generalizability of our findings in other countries and age groups, research using cross-national assessments of the scale among different age categories is required.

In conclusion, it is important to account for active and passive use when conducting research on SNSs usage. While measures such as FB intensity and access frequency are adequate general measures of use, it is more informative to consider how users spend time on SNSs.

## Note

1. The Italian version of the scale is available on request presented to the corresponding author. Also the datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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## APPENDIX
## Supplementary Materials

### TABLE A1
Mean and standard deviations of the Active and Passive Use of Social Networking Sites (APU-SNSs) in gender and age groups ($n$ = 762)

| | Self-promotion | | Checking for comments about the self | | Offering social support | | Seeking self-support | |
|---|---|---|---|---|---|---|---|---|
| Groups | Mean | *SD* | Mean | *SD* | Mean | *SD* | Mean | *SD* |
| *Age* | | | | | | | | |
| 18-23 | 2.17 | 0.85 | 2.29 | 1.28 | 3.15 | 1.72 | 1.78 | 1.12 |
| 24-30 | 2.11 | 0.74 | 2.12 | 1.09 | 3.11 | 1.67 | 1.78 | 1.01 |
| *Gender* | | | | | | | | |
| Male | 2.03 | 0.75 | 2.01 | 0.95 | 2.99 | 1.70 | 1.66 | 0.90 |
| Female | 2.19 | 0.83 | 2.30 | 1.29 | 3.19 | 1.69 | 1.84 | 1.15 |

*Note*. *SD* = standard deviation.

### TABLE A2
Zero-order correlations between the Active and Passive Use of Social Networking Sites (APU-SNSs) subscales and all other variables examined in the study among males

| Variables | *N* | Mean (*SD*) | 1. | 2. | 3. | 4. |
|---|---|---|---|---|---|---|
| 1. APU-SNSs self-promotion | 252 | 2.03 (0.75) | \ | | | |
| 2. APU-SNSs checking for comments about the self | 251 | 2.01 (0.95) | .25** | \ | | |
| 3. APU-SNSs offering social support | 251 | 3.00 (1.70) | .32** | .41** | \ | |
| 4. APU-SNSs seeking self-support | 251 | 1.67 (0.90) | .36** | .20** | .39** | \ |
| IAT | 252 | 2.02 (0.55) | .04 | .31** | .25** | .14* |
| GPIUS2 | 250 | 2.39 (1.13) | .08 | .33** | .27** | .24** |
| BSMAS | 251 | 2.35 (0.74) | .35** | .27** | .29** | .17** |
| MTUAS | 253 | 6.15 (0.90) | .30** | .09 | .14* | .18** |
| RSES | 244 | 4.38 (0.54) | .01 | –.07 | –0.04 | –.03 |
| TCI-R novelty seeking | 249 | 2.69 (0.60) | .04 | .13* | .06 | –.01 |
| TCI-R persistence | 248 | 3.32 (0.60) | –.04 | –.18** | –.03 | .05 |
| S-IPPA attachment security | 244 | 3.80 (0.63) | .11 | –.04 | .12 | –.06 |
| ECR-12 attachment anxiety | 238 | 4.36 (1.31) | .25** | .22** | .20** | .20** |
| ECR-12 attachment avoidance | 238 | 2.37 (1.23) | –.13* | .03 | –.08 | –.04 |

*Note*. *SD* = standard deviation. IAT = Internet Addiction Test; GPIUS2 = Generalized Problematic Internet Use Scale-2; BSMAS = Bergen Social Media Addiction Scale; MTUAS = Media and Technology Usage and Attitudes Scale; RSES = Rosenberg Self-Esteem Scale; TCI-R = Temperament Character Inventory-Revised (novelty seeking and persistence subscales); S-IPPA = Short-Form Inventory of Parent and Peer Attachment (peer subscale); ECR-12 = Experiences in Close Relationships-12 (anxiety and avoidance subscales). *$p \leq .05$; **$p \leq .01$.

TABLE A3

Zero-order correlations between the Active and Passive Use of Social Networking Sites (APU-SNSs) subscales and all other variables examined in the study among females

| Variables | *N* | Mean (*SD*) | 1. | 2. | 3. | 4. |
|---|---|---|---|---|---|---|
| 1. APU-SNSs self-promotion | 505 | 2.20 (0.83) | \ | | | |
| 2. APU-SNSs checking for comments about the self | 505 | 2.30 (1.29) | .41** | \ | | |
| 3. APU-SNSs offering social support | 505 | 3.19 (1.69) | .42** | .41** | \ | |
| 4. APU-SNSs seking self-support | 505 | 1.84 (1.15) | .53** | .48** | .50** | \ |
| IAT | 508 | 1.98 (0.56) | .27** | .30** | .33** | .39** |
| GPIUS2 | 507 | 2.45 (1.16) | .28** | .37** | .37** | .47** |
| BSMAS | 503 | 2.33 (0.78) | .39** | .37** | .41** | .40** |
| MTUAS | 508 | 6.20 (0.85) | .34** | .24** | .23** | .17** |
| RSES | 502 | 4.43 (0.59) | .01 | .11* | –.06 | –.03 |
| TCI-R novelty seeking | 506 | 2.63 (0.61) | .12** | .18** | .04 | .14** |
| TCI-R persistence | 506 | 3.35 (0.59) | –.03 | –.08 | –.04 | –.07 |
| S-IPPA attachment security | 503 | 3.83 (0.64) | .14** | –.04 | .14** | .04 |
| ECR-12 attachment anxiety | 495 | 4.44 (1.31) | .13** | .13** | .14** | .21** |
| ECR-12 attachment avoidance | 496 | 2.32 (1.17) | –.01 | 0.02 | –.03 | –.02 |

*Note*. *SD* = standard deviation. IAT = Internet Addiction Test; GPIUS2 = Generalized Problematic Internet Use Scale-2; BSMAS = Bergen Social Media Addiction Scale; MTUAS = Media and Technology Usage and Attitudes Scale; RSES = Rosenberg Self-Esteem Scale; TCI-R = Temperament Character Inventory-Revised (novelty seeking and persistence subscales); S-IPPA = Short-Form Inventory of Parent and Peer Attachment (peer subscale); ECR-12 = Experiences in Close Relationships-12 (anxiety and avoidance subscales). *$p \leq .05$; **$p \leq .01$.