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An Exploratory Study of Selfie Motivations and Their Relation to Sociability and Shyness Among Youth

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Abstract

The study explored how motivations for taking and sharing selfies vary among youth, with reference to the personality traits based on the combination of shyness and sociability. In contrast with a predominantly pathological vision of the selfie, this study considered a wider range of motivations reported by young people when asked why they click and share selfies. Further to motivations that may be symptomatic of problems (e.g., exhibitionism, attention seeking), the study considered the selfie also as a possible positive experience (e.g., identity development, biographical memory-preserving). Based on a survey administered to a sample of 2,323 undergraduate students, the study evidenced that selfies tend to be a self-referential experience for shy and unsociable individuals (the Solitary Shy profile), as they showed a higher incidence of exhibitionism, attention-seeking and low self-esteem. A multifaceted selfie practice prevails among Shy-Sociable participants (the Uncomfortably Sociable profile), as they seem to exploit different functions of a selfie to cope with their own shyness and, at the same time, to follow their inclination towards face-to-face interactions. Unshy-Sociable participants (the Comfortably Sociable profile) stand out for a tendency to share selfies to nurture social relationships. The need to keep in touch with a limited social circle prevails among Unshy-Unsociable individuals (the Socially Selective profile).

Keywords: selfie; selfie motivations; dangerous selfie; shyness; sociability

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Introduction

One of the most ubiquitous features of contemporary everyday culture is the use of digital devices to create and share visual content (Hand, 2012). In this context, selfies have become one of the most popular and persistent digital media practices. As pointed out by Walsh and Backer (2017), the defining features of selfies are: (1) being taken via a smartphone or webcam, (2) being focused on human faces, and (3) being intended for sharing on the web. Selfies can be considered as a social practice involving the presence of *materials* (e.g., a built-in camera in a smartphone), *competencies* (e.g., the skills needed to choose and set the scene), *symbolic meanings* (fulfilled motivations and needs), and *time and place* (e.g., frequency, locations; Shove et al., 2012). Some selfies have been assigned specific names, such as *driving selfie*, *leg selfie*, *belfie* (selfies focused on the backside), *helfie* (primarily showing a hairstyle) and *usie* for self-portraits of groups. Known as *dangerous selfies*, selfies taken in conditions which put their author's safety at risk—especially clicked from considerable heights, like the top of buildings, mountains, trees etc.—have caused particular social concern (Jain & Mavani, 2017).

In general, a pathological vision of selfies seems to have prevailed in research literature (Charoensukmongkol, 2016; Senft & Baym, 2015). One of the most common themes is the association between selfies and narcissism (e.g., Barry et al., 2017). These studies may reflect a background of moral panic triggered by possible perceived health risks associated with selfies. As suggested by Maddox (2017), the consideration of selfies mainly as a manifestation of narcissistic behavior might be a form of moral censoring of individualism in post-modern society. In departing from a predominantly problem-based research perspective, our objective was to explore the wide range of motivations reported by young people when asked *why* they click and share selfies. The study, therefore, was oriented by *uses and gratifications theory* (Katz et al., 1974), which assumes that individuals use digital media in order to fulfil specific needs. Such selective use of the selfie is also consistent with the hyperpersonal model of online impression management (Walther, 1996), insofar as individuals take and share selfies to communicate an optimal image of themselves. However, a recent review of the literature highlighted the limitations of the hyperpersonal model in the context of more frequent use of images in computer-mediated communication (Scott & Fullwood, 2020). For example, a study of Facebook users found that individuals who are accustomed to posting selfies are viewed as less socially attractive than those normally appearing in a photo taken by others (Krämer et al., 2017).

Based on the theoretical framework outlined above, our research goal was to examine both the broad range of motivations for selfies among youth and their association with profiles of shyness and sociability, understood as a tendency to feel anxious about face-to-face social interaction and a tendency or need to be with others, respectively. In addition to motivations that tend to be associated with potential psychological or educational problems (e.g., exhibitionism, attention seeking, social conditioning and emulation, sensation seeking), the study also examined motivations that can be considered part of more positive experiences that contribute to personal development and well-being (e.g., biographical memory-preserving, enjoyment, self-expression, developmental risk taking). We also examined dimensions of sensation-seeking and risk-taking by asking participants whether and why they practiced dangerous selfies.

Selfie Motivations

A large part of the research literature has focused on the link between selfies and narcissism. It has been suggested that selfies meet two basic needs of the narcissistic personality: on the one hand, to create an image on which to reflect the self in order to fuel the feeling of self-exaltation; on the other hand, to spread the same image to an indefinite number of people, with the specific intention of seeking appreciation and attention. For narcissistic personalities, admiration and need for approval by others are vital to maintain the fantasy of a *grand self-image* which in turn is a defense from a sense of inferiority and self-devaluation (Weiser, 2015). The selfie, therefore, becomes a way to reinforce self-esteem because it allows its creator to become the focus of their own and others' attention (Pounders et al., 2016).

Like other self-expressive practice in the digital space, however, the selfie may also be considered a non-pathological narrative of the self (Papacharissi, 2012) and a representation of identity within one's own digital social apron. Selfies can be motivated by the desire to represent traits of one's own identity, and then redefine them in relation to others, playing a role in subjective and social identity work. Research studies on selfie motivations evidence the need to share expressive information about the self (de Vaatea et al., 2018) and to communicate a personal state of happiness and well-being (Pounders et al., 2016). Even when young people share intimate images of self among friends, research evidence suggests this is not intrinsically or necessarily a sexualized practice, as it can be a means of social bonding and self-expression among peers (Hart, 2017). An indirect effect of selfie-posting on decreasing body dissatisfaction via self-esteem has been also found among young women, especially among those with a low level of need for popularity (M. Kim, 2020).

The type of identity work fueled by the selfie, however, seems primarily self-referential, rather than dialogic, due to the fact that a selfie remains predominantly under the control of those who perform it (Barbieri, 2016). But this does not mean that the presence or influence of others is not significant.

Selfies also fulfil the function of preserving memory, especially when they are socially shared, although they are not primarily autobiographical visual markers as was the case with photographs during the analogue period (de Vaatea et al., 2018). If compared with analogue photographs, the main distinguishing traits of selfies are the

intention to share them in the digital space and their function as storytellers, allowing parts of one's everyday life to be shared in a very spontaneous and random way (van Dijck, 2008).

As with other social media practices, a selfie can be motivated by the need for passing time, relaxing or entertainment (Papacharissi & Mendelson, 2011). As long as the digital space is engaged with as an identity playground (Reid, 1996), a selfie can be a symbolic resource in the process of identity work also as an enjoyable experience. However, it is relevant to explore the extent to which the decision to take selfies is the result of free choice and whether/when it is mainly affected by external social or cultural factors. As is always the case in the interplay of individual agency and social structure, the answer is not simply one or the other. A complex range of influences may be in operation. While cultural conditioning can take the form of a popular trend to be followed 'freely', playfully and spontaneously, the decision to click and share selfies can also be affected by a deliberate and carefully planned social marketing strategy based on the commodification of self-portraying (e.g., apps like Popular Pays and Friendz; Weng, 2016). For this reason, social pressure can make the selfie at least partially an other-directed and externally motivated practice, prompted by the normative need to conform to peer group expectations (Clemens et al., 2015).

Finally, selfies have also been studied as a way to look for new and strong sensations (Shi et al., 2011), especially when performed in risky situations as in the case of dangerous selfies. Association with risky behavior has been also suggested by Hart (2017) based on interviews with young people who share their own naked images through selfies. According to the definition by Zuckerman (1994, p. 27), sensation-seeking is the tendency to seek "varied, novel and complex experience, and the willingness to take physical, social, legal, and financial risks for the sake of such experience". In this view, one can click a dangerous selfie to cope with a momentary personal discomfort (e.g., boredom) by seeking the intense emotions provoked by selfies. However, dangerous selfies can also be a symptom of a more serious personal discomfort when practiced too often and for a long time. This type of selfie, for example, can be intuitively explained as a self-harming behavior. Jumping or falling from heights, indeed, are the most frequent causes of selfie-related injuries or deaths (Maddox, 2017). Dangerous selfies, however, can be also experienced as a form of developmental risk-taking that play a role in personal and social identity work (e.g., exploring emotions, exercising self-control skills, competing with peers; Bonino et al., 2003; Romer et al., 2017). Taking a dangerous selfie, therefore, could be a way to try and cultivate one's own capabilities in risky or uncertain conditions. In this sense, some selfies can also be experienced as a source of enhanced self-confidence and self-esteem during the youth stage of the life course.

Sociability and Shyness

A number of studies have provided evidence of the association between shyness and internet addiction (e.g., Ebeling-Witte et al., 2007). For example, in a survey conducted by Chan (2011), shy young students were more attracted by digital media when compared with non-shy ones. The former tended to use digital media to compensate for their deficit of face-to-face social interactions and to alleviate the consequent feeling of loneliness (Charoensukmongkol, 2016). Also, Wang et al. (2017) suggested the association between a lower self-esteem and the preference for viewing solo selfies instead of group selfies. A possible explanation of this association is that solo selfies might be more likely to convey a sense of loneliness, which is more frequent among shy people.

It is important to note that while shyness and sociability are often assumed to be the extremes of a single dimension, this is not what psychological and social science research indicate. Cheek and Buss (1981) show that there exists an orthogonal relation between these two constructs, meaning that they are separate variables and may overlap in individual cases. The authors define shyness in terms of stable reactions to being with casual acquaintances, such as "tension, concern, feelings of awkwardness and discomfort, and both gaze aversion and inhibition of normally expected social behavior" (Cheek & Buss, 1981, p. 330). Shyness promotes the tendency to perceive social interactions with strangers as potentially dangerous, especially due to the possible negative judgement by other people. On the other hand, sociability is the "tendency to affiliate with others and to prefer being with others to remaining alone" (p. 330). While sociability relates to the preference or the need for the presence of other people, shyness involves a range of feelings of discomfort caused when being in or thinking about social situations.

According to Cheek and Buss (1981), therefore, the same person can have a strong propensity towards both sociability and shyness. Table 1 presents a summary of the possible combinations between the two constructs in

a matrix form, producing four different profiles of shyness/sociability. In the case of an individual characterized by *both* sociability and shyness, it implies, in terms of personality, an internal conflict between the desire to interact with other people in person and the fear of doing so. As stated by Cheek and Buss, 1981 (p. 336): "this conflict between the need for affiliation and the inability to make adequate social responses would make them still more tense and disorganized". For this reason, we describe such a personality profile as "Uncomfortably Sociable".

Table 1. *Profiles of Shyness/Sociability.*

	Shy	Unshy
Sociable	*Uncomfortably Sociable* (Sociable-Shy)	*Comfortably Sociable* (Sociable-Unshy)
Unsociable	*Solitary Shy* (Unsociable-Shy)	*Socially Selective* (Unsociable-Unshy)

Personalities that are characterized by *either but not both* of the two traits are here respectively termed as "Comfortably Sociable" (i.e., sociable and not shy) and the "Solitary Shy" (i.e., shy and not sociable). In addition, a fourth profile can be identified which combines a low level of both sociability and shyness, here termed "Socially Selective". This last profile usually characterizes persons that are not in search of occasions to interact with strangers and meet new people, while this is not due to some psychological shyness difficulty. Such persons are intentionally selective, interacting with a limited circle of people but without any sense that this is a matter of concern or regret, or something they would wish to change.

Objectives of the Study

Based on the research previously discussed, the initial hypothesis of this study was that selfie practice tends to be more problematic in shy profiles, whereas it is more often a nonproblematic behavior for sociable profiles. Furthermore, we hypothesized that each personality profile (based on a combination of sociability and shyness) will be associated with varying motivations and contexts (problematic v. unproblematic) for taking selfies. Therefore, the study aimed also to provide evidence on the following research question:

RQ1: What are the specific patterns of motivation for taking and sharing selfies among each of the personality profiles, i.e., Comfortably Sociable (Unshy-Sociable), Uncomfortably Sociable (Shy-Sociable), Solitary Shy (Shy-Unsociable), and Socially Selective (Unshy-Unsociable)?

In responding to these issues, we controlled for gender- and age-specific differences as well as for cohabitation condition. Doing so was particularly important given that prior research indicated that there are differences in the ways that males/females and younger/older people operate online (especially relating to selfies). For example, Dhir and colleagues (2016) found that females and younger people were more likely to take and share personal and group selfies compared to males and older people. For the cohabitation condition, we considered that those who live on his/her own usually have higher motivations, and probably even more time, to take and share selfies with their social networks of reference compared to those who are cohabiting with relevant others.

Methods

Participants

Participants included 2,398 young adults aged 19–34 years recruited at the University of Bari in Italy. The extension of young adulthood until the age of 34 is consistent with the definition of the young population adopted in the Italian official statistics (see Italian National Institute of Statistic website: http://dati-giovani.istat.it/?lang=en&SubSessionId=59354c2a-c12c-45fe-bce9-357659d46b63). This convenience sample was gathered by involving university students mostly attending social science and psychology courses, characterized by a high female prevalence (more than 80%, see AlmaLaurea, 2020). Only a small proportion of them (3.1%) had completely missing information on sociodemographic variables. These participants were excluded from the analyses. Our final sample thus consisted of 2,323 participants (M_{age} = 22.89, *SD* = 3.22) with a predominance of younger participants (age group 19–24, *n* = 1,717; 25–34, *n* = 606) and females (77.0%,). Given the sampling procedure, 71.2% of participants were non-working university students, 20.6% working university students, 6.0%

workers, and 2.2% not in education, employment, or training (NEET). Among all participants, 80.0% (and among them 4.7% of workers) were living with the family of origin and 20.0% (and among them 11.5% of workers) were living on their own.

Procedure

The Institutional Review Board of the University of Bari approved this study, which was conducted according to the American Psychological Association (2017) and American Sociological Association (2018) ethical guidelines. The sampling was started by sending an email invitation to the university students containing information about the research project and the link to complete the survey. Data collection started in December 2018 and closed in January 2019.

Measures

Socio-Demographics

Participants were asked to indicate age, sex, education, occupation, and who they lived with.

Motivations for Taking Selfies

Drawing from the research literature presented in the introduction, we developed 7 items on three dimensions: Biographical Memory—Preserving (BM-P; 2 items), Enjoyment (E; 2 items), and Narcissism/Exhibitionism (NE; 3 items; list of items in the Appendix, Table A1). Participants were asked to answer why they took selfies (n = 2,276, see Descriptive analyses). The items were rated on a five-point Likert scale from *not at all* (1) to *extremely* (5). To test the factorial validity of this measure, we conducted a confirmatory factor analysis (CFA) based on a robust maximum likelihood estimation procedure. By acknowledging the potential limitation of the chi-square test (χ^2 should be non-significant with $p > .05$), due to its tendency to reject the null hypothesis with large sample sizes, we relied on well-known goodness-of-fit indices and their associated cut-offs to evaluate model fit (e.g., Kline, 2015): CFI ≥ .90, RMSEA ≤ .08, and SRMR ≤ .10. Analyses supported the expected three-factor structure, χ^2 (10) = 121.88, $p < .001$, CFI = .957, RMSEA = .070, SRMR = .038. The factor determinacy scores were good for all the subscales: .85 for BM-P, .86 for E, .81 for NE. Considering that even for two-item scales Spearman-Brown and Cronbach α coefficients are considered more reliable than the Pearson correlation measure (see Eisinga et al., 2013), we calculated the first two indices for all the scales. Both Spearman-Brown and Cronbach α coefficients were good ≃.70 for BM-P and NE and were = .65 for E. Since this last subscale comprises only two items, it appeared to show acceptable levels of internal consistency reliability. Furthermore, the average item-total correlations was .48, which were higher than the acceptable level of .30 suggested by Nunnally and Bernstein (1994), indicating that the two items were measuring the construct in the same direction (for a similar approach, see also Viola et al., 2016). Given these results, we used scores of BM-P, E, and NE, obtained by computing the average of their corresponding items, in the subsequent analyses.

Motivations for Sharing Selfies

We developed 9 items on three dimensions: Biographical Memory—Sharing (BM-S; 2 items), Self-Expression (SE; 4 items), and Attention Seeking (AS; 3 items; list of items in the Appendix, Table A2). After a filter question that selected only those who shared selfies, participants (n = 2,035, see Descriptive analyses) were asked to indicate why they shared selfies. The items were rated on a five-point Likert scale from *not at all* (1) to *extremely* (5). The CFA supported the expected three-factor structure, χ^2 (24) = 243.29, $p < .001$, CFI = .962, RMSEA = .067, SRMR = .035. The factor determinacy scores were good for all the subscales: .93 for BM-S and SE, .92 for AS. Also, both Spearman-Brown and Cronbach α coefficients were all good > .78. Given these results, we used scores of BM-S, SE, and AS, obtained by computing the average of their corresponding items, in the subsequent analyses.

Selfie Sharing Network on the Web

We developed 7 items on three dimensions: Primary Relationships (PRs; 3 items), Secondary Relationships (SRs; 3 items), and General Audience on social networks (GA;1 item). PRs involve single *closest friends*, *partner*, and *family members or relatives*; SRs concern the extended *group of friends*, *coworkers* and *classmates*; GA includes *all users of the used social networks*. Participants (n = 2,035, see Descriptive analyses) were asked to indicate whom they shared their selfies on the web with. The items were rated on a dichotomous scale (0 = *no*, 1 = *yes*). The CFA supported the expected two-factor model plus the GA item, χ^2 (12) = 64.91, p < .001, CFI = .970, RMSEA = .044, SRMR = .025. The factor determinacy scores were good for both the two factor subscales: .84 for PRs and .78 for SRs. Both Spearman-Brown and Cronbach α coefficients were good ≃.70 for PRs and were = .60 for SRs. Though these last reliability coefficients were modest, they evidenced sufficient levels of internal consistency reliability, considering the small number of items and the average item-total correlations of .37. Given these results, in addition to the GA item, we used scores of PRs and SRs, obtained by computing the average of their corresponding items, in the subsequent analyses.

Motivations for Taking Selfies in Dangerous Situations

We developed 9 items on three dimensions: Sensation Seeking (SS; 2 items), Developmental Risk-taking (DRT; 3 items), and Social Conditioning and Emulation (SCE; 4 items; list of items in the Appendix, Table A3). After a filter question that selected only those who took selfies in dangerous situations (e.g., *on the roof of a tall building, on top of a mountain*, *on a bridge*), participants (n = 395, see Descriptive analyses) were asked to indicate what prompted them to take such a selfie. The items were rated on a five-point Likert scale from *not at all* (1) to *extremely* (5). The CFA supported the expected three-factor structure, χ^2 (24) = 46.97, p < .001, CFI = .928, RMSEA = .051, SRMR = .060. The factor determinacy scores were good for all the subscales: .98 for SS, .93 for DRT, .89 for SCE. Also, both Spearman-Brown and Cronbach α coefficients were all good > .70. Given these results, we used scores of SS, DRT, and SCE, obtained by computing the average of their corresponding items, in the subsequent analyses.

Motivations for Sharing Selfies Taken in Dangerous Situations (DS)

We developed 6 items on three dimensions: Need for Approval (NA_ds, 2 items), Attention Seeking (AS_ds; 1 item), and Social Conditioning and Emulation (SCE_ds, 3 items; list of items in the Appendix, Table A4). After a further filter question that selected only those who shared selfies in dangerous situations, participants (n = 154, see Descriptive analyses) were asked to answer why they shared such selfies. The items were rated on a five-point Likert scale from *not at all* (1) to *extremely* (5). The CFA supported the expected two-factor model plus the AS_ds item, χ^2 (7) = 9.90, p = .189, CFI = .981, RMSEA = .052, SRMR = .039. The factor determinacy scores were good for both the two factor subscales: .91 for NA_ds and .98 for SCE_ds. Also, both Spearman-Brown and Cronbach α coefficients were good > .77. Given these results, in addition to the AS_ds item, we used scores of NA_ds and SCE_ds, obtained by computing the average of their corresponding items, in the subsequent analyses.

Shyness and Sociability

Shyness and Sociability were measured using the 12-item Italian adaptation (Gerbino et al., 2000) of the Cheek and Buss Shyness and Sociability Scale (CBSSS; Cheek & Buss, 1981). This self-report questionnaire measures shyness and sociability as distinct personality traits. Both the shyness (8 items, e.g., *I feel tense when I'm with people I don't know well*) and the sociability (4 items, e.g., *I like to be with people*) subscales were rated on a 5-point Likert scale, from *completely false* (1) to *completely true* (5). Reliability and validity for the CBSSS have been adequately established. In the present study, the Cronbach α values were .86 for shyness and .74 for sociability.

Data Analysis

Three main steps characterized data analyses. First, we computed descriptive statistics for the key study variables and examined whether participants' scores for all the types of motivation and selfie sharing network variables differed based on gender (0 = male; 1 = female); age group (dummy coded: 0 = 19–24 years; 1 = 25–34 years), and

who participants lived with (0 = living on my own; 1 = living with my family of origin) by using multivariate analysis of variance (MANOVA). Second, following Cheek and Buss (1981) and a person-centered research approach (Laursen & Hoff, 2006), we identified profiles of shyness and sociability by cluster analyses based on the CBSSS subscales. According to Gore's (2000) two-step approach, we conducted hierarchical cluster analyses using Ward's method and based on squared Euclidian distances. We compared cluster solutions with two to four clusters on the basis of three criteria: theoretical meaningfulness of each cluster, parsimony, and explanatory power (i.e., the cluster solution had to explain approximately 50% of the variance in both shyness and sociability dimensions). Then, study participants were grouped by *K*-means cluster analysis procedures and standardized mean values of the CBSSS grouping variables describing the characteristics of each identified profile were calculated. Validity of the final solution was checked via a MANOVA on the two CBSSS dimensions by profile. We also tested the replicability of the final solution by splitting the sample into two random halves and reconducting the cluster analyses for each subsample. Levels of agreement were calculated using Cohen's (1960) kappa. Third, in order to examine how profiles of shyness and sociability were related to (a) motivations for taking selfies, (b) motivations for sharing selfies, (c) selfie sharing network on the web, (d) motivations for taking selfies in dangerous situations, and (e) motivations for sharing selfies taken in dangerous situations, we performed distinct multivariate analyses of covariance (MANCOVAs) with profiles as independent variables as well as age and gender as covariates (see preliminary analyses). To be of practical significance in this study, in addition to statistical significance, grouping variables from MANOVA or MANCOVA needed to explain at least 1% of the variance in the dependent variable (see Cohen, 1992; Rosenthal, 1991).

Results

Descriptive and Preliminary Analyses

All 2,323 participants responded to CBSSS items. However, 2.0% of them declared they never took a selfie (n = 47) and therefore did not answer the related questions. All remaining participants (n = 2,276) answered the items related to the motivations for taking selfies, but the subgroup that also responded to questions about sharing selfies was 2,035 participants (89.4%). This subgroup answered the items related to both motivations for sharing selfies and selfie sharing network on the web. A much smaller group of participants (n = 395, 17.4% of participants who took selfies) responded that they took selfies in dangerous situations and completed the items related to motivations for doing this. Finally, among the latter participants, 39.0% (n = 154) shared this type of selfie and therefore responded to the items related to motivations for sharing selfies taken in dangerous situations. Table 2 summarizes the descriptive statistics for the key variables of the study.

Results from the MANOVA showed a significant multivariate effect of (a) gender, Wilks' Lambda = .98, $F(3, 2{,}266) = 12.80$, $p < .001$, $\eta^2 = .02$, and age group, Wilks' Lambda = .99, $F(3, 2{,}266) = 3.75$, $p < .05$, $\eta^2 = .01$, on motivations for taking selfies; (b) gender, Wilks' Lambda = .99, $F(3, 2{,}025) = 7.97$, $p < .001$, $\eta^2 = .01$, and age group, Wilks' Lambda = .99, $F(3, 2{,}025) = 6.47$, $p < .001$, $\eta^2 = .01$, on motivations for sharing selfies; (c) gender, Wilks' Lambda = .99, $F(3, 2{,}025) = 6.30$, $p < .001$, $\eta^2 = .01$, and age group, Wilks' Lambda = .99, $F(3, 2{,}025) = 4.01$, $p < .01$, $\eta^2 = .01$, on selfie sharing network on the web; (d) gender, Wilks' Lambda = .97, $F(3, 385) = 4.10$, $p < .01$, $\eta^2 = .03$, on motivations for taking selfies in dangerous situations. No significant effects were found on motivations for sharing selfies taken in dangerous situations. Follow-up univariate analyses (see Table A5 in the Appendix) specifically showed that female participants had higher levels of BM-P (3.82 vs. 3.47) as a motivation for taking selfies, higher levels of BM-S (3.54 vs. 3.25) as a motivation for sharing selfies, and lower levels of Sensation Seeking (1.49 vs. 1.79) as a motivation for taking selfies in dangerous situations than male participants. In addition, younger participants showed higher levels of BM-S (3.53 vs. 3.33) as a motivation for sharing selfies than older participants. No other differences met criteria for statistical and/or practical significance. Based on these results, we considered it relevant to include gender and age group as covariates in the subsequent difference analyses between the means of the profile groups.

Table 2. *Mean Scores and Standard Deviations for the Key Study Variables.*

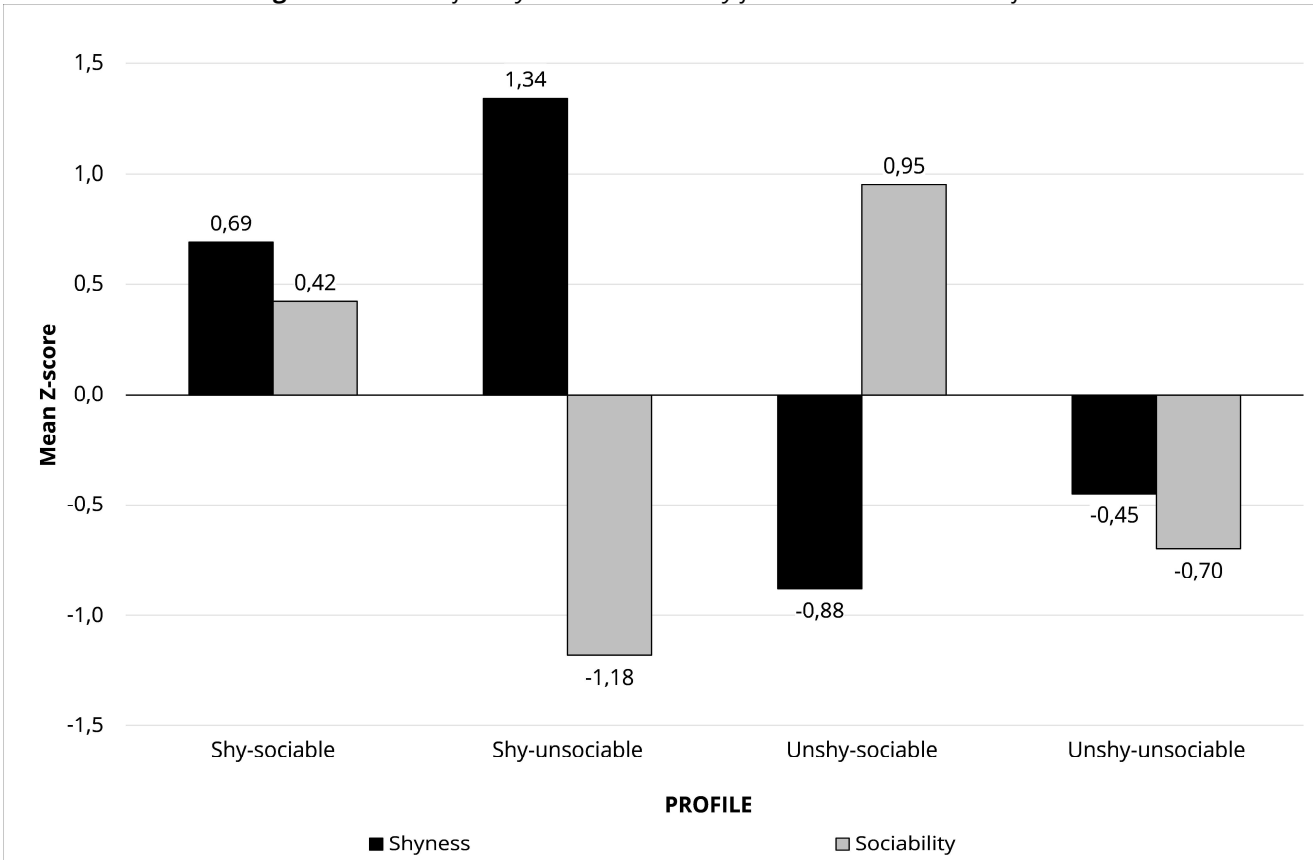
Variable	Mean	Standard deviation
Motivations for taking selfies (scored 1–5; n = 2,276)		
Biographical memory—preserving	3.75	0.92
Enjoyment	2.32	0.89
Narcissism/exhibitionism	1.90	0.80
Motivations for sharing selfies (scored 1–5; n = 2,035)		
Biographical memory—sharing	3.48	0.90
Self-expression	2.20	0.85
Attention seeking	1.67	0.81
Selfie sharing network on the web (scored 0–1; n = 2,035)		
Primary relationships	0.54	0.37
Secondary relationships	0.26	0.27
General Audience on social networks	0.26	0.44
Motivations for taking selfies in dangerous situations (scored 1–5; n = 395)		
Sensation seeking	1.58	0.77
Developmental Risk-taking	1.61	0.79
Social conditioning and emulation	1.20	0.47
Motivations for sharing selfies taken in dangerous situations (scored 1–5; n = 154)		
Need for approval	1.57	0.86
Attention seeking	1.39	0.92
Social conditioning and emulation	1.34	0.71
Shyness and Sociability (scored 1–5; n = 2,323)		
Shyness	2.41	0.84
Sociability	3.51	0.81

Profiles of Shyness and Sociability

Based on the *a priori* criteria (see Introduction), a four-cluster solution was preferred. It was also empirically justified. Solutions with two clusters were found to explain less than 50% of variability in both the grouping dimensions. In contrast, solutions with three and four clusters were both acceptable, with the advantage of parsimony for the three-cluster solution and better theoretical interpretability (see Cheek and Buss, 1981) for the four-cluster solution. In order to better align the work with the existing literature, the final choice fell on the four-cluster solution. Thus, participants were clustered into four groups by *K*-means cluster analysis. The obtained profiles are shown in Figure 1.

Using a cut-off of ± 0.30 to distinguish between above and below average mean *z*-scores, the first cluster (*n* = 561; 24.1%) consisted of individuals showing mean *z*-scores above average on both shyness and sociability. The second cluster (*n* = 397; 17.1%) was comprised of individuals showing mean *z*-scores above average on shyness and below average on sociability. The third cluster (*n* = 720; 31.0%) was composed of individuals showing mean *z*-scores below average on shyness and above average on sociability. The fourth cluster (*n* = 645; 27.8%) included individuals showing mean *z*-scores below average on both shyness and sociability Thus, we found, in sequence, clusters representing Uncomfortably Sociable, Solitary Shy, Comfortably Sociable, and Socially Selective profiles, respectively. As a validity check on this four-cluster solution, results from MANOVA indicated that it explained substantial percentages of variance (72% of variability for shyness and 69% for sociability). The same four clusters were replicated in each of the two random subsamples previously drawn. Levels of agreement between the classification was .80, indicating good reliability.

Figure 1. *Z-Scores for Shyness and Sociability for the Four Obtained Profiles.*



Associations Between Profiles of Shyness/Sociability and Motivations for Taking Selfies

Results from MANCOVA showed a significant multivariate effect of profiles of shyness/sociability, Wilks' Lambda = .95, $F(9, 5{,}519.87) = 11.53$, $p < .001$, $\eta^2 = .02$. Follow-up univariate analyses indicated that all the dependent variables differed significantly across profiles (see Table 3). Pairwise comparisons revealed that participants in the Uncomfortably Sociable and Comfortably Sociable profiles reported significantly higher levels of motivations for taking selfies related to biographical memory—preserving and enjoyment than those in the Solitary Shy and Socially Selective profiles. Moreover, participants in the Uncomfortably Sociable and Solitary Shy profiles scored significantly higher on narcissism/exhibitionism than those in the Comfortably Sociable and Socially Selective profiles.

Table 3. *Univariate Analyses of Covariance and Pairwise Comparisons for the Four Profiles of Shyness/Sociability on the Motivations for Taking Selfies.*

Motivations for taking selfies	MANCOVA-adjusted means by profile				$F(3, 2269)$	η^2
	Uncomfortably Sociable (n = 551, 24.2%)	Solitary Shy (n = 381, 16.7%)	Comfortably Sociable (n = 712, 31.3%)	Socially Selective (n = 632, 27.8%)		
Biographical Memory—Preserving	3.79[a]	3.55[b]	3.90[c]	3.65[b]	16.87***	0.02
Enjoyment	2.39[a]	2.25[b]	2.41[a]	2.21[b]	6.85***	0.01
Narcissism/Exhibitionism	2.02[a]	2.01[a]	1.85[b]	1.78[b]	12.30***	0.02

Note. A profile mean is significantly different ($p < .05$) from another mean within the same row if they have different superscripts (a, b, or c).
***$p < .001$.

Associations Between Profiles of Shyness/Sociability and Motivations for Sharing Selfies

Results from the MANCOVA showed a significant multivariate effect of profiles of shyness/sociability, Wilks' Lambda = .94, $F(9, 4{,}933.34) = 14.08$, $p < .001$, $\eta^2 = .02$. Follow-up univariate analyses indicated that all the dependent variables differed significantly across profiles (see Table 4). Pairwise comparisons revealed that participants in the Uncomfortably Sociable and Comfortably Sociable profiles reported significantly higher levels of motivations for sharing selfies related to biographical memory—sharing and self-expression than those in the Solitary Shy and Socially Selective profiles. Moreover, the Uncomfortably Sociable and Solitary Shy profiles scored significantly higher on attention seeking than those in the Comfortably Sociable and Socially Selective profiles.

Table 4. *Univariate Analyses of Covariance and Pairwise Comparisons for the Four Profiles of Shyness/Sociability on the Motivations for Sharing Selfies.*

Motivations for sharing selfies	MANCOVA-adjusted means by profile				$F(3, 2{,}028)$	η^2
	Uncomfortably Sociable (n = 501, 24.6%)	Solitary Shy (n = 324, 15.9%)	Comfortably Sociable (n = 655, 32.2%)	Socially Selective (n = 555, 27.3%)		
Biographical Memory—Sharing	3.55^{a}	3.29^{b}	3.64^{a}	3.35^{b}	19.65^{***}	0.03
Self-Expression	2.26^{ac}	2.14^{ab}	2.30^{c}	2.06^{b}	10.35^{***}	0.02
Attention Seeking	1.81^{a}	1.84^{a}	1.61^{b}	1.54^{b}	16.19^{***}	0.02

Note. A profile mean is significantly different ($p < .05$) from another mean within the same row if they have different superscripts (a or b).
$^{***}p < .001$.

Associations Between Profiles of Shyness/Sociability and Selfie Sharing Network on Web

Results from the MANCOVA showed a significant multivariate effect of profiles of shyness/sociability, Wilks' Lambda = .97, $F(9, 4{,}933.34) = 6.18$, $p < .001$, $\eta^2 = .01$. Follow-up univariate analyses indicated that primary relationships and secondary relationships but not general audience on social networks differed significantly across profiles (see Table 5).

Pairwise comparisons revealed that Comfortably Sociable and Socially Selective profiles reported significantly higher levels of primary relationships in sharing selfies on the web than those in the Uncomfortably Sociable and Solitary Shy profiles. Moreover, participants in the Comfortably Sociable profile also scored significantly higher on secondary relationships than those in the other profiles.

Table 5. *Univariate Analyses of Covariance and Pairwise Comparisons for the Four Profiles of Shyness/Sociability on the Selfie Sharing Network on the Web.*

Selfie sharing network on the web	MANCOVA-adjusted means by profile				$F(3, 2{,}028)$	η^2
	Uncomfortably Sociable (n = 501, 24.6%)	Solitary Shy (n = 324, 15.9%)	Comfortably Sociable (n = 655, 32.2%)	Socially Selective (n = 555, 27.3%)		
Primary Relationships	0.50^{a}	0.49^{a}	0.58^{b}	0.55^{b}	6.48^{***}	0.01
Secondary Relationships	0.25^{a}	0.21^{b}	0.30^{b}	0.23^{ab}	12.22^{***}	0.02
General Audience on social networks	0.26	0.26	0.29	0.23	2.06	0.00

Note. A profile mean is significantly different ($p < .05$) from another mean within the same row if they have different superscripts (a or b).
$^{***}p < .001$.

Associations Between Profiles of Shyness/Sociability and Motivations for Taking Selfies in Dangerous Situations

Results from the MANCOVA showed a significant multivariate effect of profiles of shyness/sociability, Wilks' Lambda = .94, $F(9, 942.01) = 2.62$, $p < .01$, $\eta^2 = .02$. Follow-up univariate analyses indicated that only developmental risk-taking but not sensation seeking or social conditioning and emulation differed significantly across profiles (see Table 6). Pairwise comparisons revealed that participants in the Uncomfortably Sociable and Solitary Shy profiles reported significantly higher levels of need for developmental experience of risk-taking than those in the Comfortably Sociable and Socially Selective profiles.

Table 6. *Univariate Analyses of Covariance and Pairwise Comparisons for the Four Profiles of Shyness/Sociability on the Motivations for Taking Selfies in Dangerous Situations (DS).*

Motivations for taking selfies in DS	MANCOVA-adjusted means by profile				$F(3, 388)$	η^2
	Uncomfortably Sociable (n = 94, 23.8%)	Solitary Shy (n = 59, 15.0%)	Comfortably Sociable (n = 136, 34.4%)	Socially Selective (n = 106, 26.8%)		
Sensation Seeking	1.66	1.59	1.62	1.47	1.13	0.01
Developmental Risk-Taking	1.75^{a}	1.80^{a}	1.54^{b}	1.46^{b}	3.96^{**}	0.03
Social Conditioning and Emulation	1.20	1.25	1.14	1.22	0.92	0.01

Note. A profile mean is significantly different ($p < .05$) from another mean within the same row if they have different superscripts (a or b).
$^{**}p < .01$.

Associations Between Profiles of Shyness/Sociability and Motivations for Sharing Selfies Taken in Dangerous Situations

Because of the largely exploratory approach of our study and to ensure the high sensitivity of statistical tests in the context of small sample sizes for each of the four profiles, we set the critical p value for significance at .10. Results from the MANCOVA showed a significant multivariate effect of profiles of shyness/sociability, Wilks' Lambda = .89, $F(9, 355.48) = 1.84$, $p = .061$, $\eta^2 = .04$. Follow-up univariate analyses indicated that need for approval and attention seeking but not social conditioning and emulation differed significantly across profiles (see Table 7). Pairwise comparisons revealed that the Uncomfortably Sociable profile reported significantly higher levels of need for approval than the Comfortably Sociable and Socially Selective profiles. Moreover, participants in the Solitary Shy profile scored significantly higher on attention seeking than those in the Comfortably Sociable and Socially Selective profiles.

Table 7. *Univariate Analyses of Covariance and Pairwise Comparisons for the Four Profiles of Shyness/Sociability on the Motivations for Sharing Selfies Taken in Dangerous Situations (DS).*

Motivations for sharing selfies taken in DS	MANCOVA-adjusted means by profile				$F(3, 147)$	η^2
	Uncomfortably Sociable (n = 42, 27.3%)	Solitary Shy (n = 22, 14.3%)	Comfortably Sociable (n = 46, 29.8%)	Socially Selective (n = 44, 28.6%)		
Need for Approval	1.80	1.63	1.48	1.41	1.77	0.04
Attention Seeking	1.44^{ab}	1.80^{b}	1.20^{a}	1.32^{a}	$2.37^{\dagger}$	0.05
Social Conditioning and Emulation	1.37	1.40	1.27	1.38	0.26	0.01

Note. A profile mean is significantly different ($p < .10$) from another mean within the same row if they have different superscripts (a or b).
$^{\dagger}p = .068$.

Discussion

This study examined how problematic and non-problematic selfie motivations change according to shyness and sociability profiles. The results showed a different mix of selfie motivations in each personality profile, namely the Solitary Shy, the Uncomfortably Sociable, the Comfortably Sociable, and the Socially Selective. The following subsections discuss the results of the study in more detail, with particular attention to the initial hypothesis of more problematic selfie practice in the shy respondent group, as well as the specific motivational patterns in each personality profile.

Solitary Shy (Unsociable-Shy): A Self-Referential Experience

The use of selfies as a way to satisfy narcissistic needs prevails among the Solitary Shy personality cluster. At the same time, other more positive motivations (enjoyment, self-expression and biographical memory-preserving) scored lower as compared with other clusters. Specifically, respondents belonging to this cluster showed higher values of exhibitionism (e.g., *To look at photos where I see myself beautiful*) and attention-seeking (e.g., *To get*

someone's attention), in combination with answers indicating a low self-esteem (e.g., *Because it makes me feel better when I think I am worth nothing to anyone*). For Unsociable-Shy individuals, therefore, clicking and eventually sharing a selfie seems mainly a self-referential experience responding to the need to cope with a low self-esteem by seeking gratifications from the self-image and/or from positive social feedback. They look for a reinforcement mechanism of self-esteem also by taking a dangerous selfie, a practice that resulted more frequently functional to test personal capabilities in risky situations, if compared with the other clusters.

Such self-referential selfie practice seems also confirmed by the lower incidence of sharing selfies with primary or secondary networks. For Unsociable-Shy individuals, therefore, taking or sharing a selfie could be less motivated by the need to nurture existing social relationships, e.g., with parents, friends, boyfriends/girlfriends and workmates. This is consistent with other research suggesting that shy individuals tend to prefer anonymous online interactions to reduce social anxiety (Birnie & Horvath, 2002) and are less likely to post photos of significant others (i.e., friends, family) or their leisure activities (i.e., sports; Ryan & Xenos, 2011; Scott et al., 2018).

Consistent with research guided by the social compensation model (Jin, 2013; Zywica & Danowski, 2008), personal discomfort could push shy individuals to use selfies as a self-gratification experience that temporarily replaces the benefit of face-to-face social interactions. Furthermore, they could prefer selfies as a form of communication where uncertainty and accidents appear to be more under control.

As also reported by Gao et al. (2018), therefore, the association between shyness and problematic uses of digital media can be explained in two ways. The first one is that shyness can lead to a preference for computer-mediated communication as a replacement of face-to-face social interactions. However, over time this preference might become an internalized *habit* that, in turn, operates as a shield against external stimulus towards social interaction, thus reinforcing the association.

In general, more problematic selfie practices reflect what previous research has found about the positive correlation between shyness and other risky behaviors in social media use such as internet addiction (e.g., Ang et al., 2018; Tian et al., 2021).

Uncomfortably Sociable (Sociable-Shy): A Means to Cope With Shyness

The result of the study suggests that Sociable-Shy participants are characterized by a more multifaceted selfie practice in terms of motivations. Compared with the other clusters, they use selfies more for amusement, self-expression, to preserve and to share biographical memories. This cluster, however, stands out also for narcissistic selfie-taking behavior, similar to the Unsociable-Shy cluster, as it presents a significantly higher incidence of participants taking or sharing selfies for exhibitionism, attention seeking and need for approval. Therefore, seeing themselves in a selfie and testing the reaction of the public seems mainly to fulfil the need to reinforce self-esteem.

Their peculiar tendency to exploit different functions of a selfie can be understood as a way to cope with their shyness and, at the same time, to follow their inclination towards face-to-face social interactions. Consistent with the research literature on selfie practice (Chan, 2011) and internet use (Ye, 2018), this study suggests that Sociable-Shy personalities experience greater internal tension and conflict in the practice of selfies. They seem to exploit all the potential of selfies in order to alleviate the discomfort caused by the internal conflict between their fear of face-to-face interactions and their desire for them. Together with the social compensation model recalled for the Shy-Unsociable cluster, previous research (Hu et al., 2021) suggests that such multifunctional use of selfies among Shy-Sociable individuals may be part of an effort to express in the online context the person they feel they are but have difficulty communicating in their offline everyday life. While Sociable-Unshy people meet their need for social relationships also in the offline world, sociable individuals who are inhibited by their shyness tend to prefer digital media as a means of developing social relationships (Sheeks & Birchmeier, 2007). The more intensive use of selfies by Shy-Sociable individuals is also consistent with research showing that introversion is a significant predictor of selfie behaviour and attitudes (frequency, use of filters, number of versions taken, etc.; Vardeman & Gangadharbatla, 2021).

The need for social interactions, however, coexists with a resistance to the use of selfies as a means of developing or nurturing social relationships already existing in the offline space. Like Unsociable-Shy participants, indeed, Sociable-Shy people evidenced a lower tendency to share selfies with primary and secondary relations.

The centrality of the self-esteem strengthening function in the Sociable-Shy cluster is also confirmed by a greater resort to dangerous selfies as a way to prove (to themselves and to others) their courage and ability to face uncertain or risky situations (e.g., *Because it makes me seem more real that I was able to do it*).

Comfortably Sociable (Sociable-Unshy): Enriching Face-to-Face Social Interactions

Unlike Sociable-Shy participants, the Sociable-Unshy ones tend to use selfies as a way of communicating with people they know also in the off-line world. Compared with the other clusters, a higher percentage of Sociable-Shy participants pass on selfies to people with whom they have primary and secondary social relationships in person. At the same time, they click and share selfies more for amusement, self-expression, and to preserve memories. Sociable-Unshy people, therefore, seem to use selfies more as a means to enrich relationships that are already based on face-to-face interaction. This result is in line with other research confirming a stronger social enhancement effect of computer-mediated communication among more sociable individuals (Birnie & Horvath, 2002; Zywica & Danowski, 2008). For example, the use of selfies to maintain social relationships among sociable individuals is also consistent with their greater tendency to post group selfies, as found by J. W. Kim and Chock (2017). In general, previous research has found that extraversion is a good predictor of a more relational style of using Social Network Sites (i.e., posting comments, clicking "likes", uploading photos; Choi et al., 2017; Lee et al., 2014; Marshall et al., 2015).

A lower incidence of narcissistic motivations among this cluster is also confirmed by a lower need to share dangerous selfies to gain popularity or seek social attention. Furthermore, they present a lower need to practice dangerous selfies as a way of reinforcing self-esteem by proving to themselves their ability to cope with risky situations.

Socially Selective (Unsociable-Unshy): Keeping in Contact With a Selected Circle of Relations

The survey results suggest the absence of specific motivations in selfie practice among this cluster. In fact, the Unsociable-Unshy participants stand out for a lower incidence of different types of motivation, both narcissistic (exhibitionism, attention seeking, need for approval) and less problematic (memory-preserving, enjoyment, self-expression). At the same time, they more frequently share selfies with primary relations (i.e., closest friends, boyfriends or girlfriends, parents), so much so perhaps that they do not need to use selfies to search for popularity or emotional attention. The selfie, therefore, seems more a way to communicate and to keep in touch with a limited network of closer relationships. The case of this profile raises, however, the question of the extent to which this type of engagement with digital media could be a further stimulus to remain within the comfort zone of the already familiar, among closest or long-standing social relations. This could act as a discouragement from looking outside the micro-culture of the existing social network to which they belong, an example of what is known as the *silo effect* in the critical literature on social media (Gardner & Devis, 2013).

Limitations and Strengths

The present study should be considered in light of some weaknesses. First, our sample, although of considerable size, was not probabilistic, with males and the 25-to 34-year-old age group underrepresented. This casts doubt on the generalizability of our results. Large population-based random samples would be ideal to consider in future studies. Second, the use of self-report measures requires caution in interpreting the results. This is because participants are asked to accurately reflect their experiences, and this may not always be the case. This could lead to low percentages of explained variance in the main survey variables, as it appears in our study, since the percentage of variance explained by the MANOVA and MANCOVA analyses ranged from 1 to 4%. Future studies should combine mixed methods. For example, the simultaneous use of qualitative and quantitative analyses could help to expand the number and type of motivations that lead adolescents to take, share, and use selfies, as well as the explanatory power of personality traits or other potential predictors. Third, because of the cross-sectional nature of the study, we cannot clearly demonstrate the predictive role of the profiles of shyness and sociability on selfie motivations. Therefore, it would be important to conduct future longitudinal studies following the same participants in their youth in order to draw clearer conclusions about the causal processes involved. Fourth, our study was limited to the investigation of the associations between profiles of shyness/sociability and selfie

motivations. Actually, there are other variables that might be interesting to consider. For example, further studies could examine how identity issues, experiences with peers, and personal future expectations might be directly or indirectly related to selfie motivations (e.g., Boursier & Manna, 2018). In addition, it should be noted that we focused only on explicit motivations, which may produce biased responses due to social desirability. To prevent such concerns, future research should consider assessing both implicit and explicit motivations and compare results.

Despite these limitations, our study made a significant contribution to the literature by expanding our understanding of the characteristics of selfie motivations in at least two ways. First, it provided a new clear picture of the different types of selfie motivations. Second, it showed how these motivations may differ based on profiles of shyness/sociability. Overall, these findings highlighted potential factors that can be worked on to promote more conscious and less dangerous use of selfies. Furthermore, they suggest that future research should consider gender and age differences when developing specific interventions. In fact, although our work was not specifically focused on assessing gender and age differences, the control analyses revealed that females show motivations for using selfies more related to a) the preservation and sharing of bibliographic memories and b) lower sensation seeking behaviors than males, while younger adults share their biographical memories via selfies more than older ones.

Conclusions

The results of this study question the idea of a direct negative effect of digital media on psychological wellbeing and personal development among young adults. Specifically, the survey has confirmed that selfie practice tends to be more problematic among Unsociable-Shy or Sociable-Shy. In contrast Sociable-Unshy individuals tend to use selfies as a means of self-expression and communication that is complementary to face-to-face interaction. Finally, for Unsociable-Unshy individuals the selfie seems a means to keep in contact with a limited network of closer persons. In the absence of previous research on how Unsociable-Unshy individuals practice selfie or behave in digital space, the results of the present study suggest a more intimate and selective use of the selfie as a means of maintaining small and primary social network, combined with a risk of lacking incentives to explore new relationships.

Therefore, instead of considering the selfie as part of a general self-celebrating culture (Berriman & Thomson, 2015), this study suggests that shyness and sociability are significant personality traits associated with a developmentally supportive vs. problematic practice of the selfie, as other research has found with regard to different personality traits (Sulaiman et al., 2018).

If we consider shyness as a personality disposition developed in a postmodern social environment (Bauman, 2005), the selfie appears as a symbolic resource that anaesthetizes the discomfort caused by increasingly insecure, volatile, and fragile human relationships. From this perspective, future research on digital media, as well as educational practice, should focus more on factors that enable (and even motivate) face-to-face social interaction in combination with digitally mediated communication, such as family cultural and social capital, the provision of leisure opportunities in physical space, and the quality of educational relationships (Schmuck, 2021). For example, a narcissistic or exhibitionistic selfie could be a reaction to a feeling of “not being seen” by parents or other significant adults.

In addition, the selfie practice itself can also be used as an educational medium to enhance self-esteem (Pounders et al., 2016), which is particularly relevant for shy individuals. The self-portrait, for example, has been used in education to explore the dynamism and plasticity of one's identity (Bordin, 2019). Similarly, using selfies as a generator of biographical memories can support personal identity work when young people are encouraged to use the potentials of cyberspace as an “identity playground” (Reid, 1996). Memories can indeed also contribute to developing an original and positive self-image (Giani Gallino, 2004) when the selfie is taken in a context that has a special and personal meaning for the selfie taker. These implications for educational practice suggest new research directions on the educational impact of selfies when they are intentionally used as an educational resource, particularly for vulnerable young people.

The lines of reflection explored so far in this article connect with the broader theme of how to foster the development of skills that promote more responsible and creative use of digital media, such as knowing how to exploit an image's expressive potential, orienting its use toward cultivating meaningful relationships, reflexively

deconstructing the ways in which it reproduces social norms and expectations dictated by stereotypes or prejudices, and recognizing the hidden mechanisms of commercial persuasion. This requires that educational institutions combine pedagogical work, psychoeducational interventions, and training on the functioning and use of new media to help young people and young adults proactively appropriate the digital medium as a resource for personal development and cultural growth. This is particularly relevant for sociable young people who feel inhibited by their inner shyness (e.g., because they are victims of social stigma) and for whom previous research has found computer-mediated communication to be an outlet for self-expression and social connection that partially satisfies their need for sociability (Chan, 2011; Hu et al., 2021; Sheeks & Birchmeier, 2007).

Conflict of Interests

The authors have no conflicts of interest to declare.

Authors' Contribution

Daniele Morciano: conceptualization, investigation, methodology, writing—original draft. **Pasquale Musso:** formal analysis, writing—original draft, writing—review and editing. **Rosalinda Cassibba:** writing—original draft, writing—review and editing. **Maurice Devlin:** writing—review and editing.

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Appendix

Table A1. *Selfie-Related Questions and Items Specifically Developed for the Study: Motivations for Taking Selfies.*

Study variables related to selfies	Items
Biographical memory—preserving	To keep my personal memories
	To keep memories that I have in common with other people
Enjoyment	Because it amuses me and makes me laugh
	To pass the time
Narcissism/exhibitionism	To be able to look at photos where I see myself beautiful
	In order to get someone's attention
	Because it makes me feel better when I think I am worth nothing to anyone

Table A2. *Selfie-Related Questions and Items Specifically Developed for the Study: Motivations for Sharing Selfies.*

Study variables related to selfies	Items
Biographical memory—sharing	To share the most important moments of my life
	To share the memory of moments spent with friends
Self-expression	To make my personal passions known
	To show others some of my abilities
	To say what I think on social or political issues
	To make known a passion or interest that I share with a group
Attention seeking	Because it makes me feel better just to publish an image of myself
	Because it makes me feel better to receive many likes and comments
	Because it makes me feel considered when I think I am worth nothing to anyone

Table A3. *Selfie-Related Questions and Items Specifically Developed for the Study: Motivations for Taking Dangerous Selfies.*

Study variables related to selfies	Items
Sensation seeking	To feel a strong emotion
	To overcome the boredom of ordinary life
Developmental Risk-taking	To show myself my courage
	Because it makes me seem more real that I was able to do it
	To test my skills in risky situations
Social conditioning and emulation	Because forced by someone
	To follow a trend
	Because I saw it done in a video and I wanted to try it too
	Because someone paid me to do it

Table A4. *Selfie-Related Questions and Items Specifically Developed for the Study: Motivations for Sharing Dangerous Selfies.*

Study variables related to selfies	Items
Need for approval	To show myself brave to others
	To overcome my fears of others
Attention seeking	To feel considered in a moment when I thought I was worth nothing to anyone
Social conditioning and emulation	Because forced by someone
	To be accepted by a group
	To follow a trend

Table A5. *Univariate Analyses of Variance and Pairwise Comparisons for Gender and Age Groups on the Motivation and Selfie Sharing Network Variables.*

Variable	Means by gender				Means by age			
	Male	Female	*F*(*df*, error)	η^2	Age 19–24	Age 25–34	*F*(*df*, error)	η^2
Motivations for taking selfies			(1, 2,268)				(1, 2,268)	
Biographical memory—preserving	3.47	3.82	30.12***	0.01	3.78	3.64	4.85*	0.00
Enjoyment	2.15	2.37	11.33***	0.00	2.36	2.21	3.26	0.00
Narcissism/exhibitionism	1.79	1.93	5.93*	0.00	1.93	1.80	6.74**	0.00
Motivations for sharing selfies			(1, 2,027)				(1, 2,027)	
Biographical memory—sharing	3.25	3.54	20.39***	0.01	3.53	3.33	14.68***	0.01
Self-expression	2.18	2.20	0.14	0.00	2.23	2.10	7.79**	0.00
Attention seeking	1.68	1.67	1.35	0.00	1.70	1.59	6.62*	0.00
Selfie sharing network on the web			(1, 2,027)				(1, 2,027)	
Primary relationships	0.49	0.55	9.80**	0.00	0.54	0.54	1.52	0.00
Secondary relationships	0.29	0.24	3.72	0.00	0.26	0.23	11.86***	0.00
General Audience on social networks	0.25	0.27	0.84	0.00	0.27	0.24	0.02	0.00
Motivations for taking selfies in DS			(1, 387)					
Sensation seeking	1.79	1.49	4.88*	0.01	1.62	1.48	[a]	
Developmental Risk-taking	1.68	1.57	0.08	0.00	1.63	1.52		
Social conditioning and emulation	1.25	1.17	0.01	0.00	1.19	1.20		
Motivations for sharing selfies taken in DS								
Need for approval	1.72	1.50	[a]		1.60	1.45	[a]	
Attention seeking	1.60	1.29			1.41	1.30		
Social conditioning and emulation	1.43	1.30			1.34	1.34		

Note. To be practically noteworthy, gender and age group variables needed to explain at least 1% of variance of the dependent variables, while mean differences were statistically significant at $p < 0.05$. *df* = degree of freedom.

[a] Because no significant multivariate effects were evidence, follow-up univariate analyses were not conducted.

*$p < .05$, **$p < .01$, ***$p < .001$.

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