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Original article

Facebook user profiles, personality and well-being in early adulthood

Profils d'utilisateurs de Facebook, personnalité et bien-être au début de l'âge adulte

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ABSTRACT

Introduction. – The use of social media can have both beneficial and detrimental effects on individuals, and some personal variables have been shown to have a potential impact on this phenomenon. However, very few studies have identified “which individuals” might be positively or negatively affected by social media use.

Objectives. – The present study aimed to (1) identify profiles of social media use among Facebook users, and then (2) compare these profiles with regard to some personality and (both positive and negative) well-being variables.

Method. – A cluster analysis was performed on a sample of 321 young adults.

Results. – Three user profiles were brought out and were found to be differentially related to personality and well-being variables.

Conclusion. – The results suggest diverse roles of social media use for different types of users.

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R É S U M É

Introduction. – L'utilisation des médias sociaux peut avoir des effets à la fois bénéfiques et nuisibles sur les individus, et certaines variables personnelles sont susceptibles de jouer un rôle dans ce phénomène. Toutefois, très peu d'études ont permis de déterminer « pour qui » cette utilisation serait nocive ou bénéfique.

Objectifs. – La présente étude vise à (1) identifier différents profils d'utilisateurs de Facebook, puis (2) contraster ces profils en termes de personnalité et de bien-être en considérant des indicateurs positifs et négatifs.

Méthode. – Une analyse typologique a été réalisée auprès d'un échantillon de 321 jeunes adultes.

Résultats. – Trois profils d'utilisateurs ont été identifiés et plusieurs différences ont été observées sur les traits de personnalité et le bien-être entre ces profils.

Conclusion. – Les résultats laissent entrevoir une diversité des rôles de l'utilisation des médias sociaux pour différents types d'utilisateurs.

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1. Facebook user profiles, personality and well-being in early adulthood

Since social media (SM), and especially Facebook (FB), became available to the general public, they have been the focus of many psychological studies. Researchers have been particularly

interested in the links between SM use and personality and psychological well-being (Blachnio, Przepiorka, & Rudnicka, 2013; Caers et al., 2013). Thus, links have been documented between the Big Five personality traits (Costa & McCrae, 1985), in particular extraversion, conscientiousness and neuroticism, and various characteristics of SM use, such as the amount of time spent on SM and the reported number of online friends. With regard to psychological well-being, studies have focused in particular on the links between SM use and anxious and depressive symptoms as well as some positive dimensions of well-being. These studies have yielded less

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consistent results (Clark, Algoe, & Green, 2018). Moreover, to our knowledge, very few studies examining the links between SM use, personality and well-being have used a person-centred approach. Yet, such an approach could help better identify what types of users present distinct personality traits as well as greater psychological well-being or, conversely, greater psychological distress.

1.1. Facebook and personality traits

The links between SM use and personality traits are well documented. The present study examined these traits using the five-factor model (Costa & McCrae, 1985), which proposes five categories of traits that can be used to globally describe individual tendencies: extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. Studies using this model of personality traits have shown that FB users tend to be more extraverted and open to experience, while non-users and those who decide to quit this social networking site tend to be more conscientious (Ghosh & Dasgupta, 2015; Ryan & Xenos, 2011; Stieger et al., 2013). Among FB users, extraversion has been shown to be positively associated with the number of Facebook friends (Caci, Cardaci, Tabacchi, & Scrima, 2014; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011), the length of user sessions (Caci et al., 2014), the number of hours per week spent on Facebook and other indicators of high Facebook use (Gosling et al., 2011). Moreover, extraverted and less conscientious individuals generally report spending a greater number of hours per week on social media (Wilson, Fornasier, & White, 2010). Those characterized by agreeableness and openness to experience also appear to present higher FB use, whereas conscientious individuals spend fewer hours per week using this social networking site (Gosling et al., 2011). Neurotic individuals, for their part, report more frequent FB use (Caci et al., 2014). In short, different personality traits have been associated with different indicators of SM use.

1.2. Facebook and well-being

The present study examined well-being in terms of both its positive and negative poles. As early adulthood is characterized by high levels of symptoms of depression and anxiety (Schulenberg & Zarrett, 2006), these two variables were used in this study as negative indicators. However, well-being is not limited to the absence of these problems, but is also reflected through positive dimensions, generally defined in terms of hedonic and eudaimonic well-being. Only hedonic well-being was considered in this study as it corresponds to overall life satisfaction, whereas eudaimonic well-being refers more to personal growth and self-realization (Ryan & Deci, 2001).

The use of social media such as FB has been associated with symptoms of depression and anxiety (Hur & Gupta, 2013; McCord, Rodebaugh, & Levinson, 2014; Primack et al., 2017), but not always systematically (Chow & Wan, 2017; Jelenchick, Eickhoff & Moreno, 2013). Among the factors found to be most likely to help explain the variability in this association are, notably, personality (particularly neuroticism; Chow & Wan, 2017; Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014), gender (Simoncic et al., 2014) and the type of use considered (Jelenchick et al., 2013; Shensa, Escobar-Viera, Sidani, Bowman, Marshal, & Primack, 2017). For example, Simoncic et al. (2014) found that among women with high neuroticism, more frequent Facebook use was associated with lower depressive symptoms, whereas Jelenchick et al. (2013) found no significant link between the number of hours spent daily on social networking sites and the risk of depression. Many questions thus remain regarding the conditions in which the use of SM is or is not associated with anxious and depressive symptoms.

The results of studies examining the links between SM use and the positive dimensions of well-being have also been somewhat ambiguous. On the one hand, it has been shown that the social aspect of these platforms can be beneficial for some individuals. For example, being in contact with a greater number of Facebook friends can foster the perception of greater social support and life satisfaction (Manago, Taylor, & Greenfield, 2012; Nabi, Prestin, & So, 2013). Other studies have also shown that there may be a positive link between the time spent weekly on some social networking sites and measures of well-being, including its social dimensions (Lai, Hsieh, & Zhang, 2019). On the other hand, the frequency of some FB activities has been associated with psychological distress (Chen & Lee, 2013), and the extent to which FB is used at any given time can even predict a decline in hedonic well-being in the hours following its use (Kross et al., 2013). Various hypotheses have been put forward to explain these different findings (e.g., Clark, Algoe, & Green, 2018; Verduyn et al., 2015), but much remains to be clarified in this regard as well.

1.3. Putting it all together

The links established between various indicators of SM use and personality traits, and the inconsistent results regarding the links with well-being suggest possible heterogeneity among SM users. This heterogeneity could translate into a variety of user profiles likely to correspond to different ways of using SM and different motives for doing so (Clark et al., 2018; Verduyn et al., 2015). These user profiles could be characterized by different personality traits and different levels of well-being, in terms of both positive indicators (hedonic well-being) and negative indicators (symptoms of depression and anxiety).

The few studies that we were able to review examining the correlates of general SM use based on an analysis of user profiles (Lo Coco et al., 2018; Scott, Bay-Cheng, Prince, Nochajski, & Collins, 2017; Shensa, Sidani, Dew, Escobar-Viera, & Primack, 2018) confirm that SM users can be distinguished among themselves in terms of various indicators (engagement in SM, time spent on SM and frequency of SM use, variety of SM sites used, level of problematic SM use), and that these profiles differ with regard to personality traits and the risk of presenting anxious and depressive symptoms. However, none of these studies examined the associations between SM use, personality traits and well-being simultaneously, and thus provide only a partial picture of these different user profiles.

In order to obtain a broad picture of SM use, three indicators were considered in this study. The first relates to the level of "engagement" in SM (Gosling et al., 2011; McAndrew & Jeong, 2012), reflected by a set of activities that can generally be carried out on these platforms, such as posting information or commenting on the posts of others. The second indicator was the user's "number of FB friends". This indicator highlights the social dimension of SM and has often been examined, particularly in relation to well-being (e.g., Johnston, Tanner, Lalla, & Kawalski, 2013; Kalpidou, Costin, & Morris, 2011; Liu & Yu, 2013; Lönnqvist & Itkonen, 2014; Nabi et al., 2013). The third and last indicator was the amount of "time spent" on SM (Gosling et al., 2011; Hayes, Stolk-Cooke, & Muench, 2015; Pantic et al., 2012; Simoncic et al., 2014; Wilson et al., 2010). While these dimensions have been examined individually in a great number of studies, they have never been examined simultaneously with the aim of identifying distinct SM user profiles.

Lastly, most studies to date have involved samples of adolescent or young adult students (Caers et al., 2013). The present study involved young adults aged 25 years, because it is during this period (ages 18–29 years) that SM use is highest and may have the greatest impact on well-being (Hayes et al., 2015). However, this study

presents the advantage of having involved a more diverse sample, as it was not limited only to students.

1.4. Study goals

The first goal of the present study was to determine whether different FB user profiles could be identified. To this end, a hierarchical cluster analysis was performed on a sample of FB users based on the three following indicators:

- level of engagement in SM;
- number of FB friends and;
- amount of time spent on SM.

Given the exploratory nature of this study and considering that, to our knowledge, this is the first study to have performed a cluster analysis on FB users based on these indicators, no hypothesis was formulated regarding the profiles that might emerge. The second goal was to compare the user profiles identified with regard to (1) the Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience) and (2) well-being, considering both its positive pole (hedonic well-being) and negative pole (symptoms of depression and anxiety).

2. Method

2.1. Participants

The data came from a longitudinal study initially involving 390 Grade 6 pupils, aged 12 years. These young people were mostly born in Canada (90%) and were all French-speaking. The data used in the present study were collected when the participants were 25–26 years old. A total of 321 participants (60.7% girls, mean age = 25.37 years, $SD = 0.41$) took part in this wave of data collection, 302 of which reported having a FB account. They thus made up the sample used in this study. At age 25–26, their mean annual income was \$25,000, 35% of them lived with their parents, and 30% were still studying.

2.2. Procedure

Participants were invited by phone to participate in this wave of data collection. Those who agreed filled out a questionnaire at home, which they then handed back to the research assistant who had come to present it to them. A few participants (3%), who lived in outlying regions, received and returned their questionnaires by mail. Participants received financial compensation for their time. This research project was approved by the Ethics Committee of the Université du Québec à Montréal. A copy of all the questionnaires used, in both French and English, is available here ([Supplementary data](#)).

2.3. Measures

2.3.1. SM use

Participants were given a list of the most popular SM sites in 2015 (including FB) and were asked to check off the sites they used ([Zammit, 2008](#)). They were then asked to answer a set of questions on their SM use.

2.3.2. Engagement in SM

The scale used to measure the level of engagement in SM was made up of ten items based on the work of [Zammit \(2008\)](#) and translated to French following the recommendations of [Vallerand, 1989](#). Participants were asked to indicate, on a five-point scale ranging from 1 = “Never” to 5 = “Very often”, the frequency of their

weekly involvement in various activities, such as looking at or commenting on the content of other users’ profile pages, “liking” Facebook pages or visiting “liked” pages, participating in discussion groups or updating their own profile or status. A total score corresponding to the mean of the scores for these items was calculated ($\alpha = .89$).

2.3.3. Number of FB friends

Participants were asked to answer the following question: “How many Facebook friends do you have?” A space was provided in which they could write down a number.

2.3.4. Time spent on SM

The amount of time spent on SM corresponded to the number of hours per day that the participants reported spending on SM (including FB), measured using an eight-option scale ranging from “I don’t use social media” to “More than 11 hours.”

2.3.5. Personality

The Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience) were assessed using the Mini-IPIP ([Donnellan, Oswald, Baird & Lucas, 2006](#)), translated into French by [Laverdière, Diguier, and Gamache \(2007\)](#). This instrument contains 20 items (4 items per trait). Sample items were: “I am the life of the party” (extraversion), “I sympathize with others’ feelings” (agreeableness), “I get chores done right away” (conscientiousness), “I seldom feel blue” (neuroticism; reversed) and “I have a vivid imagination” (openness to experience). Participants were asked to indicate the extent to which each item applied to them on a five-point Likert scale ranging from 1 = “Strongly disagree” to 5 = “Strongly agree.” Scores corresponding to the mean of the responses for the items for each personality trait were calculated (alphas between .66 and .82).

2.3.6. Hedonic well-being

Hedonic well-being was assessed using an adapted version of [Peterson, Park and Seligman’s \(2005\) Orientations to happiness scale](#), translated into French and validated by [Martin-Krumm et al. \(2015\)](#). This scale is made up of four items such as “Life is too short to postpone the pleasures it can provide.” Participants were asked to indicate the degree to which each item described their way of thinking by circling a score on a five-point Likert scale ranging from 1 = “Never” to 5 = “Always.” A total score corresponding to the mean of the responses for all four items was calculated ($\alpha = .74$).

2.3.7. Symptoms of depression and anxiety

Symptoms of depression and anxiety were assessed using the corresponding subscales from the SCL-90-R ([Derogatis, 1983](#)). Participants were asked to indicate on a 5-point scale ranging from 1 = “Not at all” to 5 = “Extremely,” the degree to which they experienced various symptoms. Symptoms of depression were assessed using 13 items ($\alpha = .89$) and symptoms of anxiety were assessed using ten items ($\alpha = .79$). Scores corresponding to the mean of the responses for the items for each subscale were calculated.

2.4. Statistical analyses

2.4.1. Data preparation

First, variables showing significant skewness were normalized using the procedure recommended by [Tabachnick and Fidell \(2013\)](#). The mean time per day spent on SM was recoded on a scale of 1 to 3, where 1 = 2 h, 2 = 3 h, and 3 = 4 or more hours. For the number of FB friends, none of the suggested transformations could be applied without creating a floor effect or a ceiling effect. After eliminating the six extreme data values (corresponding to more than three standard deviations above the mean; i.e. number

of Facebook friends between 1200 and 2300), the best solution was to carry out the operation $\sqrt{(x-1)}$, where x corresponded to the number of FB friends for each participant. Because they showed a floor effect, the scores for the subscales assessing symptoms of depression (skewness = 1.94) and anxiety (skewness = 2.50) were dichotomized (1 = no symptoms – score of 1 on the scale – and 2 = at least some symptoms – score of 2 or more on the scale).

2.4.2. Analytical strategy

First, the three indicators of SM use were subjected to a hierarchical cluster analysis using SPSS Version 23. Ward's method and the squared Euclidean distance were used. Only those participants who reported having a FB account and who provided answers on all the measures of SM use were included in this analysis ($n = 292$). Second, the profiles obtained were compared with regard to the five personality traits and hedonic well-being, using one-way ANOVAs followed by post hoc analyses using Tukey's test. To compare the profiles with regard to the dichotomized scores for symptoms of depression and anxiety, Pearson's chi-square tests were performed.

3. Results

3.1. FB user profiles

Based on an examination of the dendrogram produced by the analysis, the three-cluster solution was retained. Profile 1 included 38.4% of the valid sample ($n = 112$), Profile 2 included 27.4% ($n = 80$) and Profile 3 included 34.2% ($n = 100$). The means and standard deviations for the three indicators of SM use for each profile are presented in Table 1. To facilitate the interpretation of the results, the scores before normalization are shown. The ANOVAs revealed significant differences between the three profiles for engagement, number of FB friends, and time spent on SM. Post hoc analyses further revealed that Profile 1 presented a significantly higher score for engagement in and mean time spent on SM compared to Profile 3, but a comparable mean number of FB friends, a number that was lower than that for Profile 2. Profile 1 was thus characterized by a high level of engagement but a low number of FB friends. The term "Highly engaged but few FB friends" was used to refer to this profile.

Profile 2 presented a higher score for engagement in and time spent on SM compared to Profile 3, and a higher number of FB friends compared to both other profiles. This profile was thus referred to as "Highly engaged".

Lastly, Profile 3 presented a significantly lower score for engagement in SM compared to Profiles 1 and 2, a significantly lower number of FB friends compared to Profile 2 and a lower mean time spent on SM compared to Profiles 1 and 2. Profile 3 thus showed low overall engagement in SM. The term "Not highly engaged" was used to refer to this profile.

3.2. Personality and well-being according to profile of SM use

The three profiles identified were then compared among themselves with regard to the personality and well-being variables. A fourth group of participants from our sample who reported not having a FB account ($n = 20$) was included in this step of the analyses for the purposes of comparison. Although this latter group contained few participants, including it was likely to provide a useful point of comparison to help more clearly define the three FB user profiles.

3.2.1. Personality

The results are presented in Table 2. To facilitate their interpretation, the scores before normalization are shown. A significant difference was found for extraversion. The post hoc analysis

revealed that users in the "Highly engaged" profile (Profile 2) presented a higher score for this personality trait than those in both the "Highly engaged but few FB friends" profile (Profile 1) and the "Not highly engaged" profile (Profile 3), as well as those who reported not having a FB account. A significant difference was also found for conscientiousness. The post hoc analysis revealed that users in the "Not highly engaged" profile (Profile 3), as well as participants who reported not having a FB account, obtained a higher score for this personality trait than users in both the "Highly engaged but few FB friends" profile (Profile 1) and the "Highly engaged" profile (Profile 2), and that these latter two profiles did not differ from one another in this regard. Lastly, a difference was also found for neuroticism. Users in the "Highly engaged but few FB friends" profile (Profile 1) presented a higher score for this personality trait than those in the "Not highly engaged" profile (Profile 3).

3.2.2. Hedonic well-being

A significant difference was found for hedonic well-being. The post hoc analysis revealed that users in the "Highly engaged" profile (Profile 2) reported a higher level of hedonic well-being than those in both the "Highly engaged but few FB friends" profile (Profile 1) and the "Not highly engaged" profile (Profile 3).

3.2.3. Symptoms of depression and anxiety.

The χ^2 test proved to be significant for symptoms of depression ($\chi^2(23) = 9.31, p < .05$). The analysis of adjusted standardized residuals indicated that a significantly higher number of participants in the "Highly engaged but few FB friends" profile (Profile 1) reported symptoms of depression than those in the "Not highly engaged" profile (Profile 3), while the other profiles did not differ from one another in this regard. Lastly, no differences were found between the groups with regard to symptoms of anxiety ($\chi^2(3) = 7.00, p = ns$).

4. Discussion

The present study aimed to identify different Facebook user profiles and then compare them with regard to personality and well-being, using both positive and negative indicators of well-being. To this end, a person-centred approach was used, considering three dimensions of SM use (i.e., level of engagement in SM, number of FB friends, and amount of time spent on SM). This approach allowed us to closely examine the multifaceted reality of SM use (Caers et al., 2013). Three user profiles, which differed with regard to personality and well-being, emerged from the hierarchical cluster analysis. These results are discussed in the following paragraphs.

The first profile (38.4% of the sample) included participants who were highly engaged in SM but had relatively few FB friends. The second profile (27.4%) included participants who were highly engaged in and spent a great deal of time on SM and had a high number of FB friends. The third and last profile included participants who were not highly engaged in SM (34.2%). These results lend support to the idea that FB users do not constitute a homogeneous group. Two previous studies also identified three classes of SM users, but the indicators used in these studies were different, either because they were limited to engagement in FB only (Lo Coco et al., 2018), or did not include a measure of the participants' online social network (Scott et al., 2017). Shensa et al. (2018), for their part, identified five classes and their study included a measure of problematic SM use and an indicator of the use of multiple online platforms, but also did not include an indicator of the size of participants' online social network.

The profiles identified were compared among themselves as well as with a fourth group made up of participants who reported

not having a FB account. These comparisons concerned the five personality traits and the variables corresponding to the positive and negative poles of well-being. The results for each of the profiles are discussed separately below.

4.1.1. Highly engaged but few FB friends

Participants in the “Highly engaged but few FB friends” profile were characterized by a high score for neuroticism. They were also less extraverted and less happy than those in the “Highly engaged” profile and less conscientious than both those in the “Not highly engaged” profile and those who did not have a FB account. Participants in this profile were also more likely to report at least some symptoms of depression than those in the “Not highly engaged profile”.

Neuroticism has previously been associated with some indicators of higher SM use, such as the frequency of FB visits (Caci et al., 2014). It is therefore not surprising for a profile characterized by high SM use to be associated with this personality trait. However, the present study further clarified that indicators of SM use (engagement and time spent) were associated with a higher level of neuroticism only among users who reported having few FB friends. Other studies have shown that being in contact with a higher number of individuals on SM is likely to foster the perception of greater social support (Ashbury & Hall, 2013; Manago et al., 2012; Nabi et al., 2013). It is thus plausible that having a greater number of online friends could play a positive role in the well-being of users who are highly engaged in SM, whereas this effect does not play out among highly engaged users having a lower number of online friends.

On the other hand, being more neurotic, less conscientious and less extraverted has also been associated with problematic use of some social networking sites (Blachnio & Przepiorka, 2016; Blachnio, Przepiorka, Senol-Durak, Durak, & Sherstyuk, 2017; Marino et al., 2016) as well as depressive symptoms (Shensa et al., 2017). This could help explain the greater amount of time spent on and higher levels of engagement in SM characterizing the “Highly engaged but few FB friends” profile and the more troubling results associated with this profile in terms of well-being. It is also possible that, compared to other users, more neurotic users tend to use SM in a more passive way (e.g., looking at other people’s news without interacting with them), which may in turn be associated with lower levels of well-being (Verduyn et al., 2015) through mediators such as social comparison and envy (Clark et al., 2018; Scherr,

Toma, & Schuster, 2018). Moreover, neuroticism generally tends to be negatively associated with well-being (e.g., Donnellan et al., 2006; Gale, Booth, Mottus, Kuh, & Deary 2013; Ormel, Rosmalen, & Farmer, 2004).

4.1.2. Highly engaged profile

The “Highly engaged” user profile differed from the other two user profiles and the group of participants who did not have a FB account through a particularly high level of extraversion (M = 4.00 on a scale of 1 to 5). The participants in this profile were also found to be less conscientious than those in the “Not highly engaged” profile and those who did not have a FB account. Lastly, these participants reported a higher level of hedonic well-being than those in the other two user profiles.

Other studies have shown extraversion to be associated with several indicators of high SM use (Caci et al., 2014; Gosling et al., 2011; Wilson et al., 2010). The present study revealed that this appeared to be particularly true for individuals with high scores for several indicators of SM use, in particular, a high level of engagement in SM and a high number of FB friends. It appears that this latter dimension in itself differentiated this profile of more extraverted and happier SM users from the other profile that was also characterized by a high level of engagement in SM (“Highly engaged but few FB friends”). Given that extraversion characterizes individuals who are generally very socially active (Donnellan et al., 2006), this result is not surprising. Moreover, extraversion, and a high number of online friends are generally positively associated with positive indicators of well-being (e.g., self-esteem, happiness and life satisfaction) and negatively associated with negative indicators of well-being (e.g., perceived level of stress, loneliness, physical symptoms, anxious and depressive symptoms) (Donnellan et al., 2006; Harris, English, Harms, Gross, & Jackson, 2017; Lönnqvist & Itkonen, 2014; Manago et al., 2012; Nabi et al., 2013; Phu & Gow, 2019). It is thus possible that more extraverted individuals generally tend to use SM as a means of effectively meeting their psychological needs and seeking social support (Deci & Ryan, 2000; Gilmour et al., 2019; Harris et al., 2017; Liu et al., 2018; Ryan & Deci, 2001).

4.1.3. Not highly engaged profile

Participants in the “Not highly” engaged profile as well as those who did not have a FB account were characterized by a level of con-

Table 1
Means (and standard deviations) for the variables subject to cluster analysis by user profile.

	Profile 1 Highly engaged but few FB friends (n = 112)	Profile 2 Highly engaged (n = 80)	Profile 3 Not highly engaged (n = 100)	F	p
Engagement	2.80 (0.71) ^a	3.04 (0.77) ^b	1.99 (0.59) ^{a, b}	73.077	<.001
No. of FB friends	187.15 (86.15) ^b	516.01 (158.91) ^{a, b}	215.52 (125.27) ^a	153.115	<.001
Time spent	2.27 (0.57) ^a	2.33 (0.65) ^b	1.09 (0.29) ^{a, b}	47.550	<.001

n = 292. Superscript letters indicate significantly different results based on the ANOVA, at the p < .05 threshold, such that two results showing the same letter will be different.

Table 2
Means (and Standard Deviations) for the Scores for Personality and Well-being by User Profile.

	Profile 1 Highly engaged but few FB friends	Profile 2 Highly engaged	Profile 3 Not highly engaged	No FB account	F	p
Extraversion	3.53 (0.81) ^b	4.00 (0.67) ^{a,b,c}	3.63 (0.86) ^a	3.19 (0.78) ^c	8.607	<.001
Agreeableness	4.02 (0.53)	4.20 (0.54)	4.05 (0.67)	4.10 (0.60)	1.798	n. s.
Conscientiousness	3.56 (0.88) ^{a,c}	3.53 (0.86) ^{b,d}	3.87 (0.85) ^{a,b}	4.14 (0.71) ^{c,d}	5.142	<.005
Neuroticism	2.91 (0.74) ^a	2.67 (0.79)	2.50 (0.84) ^a	2.56 (1.02)	4.810	<.005
Openness to experience	3.47 (0.40)	3.60 (0.49)	3.46 (0.41)	3.53 (0.61)	1.734	n. s.
Hedonic well-being	4.18 (0.62) ^b	4.42 (0.48) ^{a,b}	4.15 (0.62) ^a	4.04 (0.67)	3.689	<.05
Symptoms of depression (%)	80.2% ^a	74.7%	61.6% ^a	71.4%	X ² = 9.307	<.05
Symptoms of anxiety (%)	72.1%	58.2%	55.6%	61.9%	X ² = 7.000	n. s.

Superscript letters indicate significantly different results at the p = .05 threshold, such that two results showing the same letter will be different.

scientiousness that was higher than that reported by participants in both the “Highly engaged but few FB friends” and “Highly engaged” profiles. Participants in these two groups also obtained lower scores for extraversion than those in the “Highly engaged” profile. Moreover, users in the “Not highly engaged” profile obtained a lower score for hedonic well-being than those in the “Highly engaged” profile, and a lower score for neuroticism than those in the “Highly engaged but few FB friends” profile. Lastly, participants in this profile were less likely to report at least some symptoms of depression than those in the “Highly engaged but few FB friends” profile.

Other studies have shown the number of hours spent on SM to be inversely associated with conscientiousness (Gosling et al., 2011; Wilson et al., 2010). In this study, it was “general” engagement (level of engagement and time spent, number of FB friends) that appeared to be negatively associated with this personality trait, rather than particular aspects of such engagement. Recently, Whaite, Shensa, Sidani, Colditz, & Primack (2018) suggested that more conscientious individuals might use SM in a way that allows them to maintain social interactions in their off-line lives particularly well. This suggestion is consistent with our results showing that social networking sites appear to play a less important role in the lives of more conscientious individuals, or even not play any role at all. Thus, more conscientious individuals likely have a greater tendency to meet their psychological needs through their off-line relationships, which could reduce the impact of their SM use on their overall well-being (Bender & Gentile, 2019; Deci & Ryan, 2000; Przybylski, Weinstein, Ryan, & Rigby, 2009; Sheldon, Abad, & Hinsch, 2011).

The lower level of hedonic well-being reported by members of the “Not highly engaged” profile compared to those of the “Highly engaged” profile could merit greater attention if this finding is replicated in other studies. It would also be relevant to look more closely at the specific characteristics of SM use among members of the “Not highly engaged” profile. For example, these individuals, being less engaged in SM generally, may tend to use SM in a more passive way than more extraverted individuals, but not to an extent that causes them to develop symptoms of depression, as is the case for more neurotic individuals (Clark et al., 2018; Verduyn et al., 2015).

4.2. Strengths, limitations and avenues for future research

This study presents some limitations. First, the subsample of participants who reported not having a FB account was small, which may have limited our ability to detect some possibly significant differences. Second, the use of a single measurement time did not make it possible to draw clear conclusions regarding the direction of the links between SM use, personality and well-being. Thus, it is possible that symptoms of depression, for example, could be the cause rather than the consequence of SM use among more neurotic individuals. Lastly, while the profiles were identified among FB users, our measures of the time spent and level of engagement related to SM in general. This makes it impossible to know to what extent the use of other SM platforms (e.g., Twitter) may have contributed to the results found. These limitations are partly balanced with some of the study’s strengths, such as the use of a diverse sample that was not limited to university students, the simultaneous examination of three dimensions of SM use, making it possible to identify distinct user profiles, and the fact that both positive and negative dimensions of well-being were considered simultaneously.

The results of this study open up several avenues of research. First, it would be relevant to compare the user profiles identified here with regard to other dimensions, such as problematic SM use and addiction to SM (Marino et al., 2018; Shensa et al., 2017). Second, it would also be important to determine whether similar user profiles emerge for other more recent SM platforms, such as

Instagram or Snapchat, or whether the specific characteristics of different platforms significantly alter the phenomenon observed in this study. Lastly, the mechanisms through which the three profiles of SM use appear to be associated with symptoms of depression and anxiety or, conversely, to contribute favourably to well-being, should be clarified. In particular, the role of various potential mediators and moderators such as perceived social support, feelings of isolation, passive versus active SM use, social comparison online, or maintaining social relationships offline, should be examined using longitudinal studies (Clark et al., 2018; Nabi et al., 2013; Verduyn et al., 2015; Whaite et al., 2018). Examining these mediators and moderators would provide clearer insight into why some individuals appear to benefit more from their use of SM and identify potential intervention targets for those most likely to be negatively affected by such use.

Disclosure of interest

The authors declare that they have no competing interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.erap.2019.100478>.

References

- Ashbury, T., & Hall, S. (2013). Facebook as a mechanism for social support and mental health wellness. *Psi Chi Journal of Psychological Research*, 18, 124–129. <http://dx.doi.org/10.24839/2164-8204.JN18.3.124>
- Bender, P. K., & Gentile, D. A. (2019). Internet gaming disorder: Relations between needs satisfaction in-game and in life in general. *Psychology of Popular Media Culture*, <http://dx.doi.org/10.1037/ppm0000227>
- Blachnio, A., & Przepiorka, A. (2016). Personality and positive orientation in Internet and Facebook addiction. An empirical report from Poland. *Computers in Human Behavior*, 59, 230–236. <http://dx.doi.org/10.1016/j.chb.2016.02.018>
- Blachnio, A., Przepiorka, A., & Rudnicka, P. (2013). Psychological determinants of using Facebook: A research review. *International Journal of Human-Computer Interaction*, 29, 775–787. <http://dx.doi.org/10.1080/10447318.2013.780868>
- Blachnio, A., Przepiorka, A., Senol-Durak, E., Durak, M., & Sherstyuk, L. (2017). The role of personality traits in Facebook and internet addictions: A study on Polish, Turkish, and Ukrainian samples. *Computers in Human Behavior*, 68, 269–275. <http://dx.doi.org/10.1016/j.chb.2016.11.037>
- Caci, B., Cardaci, M., Tabacchi, M. E., & Scrima, F. (2014). Personality variables as predictors of Facebook usage. *Psychological Reports: Relationships & Communications*, 114(2), 528–539. <http://dx.doi.org/10.2466/21.09.PR0.114k23w6>
- Caers, R., De Feyter, T., De Couck, M., Stough, T., Vigna, C., & Du Bois, C. (2013). Facebook: a literature review. *New Media & Society*, 15(6), 982–1002. <http://dx.doi.org/10.1177/1461444813488061>
- Chen, W., & Lee, K.-H. (2013). Sharing, liking, commenting, and distressed? The pathway between Facebook interaction and psychological distress. *Cyberpsychology, Behavior, and Social Networking*, 16(10), 728–734. <http://dx.doi.org/10.1089/cyber.2012.0272>
- Chow, T. S., & Wan, H. Y. (2017). Is there any ‘Facebook Depression’? Exploring the moderating roles of neuroticism, Facebook social comparison and envy. *Personality and Individual Differences*, 119, 277–282. <http://dx.doi.org/10.1016/j.paid.2017.07.032>
- Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social network sites and well-being: The role of social connection. *Current Directions in Psychological Science*, 27(1), 32–37. <http://dx.doi.org/10.1177/0963721417730833>
- Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory Manual*. Odessa, FL: Psychological Assessment.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, 11(4), 227–268. <http://dx.doi.org/10.1207/S15327965PL1104.01>
- Derogatis, L. R. (1983). *Manual for the SCL-90-R*. Towson, MD: Clinical Psychometric Research.

- Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment, 18*(2), 192–203. <http://dx.doi.org/10.1037/1040-3590.18.2.192>
- Gale, C. R., Booth, T., Mottus, R., Kuh, D., & Deary, I. J. (2013). Neuroticism and extraversion in youth predict mental wellbeing and life satisfaction 40 years later. *Journal of Research in Personality, 47*, 687–697. <http://dx.doi.org/10.1016/j.jrp.2013.06.005>
- Gilmour, J., Machin, T., Brownlow, C., & Jeffries, C. (2019). Facebook-based social support and health: A systematic review. *Psychology of Popular Media Culture, 18*(1). <http://dx.doi.org/10.1037/ppm0000246>
- Ghosh, A., & Dasgupta, S. (2015). Psychological predictors of Facebook use. *Journal of the Indian Academy of Applied Psychology, 41*(1), 101–109.
- Gosling, S. D., Augustine, A. A., Vazire, S., Holtzman, N., & Gaddis, S. (2011). Manifestations of personality in online social networks: Self-reported Facebook-related behaviors and observable profile information. *Cyberpsychology, Behavior, and Social Networking, 14*(9), 483–488. <http://dx.doi.org/10.1089/cyber.2010.0087>
- Harris, K., English, T., Harms, P. D., Gross, J. J., & Jackson, J. J. (2017). Why are extroverts more satisfied? Personality, social experiences, and subjective well-being in college. *European Journal of Personality, 31*, 170–186. <http://dx.doi.org/10.1002/per.2101>
- Hur, J. L., & Gupta, M. (2013). Growing up in the web of social networking: Adolescent development and social media. *Adolescent Psychiatry, 3*(3), 233–244. <http://dx.doi.org/10.2174/2210676611303030004>
- Hayes, M., van Stolk-Cooke, K., & Muench, F. (2015). Understanding Facebook use and the psychological affects of use across generations. *Computers in Human Behavior, 49*, 507–511. <http://dx.doi.org/10.1016/j.chb.2015.03.040>
- Jelenchick, L. A., Eichhoff, J. C., & Moreno, M. D. (2013). "Facebook depression?" Social networking site use and depression in older adolescents. *Journal of Adolescent Health, 52*, 128–130. <http://dx.doi.org/10.1016/j.jadohealth.2012.05.008>
- Johnston, K., Tanner, M., Lalla, N., & Kowalski, D. (2013). Social capital: the benefit of Facebook 'friends'. *Behaviour & Information Technology, 32*(1), 24–36. <http://dx.doi.org/10.1080/0144929X.2010.550063>
- Kalpidou, M., Costin, D., & Morris, J. (2011). The relationship between Facebook and well-being of undergraduate college students. *Cyberpsychology, Behavior, and Social Networking, 14*(4), 183–189. <http://dx.doi.org/10.1089/cyber.2010.0061>
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS ONE, 8*(8), e69841. <http://dx.doi.org/10.1371/journal.pone.0069841>
- Lai, H.-M., Hsieh, P.-J., & Zhang, R.-C. (2019). Understanding adolescent students' use of Facebook and their subjective wellbeing: a gender-based comparison. *Behaviour & information technology, 38*(5), 533–548. <http://dx.doi.org/10.1080/0144929X.2018.1543452>
- Laverdière, O., Diguier, L., & Gamache, G. (2007). *French Canadian adaptation of the MINI-IPIP: A short measure of the Big Five*. (Manuscript submitted for publication).
- Liu, D., Wright, K.-B., & Hu, B. (2018). A meta-analysis of social network site use and social support. *Computers & Education, 127*, 201–213. <http://dx.doi.org/10.1016/j.compedu.2018.08.024>
- Liu, C.-Y., & Yu, C.-P. (2013). Can Facebook use induce well-being? *Cyberpsychology, Behavior, and Social Networking, 16*(9), 674–678. <http://dx.doi.org/10.1089/cyber.2012.0301>
- Lo Coco, G., Maiorana, A., Mirsola, A., Salerno, L., Boca, S., & Profita, G. (2018). Empirically-derived subgroups of Facebook users and their association with personality characteristics: a Latent Class Analysis. *Computers in Human Behavior, 86*, 190–198. <http://dx.doi.org/10.1016/j.chb.2018.04.004>
- Lönngqvist, J.-E., & Itkonen, J. V. A. (2014). It's all about extraversion: Why Facebook friend count doesn't count towards well-being. *Journal of Research in Personality, 53*, 64–67. <http://dx.doi.org/10.1016/j.jrp.2014.08.009>
- Manago, A. M., Taylor, T., & Greenfield, P. M. (2012). Me and my 400 friends: The anatomy of college students' Facebook networks, their communication patterns, and well-being. *Developmental Psychology, 48*(2), 369–380. <http://dx.doi.org/10.1037/a0026338>
- Marino, C. (2018). Quality of social-media use may matter more than frequency of use for adolescents' depression. *Clinical Psychological Science, 6*(4), 455. <http://dx.doi.org/10.1177/2167702618771979>
- Marino, C., Vieno, A., Pastore, M., Albery, I. P., Frings, D., & Spada, M. M. (2016). Modeling the contribution of personality, social identity and social norms to problematic Facebook use in adolescents. *Addictive Behaviors, 63*, 51–56. <http://dx.doi.org/10.1016/j.addbeh.2016.07.001>
- Martin-Krumm, C., Kern, L., Fontayne, P., Romo, L., Boudoukha, A. H., & Boniwell, I. (2015). French adaptation of the Orientation to Happiness Scale and its relationship to quality of life in French students. *Social Indicators Research, 124*(1), 259–281. <http://dx.doi.org/10.1007/s11205-014-0774-8>
- McAndrew, F. T., & Jeong, H. S. (2012). Who does what on Facebook? Age, sex, and relationship status as predictors of Facebook use. *Computers in Human Behavior, 28*, 2359–2365. <http://dx.doi.org/10.1016/j.chb.2012.07.007>
- McCord, B., Rodebaugh, T. L., & Levinson, C. A. (2014). Facebook: Social uses and anxiety. *Computers in Human Behavior, 34*, 23–27. <http://dx.doi.org/10.1016/j.chb.2014.01.020>
- Nabi, R. L., Prestin, A., & So, J. (2013). Facebook friends with (health) benefits? Exploring social network site use and perceptions of social support, stress, and well-being. *Cyberpsychology, Behavior, and Social Networking, 16*(10), 721–727. <http://dx.doi.org/10.1089/cyber.2012.0521>
- Ormel, J., Rosmalen, J., & Farmer, A. (2004). Neuroticism: A non-informative marker of vulnerability to psychopathology. *Social Psychiatry and Epidemiology, 39*(11), 906–912. <http://dx.doi.org/10.1007/s00127-004-0873-y>
- Pantic, I., Damjanovic, A., Todorovic, J., Topalovic, D., Bojovic-Jovic, D., Ristic, S., & Pantic, S. (2012). Association between online social networking and depression in high school students: Behavioral physiology viewpoint. *Psychiatra Danubina, 24*(1), 90–93.
- Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full versus the empty life. *Journal of Happiness Studies, 6*, 25–41. <http://dx.doi.org/10.1007/s10902-004-1278-z>
- Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & Everette, J. A. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. *Computers in Human Behavior, 69*, 1–9. <http://dx.doi.org/10.1016/j.chb.2016.11.013>
- Przybylski, A. K., Weinstein, N., Ryan, R. M., & Rigby, S. (2009). Having versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. *CyberPsychology & Behavior, 12*(5), 485–492. <http://dx.doi.org/10.1089/cpb.2009.0083>
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. <http://dx.doi.org/10.1146/annurev.psych.52.1.141>
- Ryan, T., & Xenos, S. (2011). Who uses Facebook? An investigation into the relationship between the Big Five, shyness, narcissism, loneliness, and Facebook usage. *Computers in Human Behavior, 27*, 1658–1664. <http://dx.doi.org/10.1016/j.chb.2011.02.004>
- Scherr, S., Toma, C. L., & Schuster, B. (2018). Depression as a predictor of Facebook surveillance and envy. *Journal of Media Psychology, 10*(1). <http://dx.doi.org/10.1027/1864-1105/a000247>
- Schulenberg, J. E., & Zarrett, N. R. (2006). Mental health during emerging adulthood: Continuity and discontinuity in courses, causes, and functions. In J. J. Arnett, & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century* (pp. 135–172). Washington, DC: American Psychological Association.
- Scott, C. F., Bay-Cheng, L. Y., Prince, M. A., Nochajski, T. H., & Collins, R. L. (2017). Time spent online: Latent profile analyses of emerging adults' social media use. *Computers in Human Behavior, 75*, 311–319. <http://dx.doi.org/10.1016/j.chb.2017.05.026>
- Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of Facebook use and relatedness need-satisfaction: Disconnection drives use, and connection rewards it. *Journal of Personality and Social Psychology, 100*(4), 766–775. <http://dx.doi.org/10.1037/a0022407>
- Shensa, A., Escobar-Viera, C. G., Sidani, J. E., Bowman, N. D., Marshal, M. P., & Primack, B. A. (2017). Problematic social media use and depressive symptoms among U.S. young adults: A nationally-representative study. *Social Science & Medicine, 182*, 150–157. <http://dx.doi.org/10.1016/j.socscimed.2017.03.061>
- Shensa, A., Sidani, J. E., Dew, M. A., Escobar-Viera, C. G., & Primack, B. A. (2018). Social media use and depression and anxiety symptoms: A cluster analysis. *American Journal of Health Behavior, 42*(2), 116–128. <http://dx.doi.org/10.5993/AJHB.42.2.11>
- Simoncic, T. E., Kuhlman, K. R., Vargas, I., Houchins, S., & Lopez-Duran, N. L. (2014). Facebook use and depressive symptomatology: Investigating the role of neuroticism and extraversion in youth. *Computers in Human Behavior, 40*, 1–5. <http://dx.doi.org/10.1016/j.chb.2014.07.039>
- Stieger, S., Burger, C., Bohn, M., & Voracek, M. (2013). Who commits virtual identity suicide? Differences in privacy concerns, internet addiction, and personality between Facebook users and quitters. *Cyberpsychology, Behavior, and Social Networking, 16*(9), 629–634. <http://dx.doi.org/10.1089/cyber.2012.0323>
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson.
- Vallerand, R. J. (1989). Vers une méthodologie de validation transculturelle de questionnaires psychologiques : implications pour la recherche en langue française [Toward a methodology for the transcultural validation of psychological questionnaires: Implications for research in the French language]. *Canadian Psychology/Psychologie Canadienne, 30*(4), 662–689. <http://dx.doi.org/10.1037/h0079856>
- Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., & Kross, E. (2015). Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology: General, 144*(2), 480–488. <http://dx.doi.org/10.1037/xge0000057>
- Whaite, E. O., Shensa, A., Sidani, J. E., Colditz, J. B., & Primack, B. A. (2018). Social media use, personality characteristics, and social isolation among young adults in the United States. *Personality and Individual Differences, 124*, 45–50. <http://dx.doi.org/10.1016/j.paid.2017.10.030>
- Wilson, K., Fornasier, S., & White, K. M. (2010). Psychological predictors of young adults' use of social networking sites. *Cyberpsychology, Behavior, and Social Networking, 13*(2), 173–177. <http://dx.doi.org/10.1089/cyber.2009.0094>
- Zammit, K. B. (2008). *Examining the use of social media among four-H alumni in Louisiana. (Mémoire de maîtrise non publié)*. Thibodaux, Louisiana: Nicholls State University.