



Social network sites as a means to support personal social capital and well-being in older age: An association study



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ABSTRACT

This study aims to gain a better understanding of the potential benefits of social network sites (SNS) as a means to help support personal social capital and well-being of older adults. Results are reported of a cross-sectional study in which a sample of Dutch older adults ($n = 410$) with a social network site account and varying in age from 50 to 93 ($M=64.6$, $SD = 8.2$) filled out a questionnaire including validated scales measuring SNS use, personal bonding and bridging social capital and psychological, social and emotional well-being. Regression analyses including relevant covariates supported our hypotheses that; (1) SNS use is positively associated with personal bonding social capital; (2) SNS use is positively associated with personal bridging social capital; (3) SNS use is positively associated with psychological well-being and (4) SNS use is positively associated with social well-being. No significant association was found between SNS use and emotional well-being. Although no conclusions of causality can be drawn, these results support the assumed potential of SNS as a means to help preserve personal social capital and well-being at an older age and add to the, still limited, research literature on this topic. Theoretical and practical implications of these findings are discussed.

1. Introduction

Whereas social media use was until recently mostly associated with younger generations, the use of social network sites (SNS) among older adults is steadily growing (CBS, 2019; Eurostat, 2019). In the European Union the percentage of people aged 55 to 74 years participating in social networks grew from 11% in 2011 to 29% in 2019. In the Netherlands SNS use among this age group and in this period of time increased from 15% to 46% (Eurostat, 2019). SNS can be described as a form of computer mediated communication (CMC), that provides a digital platform or environment which allows for interaction and sharing all sorts of information (text, images, audio, video) with both known and unknown others, as well as allowing access to what (un)known others either publicly or privately share. The association between CMC and well-being has been increasingly studied in the last two decades (e.g. Liu, Baumeister, Yang, & Hu, 2019; Schiffrin, Edelman, Falkenstern, & Stewart, 2010; Valkenburg & Peter, 2007), resulting in diverse findings due to mediating factors such as culture, psychological functioning, and other personal circumstances (Castellacci & Tveito, 2018; Liu et al., 2019). In

our study, we focus on the association between use of SNS and well-being of elderly, as this extensive type of CMC appears to contain diverse applications that address different challenges typical of this age group (Chen & Li, 2017).

In theory, SNS offer endless social interaction and participation opportunities, regardless of physical abilities and mobility (Chen & Li, 2017) and in doing so, may help preserve social capital of older adults (Burke, Marlow, & Lento, 2010; Chen & Schulz, 2016; Utz & Muscanell, 2015) and add to their mental well-being (Chan, 2018a; Ingen et al., 2017). Research regarding these assumed potential benefits of SNS is still limited (Barbosa Neves, Fonseca, Amaro & Pasqualotti, 2018) and sometimes contradictory (e.g. Ryan, Allen, Gray, & McInerney, 2017). The current study aims to contribute to the general understanding of the associations between SNS use and respectively personal social capital and mental well-being of older adults.

As mentioned earlier, SNS offer opportunities to overcome several of the challenges that elderly are facing (Chen & Li, 2017). Elderly are more likely to experience a decrease in activity (e.g. work) and mobility, in addition to loss of loved ones and other events (Forsman, Herberts,

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Nyqvist, Wahlbeck & Schierenbeck, 2013), which may result in a decrease in social interaction and participation in social networks (Forte, 2009). This may in turn lead to less social capital (Chippis & Jarvis, 2016; Cornwell & Waite, 2009), while these very same events may increase the need for social support (Machielse & Duynham, 2020). Social capital can hereby be interpreted as 'features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit' (Putnam, 1995: 67) and is usually considered to consist of the two dimensions *bridging* and *bonding* (Putnam, 2000). Bridging social capital concerns relatively weak and business-like connections in mostly larger networks (Bourdieu & Wacquant, 1992; Zhang, Anderson, & Zhan, 2011). Bonding social capital refers to more intimate relationships in a closer social circle and provides social and emotional resources (Liu, Ainsworth, & Baumeister, 2016).

As mobility decreases, SNS can provide for a means to still be part of a (digital) community, interact with friends and family that are difficult to visit, and participate in online activities (Chen & Schulz, 2016). Although research findings concerning these potential benefits in both younger and older populations are not yet conclusive (Barbosa Neves, Amaro, & Pasqualotti, 2018; Ryan et al., 2017), there is growing evidence for a positive association between SNS use and social capital (Chen & Li, 2017; Chen & Schulz, 2016; Ryan et al., 2017). Burke Marlow and Lento (2010) and Ryan et al. (2017) for instance, found positive associations between social capital and the use of social media, although the latter study also found that excessive social media use can be associated with experiences of weakening friendships and loneliness. Chen and Li (2017) found positive associations between mobile social media use and psychological well-being, mediated by social capital in a general Hong Kong population. Hajek and König (2019) found that daily users of online social networks scored lower on social isolation than less-frequent users and non-users. In a review by Chen and Schulz (2016), information and communication technology (ICT) interventions were found to positively affect social support, social connectedness and social isolation of elderly, although no clear results were found for loneliness. Other studies also indicate that the use of online social networks may not be related to loneliness (Aarts Peek & Wouters, 2014; Van Ingen, Rains, & Wright, 2017). In our study, it is hypothesised that, as SNS can help to increase or create opportunities for social interaction and participation, the use of SNS will be positively associated with both bridging and bonding social capital.

The still limited research literature, concerning the relationship between SNS use and mental wellbeing, which often involves social connectedness and related concepts as indicators or enhancers of subjective wellbeing (e.g. Chan, 2018a; Chopik, 2016; Hajek & König, 2019; Szabo, Allen, Stephens, & Alpass, 2019; Yu, McCammon, Ellison, & Langa, 2016), reveals varying results. Chan (2018a) for instance, studied the association between digital communication and psychological well-being across the lifespan and found that for older cohorts, having access to different (digital) communication channels can induce behaviour that enhances psychological well-being. Szabo et al. (2019) stress that Internet use can support the well-being of elderly, but this impact varies with the type (social, instrumental or informational) of use. Yet another study found that the negative impact of functional disability on well-being in elderly was less when they used SNS more (Van Ingen et al., 2017).

Traditionally, three elements of well-being are being distinguished. *Social* well-being refers to someone's functioning in their community and society, *psychological* well-being applies to effective functioning and self-realisation, and *emotional* well-being comprises someone's subjective affective experiences in terms of positive and negative affect (Keyes et al., 2008; Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011). The limited research literature discussed above mostly addresses social and psychological well-being. In addition to the opportunities SNS may offer to communicate and participate in social communities, the use of SNS may induce feelings of competence in older adults. As the continuously developing information and communication technologies become

increasingly intertwined with our lives, digital skills may become an important asset to function effectively in society and maintain a sense of control (Hasan & Linger, 2016). Thus both social well-being, including aspects of social integration and social coherence (Keyes, 1998), and psychological well-being, measured in dimensions such as personal growth, a sense of control and competence (Ryff, 1989; Ryff & Singer, 1998) can be assumed to benefit from using digital skills. We therefore expect to find positive associations between the use of SNS and both social well-being and psychological well-being.

This line of reasoning seems less applicable to emotional well-being, measured by experiences of positive affect and someone's perceived life satisfaction (Diener, Suh, Lucas, & Smith, 1999; Keyes, 2009), which has been even less addressed yet in the research literature. One recent study found a positive association between life satisfaction and the amount of connections on Facebook in both younger and older populations, while no association was found with sharing information through this network (Kim & Shen, 2020). Another study found neither a positive nor a negative significant association between the use of Facebook by mobile phone and emotional well-being in older adults (55–70+ years) (Chan, 2018b). In younger populations research of the relationship between SNS use and emotional well-being is more amply available, indicating that this association can be both positive and negative (Sabatini & Sarracino, 2017; Yang, 2020), due to a variety of mediating factors, such as self-esteem (Chen, Fan, Liu, Zhou, & Xie, 2016) or active versus passive use (Hanley, Watt, & Coventry, 2019). Also earlier mentioned research literature indicating that no association exists between SNS use and loneliness (Aarts, Peek, & Wouters, 2014; Chen & Schulz, 2016; Van Ingen et al., 2017), calls for caution regarding the association between emotional well-being and SNS use.

In summary we will examine the assumed positive associations between SNS use and both personal bonding social capital (hypothesis 1) and personal bridging social capital (hypothesis 2) and between SNS use and both psychological well-being (hypothesis 3) and social well-being (hypothesis 4). We will also explore the association between SNS use and emotional well-being, as we could not yet support a hypothesis concerning this association with previous literature and sufficient argumentation.

2. Method

2.1. Procedure and sample

After the study was approved by the local research ethics committee, data was collected in two rounds. First, several Dutch senior associations - linked to the Dutch Federation of General Senior Associations (www.FASv.nl) - were sent a request to invite their members to take part in this research. In addition, data were collected by undergraduate students of the Open University of the Netherlands as part of their bachelor thesis and supervised by a senior researcher. Age (≥ 50 years), an account on at least one social network site, sufficient command of the Dutch language to understand instructions, and given informed consent were applied as inclusion criteria. The questionnaire was submitted by a total sample of 410 respondents, (of which 186 respondents were recruited in the first round and 221 respondents in the second), varying in age from 50 to 93 years ($M=64.6$, $SD = 8.2$).

2.2. Data collection

The questionnaire (available online and printed) started with a consent page that, in accordance to the American Psychological Association Ethical principles of psychologists and code of conduct (American Psychological Association, 2010), explained that participation was on a voluntary basis and that the participant could stop at any time without reason and without (adverse) consequences. It also explained that by submitting their answers, participants consented to the careful and secure anonymous use of the data for this study, in compliance with their

privacy rights. All respondents chose to fill out the online version of the questionnaire.

2.3. Measurement

2.3.1. Personal social capital

Personal bonding and bridging social capital were measured with the Personal Social Capital Scale for the Elderly (PSCSE, [Simons et al., 2020](#)) - a validated Dutch adaptation of the Personal Social Capital Scale ([Chen, Stanton, Gong, Fang, & Li, 2009](#)) - measuring bridging social capital ($\alpha = .87$) and bonding social capital ($\alpha = .88$) ([Simons et al., 2020](#)). The subscale bonding social capital consists of 21 items addressing different aspects of someone's social environment. These items are distributed over five categories and scored on a 5-point Likert scale (5 = many; 4 = reasonably many; 3 = some; 2 = few; 1 = none). Four categories include each a statement - respectively (1) "I have close friends"; (2) "I keep a routine contact with close friends"; (3) "I have close friends that I can trust"; and (4) "I can ask close friends for help" - that was repeatedly scored for four different social groups (family members/relatives; close friends; acquaintances; others). The fifth category consists of five items, not addressing particular social groups, but someone's access to certain resources via personal social networks (e.g. "I know people with certain political or other influential power" or "I know people with broad social connections"). Bonding social capital was then calculated by adding the mean scores of each category.

The subscale bridging social capital consists of 16 items, addressing either *government/corporate/social organisations* or *cultural/recreational/leisure organisations* in someone's social environment. These items are again distributed over five categories and scored on a 5-point Likert scale (5 = many; 4 = reasonably many; 3 = some; 2 = few; 1 = none). Categories 1 to 4 include each one statement that was scored for both types of organisations mentioned above (and thus contain each 2 items). These statements are respectively for category 1 "As far as I know, ... organisations can be found in my area"; for category 2 ".... of these organisations represent my rights and interests"; for category 3 "I participate in or am a member of of these organisations"; and for category 4 "If I need help, I can call upon of these organisations". The fifth category consists of 4 statements addressing connections and influence of either type of organisations (e.g. ".... of these organisations have (political) power or influence on (local) decision making" and ".... of these organisations have broad social connections") and thus contained 8 items. Bridging social capital was then calculated by adding the mean scores of each category.

2.3.2. Mental well-being

Well-being was measured by the Dutch Continuum Mental Health Short Form (MHC-SF, [Lamers et al., 2011](#)), which allows to differentiate between *social well-being* (5 items; e.g. "How often did you feel that our society is becoming a better place for people"), *psychological well-being* (6 items; e.g. "How often did you feel that you have experiences that challenge you to grow and become a better person?") and *emotional well-being* (3 items; e.g. "How often did you feel satisfied?"). Participants were asked to respond to these items on a 6-point Likert scale, (1 = never; 2 = once or twice; 3 = about once a week; 4 = 2 or 3 times a week; 5 = almost every day; and 6 = every day), based on their experiences during the last month. Mean scores for each subscale were computed.

2.3.3. SNS use

Respondents were asked to fill out an SNS scale, for which we used the Facebook intensity scale by [Ellison, Steinfeld and Lampe \(2007\)](#), applied to any of the social network sites the respondents had indicated to use. This scale incorporates emotional connectedness to the social network site and its integration into individuals' daily activities, as well as duration of use and quantity of contacts ([Ellison, Steinfeld, & Lampe, 2007](#)). The scale contains 8 items of which the first two address respectively the duration of use and the quantity of contacts.

Respondents were asked to indicate approximately how much time per day they had spent on SNS during the last week (less than 10 minutes per day, 10–30 minutes per day, 31–60 minutes per day, 1–2 hours per day, 2–3 hours per day, more than 3 hours per day) and how many friends or connections they have on their most used SNS (1–10, 11–50, 51–100, 101–150, 151–200, 201–300, 301–400, 401–600, 601–800, 801–1000, 1001+). The remaining 6 items contained statements about SNS that respondents could answer on a 5-point Likert scale (1 strongly disagree - 5 strongly agree) such as "SNS have become part of my daily routine", and "I feel part of a social media community". The overall score for SNS use was computed by adding standardised scores of SNS use statements, time using SNS and contacts on SNS.

As this intensity scale does not measure what kind of actions respondents perform whilst using SNS, we additionally asked respondents to further illustrate their use of SNS by indicating for each network site they used, how frequently (1 = daily, 2 = weekly, 3 = monthly, or 4 = less) they *looked* at the respective social network sites, *posted* themselves or *reacted* to posts of others. This allows us to better understand what kind of use may be involved in the assumed associations.

2.3.4. Demographic variables and covariates

In addition to gender and age, we included the confounders relationship (0 = no partner; 1 = with partner), and perception of physical health on a 5-point scale from 1 (very poor) to 5 (excellent), as these are likely to undergo changes in older age and were found to be positively associated with mental well-being in earlier research (e.g. [Cho, Martin, Margrett, MacDonald, & Poon, 2011](#); [Hooghe & Vanhoutte, 2011](#)).

Additionally, we included the demographic variables *education* (0 = high school/vocational education or less, 1 = undergraduate degree or higher) and *financial resources*, both found to be positively related to (overall) social capital ([Han, Chu, Song, & Li, 2015](#); [Zhang et al., 2011](#)). We measured the latter as financial resources to provide for oneself and (future) needed care (1 = definitely enough, 2 = probably enough, 3 = probably not enough, 4 = definitely not enough), which we preferred over the assessment of income, as it was assumed that a considerable part of our sample was no longer employed. Also, respondents were asked to indicate whether they participated in (volunteer) work, which can be assumed to be valuable for the social network of older adults ([Li & Ferraro, 2006](#)). Finally respondents were asked to indicate whether they were living independently or resided either with a relative or in a nursing home, which can be of influence on someone's social environment ([Chippis & Jarvis, 2016](#)).

2.4. Analysis

Reliability scores (Cronbach's alpha) of scales were computed as well as (Pearson's) correlations between main study variables. Confirmatory factor analysis (CFA) ([Grujters, 2019](#)) was performed to confirm respectively the two factor structure of the social capital scale (PSCSE) and three factor structure of the well-being scale (MHC-SF). For these analyses the goodness of fit (GFI) > .9, the comparative fit index (CFI) ≥ .9 and the standardized root-mean-square residual (SRMR) ≤ .10 ([Hu & Bentler, 1999](#)) were used as evaluation criteria.

Furthermore, the different actions of SNS use - for the most frequently indicated used network site - were described.

Addressing hypotheses 1 and 2, we examined the associations between SNS use (independent variable) and respectively bonding social capital and bridging social capital (dependent variables) with regression analysis (Enter, stepwise).

Secondly, separate regression analyses (Enter, stepwise) were used to examine the association between SNS use (independent variable) and respectively the subscales social and psychological well-being (dependent variables) - addressing hypotheses 3 and 4 - as well as emotional well-being (dependent variable) to further explore this association.

All analyses included the a priori defined covariates gender, age, health, relationship, work, level of education and financial resources.

Also the round in which the data were collected was controlled for in the analyses.

For the statistical analysis, SPSS version 24 (IBM Corp. in Armonk, NY) was used. For the CFA Lavaan (Rosseel, 2012) was used R/Rstudio version 4.0.3.

3. Results

3.1. Demographics, descriptives and correlations

Demographic information of our sample is displayed in Table 1. As more than 97 per cent of the respondents was living independently, the confounder residential situation was not further included in the analyses.

Descriptives reliability of scales and correlations between main study variables are displayed in Table 2. CFA of the two-factor structure of the PSCSE and the three-factor structure of the MHC_SF resulted in respectively scores of $\chi^2(34, n = 410) = 211.088, p < .001$; GFI = .907; CFI = .925; SRMR = .060 for the PSCSE and $\chi^2(74, n = 410) = 306.636, p < .001$; GFI=.904; CFI=.911; SRMR=.054 for the MHC_SF. These results confirmed the assumed structure of both scales.

Among various SNS, Facebook was most frequently used by our sample (92%, $n = 377$), whose actions of use (look, post, and react) are illustrated in Table 3. It can be noted that daily users prefer looking at posts of others and - to a lesser extent - responding to them, rather than posting themselves. Other SNS, used by less respondents (Instagram, 25.4%, $n = 104$; LinkedIn, 41%, $n = 168$; other, 0%), showed similar patterns of this mostly passive or reactive use.

3.2. SNS use and personal bonding and bridging social capital

The results as displayed in Table 4 show significant positive associations between SNS use and respectively bonding social capital ($\Delta R^2=.03, \beta=.18, p < .001$), and bridging social capital ($\Delta R^2=.03, \beta=.18, p < .001$), which support hypotheses 1 and 2. More SNS use is associated with both more bonding and bridging social capital. The covariates health, education, financial resources and work were positively associated with both bonding and bridging social capital as well. The covariate dataset was negatively associated with bridging social capital, indicating that being in the first group of respondents (round 1) is associated with experiencing more bridging social capital.

Table 1
Demographic variables.

Age <i>M(SD)</i>		64.64(8.22), range 50–93
Gender	male	45.6% ($n = 187$)
	female	54.4% ($n = 223$)
Relationship	yes	81% ($n = 332$)
	no	18.5% ($n=76$)
	missing	0.5% ($n = 2$)
Residential situation	independent	97.3% ($n = 399$)
	independent with care at home	1.5% ($n = 6$)
	living in with relative or in nursing home	0.5% ($n = 2$)
	missing	0.7% ($n = 3$)
Education	low	47.3% ($n = 194$)
	high	52.7% ($n = 216$)
Health (self-report)	poor	0.7% ($n = 3$)
	moderate	9.5% ($n = 39$)
	good to excellent	89.9% ($n = 368$)

Note. $n = 410$.

3.3. SNS use and subscales of well-being

The results as displayed in Table 5 show significant positive associations between SNS use and both psychological wellbeing ($\Delta R^2=.01, \beta=.11, p = .035$) and social well-being ($\Delta R^2=.02, \beta=.15, p = .002$). No significant association between emotional well-being and SNS use was found. Perception of physical health was positively associated with both emotional and psychological well-being and female respondents experienced more emotional well-being than male respondents in our sample. Psychological well-being was negatively associated with age. The covariates dataset, work and financial resources were found to be significant factors explaining variance in social well-being.

Although the found associations explain a relatively small part of variance in psychological and social well-being, these findings are supportive of hypotheses 3 and 4 indicating that more use of SNS is associated with more social and psychological well-being.

4. Discussion

We explored the relationship between SNS use, social capital and well-being of older adults assuming that SNS may help overcome challenges that they are facing, and in doing so may help support both their personal social capital (Burke et al., 2010; Chen & Schulz, 2016; Utz & Muscanell, 2015) and mental well-being (Chan, 2015, 2018a; Van Ingen et al., 2017).

SNS use was measured as the emotional connectedness to SNS and its integration into daily activities as well as duration of SNS use and quantity of contacts. This indication of the extent to which SNS has become part of someone’s toolbox for regular communication activities was found to be positively associated with both personal bonding and bridging social capital, supporting our first and second hypotheses. We also observed positive associations between SNS use and respectively psychological and social well-being, supporting our third and fourth hypotheses. Social well-being concerns someone’s functioning in their own social environment or community and society in general, (Keyes, 1998). It can be argued that being part of a digital community, such as Facebook, allows people to feel socially more involved with others (especially if they are not part of their daily routines in the physical world) and lowers the threshold to communicate with (more distant) others (Ellison et al., 2007). Psychological well-being involves effective functioning and self-realisation and includes a sense of control and competence (Ryff & Singer, 1998). Being part of a digital community may therefore not only be related to some level of social involvement, but may also include feelings of competence to keep up with society and technological developments (Chen & Schulz, 2016).

No association was found between SNS use and emotional well-being and our data do not provide information for a further explanation. Maybe Yoo and Jeong’s (2017) finding of the association between SNS use and life satisfaction, being positively moderated by social capital, can provide us with a lead for better understanding this association. Although this research was done in a younger population, it does seem plausible that SNS use may distance an already rather isolated person from others, resulting in less life satisfaction than somebody, using SNS to support his or her elaborate social network, will experience. Self-esteem (Chen et al., 2016; Zell & Moeller, 2018) and type of use (Hanley et al., 2019) may be other possible interfering factors in this association.

No conclusions can be drawn about the direction of our found associations. It may for instance also be the case that older adults who have either more bonding or bridging social capital are more inclined to use SNS for communication activities. Still, considering the ability of SNS to bridge physical distance and allow access to important others and social communities, our findings strengthen the belief that SNS use can help preserve social capital and enhance well-being of older adults, supported by several other studies in older populations (Chen & Li, 2017; Chen & Schulz, 2016; Szabo et al., 2019; Van Ingen et al., 2017).

Table 2
Descriptives, reliability and correlations of main study variables.

n = 410	α	Mean	SD	Min	Max	Pearson's correlation				
						1	2	3	4	5
1. PSCSE-bonding	.88	15.89	2.89	8.70	24.50	1				
2. PSCSE-bridging	.88	12.27	3.35	5.00	22.38	.53***	1			
3. Social well-being	.77	3.63	1.07	1	6	.37***	.39***	1		
4. Psychological well-being	.84	4.41	.99	1	6	.33***	.21***	.68***	1	
5. Emotional well-being	.85	4.83	.94	1	6	.28***	.12***	.52***	.64***	1
6. SNS use (standardized) ¹	.85	.00	5.55	-11.19	12.95	.16**	.14**	.16**	.10*	.01

Note. ¹computed by adding standardised scores of SNS use statements, time using SNS and contacts on SNS. *p < .05, **p < .01, ***p < .001.

Table 3
Frequency of actions in SNS use (Facebook).

	Daily	weekly	monthly	less
Look	72.4% (n = 273)	20.2% (n = 76)	3.7% (n = 14)	3.7% (n = 14)
Post	6.1% (n = 23)	21.5% (n = 81)	23.9% (n = 90)	48.5% (n = 183)
React to posts of friends	26.8% (n = 101)	41.1% (n = 155)	12.5% (n = 47)	19.6% (n = 74)
React to posts of others	3.4% (n = 13)	15.6% (n = 59)	8.2% (n = 31)	72.7% (n = 274)

Note. Facebook users (n = 377), representing 92.0% of total group of SNS users.

Table 4
Results of regression analysis of association between SNS use and bonding and bridging social capital.

dependent variable	Bonding social capital			Bridging social capital			
	predictor	B(SE)		B (SE)	95% CI		
		LL	UL		LL	UL	
dataset		-.07(.13)	-.32 .18	-.32*(.13)	-.57	-.07	
age		-.05(.07)	-.19 .08	.10(.07)	-.04	.23	
gender		-.14(.11)	-.35 .07	-.09(.11)	-.30	.12	
Partner		.18(.13)	-.07 .43	.10(.13)	-.15	.35	
Health		.14(.05)**	.04 .24	.05(.05)	-.05	.14	
education		.22*(.10)	.03 .41	.26**(.10)	.07	.45	
financial resources		.41***(.10)	.21 .60	.40***(.10)	.21	.60	
work		.27*(.12)	.05 .50	.67***(.12)	.45	.90	
SNS use		.03***(.01)	.02 .05	.03***(.01)	.02	.05	
		Adj. R ² = .13			Adj. R ² = .16		
		F(9,371) = 7.40, p < .001			F(9,371) = 9.17, p < .001		

Note. Model: Enter, *p < .05, **p < .01, ***p < .001. Dataset (0 = first round, 1 = second round; Gender (0 = female, 1 = male); partner (0 = no, 1 = yes). Standardised scores were included for bonding social capital, bridging social capital, health, age and SNS use.

Table 5
Results of regression analysis of association between SNS use and subscales of well-being.

dependent variable	Emotional well-being			Psychological well-being			Social well-being			
	predictor	B(SE)		B(SE)	95% CI		B(SE)	95% CI		
		LL	UL		LL	UL		LL	UL	
dataset		-.17(.14)	-.44 .10	-.22(.13)	-.48	.05	-.41**(.13)	-.67	-.14	
age		-.01(.07)	-.16 .14	-.18*(.07)	-.32	-.04	-.08(.07)	-.23	.06	
gender		-.25*(.11)	-.47	-.03	.08(.11)	-.14	-.06(.11)	-.28	.16	
partner		.21*(.13)	-.06	.47	-.02(.13)	-.27	-.16(.13)	-.42	.10	
health		.18**(.05)	.07	.28	.16**(.05)	.05	.05(.05)	-.05	.16	
education		.08(.10)	-.12	.28	.13(.10)	-.08	.11(.10)	-.09	.31	
financial resources		.18(.11)	-.03	.39	.19(.11)	-.02	.40	.22*(.11)	.01	
work		-.08(.12)	-.32	.16	-.02(.12)	-.25	.22	.39**(.12)	.15	
SNS use		.004(.01)	-.02	.02	.02*(.01)	.001	.04	.03**(.01)	.01	
		Adj. R ² = .07			Adj. R ² = .05			Adj. R ² = .07		
		F(9,371) = 2.89, p = .003			F(9,371) = 3.13, p = .001			F(9,371) = 4.10, p < .001		

Note. Model: Enter, *p < .05, **p < .01. Dataset (0 = first round, 1 = second round; Gender (0 = female, 1 = male); partner (0 = no, 1 = yes). Standardised scores were included for emotional well-being, psychological well-being, social well-being, health, age and SNS use.

As we also investigated the frequency of different possible actions of SNS use, the found associations could be further explored. The majority of our sample consisted of quite passive and reactive Facebook users, rather reading other people's posts and reacting to some, than sharing information themselves. This type of use may be characteristic for the age group that we studied as they are less inclined to share their whereabouts online, than younger generations seem to be (Brandtzæg, Lüders, & Skjetne, 2010; Waycott et al., 2013). This prompts us not to let our research of the potential of SNS for older adults be guided by the type of use of the current majority, which consists predominantly of younger generations. Their use of SNS for self-disclosure and sharing profiles on public platforms or chatting and texting constantly with peers, may not do justice to the potential value SNS may have for older generations. Also contrary to our findings, studies of SNS use in younger generations (e.g. college students) found negative associations between passive use of SNS and subjective well-being (Chen et al., 2016; Wang, Gaskin, Rost, & Gentile, 2018) versus positive associations between more active SNS use and well-being (e.g. Lee, Lee, & Kwon, 2011). This also indicates that the potential value (or threat) of SNS use varies both with type of use and the age cohort someone belongs to.

To explore and benefit from the potential value of SNS for older adults we should rather consider the actual characteristics of SNS and communication technology in more general, and apply these to their specific needs and challenges. For current older generations these valuable characteristics appear to be granting access to social interaction and activities, regardless of physical abilities and mobility (Chen & Li, 2017) as well as a wide variety of (information) services and entertainment.

4.1. Critical notes and further research

Our sample included a wide age range and consisted of merely healthy and quite active older adults, still living independently in their own home, and not yet confronted much with the discussed life events that may affect their social capital or well-being. Also our dataset was

formed by merging two datasets, collected at different times, and our method of data collection did not allow for obtaining accurate information about the total sampling frame and survey response rate. Fortunately, the sample turned out to be balanced with regard to age, gender, and education level. Also we controlled for the round of data collection in our regression analysis. We found this dichotomous covariate to be a significant factor in the models explaining variance in respectively bridging social capital and social well-being, indicating that being in the first round of data collection was associated with more bridging social capital and social well-being. However no significant difference in means of either of these variables was found between both groups, that may explain these findings.

Considering these remarks, it seems fruitful to further investigate SNS use and other applications of information and communication technologies in samples of older adults that are indeed experiencing physical changes and/or decrease of mobility or loss of partner or close friends. Also moving to a nursing home can have a rather large impact on someone's social environment (Chippis & Jarvis, 2016).

We used validated scales to measure our core variables. It should be taken into consideration however, that The Facebook Intensity Scale that was adapted to measure SNS use -, although reliability and validity have been tested and found sufficient in several studies (e.g. Jenkins-Guarneri, Wright, & Johnson, 2013; Orosz, Tóth-Király, & Böthe, 2016) – was found to be lacking a formal kind of systematic validation in a recent review of psychometric properties of measurements of SNS engagement by Sigerson and Cheng (2018).

Our cross-sectional data does not allow conclusions about any causality of the found associations. However, considering the positive relationship between social capital and well-being found in earlier research (Biddle, 2012; Cramm, Dijk, & Nieboer, 2012; Chippis & Jarvis, 2016; Forsman, Giuntoli, & Cattani, 2013; Keating, Swindle, & Foster, 2005; Nyqvist et al., 2013), it does seem plausible that social capital (partly) mediates the relationship between SNS use and well-being. This notion corresponds with findings in the earlier mentioned study of Chen and Li (2017), examining the mediating role of bonding social capital in the association between mobile social media use and psychological well-being in a general population. Also Chan (2015; 2018a) suggests that social capital has a mediating role between communication activities (either digital or physical) and well-being. The socio-emotional selectivity theory (SEST, Carstensen, Fung, & Charles, 2003), which argues that people at an older age tend to experience a need for socio-emotional resources (Carstensen, Mikels, & Mather, 2006) and thus prefer social relationships that are emotionally important and valuable (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; English & Carstensen, 2014) may indicate that this assumed mediation will probably involve bonding social capital rather than bridging social capital. A recent study that indeed found bonding social capital to be stronger associated with well-being that bridging social capital in an older population (Simons et al., 2020), supports this line of reasoning.

Further and preferably longitudinal and experimental research, to examine a mediating role of social capital in the relationship between SNS use and well-being, as well as a further exploration of how to match the media characteristics with the challenges and needs at older age, seem expedient. Using SEM analysis to address our mediation research question would allow us to also better consider the correlations between the subdimensions of well-being (Lamers et al., 2011) in our model.

Following a sample of older adults over the course of a couple of years, provided with a variety of social media tools, would enable us to further explore the actual use and study how to optimize their preferred applications with regard to their needs. As a co-product of such research the positive associations with social and psychological well-being should be taken into consideration as well, as we move towards a more digitalized world in which all age groups should feel competent and included.

4.2. Practical implications

Matching characteristics of SNS and other digital communication technologies with specific needs and challenges of elderly is a first step that should be followed by encouraging and helping older adults to use these technologies to their benefits. Older generations can be reluctant to use newer technologies because of difficulties in learning new functionalities and using them (Embarak, Ismail, & Othman, 2020). This cohort effect, explaining the passive use of SNS found in our sample, can be addressed by both educating older generations in their use of these technologies (Embarak et al., 2020; Kanakaris & Korres, 2021), and by developing more accessible interfaces for older age groups (e.g. Gomes, Duarte, Coelho, & Matos, 2014; Goumopoulos, Papa, & Stavrianos, 2017).

5. Conclusion

We hope to have added to the still limited research literature of the possible benefits of SNS for older adults. The found positive associations between SNS use and respectively bonding and bridging social capital as well as both psychological and social well-being, support the assumed potential of SNS as an aid to preserve social capital and well-being at older age. We believe that older adults with social media skills are better equipped to manage their social network, when faced with life events that may threaten their social capital. It seems fruitful to further investigate the potential of SNS and other social media applications as well as developing interfaces in close cooperation with older age groups, matching applications with their particular needs. Educating older adults and encouraging them to develop digital skills will enable them to continue to communicate and participate, as well as to preserve a feeling of competence and autonomy, in our rapidly developing society.

Ethical standards

This study has been approved by the ethical committee of the Open University Netherlands.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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