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Social media contact with family members and happiness in younger and older adults

Kristiina Tammisalo [a,*], Mirkka Danielsbacka [a,b], Antti O. Tanskanen [b,c], Bruno Arpino [d]

[a] INVEST Research Flagship Centre, University of Turku, Turku, Finland
[b] Population Research Institute, Väestöliitto, Helsinki, Finland
[c] Department of Social Research, University of Turku, Turku, Finland
[d] Department of Statistical Science and Department of Philosophy, Sociology, Education and Applied Psychology, University of Padua, Padua, Italy

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ABSTRACT

Prior literature suggests that social media may increase older adults' well-being because they use social media to communicate with close social ties, such as family members. Despite this potential being recognized and associations between social media and well-being being established among older adults, the role of social media contact (SMC), particularly with family members, as a source of well-being has been little explored. In this study, we tested whether SMC with family members increases happiness for older (68–74 year-old) and younger and middle-aged (19–56 year-old) adults. Using population-based data from Finland, we examined the extent to which self-rated happiness is dependent on the respondents' sustenance of SMC with given family members. This analysis involved 2807 social media users. The family members examined were children and siblings for both generations; in addition, grandchildren for the older generation and parents for the younger generation. Propensity score matching was used to improve the credibility of the estimated associations. Partially supporting the socioemotional selectivity theory (SST), the results show that the older generation has more SMC with family members than the younger generations does; however, SMC with family members did not increase happiness among older adults, as SST suggests. Conversely, for younger adults, SMC with some family members was associated with increased happiness, suggesting that social media may gratify some family-related needs more specific to middle-aged adults than to older adults. This study adds to the knowledge about life-stage specific factors that contribute to subjective well-being in the digital era.

1. Introduction

Social media platforms such as Facebook and Instagram increase the overall potential for communication by overcoming time and location barriers. These platforms allow users to communicate more spontaneously and to more than one recipient at a time which can complement other forms of communication (Danielsbacka, Tammisalo, & Tanskanen, 2023; Dienlin, Masur, & Trepte, 2017). Social media may also gratify a range of idiosyncratic needs in that it provides a wide range of communication affordances, compared to traditional methods of communication (Taipale, 2019). Since social media can complement communication in close relationships, some scholars have considered social media's potential as an enhancer of individuals' well-being (Chan, 2015, 2018; Dienlin et al., 2017; Gazit, Nisim, & Ayalon, 2022; Ishii, 2017; Newman, Stoner, & Spector, 2021; Rosenberg & Taipale, 2022; Vriens & van Ingen, 2018).

Numerous studies have found social media to enhance well-being particularly among older adults (see review by Newman et al., 2021). For instance, social media is associated with the preservation of personal social capital in older age (Simons et al., 2021) as well as various measures of well-being, including life satisfaction (Kim & Shen, 2020; Rosenberg & Taipale, 2022) and lower levels of social isolation and loneliness (Aarts, 2018; Gazit et al., 2022).

However, not all studies have found positive effects of social media (Newman et al., 2021), emphasizing the need for improved understanding of the circumstances in which social media affects well-being and the mechanisms of the effect. One significant factor that determines how social media affects users' well-being is the composition of the online network. For example, the proportion of strangers (Seabrook, Kern, & Rickard, 2016) and that of contacts perceived as actual friends

* Corresponding author.
E-mail address: kristiina.a.tammisalo@utu.fi (K. Tammisalo).

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(Chang, Choi, Bazarova, & Löckenhoff, 2015) in a user's social media network has been found to moderate the effect of social media on well-being.

In the case of older adults, some have considered that essential for well-being is the possibility to sustain online contact with family members, in particular (Arpino, Pasqualini, Bordone, & Solé-Auró, 2021; Gazit et al., 2022). However the effect of family communication via social media has been little explored using rigorous quantitative methods and representative data. In this study, we explored the extent to which older and younger adults use social media to interact with family members and whether social media contact (SMC) with family members increases happiness.

1.1. Age-related changes in social networks

Older adults' social needs typically differ from those of younger adults. For example, it is common for older adults to face loss of mobility or diminishing social networks due to retirement and/or bereavement. These occurrences affect older adults' social needs and, consequently, their communication patterns and media use for communication (David-Barrett et al., 2016; Rosenberg & Taipale, 2022). The question arising is whether social media gratifies these needs over and above the previously available methods of communication, such as face-to-face meetings and phone calls; that is, whether older adults supplement their communication needs with social media.

Notably, our focus is not on specific activities on social media platforms (e.g., posting content, reacting to content, direct messaging, etc.), even though various activities can have distinct effects on well-being (Kim & Shen, 2020; Seabrook et al., 2016; Verduyn, Ybarra, Résibois, Jonides, & Kross, 2017). Rather, our focus is on whether social media platforms in their versatility offer complementary benefits to users of different ages in the context of family communication that are not accrued through other communication methods.

As individuals age, their relationships, particularly with family, gain relative importance (David-Barrett et al., 2016; Wrzus, Hänel, Wagner, & Neyer, 2013). Among typically non-resident family members, the relationships that are the closest and more enduring across life transitions than non-family relationships are those between siblings, parents and adult children, and grandparents and grandchildren (Buchanan & Rotkirch, 2021; Roberts & Dunbar, 2011; Tanskanen & Danielsbacka, 2019). This age-related "family shift" also applies to social media networks; that is, older adults use social media to connect with family members more than younger adults (Hutto et al., 2015; Matassi, Boczkowski, & Mitchelstein, 2019; Tammisalo, Danielsbacka, Andersson, & Tanskanen, 2022). Moreover, abundant evidence indicates that for older adults, family members are the primary reason for using social media. Not only does the number of children predict social media adoption (Tammisalo et al., 2022), older adults' most frequent self-appointed reason for adopting social media is to connect with their children and grandchildren (Aarts, 2018; Matassi et al., 2019; Neves, Franz, Judges, Beermann, & Baecker, 2017; Newman et al., 2021) and they perceive social media to facilitate family interactions (Taipale, 2019; Taipale & Farinosi, 2018.

1.2. Theoretical considerations

Some studies (Chan, 2015, 2018; Chang et al., 2015) have drawn on the socioemotional selectivity theory (SST) to explain older adults' tendency to communicate with a smaller network of family and close friends. According to SST, with advancing age comes a motivational shift, from future-oriented and informational goals to emotionally gratifying goals, prompted by the realization of finite time towards the end of life (Carstensen, Isaacowitz, & Charles, 1999; Löckenhoff & Carstensen, 2004). It is well established that older adults selectively communicate with fewer close ties (Wrzus et al., 2013) and do so even in the social media environment (Chang et al., 2015; Newman et al., 2021; Tammisalo et al., 2022). However, whether older adults derive happiness from SMC with their family members via social media, as can be expected based on SST, has yet to be established.

Drawing on the SST – although not focusing specifically on family relationships – two studies from Hong Kong have considered the role of social network composition in the association between multimodal communication (including social media) and well-being (Chan, 2015, 2018). These studies suggest that social media's benefits to older adults are attributed to age-related changes in the proportion of strong ties (including close friends and family members) in their networks. In their findings, older age groups experienced positive emotions from using technology to connect with their strong ties, whereas younger age groups did not. Conversely, younger adults experienced a decrease in well-being from using media to connect with a larger network of weak ties (i.e., non-intimate friends and acquaintances). These findings suggest that age-related changes in network composition are important in determining how social media use affects well-being.

Another related study (Chang et al., 2015), which also draws on the SST, found that smaller overall networks and a higher proportion of actual friends in the online network were more typical for older adults, and these were associated with lower levels of social isolation and loneliness. Similar to previous investigations, this study also supports the SST, that is, that social media's effect on well-being is age-related, as explained by age-related changes in network composition.

A notable gap in the research is that family relationships have not been examined separately (Chan, 2015, 2018; Chang et al., 2015) nor have different relationship types in the family. A separate examination of family relationship types is necessary, considering that each type of family relationship has distinct dynamics and new communication technologies can affect each relationship type differently (Tammisalo & Rotkirch, 2022).

In addition to treating each relationship type separately, we acknowledge that there may be differences between genders and life stages in terms of typical social needs and the extent to which social media can gratify those needs. Examining genders and ages separately is justified from the perspective of digital divides as the literature has established that social media predominantly serves the typical needs of women and younger individuals (Newman et al., 2021; Robinson et al., 2015; Yu, Ellison, McCammon, & Langa, 2016). Interestingly, the family context has hardly been addressed in the digital divide literature (Lythreatis, Singh, & El-Kassar, 2022; Scheerder, van Deursen, & van Dijk, 2017). The relevance of family relationships for digital divides, however, is evident: family resources may be differentially accessible depending on how well technology serves to gratify the specific and typical family communication needs for men versus women and for individuals in different life stages.

On the other hand, social media may also mitigate divides as it can potentially compensate for the scarcity of offline social contacts. For example, as social networks decline with age, older adults may benefit from the affordable and efficient access to social support provided by social media (Hutto et al., 2015; Nguyen, Hunsaker, & Hargittai, 2022; Simons et al., 2021). To detect age- and gender-based divides, we examined SMC in a range of family relationships separately for young, middle-aged, and older adults and by gender (e.g., mother-daughter, mother-son, father-daughter etc.).

To the best of our knowledge, the present study is the first to consider age-variant associations between SMC with family members and happiness. While studies on social media and various well-being outcomes have been extensive, they have excluded older adults or studied different age groups in isolation. To address this limitation, we used a dataset comprising a large age range (an older generation of 68–74-year-olds and their 19–56-year-old adult children) to investigate whether SMC with family members is associated with happiness differentially depending on age and gender. In addition, the data allowed controlling for a wide range of confounders. Existing studies on social media and well-being have rarely controlled for social network characteristics

(number of close friends and family) (Newman et al., 2021) even though they are associated with both social media adoption (Tammisalo et al., 2022) and various positive well-being outcomes (Chan, 2015, 2018; Chang et al., 2015). We also controlled for the sociodemographic characteristics that are commonly controlled for in related studies that have investigated the associations between social media use and well-being (Newman et al., 2021). The control variables were age, gender, education, income, marital status, and health status.

1.3. Research questions

Based on theoretical considerations and evidence from earlier studies, we formulated the following research questions:

(Q1) To what extent do older and younger adults use social media for family communication?
(Q2) Is the association between SMC with family members and happiness different in the older versus younger generation?

Based on SST we can predict in the case of Q1 that the older generation has more SMC with family members than the younger generation and in the case of Q2 that SMC with family increases happiness more in the older than younger generation.

2. Data and methods

2.1. Data

We used the third wave of the Generational Transmissions in Finland (Gentrans) survey conducted in 2018 and 2019. The Gentrans survey gathers data about the living conditions, social networks, and well-being of Finnish adults. The third wave of the survey includes information about communication with kin via social media, as well as a range of sociodemographic background information.

The data comprise two family generations: the older generation represents Finnish baby boomers born in the period 1945–1950 (n = 2,663, response rate 66.4 %) and the younger generation represents the baby boomers' adult children born in the period 1962–1999 (n = 1,945, response rate 55.6 %). The data comprise a nationally and geographically representative sample from Finland (excluding Åland). During the data collection period, the older and younger generation respondents were aged 68–74 years and 19–56 years, respectively. As the age range among the younger generation's respondents is wide, we further divided them into 19–39-year-olds (young adults) and 40–56-year-olds (middle-aged adults) for further analyses, in addition to treating them as one age group in the main analyses. To investigate the association between SMC with family members and happiness, we excluded from the main analyses those who were not social media users; the final sample sizes were 1,265 in the older generation and 1,542 in the younger generation (475 younger adults and 1,045 middle-aged adults). The analyses of SMC with each family member type (daughter, son, mother, father, grandchild, sister, and brother) involved only respondents who had the family member in question (sample sizes for each analysis are provided in the online supplementary material).

Ethical approval for the Gentrans survey was granted by the Ethical Board of Statistics of Finland in 2006. The respondents provided informed consent regarding the use of their data for research and the data were anonymized. All users of the data committed to following the Statistics Finland ethical rules by accepting The Pledge of Secrecy of Holder of Permission to Use Data.

2.2. Measures

Our dependent variable is based on the question: "How happy are you currently?", with response options ranging from 0 ("Very unhappy") to 10 ("Very happy"). The independent variables are based on the item: "With whom are you in contact with on social media?", followed by a list of kin, affinal kin, and non-kin from which the respondents indicated with whom they interacted via social media. Examples of social media platforms given in the questionnaire were: Facebook, Instagram, Twitter, and Snapchat. In the absence of a frequency measure for SMC, we used dichotomous variables; similar variables have been used in previous studies (e.g., Yu, Mccammon, Ellison, & Langa, 2016). Based on the responses, we used the following indicators of SMC with family:

1) SMC with a daughter (yes/no)
2) SMC with a son (yes/no)
3) SMC with mother (yes/no, only for younger generation)
4) SMC with father (yes/no, only for younger generation)
5) SMC with a grandchild (yes/no, only for older generation)
6) SMC with a sisters (yes/no)
7) SMC with a brothers (yes/no)

To determine whether and how SMC was associated with happiness across the types of family members, we controlled for a range of sociodemographic variables. The following sociodemographic variables were used as controls in all of the analyses: *Age* was calculated according to the year of birth. *Gender* was collected as a binary variable (man/woman). *Education* was collected as a nine-level ordinal variable ranging from incomplete elementary school to doctorate degree and subsequently recoded into a four-level ordinal variable from 1 = completed or incomplete elementary school to 4 = higher education. Self-rated *economic situation* was measured on a four-level ordinal scale ranging from 1 = high income to 4 = low income and subsequently inverted for analysis so that 4 indicates the highest income level. *Marital status* was collected as a categorical variable with six response options and subsequently recoded into the following categories: 1 = unpartnered, 2 = cohabiting/married, 3 = divorced, and 4 = widowed. Finally, to control for *Health,* we included a dichotomous variable with 1 = absence of long-term medical issues and 0 = presence thereof. In addition, the control variables included two variables that captured the characteristics of respondents' social networks: *Number of children* and *Number of close friends*. These variables were included because having close friends and relatives may affect both the independent variable (SMC) and dependent variable (happiness). Outlier values of 21 and above were set to 20.

We did not include as confounders whether the respondent lived with the family member in question because, based on the data, less than 1 percent of the respondents did. Similarly, we did not control for co-residence with a non-relative other than a spouse, as less than 1 percent indicated that they lived with a non-relative. In Finland, it is relatively rare for adults to live with other relatives besides their own underage children or other non-relatives besides their spouses (Hämäläinen, Danielsbacka, Hägglund, Rotkirch, & Tanskanen, 2021). A sensitivity analysis showed that co-residence with a child was not a significant confounder and did not affect the results. Therefore, even for the younger generation, many of whom are still likely to live with their children, we did not add co-residence with family members as a control variable. Conversely, co-residence with spouses was 99 percent congruent with marital status (option married/cohabiting); therefore, co-residence with spouses was not controlled for separately.

In addition, the ages of daughters and sons in the younger age group and those of grandchildren in the older age group were added as controls in the corresponding analyses (i.e., SMC with daughter/son/grandchild) because some of the respondents' children and grandchildren were less likely to use social media because of their young age. Age was approximated using available information. For children, the mean age of the four eldest children was used, and for grandchildren, the mean age of the youngest among the four eldest children was used.

2.3. Methods

Three estimates of the associations between SMC with family members and happiness are presented for each family member type: linear regressions without controls, linear regressions with controls (presented in detail previously), and the propensity score matching (PSM) approach (excluding the analyses in which sample sizes did not allow for PSM). In the linear regressions with controls, the control variables were included without interactions or higher-order terms. The same control variables were used in the linear regressions and PSM approach. These three methods were used to understand whether any association exists between SMC with a family member and happiness, and whether the association concerns selection (i.e., whether those who are happy because of factors accounted for by the control variables are also more likely to engage in SMC with family members). After the regressions, the PSM approach was used to improve the credibility of the causal inference.

2.3.1. Propensity score matching

PSM is a quasi-experimental method which is based on retrospectively forming comparable groups ("treatment" and "control") from existing data. The "treatment group" comprises those who have SMC with a given family member, and the "control group" comprises those who do not have SMC with that given family member.

PSM is conducted in two steps: First, to form comparable groups, a *propensity score* is calculated for each individual using the control variables. The score is an estimate of the probability of an individual having SMC with a given family member, given the observed control variables. As in most applications, we used logit models to estimate the propensity scores. Observed variables that influence the probability of adopting social media and happiness (i.e., possible confounders) are included as controls: therefore, they contribute to the propensity score. After estimating the propensity scores for each individual, individuals with equivalent or similar scores in the treatment (SMC with a given family member) and control groups (no SMC with a given family member) were matched. Unmatched individuals were excluded from the analysis.

In the second PSM step, outcomes are compared between matched individuals from the treatment and control groups. This step is non-parametric because it is based on the differences between outcomes without imposing a parametric model linking the outcome and treatment (and covariates). In this study, PSM allows us to estimate the counterfactual happiness of the respondents had they belonged to the other group by matching respondents from the treatment and control groups with equivalent or similar propensity scores values. The PSM results are presented in terms of average treatment effects on the treated (ATT).

For PSM, all age variables (excluding the ages of the older generation's respondents whose age range was relatively narrow) were recoded into 5-year-intervals to guarantee finer matching of the age distribution.

2.3.2. Advantages of propensity score matching

In addition to using the PSM approach, we also performed linear regressions, as most readers are more familiar with this method. Regression models have also typically been used in previous studies (Chan, 2015, 2018; Yu, Mccammon, et al., 2016). Both PSM and linear regression are based on the fundamental assumption that, to identify the effect of interest, adjusting for observed confounders is sufficient. However, the adjustment is performed differently in the two methods, and PSM has several advantages. First, PSM allows the evaluation of the extent to which the adjustment has been "successful" by assessing the covariate balance. The most commonly used measure of covariate balance is the Absolute Standardized Bias (ASB). The causal inference literature suggests that ASB values below 5 percent are sufficiently low and can estimate effects (e.g., Cannas & Arpino, 2019). Another advantage is that PSM is non-parametric in its second step when outcomes are compared across treatment groups, whereas regression models impose a parametric function linking the outcome to the treatment and other independent variables. The non-parametric nature of the second step is an advantage also because of the possibility that the effects are heterogeneous. Regression models inherently assume homogeneity of the effects of independent variables; therefore, they do not consider heterogeneity unless interactions are included (whereby heterogeneity is limited to those specific interactions). Conversely, in PSM, heterogeneity is not limited in the non-parametric outcome assessment. This further explains why regression and PSM can provide different results.

Methodological studies have found that regression models and propensity score methods often provide similar results when the initial imbalance of covariates across the groups is low (Drake, 1993). In this case, a possible violation of regression assumptions (e.g., the functional form imposed to link the outcome to the treatment and covariates) does not have serious consequences on the bias of the estimated effects. Instead, when the two groups differ significantly, regression and PSM are expected to yield different results. When PSM and regression give different results (and the balance attained by PSM is sufficient), then PSM results are more reliable because the differences in covariates across groups are adjusted better (Cannas & Arpino, 2019) and because the second step of PSM is non-parametric, thus not subject to potential violations of the regression assumptions.

All control variables' ASBs for each analysis are presented in the online supplementary material (Tables 5–15). In the notes for the tables that present the main results (Tables 3 and 4), we specify the few cases where the average value of ASB remains higher than 5 percent.

3. Results

3.1. Descriptive findings

In the older and younger generations, 47.5 percent and 79.3 percent of the respondents, respectively, reported using social media. Tables 1 and 2 present the descriptive statistics of social media users in the older and younger generations, respectively.

The prevalence of SMC with family members varied across generations (Figs. 1 and 2). In the older generation, SMC with children was high: 87.1 percent of those with at least one daughter had SMC with a daughter, and 78.2 percent of those with at least one son had SMC with a son. The corresponding percentages among the younger generation were 32.9 percent (SMC with daughter) and 27.1 percent (SMC with son). For

Table 1
Descriptive statistics. Social media users in the older generation (68–74 years) (*n* and %/mean).

	n	%/mean	SD
Age (mean)	1265	70.4	1.67
Gender (%)			
Women	802	63.4	–
Men	463	36.6	–
Education (%)			
Elementary school	333	27.1	–
Upper secondary/Vocational	604	49.1	–
College/Lower university degree	115	9.3	–
Higher academic degree	178	14.5	–
Economic situation[1] (mean)	1265	1.81	0.80
Marital status (%)			
Married/Cohabiting	888	71.1	–
Unmarried	68	5.4	–
Divorced	160	12.8	–
Widowed	133	10.6	–
Health (long-term medical issue) (%)			
Yes	767	60.6	–
No	470	37.2	–
Number of children (mean)	1265	2.2	1.59
Number of grandchildren (mean)	1265	3.6	5.10
Number of friends (mean)	1265	5.5	3.95

[1] 1 = "low income," 4 = "high income".

Table 2
Descriptive statistics. Social media users in the younger generation (19–56 years) (*n* and %/mean).

	n	%/mean	SD
Age (mean)	1542	42.0	5.85
Gender (%)			
Women	1071	85.5	–
Men	471	68.0	–
Education (%)			
Elementary school	27	1.8	–
Upper secondary/Vocational	541	35.3	–
College/Lower university degree	449	29.3	–
Higher academic degree	516	33.7	–
Economic situation[1] (mean)	1542	2.00	0.75
Marital status (%)			
Married/Cohabiting	1168	75.7	–
Unmarried	231	15.0	–
Divorced	137	8.9	–
Widowed	6	0.4	–
Health (long-term medical issue) (%)			
Yes	609	39.8	–
No	921	59.7	–
Number of children (mean)	1542	1.8	1.49
Number of friends (mean)	1542	4.3	3.27

[1] 1 = "low income," 4 = "high income".

the younger generation, 35.9 and 20.5 percent had SMC with their mothers and fathers, respectively. In the younger generation, friends and coworkers were the most typical SMCs. Overall, older adults' social media use could be described as family oriented.

3.2. Linear regressions and PSM approach

Using linear regression and PSM, we tested the two generations separately and by gender to check whether SMC with family members was associated with happiness. We tested this separately for contact with each kin type: daughters, sons, sisters, and brothers for both generations; grandchildren for the older generation; and mothers and fathers for the younger generation. We analyzed each family member type separately rather than integrating them into one model, because the samples differed and because of possible collinearity among several SMC variables. Respondents who reported using social media were analyzed, and each analysis was performed only on respondents with the family member in question. Rather than integrating age and gender in the same models, we analyzed them in separate models to obtain separate estimates for each. More specifically, we have $2 \times 3 \times 5 = 30$ and $2 \times 3 \times 6 = 36$ models for the older and younger generations, respectively: linear regression with and without controls (2), men and women separately and together (3), and five and six types of relatives with whom SMC is sustained for the older and younger generations, respectively. Given the large number of models, we only present the results of interest, which is the estimated coefficient (and corresponding 95% confidence interval) in Tables 3–6. We also show the R^2 of each regression model (i.e., R^2 corresponds to the model used to estimate a coefficient) in parentheses. Table 3 presents the results for the older generation, Table 4 those for the younger generation, and Tables 5 and 6 those for the younger generation divided into younger and middle-aged adults, respectively.

For PSM, the balances across the control variables for the matched and unmatched samples are provided in the online supplementary material along with the specific matching algorithm used in each analysis (Tables 5–15 in the online supplementary material). In addition, sample sizes for each of the analyses are also provided in the online supplementary material (Tables 1–4 in the online supplementary material).

3.3. Older generation

SMC with family members did not contribute to happiness among older adults; therefore, the analysis results were not as expected (Table 3). The only exception is men's SMC with their daughters; however, this association was detected only using the linear regression with controls and with statistical significance at the 10 percent level ($\beta = 0.516$, $p = 0.081$). Furthermore, the PSM method did not confirm the statistical significance of this association. In addition, women's SMC with a brother showed a negative association in the linear regressions with controls, although also statistically significant only at the 10 percent level ($\beta = -0.282$, $p = 0.06$). However, the PSM method did not

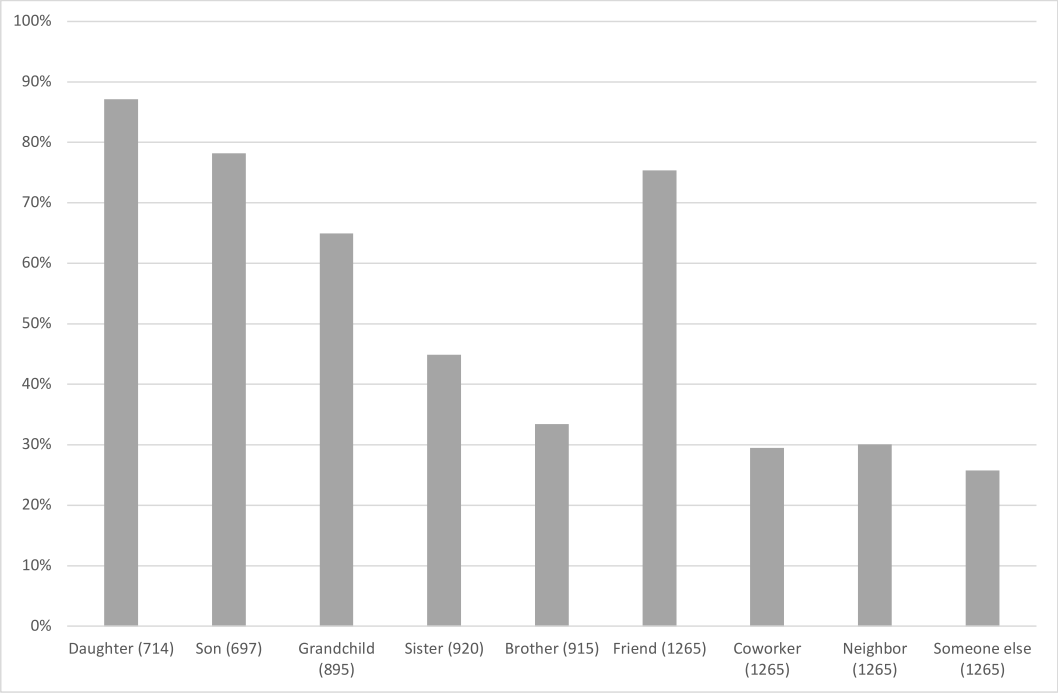

Fig. 1. Percentage of social media users in the older generation (aged 68-74) who sustain SMC with kin and non-kin. In the case of relatives, the number of respondents with the given relative is in parentheses.

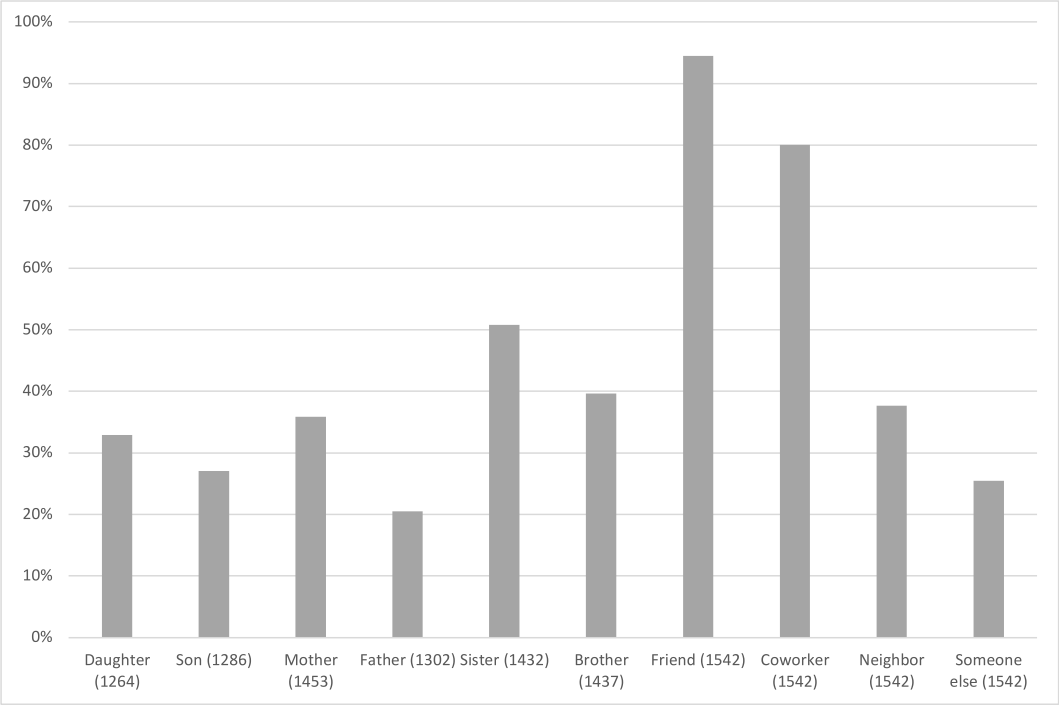

Fig. 2. Percentage of social media users in the younger generation (aged 19–56) who sustain SMC with kin and non-kin. In the case of relatives, the number of respondents with the given relative is in parentheses.

Table 3
Estimated coefficients for SMC with family members and self-rated happiness (1 = very unhappy, 10 = very happy) in the older generation (68–74 years). Each coefficient represents a unique model. The controls referred to in the table but not shown are: age, education, income, marital status, health, number of children, and number of close friends. Where genders are analyzed together, gender is controlled for. The mean age of grandchildren is controlled for in the respective model.

	Regression without controls			Regression with controls			PSM[1]		
SMC with/by	Coef. (R^2)	95% CI		Coef. (R^2)	95% CI		Coef.	95% CI[2]	
Daughter/All	**0.343*** (0.004)	−0.009	0.695	0.133 (0.091)	−0.235	0.500	0.062	−0.348	0.472
/Women	0.151 (0.001)	−0.321	0.622	0.002 (0.100)	−0.473	0.476	0.132[3]	−0.476	0.741
/Men	**0.599**** (0.015)	0.063	1.135	**0.516*** (0.171)	−0.064	1.097	0.311[3]	−0.660	1.281
Son/All	0.048 (0.000)	−0.247	0.343	−0.060 (0.088)	−0.369	0.248	−0.129	−0.419	0.160
/Women	−0.002 (0.000)	−0.376	0.371	−0.119 (0.078)	−0.513	0.274	−0.097	−0.484	0.289
/Men	0.137 (0.001)	−0.346	0.621	0.140 (0.142)	−0.367	0.646	0.253	−0.320	0.827
Grandchild/All	0.145 (0.002)	−0.079	0.369	0.161 (0.070)	−0.094	0.416	0.117	−0.178	0.413
/Women	0.051 (0.000)	−0.249	0.351	0.214 (0.085)	−0.133	0.552	0.194	−0.231	0.618
/Men	**0.338*** (0.011)	−0.006	0.682	0.095 (0.121)	−0.279	0.468	0.016	−0.389	0.421
Sister/All	**0.252**** (0.005)	0.020	0.484	0.060 (0.092)	−0.182	0.302	0.006	−0.251	0.262
/Women	0.175 (0.002)	−0.117	0.468	0.043 (0.081)	−0.257	0.344	0.050	−0.240	0.339
/Men	**0.345*** (0.009)	−0.048	0.738	0.144 (0.170)	−0.267	0.556	0.193	−0.284	0.669
Brother/All	−0.033 (0.000)	−0.259	0.194	−0.160 (0.092)	−0.396	0.076	−0.163	−0.422	0.097
/Women	−0.112 (0.001)	−0.397	0.172	**−0.282***(0.091)	−0.577	0.012	−0.276	−0.595	0.043
/Men	0.110 (0.001)	−0.267	0.487	0.019 (0.167)	−0.381	0.419	0.056	−0.389	0.500

Notes: [1]Coefficients are the average treatment effects on the treated (ATT). [2]Bootstrapped confidence intervals. [3]PSM sample mean bias >5 % (detailed information on sample biases available in the online supplementary material).
Significance levels: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

confirm the statistical significance of this association either.

3.4. Younger generation

Conversely, in the younger generation, there were several age- and gender-specific significant associations ($p < 0.05$) between SMC with family members and happiness. Table 4 shows the results for the entire younger generation, including the results from the linear regressions and PSM approaches. PSM detected that SMC with daughters ($ATT = 0.371$, $p = 0.045$) and mothers ($ATT = 0.174$, $p = 0.045$) increase happiness. In addition, when examining the results by gender, positive associations that were significant at higher levels ($p = 0.05$–0.10) suggested that the aforementioned positive associations were driven by women's SMC with their daughters ($ATT = 0.429$, $p = 0.055$) and men's SMC with their mothers ($ATT = 0.289$, $p = 0.087$). Regressions with the controls showed similar results.

As an additional and relatively consistent result among men across generations, SMC with many of the tested family members was positively associated with happiness before controlling for covariates (Table 4). This indicates that happy men are more likely to have SMC with family members.

Tables 5 and 6 show the results for the younger generation, divided into younger (19–39-year-olds) and middle-aged (40–56-year-olds) adults. These analyses were based only on linear regression models

Table 4
Estimated coefficients for SMC with family members and self-rated happiness (1 = very unhappy, 10 = very happy) in the younger generation (19–56 years). Each coefficient represents a unique model. The controls referred to in the table but not shown are: age, education, income, marital status, health, number of children, and number of close friends. Where genders are analyzed together, gender is controlled for. The ages of daughters/sons are controlled for in their respective models.

	Regression without controls			Regression with controls			PSM[1]		
SMC with/by	Coef. (R^2)	95% CI		Coef. (R^2)	95% CI		Coef.	95% CI[2]	
Daughter/All	0.020 (0.000)	−0.202	0.242	**0.278**** (0.182)	0.020	0.535	**0.371****	0.008	0.733
/Women	0.028 (0.000)	−0.230	0.286	**0.310**** (0.187)	0.001	0.619	**0.429***	−0.010	0.867
/Men	−0.005 (0.000)	0.442	0.432	0.098 (0.209)	−0.388	0.583	0.174	−0.602	0.950
Son/All	−0.015 (0.000)	−0.238	0.207	0.204 (0.184)	−0.053	0.460	0.202	−0.129	0.533
/Women	−0.063 (0.000)	−0.316	0.188	0.237 (0.165)	−0.060	0.534	0.328	−0.147	0.802
/Men	0.114 (0.001)	−0.342	0.569	0.072 (0.270)	−0.439	0.584	−0.166[3]	−0.812	0.480
Mother/All	**0.270***** (0.006)	0.086	0.454	**0.182**** (0.196)	0.012	0.351	**0.174****	0.004	0.345
/Women	0.150 (0.002)	−0.058	0.358	0.134 (0.152)	−0.063	0.332	0.110	−0.090	0.310
/Men	**0.580***** (0.022)	0.216	0.944	0.205 (0.272)	−0.124	0.533	**0.289***	−0.042	0.621
Father/All	**0.281**** (0.004)	0.050	0.512	0.070 (0.189)	−0.144	0.283	0.041	−0.146	0.229
/Women	0.078 (0.000)	−0.176	0.333	−0.032 (0.112)	−0.277	0.213	−0.049	−0.290	0.192
/Men	**0.739***** (0.024)	0.276	1.203	0.129 (0.311)	−0.281	0.539	0.155	−0.200	0.511
Sister/All	**0.358***** (0.007)	0.088	0.627	0.154 (0.207)	−0.094	0.403	0.104	−0.170	0.377
/Women	0.094 (0.001)	−0.223	0.411	0.015 (0.146)	−0.288	0.319	0.010	−0.319	0.339
/Men	**0.682***** (0.025)	0.175	1.189	0.340 (0.353)	−0.094	0.775	0.398	−0.136	0.931
Brother/All	0.107 (0.001)	−0.128	0.343	0.077 (0.189)	−0.140	0.295	0.050	−0.212	0.312
/Women	0.007 (0.000)	−0.254	0.268	0.019 (0.149)	−0.232	0.269	0.046	−0.233	0.326
/Men	**0.435*** (0.011)	−0.063	0.933	0.130 (0.309)	−0.306	0.567	0.082	−0.372	0.536

Notes: [1]Coefficients represent the average treatment effects on the treated (ATT). [2]Bootstrapped confidence intervals. [3]PSM sample mean bias >5 % (detailed information on sample biases available in the online supplementary material).
Significance levels: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

because the sample sizes did not allow the implementation of the PSM method in these groups.

Based on these additional analyses, in which the younger generation's sample was separated into younger and middle-aged adults, the results acquired previously using the full sample appeared to be mostly driven by the older half of the sample. However, the limited sample sizes, especially in some analyses of the younger half of the sample, did not allow for further interpretation (see the online supplementary material for the sample sizes in each analysis).

4. Discussion

In this study, we first asked to what extent older and younger adults use social media for family communication. Second, we asked whether this contributes to happiness differentially depending on generation (younger generation aged 19–56; older generation aged 68–74). In line with previous knowledge (David-Barrett et al., 2016; Hutto et al., 2015; Matassi et al., 2019; Newman et al., 2021; Tammisalo et al., 2022; Wrzus et al., 2013; Zickuhr & Madden, 2012), we found that older adults' social media use was more family oriented than that of younger adults. In addition, we found evidence that SMC with family members increased happiness in some family dyads, however, not in those of older adults. This was unexpected because numerous earlier studies of older adults' technology use have found social media use to be associated with various positive outcomes for older adults (Chan, 2015, 2018; Chang et al., 2015; Gazit et al., 2022; Hutto et al., 2015; Newman et al., 2021; Yu, Mccammon, et al., 2016).

4.1. Theoretical discussion

The socioemotional selectivity theory (SST) posits that older adults selectively communicate with a smaller number of contacts and that they derive positive emotions from communicating with close ties such as family members. We conclude that, in the context of social media, the socioemotional selectivity theory (SST) was supported only partly. In line with SST, we found that older adults have proportionally more family members in their social media contacts compared to younger adults. However, our study did not find significant associations between SMC with family members and happiness among older adults, as the theory would suggest.

In contrast, associations between SMC with family members and happiness were detected in the younger generation for some of the tested family dyads, including middle-aged mothers and their children as well as middle-aged men and their mothers. Notably, earlier studies report varying ages at which the selective communication predicted by SST occurs. Some studies have reported that the so-called family shift and well-being benefits occur in middle adulthood as early as after 35 years (Chan, 2015, 2018; Wrzus et al., 2013). For example, middle-aged individuals, who commonly have both dependent children and aging parents, may benefit from social media because such platforms provide a low-effort means of staying updated on the affairs of multiple family members (Robinson et al., 2015). In line with these considerations, our results suggest that social media may best cater to midlife-specific needs.

Regarding older adults, while communication with family members is important for them, social media may be a suboptimal medium for it, as it lacks many qualities of rich and intimate communication such as voice tones and synchronized effort (Daft & Lengel, 1986; Goodman-Deane, Mieczakowski, Johnson, Goldhaber, & Clarkson, 2016; Tammisalo & Rotkirch, 2022). On the other hand, social media often provide instant messaging features that are able to create a synchronous and personal sense of "connected presence" (Cui, 2016). The use of instant messaging has been found to support well-being among older adults (Rosenberg & Taipale, 2022) as has the use of group-chat features that have recently risen in popularity (Gazit et al., 2022; Taipale & Farinosi, 2018, pp. 532–546). Notably these findings both included data from Finnish older adults, which emphasizes the importance of differentiating between types of social media activities that are common among the studied population. Considering that our data did not highlight instant messaging or group chats, it is possible that the respondents did not perceive the question as representing these activities. Future research should use refined measures that capture the more specific ways in which older adults use social media.

As all individuals included in our analyses were social media users and social media use is associated with other forms of contact with family such as face-to-face meetings and phone calls (Danielsbacka et al., 2023; Shen et al., 2017), older adults may benefit emotionally from family communication using other means and not gain *additional* benefits from SMC. In other words, it is possible that our sample represents those with above-average levels of contact with their families. Furthermore, it is important to acknowledge that our sample may mask

Table 5
Estimated coefficients for SMC with family members and self-rated happiness (1 = very unhappy, 10 = very happy) in middle-aged adults (40–54 years). The controls referred to in the table but not shown are: age, education, income, marital status, health, number of children, and number of close friends. Where genders are analyzed together, gender is controlled for. The ages of daughters/sons are controlled for in their respective models.

	Regression without controls			Regression with controls		
SMC with/by	Coef. (R^2)	95% CI		Coef. (R^2)	95% CI	
Daughter/All	0.169	−0.100	0.439	**0.331****	0.034	0.628
	(0.003)			(0.195)		
/Women	**0.269***	−0.049	0.587	**0.442****	0.081	0.803
	(0.006)			(0.196)		
/Men	−0.097	−0.609	0.414	−0.021	−0.567	0.525
	(0.001)			(0.268)		
Son/All	0.129	−0.136	0.395	0.202	−0.085	0.490
	(0.002)			(0.203)		
/Women	0.115	−0.188	0.419	**0.289***	−0.048	0.626
	(0.001)			(0.174)		
/Men	0.162	−0.368	0.692	−0.037	−0.593	0.518
	(0.002)			(0.325)		
Mother/All	**0.280****	0.054	0.506	**0.209****	0.002	0.416
	(0.006)			(0.210)		
/Women	0.138	−0.122	0.397	0.116	−0.127	0.359
	(0.002)			(0.171)		
/Men	**0.657*****	0.226	1.089	**0.346***	−0.039	0.732
	(0.028)			(0.304)		
Father/All	**0.268***	−0.024	0.561	0.050	−0.217	0.317
	(0.004)			(0.211)		
/Women	0.063	−0.263	0.389	−0.063	−0.376	0.250
	(0.000)			(0.138)		
/Men	**0.711****	0.139	1.282	0.155	−0.329	0.640
	(0.021)			(0.356)		
Sister/All	**0.357****	−0.012	0.701	0.175	−0.143	0.494
	(0.007)			(0.220)		
/Women	0.298	−0.113	0.710	0.183	−0.217	0.583
	(0.005)			(0.160)		
/Men	0.328	−0.303	0.959	0.331	−0.185	0.847
	(0.006)			(0.396)		
Brother/All	0.168	−0.131	0.467	0.116	−0.059	0.391
	(0.002)			(0.207)		
/Women	0.200	−0.136	0.535	0.223	−0.095	0.541
	(0.003)			(0.180)		
/Men	0.190	−0.440	0.820	−0.006	−0.540	0.528
	(0.002)			(0.367)		

Significance levels: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 6
Estimated coefficients for SMC with family members and self-rated happiness (1 = very unhappy, 10 = very happy) in young adults (19–39 years). The controls referred to in the table but not shown are: age, education, income, marital status, health, number of children, and number of close friends. Where genders are analyzed together, gender is controlled for. The ages of daughters/sons are controlled for in their respective models.

	Regression without controls			Regression with controls		
SMC with/by	Coef. (R^2)	95% CI		Coef. (R^2)	95% CI	
Daughter/All	−0.262	−0.727	0.202	0.134	−0.415	0.682
	(0.006)			(0.184)		
/Women	**−0.485***	−1.011	0.041	−0.157	−0.803	0.488
	(0.021)			(0.229)		
/Men	0.407	−0.565	1.379	**1.356****	0.198	2.515
	(0.014)			(0.296)		
Son/All	−0.164	−0.672	0.345	0.322	−0.318	0.962
	(0.002)			(0.165)		
/Women	−0.379	−0.931	0.173	0.063	−0.646	0.772
	(0.012)			(0.188)		
/Men	0.444	−0.723	1.612	1.296	−0.318	2.910
	(0.011)			(0.233)		
Mother/All	0.247	−0.074	0.567	0.117	−0.180	0.415
	(0.005)			(0.189)		
/Women	0.168	−0.187	0.523	0.205	−0.135	0.545
	(0.003)			(0.160)		
/Men	0.375	−0.317	1.068	−0.109	−0.771	0.552
	(0.009)			(0.275)		
Father/All	0.302	−0.072	0.675	0.107	−0.244	0.459
	(0.006)			(0.173)		
/Women	0.102	−0.303	0.508	0.032	−0.357	0.421
	(0.001)			(0.120)		
/Men	**0.807****	0.011	1.602	0.129	−0.664	0.923
	(0.032)			(0.272)		
Sister/All	**0.366***	−0.067	0.799	0.145	−0.261	0.551
	(0.009)			(0.195)		
/Women	−0.244	−0.739	0.250	−0.137	−0.613	0.345
	(0.004)			(0.160)		
/Men	**1.408*****	0.558	2.258	0.674	−0.222	1.570
	(0.116)			(0.363)		
Brother/All	−0.007	−0.386	0.373	−0.105	−0.468	0.259
	(0.000)			(0.185)		
/Women	**−0.380***	−0.788	0.028	**−.373***	−0.780	0.034
	(0.015)			(0.149)		
/Men	**0.911****	0.086	1.736	0.543	−0.329	1.415
	(0.058)			(0.303)		

Significance levels: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

trends that apply to subgroups in specific life circumstances; for example, the benefits of social media may be more salient when it compensates for the lack of other communication options (Arpino, Meli, Pasqualini, Tomassini, & Cisotto, 2022).

In terms of digital divides, which posit that technology use and its benefits are unequally distributed across demographics (Robinson et al., 2015; Yu, Ellison, et al., 2016), our results reveal some marked gender differences. Despite what the digital divide literature has established in contexts other than family, we did not find that women are more likely to benefit from social media in terms of family communication (Robinson et al., 2015; Yu, Ellison, et al., 2016). While we did find that among middle-aged women there was a positive association between SMC with their children and happiness, we also found that SMC with mothers was associated with happiness among middle-aged men. Although the results do not show consistent gender differences, they are in line with the notion that the mother-child bond is key to well-being, and that even in the context of social media communication, mothers form nodal points in family communication (Bracke, Christiaens, & Wauterickx, 2008; Tanskanen & Danielsbacka, 2019).

Regarding age differences, the results suggest that, in the context of family communication, social media may best cater to the needs of middle-aged individuals, that is, it does not clearly benefit young adults, as emphasized in the digital divide literature, nor older adults, as predicted by SST.

4.2. Strengths and limitations

Among this study's strengths, the data used were representative and extensive, allowing the examination of multiple subgroups. Moreover, when N is high, a violation of the regression assumption does not have serious consequences for the estimates (e.g., violations of the normality of errors). The extensive number of variables in the data allowed controlling for multiple confounders, of which the possibility to control for the characteristics of social networks is a particular strength. Finally, the PSM method is an added strength, as it improves the credibility of the estimated associations by focusing on comparisons between groups only for comparable individuals, while regression models can be biased due to extrapolations. Furthermore, similar results from the two methods can signal the robustness of the regression estimates. Conversely, when the two methods provide different results, the PSM estimates are more reliable.

When interpreting these results, the following limitations should be noted. First, despite controlling for a range of possible covariates that have been previously identified as factors determining social media use that are likely to affect happiness (Tammisalo et al., 2022), the effect of unobserved confounders cannot be ruled out entirely when using

non-experimental data. In other words, those with SMC with family members may differ in some unobserved systematic manner from those who do not have SMC with family, and this differentiating factor may also be associated with happiness (e.g., having more frequent social contacts or an extraverted personality). The second limitation pertains to the definition of social media. Social media is a rapidly transforming technology that lacks a precise definition. Our measure relies on the respondents' interpretation of the question and the brief description provided (Facebook, Instagram, Twitter, and Snapchat were the given examples), therefore, not capturing nuanced information about the respondents' social media use. More nuanced information on the quality of communication mediated by social media and the frequency of social media use for family communication is still lacking.

Finally, the chosen outcome measure of subjective happiness was based on a single question, therefore, capturing only one aspect of overall well-being. Well-being generally includes multiple dimensions besides pleasant emotions, such as life satisfaction and the scarcity of unpleasant emotions (Diener, Oishi, & Lucas, 2002). Numerous measures of well-being may be relevant when studying the effect of social media. However, considering the chosen theoretical approach (i.e., socioemotional selectivity theory), happiness was the most appropriate. This is because the theory views emotional gratification as the key motivator behind older adults' tendency to communicate with their close ties. In future studies, a more suitable method for testing the socioemotional selectivity theory would be an experience sampling approach to happiness to capture emotional states arising from SMC with family members over an extended period.

4.3. Concluding remarks

Although challenges posed by the concurrent trends of digitalization and population aging have been identified globally, caution should be exercised when generalizing these findings to other cultural contexts. This study was conducted in Finland, a society with high ICT penetration but in which families play a relatively small role as a source of support (Danielsbacka et al., 2020).

Although we did not find SMC with family members to increase older adults' happiness, social media use may be beneficial in other ways. In this study, we did not consider, for example, that social media may facilitate access to information and participation in society which contribute to a broader concept of well-being. Furthermore, for older adults, both sustaining contact with family and diverse use of digital media, including social media, can be considered to contribute positively to active aging.

Statement of ethical approval

Ethical approval for the Gentrans survey was granted by the Ethical Board of Statistics of Finland in 2006.

CRediT authorship contribution statement

Kristiina Tammisalo: Conceptualization, Formal analysis, Investigation, Methodology, Writing - original draft, Writing - review & editing. **Mirkka Danielsbacka:** Conceptualization, Data curation, Funding acquisition, Investigation, Project administration, Resources, Supervision, Writing - review & editing. **Antti O. Tanskanen:** Conceptualization, Data curation, Funding acquisition, Investigation, Project administration, Resources, Supervision, Writing - review & editing. **Bruno Arpino:** Conceptualization, Formal analysis, Methodology, Resources, Writing - review & editing.

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.

Data availability

The authors do not have permission to share data.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chb.2023.108103.

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