Are social media users more satisfied with their life than non-users? A study on older Italians

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Abstract

Despite older people's increasing use of social media (SM), there is relatively little research investigating the impact of SM use on wellbeing in the ageing population. This study investigates the relationship between SM use and life satisfaction, a key dimension of wellbeing, in three age groups. We focus on the Italian case, which is particularly relevant because Italy is one of the countries both with the highest incidence of older people and the lowest uptake of SM in Europe. Applying linear regression modelling techniques, we analyse data from the 2018 Multipurpose Survey – Aspects of Everyday Living, a large probability-based household survey. For two age groups, we find a positive relationship between SM use and life satisfaction which weakens after controlling for older people's demographic and socio-economic characteristics, health conditions and social network characteristics. Given the grey digital divide that still exists in some European countries, we conclude with a call for urgent interventions to remove the hurdles that prevent frail older people from enjoying the benefits of an active ageing, fully exploiting the potential of SM use.

Introduction

The world population is ageing. Globally, the proportion of the population aged 65+, which was approximately 9 per cent in 2019, is set to reach nearly 12 per cent in 2030 and 16 per cent by 2050 (United Nations Department of Economic and Social Affairs, Population Division, 2019). Western regions, such as Europe and North America, currently have the highest population aged 65+ share (18% in 2019), and this share is forecasted to increase. Projections indicate that in these regions, by 2050 nearly one in every four persons will be aged 65 years or over. Italy, in particular, is one of the countries with the oldest population, recording the highest median age in Europe (Eurostat, 2019).

To foster quality of life among this growing segment of the population, it is important to promote 'active ageing', *i.e.* the active engagement of older people

in society. Information and communication technology (ICT) might offer important tools to reach this goal. Specifically, social media (SM) contributes to keeping older people connected with society, providing them with additional opportunities for communication and socialisation, ultimately minimising loneliness and social exclusion in old age. Although research in this field is still ongoing, there is preliminary evidence showing that SM may play a role in reducing the consequences – in terms of loneliness and social isolation – of the social distancing measures introduced in many countries to minimise the COVID-19 outbreak (Cerati *et al.*, 2020). SM are defined as 'online means of communication, conveyance, collaboration, and cultivation among interconnected and inter-dependent networks of people, communities, and organizations enhanced by technological capabilities and mobility' (Tuten and Solomon, 2014: 4). The broad category of SM includes not only social networking sites (SNSs), such as Facebook, Instagram and Twitter, but also instant messaging applications such as WhatsApp and Telegram, as well as blogs, chat rooms and forums.

Despite the role that SM may play in active and healthy ageing *for all*, only a minority of older Europeans, especially those living in Nordic countries, are SM users. A recent study documented that in 2016, only 16.2 per cent of Europeans aged 65–74 were SNS users (Sala *et al.*, 2020). Additionally, SNS use among older people varies widely by country, signalling that, despite a common trend of increasing SNS use among older people, there are wide inequalities across countries in the possibility of enjoying the benefits associated with SNS use. Italy is one of the countries with the lowest uptake of SNSs in Europe, with only 7.3 per cent of the population aged 65–74 being SNS users in 2016 (Sala *et al.*, 2020). In this respect, the Italian case constitutes an interesting case study, as Italy is one of the European countries in which a large share of adults may be potentially excluded from new means of socialisation and communication unless SM adoption is fostered.

Life satisfaction is a key dimension of wellbeing (Pavot *et al.*, 1991; Cheung and Lucas, 2014). Despite the role that SM may play in older people's lives, there is very little research into the effects of SM adoption on life satisfaction in the ageing population. This is in stark contrast with studies that have explored the impact of SM use in other age groups, documenting the relevance of this topic (*e.g.* Ferguson *et al.*, 2014; Zhan *et al.*, 2016; Hawi and Samaha, 2017; Sahin, 2017; Orben *et al.*, 2019). To the best of our knowledge, only one study has explored the relationship between SM use and life satisfaction in later life (Gaia *et al.*, 2021). However, as we discuss in the next section, this study has limitations, which our work aims to overcome by providing a deeper understanding of the relationship between SM use and life satisfaction in older age.

The empirical context

Issues concerning older people's ICT use are widely debated in the literature (*see e.g.* Bell *et al.*, 2013; Cotten *et al.*, 2013; Baker *et al.*, 2018; Fuss *et al.*, 2019). However, despite the increasing spread of SM use within older people (*see e.g.* Sala and Gaia, 2019), there is still a paucity of research investigating the relationship between SM use and life satisfaction in old age. For example, in their recent

systematic review on SNS use in old age, Newman *et al.* (2021) did not mention any articles focusing specifically on life satisfaction.

To frame the empirical context of our work, we draw on the relatively wider literature that has explored the relationship between SM use and older people's wellbeing, focusing specifically on research that compares SM users with non-users. We acknowledge that other studies have explored the broader implications of SM use in old age (*e.g.* Chang *et al.*, 2015; Campos *et al.*, 2016; Jung and Sundar, 2016, 2018; Sinclair and Grieve, 2016; Yu *et al.*, 2018). However, this research is normally carried out with samples of SM users only; this hampers comparisons with older people who are not SM users and prevents a full understanding of the impact of SM use in old age.

Studies that are based on a comparison of samples of SM users and non-users have mainly investigated the impact of SM use on different indicators of wellbeing, including loneliness, social support and social capital (Erickson, 2011; Sundar *et al.*, 2011; Aarts *et al.*, 2015; Hutto *et al.*, 2015; Yu *et al.*, 2016; van Ingen *et al.*, 2017; Chan, 2018; Chang *et al.*, 2018; Quinn, in press). Findings from this research have consistently shown that SM use may have a positive (or null) effect on wellbeing in old age. For example, Yu *et al.* (2016) documented that SNS use is positively associated with non-kin-related social wellbeing outcomes, including perceived support from friends and feelings of connectedness. However, their analysis also showed that among all kin-related social wellbeing outcomes, SNS use only predicts increased perceived support from children. In addition, some studies have documented that SM use may have a positive (or null) effect on older people's mental health (Richter *et al.*, 2013; Kim and Kim, 2014; Aarts *et al.*, 2015). For example, Myhre *et al.* (2017) demonstrated that Facebook use can improve a specific executive function factor associated with complex working memory tasks, whereas Quinn (2018) found that SM use can improve one out of four domains of cognitive functioning (*i.e.* inhibitory control). We are aware of only two studies showing that SM use may affect older people's mental health because their use is found to be associated with memory failures (Sharifian and Zahodne, 2020) or poor sleep quality (van der Velden *et al.*, 2019).

Despite their relevance, findings from these studies raise concerns regarding their generalisability because they are usually carried out on small/non-probability samples or are focused predominantly on the case of the United States of America. In addition, as previously mentioned, there is a scarcity of research investigating the relationship between SM use and life satisfaction in old age. To the best of our knowledge, there is only one study dealing with this topic. Specifically, analysing data from the 2017 Eurobarometer, Gaia *et al.* (2021) documented that in Europe, SNS use is positively associated with life satisfaction in old age, controlling for economic and socio-demographic conditions. However, this work has three main limitations. First, due to data availability limitations, the authors are not able to control for important confounding factors such as older people's health conditions and the characteristics of their offline social networks. Thus, they cannot exclude that the association between SNS use and life satisfaction in old age is mediated by these variables, which, as acknowledged by the authors themselves in their review of the literature, are associated both with SNS use and life satisfaction. Second, the authors focus solely on SNSs, excluding social messaging apps, such as WhatsApp or Facebook Messenger, even though these are relevant tools

to develop and strengthen social relationships. Third, Gaia *et al.* (2021) perform a multicohort analysis; however, due to their small sample size, the authors are not able to disentangle the younger and older old individuals. The aim of our study is to provide an in-depth investigation of the relationship between SM use and life satisfaction in old age, net of possible characteristics that may confound the nature of this association, including older people's health conditions and social network characteristics. Drawing on previous research, we posit that SM use might have a positive impact on older people's life satisfaction. We focus on three age groups of older Italians, *i.e.* people aged 55–64, 65–74 and 75 or over. Overcoming the limitations of previous research, our work contributes to a better understanding of the role that SM may play in older people's lives.

Data

To address our research aims, we use data from the 2018 Multipurpose Survey – Aspects of Everyday Living, which is the most recent dataset available with information both on respondents' SM use and life satisfaction. The Multipurpose Survey – Aspects of Everyday Living is a cross-sectional survey of Italian households run by the Italian National Statistical Institute (ISTAT) since 1993, collecting a wide range of information on a variety of topics, including individuals' health conditions, financial situation, socio-economic background and social relations. The survey is based on a two-stage cluster sample, where the primary and secondary sampling units are municipalities and households, respectively. In 2018, the responding sample consisted of 44,672 individuals nested in 19,051 households; the response rate was 76 per cent.[1] Our analysis sample consists of 16,925 respondents aged 55 and over.

Methods

When exploring the relationship between SM use and life satisfaction in old age, we perform a set of linear regression models. The use of the linear specification assumes that the response categories for the dependent variable are cardinal; the treatment of subjective wellbeing measures as cardinal is common in the literature (*e.g.* Zhu and He, 2015; Kubiszewski *et al.*, 2018; Reuschke, 2019) and is supported by methodological evidence (Kristoffersen, 2017). For a recent and detailed methodological discussion on the debate about the metrics of the 11-point subjective wellbeing measurement scale, see Kristoffersen (2017). We run two separate models. In Model 1, we include only the independent variable, *i.e.* SM use; in Model 2, we control for a set of variables (described below). We re-run the same analysis for each age group (*i.e.* 55–64, 65–74 and 75 or over). In addition, given the structure of the data (individuals nested within households), we adjust the standard errors to account for the clustering of individuals within households (Rogers, 1993). The bivariate analysis is performed using the Istat survey weights. All analyses are carried out using Stata version 13. Table 1 shows a description of the variables included in the regression model based on all interviewed respondents aged 55+.

Table 1. Dataset description

Variables	%	SE	95% CI
Life satisfaction (mean)	6.9	0.016	6.8–6.9
Social media use (last 3 months): yes	32.2	0.004	31.5–33.0
Age:			
55–64	37.5	0.004	36.6–38.3
65–74	30.9	0.004	30.2–31.7
75+	31.6	0.004	30.8–32.4
Gender: male	45.4	0.004	44.6–46.3
Education:			
Graduate or post-graduate degree	9.0	0.003	8.5–9.5
Upper secondary school	26.1	0.004	25.3–26.9
Lower secondary school	30.0	0.004	29.3–30.8
Primary school or no education	34.9	0.004	34.1–35.7
Marital status:			
Married and co-habiting	61.0	0.004	60.2–61.9
Single or never married	7.7	0.002	7.3–8.2
Separated or divorced	10.0	0.003	9.5–10.6
Widowed	21.2	0.004	20.5–21.9
Occupation:			
Manager, entrepreneur, professional	8.5	0.002	8.0–9.0
Employee	26.8	0.004	26.1–27.6
Manual worker	33.3	0.004	32.5–34.2
Self-employer, business partner in a co-operative, business partner in family business, occasional worker	16.0	0.003	15.4–16.7
Never in paid employment	15.4	0.003	14.7–16.0
Evaluation of the family economic situation (last year): optimal or adequate	63.0	0.004	62.1–63.8
Housing tenure:			
Home-ownership	81.2	0.004	80.5–81.9
Renting or sub-renting	12.7	0.003	12.1–13.3
Other	6.1	0.002	5.7–6.6
Household size:			
1	24.9	0.004	24.2–25.7
2	41.5	0.004	40.7–42.4
3–4	29.3	0.004	28.5–30.0
5+	4.3	0.002	4.0–4.7

(*Continued*)

Table 1. (*Continued.*)

Variables	%	SE	95% CI
Macro-region of residence:			
North	46.9	0.004	46.0–47.7
Centre	20.4	0.004	19.7–21.1
South or main islands	32.7	0.004	32.0–33.5
Self-reported health:			
Very good or good	42.6	0.004	41.7–43.4
Neither good nor bad	44.8	0.004	43.9–45.6
Bad or very bad	12.7	0.003	12.1–13.2
Limitations in activities due to health problems: yes	43.7	0.004	42.9–44.6
Mental Health Index (MH5) (mean)	6.5	0.017	6.5–6.5
Frequency of meeting with friends:			
Every day	12.1	0.003	11.5–12.7
More than once a week	22.1	0.004	21.4–22.8
Once a week	18.3	0.003	17.6–19.0
Less than once a month	20.3	0.004	19.6–21.0
Few times a year	15.4	0.003	14.8–16.1
Never/I do not have friends	11.9	0.003	11.3–12.4
Social support index: yes	78.9	0.004	78.1–79.6

Notes: N = 16,925. Data are weighted. SE: standard error. CI: confidence interval.
Source: ISTAT Multipurpose Survey – Aspects of Everyday Living, 2018.

Dependent and independent variables

Our dependent variable is self-reported life satisfaction, which is a single-item scale measured with the following question: 'How satisfied are you with life overall on a scale from 0 to 10?' This variable is considered a reliable indicator of life satisfaction, as documented in Cheung and Lucas (2014) and Pavot *et al.* (1991). Missing values constitute 1.3 per cent of the analysis sample.

The independent variable is SM use; this is a derived dummy variable assuming the value of 1 if respondents have performed at least one of the following five communication activities in the last three months: (a) used instant messaging services (*e.g.* WhatsApp) or sent messages through chats, blogs, newsgroups or online discussion forums; (b) participated in SNSs (*e.g.* created a user profile, posted messages or other activities on Facebook, Twitter, Instagram, Snapchat, *etc.*); (c) expressed opinions on social or political issues through websites (*e.g.* blogs, SNSs, *etc.*); (d) participated in professional networks (*e.g.* created a profile, posted messages or made other contributions on LinkedIn, Xing, *etc.*); and (e) uploaded content of their own creation (*e.g.* texts, photographs, music, videos or software) on websites to share them. Additionally, the variable takes value 0 if respondents

reported not engaging in any of the aforementioned activities. Missing values in our derived SM use variable are 1.5 per cent of the sample.

Control variables

We included three types of control variables in the models that both previous research and our own analysis have documented as being associated both with the dependent and the independent variables, *i.e.* older people's demographic and socio-economic situations, health conditions and social network characteristics (for a review, see Gaia *et al.*, 2021).

Demographic and socio-economic variables

Gender is a dummy variable taking the value of 1 if respondents are male and 0 if they are female; indicators for older people's socio-economic status are education and type of occupation. Education has the following categories: 'graduate or post-graduate degree', 'upper secondary school', 'lower secondary school' and 'primary school or no education'; type of occupation is categorised as follows: 'manager, entrepreneur, professional', 'employee', 'manual worker', 'self-employed, business partner in a co-operative, business partner in a family business, occasional worker' and 'never in paid employment'. For retired respondents, we considered their last occupation. As proxies for people's financial situation, we used a self-evaluation of respondents' financial situation and housing tenure. The former is a dummy variable derived from the following survey question: 'With reference to the last 12 months and considering the needs of all household members, how would you consider, overall, the financial situation of your household?' The dummy variable takes value 1 if respondents' evaluation is 'optimal or adequate' (and is 0 if it is 'scarce or absolutely insufficient'). The latter is included in the model using three categories: home-ownership, renting or sub-renting, and free of charge use or other. The area of residence is categorised into three macro regions: 'North', 'Centre' and 'South or main islands'.

Health conditions

We also included two indicators for respondents' physical health and one indicator for mental health. Concerning physical health, we used two measures of older people's self-assessed health. The former is based on the following survey question: 'Overall, how would you rate your health?', and the response categories are coded as 'very good/good', 'neither good nor bad' and 'bad/very bad'. The latter is a dummy variable derived from the following question: 'Due to health problems, to what extent do you have limitations that have lasted for at least six months in the activities that people usually do?' We coded the variable as 1 if the response categories were 'serious limitations' or 'minor limitations' and 0 if the response category was 'no limitations'.

Mental health is measured with the MH5 index, which is based on the following five-item scale belonging to the Short Form 36 (SF36) battery (Ware *et al.*, 2000): 'How much of the time during the past four weeks … have you felt calm and peaceful; have you felt so down in the dumps that nothing could cheer you up; have you been a nervous person; have you felt down; have you been a happy person?' Response categories are 'all of the time', 'most of the time', 'a good bit of the

time', 'some of the time', 'a little of the time' and 'none of the time'. The MH5 index varies between 0 and 10 (where 10 indicates the mentally healthiest) and is obtained by normalising the raw MH5 index, *i.e.* the sum of the scores to each question (Kristoffersen, 2017).[2]

Social relations

The Multipurpose Survey – Aspects of Everyday Living collects information on respondents' social relations. First, as proxies for household characteristics, we use marital status and household size. Marital status is coded into four categories: 'never married', 'married or cohabiting', 'separated or divorced' and 'widowed'. Household size is coded as '1', '2', '3 or 4' and '5+' household members. Second, we included in our study a variable measuring the frequency of contact with friends, operationalised with the question 'How often do you see friends in your spare time?', which has the following response categories: 'every day', 'more than once a week', 'once a week', 'less than once a month', 'a few times a year', 'never' and 'I haven't got any friends' (in the analysis, we collapse these latter two categories into one single category). Finally, we computed a categorical index of perceived social support, which is given by combining respondents' answers to three yes/no survey questions. These are 'Apart from parents, children, brothers and sisters, grandparents and grandchildren, do you have any other relatives you particularly care about and whom you can count on?' and 'Do you have one or more friends you can count on in case of necessity? Do not consider your relatives' and 'Apart from your relatives (or your spouse's relatives), do you have any neighbours whom you can count on in case of necessity?' The resulting social support index is a dummy variable with value 0 if the respondent states that he or she receives no support for all three variables (*i.e.* answering 'no' to all three questions), and 1 if he or she reports at least one type of support.

Results

Table 2 shows the results from the regression analysis investigating the association between SM use and life satisfaction in old age. Model 1 shows that for all age groups, there is a positive and statistically significant relationship between SM use and life satisfaction. This relationship is stronger for older people aged 75 or over; for this age group, SM use increases life satisfaction by nearly one point on a 0–10 scale (0.8, $p = 0.000$). After controlling for the factors that may confound the nature of this relationship (Model 2), the association between SM use and life satisfaction still persists, although the coefficients are smaller and, in the case of the 65–74 age group, the resulting coefficient is not significant ($p = 0.082$) at standard significance levels. Specifically, for the younger age group, *i.e.* 55–64, SM use increases life satisfaction by 0.1 points, whereas for the older age group, SM leads to an increase in life satisfaction of 0.2 points.

Discussion and conclusions

SM may play a key role in boosting older people's wellbeing, providing them with additional resources to engage actively with their social networks and society

Table 2. Regression models showing the association between social media use and life satisfaction in Italy

	Age groups					
	55–64		65–74		75+	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Beta coefficient	0.328***	0.106*	0.305***	0.086	0.796***	0.206*
N	6,137	5,251	5,163	4,595	5,212	4,733
Controls		✓		✓		✓

Notes: Models are estimated using Stata's reg command. Controls are: age, gender, education, marital status, occupation, evaluation of the family economic situation, housing tenure, household size, macro-region of residence, self-reported health, limitation in activities due to health problems, Mental Health Index, frequency of meeting with friends and social support. Standard errors are clustered within households.
Source: ISTAT Multipurpose Survey – Aspects of Everyday Living, 2018.
Significance levels: * $p < 0.05$, *** $p < 0.001$.

overall. Surprisingly, despite the increase in SM use in old age, there is relatively little research investigating the impact of SM use within the ageing population, especially on life satisfaction, a key dimension of wellbeing.

The aim of this study was to investigate empirically the association between SM use and life satisfaction amongst three age groups, *i.e.* 55–64, 65–74 and 75 or over. To pursue our aims, we employed linear regressions and analysed a nationally representative probabilistic survey, *i.e.* the Multipurpose Survey – Aspects of Everyday Living. This survey collects information on an extensive set of background variables, thus allowing us to control for possible confounding factors. Our study clearly shows that for all age groups, there is a positive and significant association between SM use and life satisfaction that persists even after controlling for older people's demographic and socio-economic characteristics, health conditions and social network characteristics (for the age group 65–74, the relationship is not statistically significant at standard significance levels). For all age groups, the inclusion of the control variables notably reduced the strength of the relationship between SM use and life satisfaction, *e.g.* for people aged 75 or over, the regression coefficient decreased from 0.8 to 0.2.

We believe this study contributes to the disentangling of the relationship between SM and wellbeing in old age. In line with previous research evidence, we documented that SM use may boost older people's life satisfaction, possibly reinforcing intragenerational relationships and offering additional resources to nurture and expand social bonds. However, given the marked differences within older people in ICT uptake (Sala and Gaia, 2019), only a selected group of older people, *e.g.* the most educated and the wealthiest, can enjoy the benefits associated with SM use; this situation contributes to reinforcing social inequalities. Therefore, urgent policy interventions are needed, especially in Italy, to empower frail older people digitally, offering them new opportunities for socialising and ageing actively. These interventions may include the funding of more traditional ICT courses, especially tailored to meet older people's needs and expectations, as well as the design of

innovative methodologies (*e.g.* based on the peer-to-peer approach) to teach less-ICT savvy older people the skills they need to enjoy fully the benefits of a digitalised society. In Italy, these interventions may be enacted within the broader framework of the recently published *Guidelines for the Design of the National Recovery and Resilience Plan. #NextgenerationItalia* (Comitato Interministeriale per gli Affari Europei, 2020), which identifies digitalisation and social inclusion amongst its nine pillars.

Our work has limitations. Specifically, we have documented a positive association between SM use and life satisfaction in old age. However, while we did control for observable characteristics that we assumed to be associated with both the dependent and independent variables, we cannot exclude the possibility that unobservable factors may influence the relationship between SM use and life satisfaction. In addition, while this study identifies an association between SM use and life satisfaction, it remains unclear whether the relationship is *causal* and, if so, which is the direction of the causal link. Additionally, older people, especially the age group 75+, is selected by mortality: it remains unexplored whether this selection mechanism leads to selectivity bias and has any impact on our research findings. In addition, due to data availability limitations, it remains unclear whether this relationship is driven by SM use *per se* or, rather, by the *intensity and frequency* of SM use. Moreover, when investigating the relationship between SM use and life satisfaction, we controlled for older people's financial situations by using as a proxy a variable measuring the level of satisfaction with one's financial situation. This, however, may not necessarily be a valid indicator of older people's actual financial situations (the users' version of the Multipurpose dataset does not include information about household income). Last, although previous research has documented the stability of the relationship between SM use and life satisfaction across European countries (Gaia *et al.*, 2021), this study focused on one specific case, *i.e.* Italy.

We believe future studies can advance current knowledge in this field in numerous ways. Further research may empirically assess the causal relationship between SM use and life satisfaction in later life, *e.g.* by using experimental designs or adopting the instrumental variables approach. Moreover, future studies may employ a different modelling strategy that takes into account the effect of selection due to mortality on the estimated association between SM use and life satisfaction. Additionally, cross-country comparative research may contribute to highlighting the differences and similarities in the ways older people may benefit from SM use.

In this work, we focused on a specific dimension of wellbeing, *i.e.* life satisfaction. Further studies may replicate our research using different indicators of wellbeing (*e.g.* happiness) to augment the body of evidence in this field. Findings from this research may contribute to a better understanding of the factors that lead to healthy and active ageing for all.

Conflict of interest. The authors declare no conflicts of interest.

Ethical standards. Ethical approval was not required as the empirical research is based uniquely on secondary data analysis.

Notes

1 The values of the negative items were reversed before computing the raw index.
2 For further information, see http://siqual.istat.it/SIQual/visualizza.do?id=0058000&refresh=true&language=EN.

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