Review

Social media use and well-being among older adults
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Abstract
While older adults (aged 65 years and older) are increasingly using social media, their usage rates still lag those of younger age groups. Social media use has been observed to have some positive effects on older adults' well-being; however, divergent findings exist depending upon the sample, measures, and methodological approach. This review highlights what is currently known about social media use and well-being among older adults, identifies strengths and weaknesses of current research on this topic, and argues that methodological and content-related research gaps must be closed before researchers can confirm a positive overall effect of social media use in everyday situations for older adults.

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Introduction
More people around the world are turning 65 each day than at any point in history [1]. With high levels of chronic diseases, multimorbidity, and loss of social network ties among older adults (e.g., due to death of partners or geographical distance to social ties), social media use (SMU) may be one technologically focused way to keep older adults engaged with their social ties and society more generally as well as to reduce isolation and loneliness [2]. The construct of social media is broadly defined, with varying definitions and specific types of social media applications. Following Aichner et al. [3], we define it as a range of platforms, including social networking sites, virtual communities, blogs, social gaming, video sharing, and so forth, that allow users to share content and connect and interact with others online.

The current COVID-19 pandemic has led to a worldwide situation in which older adults, in particular, need to avoid physical contact. Digital solutions such as social media have been proposed as one way to help maintain contact [4,5]. Gerontological research emphasizes the heterogeneity of lifestyles in older adults, and thus also the diversity of their use of technical devices and services such as social media [6]. We provide an overview of recent research on SMU among older adults, primarily from the U.S. and Europe, and detail the extant research which links SMU to well-being for this population (see Table 1). A critical assessment of methodological issues and directions for future research are also documented.

Social media use among older adults
Research examining social media use among older adults is increasing. As Table 1 illustrates, 18 articles were published in 2021 as of December, up from six articles in 2020. As technology use in general and SMU in particular are increasing among older adults, it is not unexpected that research on older adults' SMU would also increase. Seventy-three percent of U.S. community-dwelling individuals (i.e., those who do not live in long-term care or other types of facilities) aged 50 to 64 report using social media sites; however, this number decreases to 45% for individuals aged 65 and older [7]. In a representative Swiss study, only 29% of the 65 and older aged respondents used social networking sites, such as Facebook or Twitter; however, 81% used the Internet for chatting and writing to others [8]. The percentages of Internet use and SMU in care facilities such as nursing homes and dementia care centers are lower than those among community-dwelling older adults [9].

Facebook is the most commonly used social media site for older adults according to Pew's 2021 U.S. study; 73% of community-dwelling individuals aged 50–64 reported using Facebook compared to approximately 50% of those aged 65 and older [7]. Among 50–64-year-olds, 83% reported using YouTube, 73% Facebook, and 38% Pinterest. Usage rates decrease for individuals aged 65

Table 1

Current studies with select methodological details (2019–2021).

Citation	Sample size, age, and country	Study design	SMU measures	Well-being measures	SMU and well-being results
2021					
Byrne et al. (2021) [14]	N = 4,315; 50 years and older; US	Cross-Sectional (Health & Retirement Study 2016 wave)	Social technology use (self-report): 3-items measured how often communicate by: 1) Skype, 2) Facebook, or 3) Other social media with any of your (children, other family members, friends) omitting those they lived with [6-point Likert scale (1 = Less than once a year to never to 6 = Three or more times a week)].	Loneliness (11-item revised UCLA loneliness scale using a 3-point Likert scale), Perceived social support (12-items using a 4-point Likert scale), Perceived social negativity (16-items using a 4-point Likert scale), Social engagement (7-items using a 7-point Likert scale), Social contact (9-items using a 6-point Likert scale).	Social media use was associated with lower levels of loneliness. Social media use predicted frequency of social engagement and contact with family and friends, which is predicative of lower feelings of loneliness. Rural-dwelling older adults reported less social media use than suburban or urban-dwelling older adults. Rural older adults who used social media less frequently experienced higher levels of loneliness than urban older adults.
Casanova et al. (2021) [13]	N = 39; 79–84 years; Italy	Qualitative (Semi-structured interviews with a sample of the participants who completed a pre-post SMU intervention)	SMU experience (self-report): 1) Close-ended (Yes/No) question on Facebook and WhatsApp use, 2) Those who answered "Yes" were asked open-ended questions on feeling about SMU, who they chatted with, how they used Facebook and WhatsApp, 3) Those who responded "No" were asked open-ended questions on feelings about SMU and barriers to SMU.	All participants answered questions on 1) SMU and 2) Social media usefulness to counteract loneliness.	SMU has the possibility to improve older adults' social life and may help reduce feelings of loneliness, especially for those who live alone. Some older adults do not find value in online interactions through SMU and believe that the only way to achieve a social life is through offline social interactions.
Casanova et al. (2021) [47]	Scoping review of experimental studies pertaining to older adults' social media use and well-being.				
Francis (2021) [48]	N = 415; 65 years and older; US	Cross-Sectional	Facebook use (self-report): 1) Frequency of Facebook activities scale [5-point Likert scale (1 = Never to 5 = Always)], 2) Facebook intensity scale [5-point Likert scale for first 6-items (1 = Strongly disagree to 5 = Strongly agree)], 3) Total number of Facebook friends, 4) Average time actively using Facebook in the past week.	Mattering (24 -item Mattering index (Elliot, Kao, & Grant, 2004;) using a 5-point Likert scale), Loneliness [ULS-8 using a 5-point Likert scale (1 = Strongly disagree to 5 = strongly agree)], Social disconnectedness (LSNS-6 with responses ranging from 0 = None to 5 = Nine or more), Depression (PHQ-2 with responses ranging from 0 = Not at all to 3 = Nearly every day), Self-reported health [1-item measured with 5-point Likert (1 = Poor to 5 = excellent)].	Older adults who had more frequent Facebook activity use had more feelings of mattering and less feelings of loneliness. The relationship between Facebook use and loneliness was mediated by perceived mattering.

Fu & Xie(2021) [34]	N = 1,278; 60 years and older; China	Cross-Sectional (2017 Chinese General Social Survey)	SMU (self-report): Amount of contact with family and friends through WeChat, mobile phones, or other network communication devices (Response options 1 = All or almost all to 6 = I have not used any of these devices).	Physical health [1-item measured with a 5-point Likert scale (1 = Always to 5 = Never)], Mental health [1-item measured with a 5-point Likert scale (1 = Always to 5 = Never)].	Older adults with more frequent SMU had better physical and mental health.
Gaia et al. (2021) [27]	N = 26,313; 15 years and older (7,566 were 65 years and older); Europe	Cross-Sectional (2017 Standard Eurobarometer 88 Survey)	Social Networking Site use (self-report): Frequency of social media use (Every day/amost every day to Don't know).	Life satisfaction [1-item (Very satisfied to Don't know).	For older adults (65 years and older), more SMU is related to feeling more satisfied with life when compared to non-social media users.
Hajek & Konig (2021) [4]	Review of three nationally representative samples looking at SMU and well-being.				
Han et al. (2021) [12]	N = 16; 60–80 years; Singapore	Qualitative (Semi-structured interviews)	SMU (self-report): Open-ended questions on 1) Benefits/barriers to SMU, 2) Reasons for SMU, 3) Differences between SMU and other communication options.	Social influences (Open-ended question on how family/friends feel about SMU), Health (Open-ended question on direct and indirect health impacts of SMU and an example of a time SMU affected health).	Older adults' attitudes and social support influence their SMU. Benefits of SMU include the ease of initiating contact with others, the ability to keep up with others, and availability of social support with using social media sites. Barriers to SMU include the perception that the quality of communication was less personal and there was a potential to compromise their privacy. SMU was perceived as a way to remain cognitively engaged, improve health communication, and increase social connection. Some older adults felt that a consequence of SMU is social media addiction.
Hofer & Hargittai (2021) [32]	N = 1,026; 60 years and older; US	Cross-Sectional	Online social engagement (self-report): How often, if ever, have you done the following online using a computer, a tablet, or a smartphone? 1) Looked at photos of family members, 2) Looked at photos of people you care about who are not family members, 3) Looked at people's updates on social media, 4) Clicked on links people shared on social media, 5) Asked a question in a form/on social media, 6) Answered a question someone else had asked in a forum/on social media, 7) Checked in on a person who was suddenly absent from an online	Anxiety (5-item Beck Anxiety Inventory), Depression (Center for Epidemiologic Studies Depression Scale), Self-reported health (1-item measured from Excellent to Poor).	Older adults who reported that they were more prone to check in on someone who was suddenly missing from an online community or group had higher anxiety and higher depression. Those who looked at status updates more often had lower feelings of anxiety. Older adults who spent more time looking at photos of others had more feelings of anxiety. Those with a higher likelihood to answer questions that someone else asked in a forum/on social media had higher depression.

Table 1. (continued)

Citation	Sample size, age, and country	Study design	SMU measures	Well-being measures	SMU and well-being results
			community or group (never, once, two or more times). Internet experiences (self-report): 1) Average weekday hours spent visiting websites including social media (but not counting email), Average weekend hours spent visiting websites including social media (but not counting email), 3) Autonomy of use (at which 9 locations can use Internet if wanted to), 4) Internet skills (level of understanding of Internet-related terms).		
Kouvonen et al. (2021) [30]	N = 1,082; 50 years and older; Finland	Cross-Sectional (The Care, Health and Ageing of Russian-speaking Minority in Finland)	SMU (self-report): Do you use social media (Yes/No).	Depression (8-item Center for Epidemiologic Studies Depression Scale), Self-rated health (1-item measured from Good to Poor).	Older adults with symptoms of depression had higher likelihood of social media non-use, even when controlling for sex, age, marital status, education, income, citizenship, and type of participation.
Newman et al. (2021) [36]	Systematic review of social media literature between 2004 and 2017.				
Sala et al. (2021) [25]	N = 16,925; 55 years and older; Italy	Cross-Sectional (Multipurpose Survey - Aspects of Everyday Living 2018)	SMU(self-report): In the last 3 months: 1) Used instant messaging, 2) Participated in social networking site, 3) Expressed opinion on social networking site, 4) Participated in professional networks, or 5) Uploaded content (1 = Yes to any of the options, 0 = No to all options).	Life satisfaction (1-item measured on scale of 0−10), Self-rated health (1-item measured from Very good to Very bad), Depression (MH5), Frequency of contact with friends (Responses ranged from Every day to I haven't got any friends), Perceived social support (combined 3-items).	Older adults who use social media have higher life satisfaction.
Sheldon, et al. (2021) [23]	N = 293; 50−91 years; US	Cross-Sectional	Facebook use (self-report): 1) Do you use Facebook? (Yes/No), 2) Those that said "Yes" completed 33-item scale measuring motivation for use [5-point Likert scale (1 = Very unimportant to 5 = Very important)]. Instagram use (self-report): 1) Do you use Instagram? (Yes/No), 2) Those that said "Yes" completed 24-item scale measuring motivation	Life position indicators (Interpersonal interaction, Social activity, Life satisfaction, Economic security, Physical health) [15-life position statements (3 for each indicator) using a 5-point Likert (1 = Strongly disagree to 5 = Strongly agree)].	Older adults who were more content in life were less likely to use Facebook or Instagram to ease feelings of loneliness or boredom. Facebook using older adults who were satisfied with their offline interactions were less likely to go on Facebook when bored, lonely, or to meet new people. Instagram using older adults who participated in more

			for use [5-point Likert scale (1 = Never to 5 = Very often)].		offline social activities were more likely to go on Instagram for scrolling, posting updates, or showing off. Older adults who feel more socially connected are less likely to use Instagram for scrolling, when bored/lonely, to find new people, to post updates, or to show off.
Vogel et al. (2021) [20]	Platform Data *N* = 92; 18 years and older; Online Survey *N* = 28; 44−82 years; Interview *N* = 8; 47−84 years; Germany	Mixed-Methods	MyNeighbors Platform data (User activity and contributions), Online survey [50-items about the platform using a 4-point Likert scale (1 = Agree to 4 = Disagree), multiple-choice, and open-ended questions], Interview (open-ended questions on platform usage).	Online Survey containing questions about social connectedness and social participation using a 4-point Likert scale (1 = Agree to 4 = Disagree), Interviews (Open-ended questions on social connectedness and social participation).	Older adults maintained and increased social connection through SMU.
Yang et al. (2021) [19]	*N* = 221; 50 and older; China	Cross-Sectional	WeChat use (self-report): Active WeChat use (3-items) and Passive WeChat use (4- items). Both using 6-point Likert scale (1 = Never to 6 = Several times on day).	Online social support [10-item revised Social Support Scale], Upward social comparison [5-item Iowa−Netherlands Comparison Orientation Measure], Social presence [4-item], Loneliness [3-item revised UCLA Loneliness Scale], Life satisfaction [5-item Life Satisfaction Scale], Online social interaction [2-item National Survey of American Life], Self-rated health (Not good to Very good).	Active WeChat use was significantly associated with loneliness. Both active and passive WeChat use had positive relationships with online social support and upward social comparison. Active WeChat use and passive WeChat use indirectly decrease older adults' loneliness, mediated by an increase in social presence. Online social support and upward social comparison mediated the relationship between active WeChat use and social presence and the relationship between passive WeChat use and social presence. Active WeChat use and loneliness were mediated by online social support. There was a significant negative direct effect of active WeChat use on loneliness.
Yildirim & Ogel-Balaban (2021) [29]	*N* = 70; 55−84 years; Turkey	Cross-Sectional	Assessment of Facebook use (self-report): Facebook form including questions on: 1) Number of Facebook friends, 2) Time spent daily on Facebook, 3) Length of time having an account, 4) Patterns of use including uploading photos, posting status, liking/commenting on others' contents, following posts [5-point	Short-term memory (Forward digit span task), Working memory (Backward digit span test, Trail Making Test B), Set-shifting (Trail Making Test B), Ihibitory control (Stroop task), Visual scanning ability (Trail Making Test A), Processing speed (Trail Making Test A, Digit Symbol Substitution Test), Semantic fluency (Category fluency test), Verbal fluency (Letter fluency test), Verbal	Facebook using older adults had a faster processing speed compared to older adults without a Facebook account. Those who had more Facebook friends performed better in semantic fluency, verbal episodic memory, and processing speed. Older adults who have had a Facebook account longer perform better in

Table 1. (continued)

Citation	Sample size, age, and country	Study design	SMU measures	Well-being measures	SMU and well-being results
			Likert scale (1 = Never to 5 = Very frequently)].	episodic memory (Free and Cued Selective Reminding Test), Perceived offline social support [12-item Multidimensional Scale of Perceived Social Support using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree)], Offline social connectedness (Social Network Index).	semantic fluency and worse in inhibitory control. Older adults who actively use Facebook had better working memory and processing speed. Those with more passive Facebook use had better processing speed.
Zhao (2021) [26]	N = 306; 55 years and older; China	Cross-Sectional	Social use (self-report): 3-item measurement on making new friends, finding old friends, and keeping in touch with friends through social media, Entertainment use (self-report): 2-item measurement on using social media to enjoy fun and to spend time online [5-point Likert scale was used for both (1 = Strongly disagree to 5 = Strongly agree)].	Social integration [4-item Social Integration Scale using a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree)], Life satisfaction [5-item Migration Life Satisfaction Measurement Scale using a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree)], Self-esteem [10-item Self−Esteem Scale (1 = Strongly disagree to 4 = Strongly agree)].	Older adults with lower self-esteem spend more time using social media for social purposes and entertainment purposes. Those who spend more time on social media for entertainment purposes feel a lesser sense of belonging. Older adults with higher SMU for social purposes feel a greater sense of belonging and are more satisfied with life.
Zhao et al. (2021) [17]	N = 244; 60 years and older; China	Cross-Sectional	Mobile SMU (self-report): 1) Average time spent on social media daily (1 = Less than 1 hour to 5 = More than 4 hours), 2) Reliance [2-items using 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree)].	Social integration, Life satisfaction, Social capital (4-item bonded social capital scale and 4-item bridging social capital with both using a 5-point Likert scale with responses from 1 = Strongly disagree to 5 = Strongly agree).	Older adults who spend more time using social media daily have higher feelings of social connectedness and life satisfaction. SMU indirectly improves older adults' sense of belonging by increasing feelings of social connectedness.
2020					
Başak (2020) [22]	N = 233 (S1) N = 2,591 (S2); 50 years and older; Turkey	Cross-Sectional	Facebook use (self-report) S2: 1) Daily time spent on Facebook, 2) Number of Facebook friends.	Facebook Social Benefit Scale (5-point Likert scale).	Online social connectedness was higher for Facebook using older adults who are 60 years and older, non-employed or retired, spend more than two hours online daily, and have more Facebook friends.
Clark & Maloney (2020) [21]	N = 127; 65−94 years; Australia	Cross-Sectional	Facebook use (self-report): 1) Daily Facebook use [7-point Likert scale (1 = Very rarely to 7 = Very frequently)], 2) Estimate of daily time on Facebook, 3) Frequency of engagement with 10 different Facebook activities [7-point Likert scale (1 = Never to 7 = Always)].	Relatedness, Competence, and Autonomy [18-item Balanced Measure of Psychological Needs scale using a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree)], Mobility [2-item adapted version of the Life-Space Assessment of personal mobility using a 7-point Likert scale (1 = Never to 7 = All the time)].	Older adults who use Facebook more frequently reported feeling more socially connected compared to older adults who use Facebook less frequently. Less mobile older adults, compared to older adults with medium and high mobility, spend more time each day on Facebook. For older adults who are not employed, using

					Facebook less frequently was related to less social connectedness compared to those who used Facebook more frequently.
He et al. (2020) [18]	N = 1,399; 55 years and older; China	Cross-Sectional (Wave 1 of a national baseline survey)	Social media engagement (self-report): 1) Number of friends on WeChat, 2) Average weekly time using WeChat, 3) Diversity of WeChat activities [18-items (Yes/No)].	Informal social participation [6-items using a 4-point Likert scale (1 = Rarely to 4 = Very often)], Formal social participation [4-items using a 4-point Likert scale (1 = rarely to 4 = very often)], Self-reported health [5-point Likert scale (1 = very poor to 5 = very healthy)], Vision [10-item acuity test for font size (Yes/No responses], Hearing [Volume voice test (1 = No to 3 = Very clear)], Mobility [Need for a physical aid outside the home (1 = Not at all to 3 = Almost every time)], Cognitive functioning (12-items).	WeChat users who have more diverse WeChat activities (social networking, information sharing and creation, payment services, and advanced creation) and those with more WeChat friends have higher informal social participation (e.g., dance activities sports/exercise activities) and formal social participation (e.g., social group and/or organizational activities).
Khoo & Yang (2020) [35]	N = 1,735; 40−74 years; US	Cross-Sectional [Midlife in the Unites StatesRefresher Cognitive Project]	SMU (self-report): 1) Frequency of SMU to contact distant family members (who have not lived with them) in the past year, 2) Frequency of SMU to contact friends in the past year. Using an 8-point Likert scale for both (1 = Several times a day to 8 = Never or hardly ever).	Perceived social support (4-items with responses from (1 = A lot, 4 = Not at), Sense of control [Personal mastery and Perceived constraints; 12-item using 7-point Likert scale (1 = Strongly agree to 7 = Strongly disagree)] Executive functioning (30-min Brief Test of Adult Cognition by telephone), Health status (7-item Instrumental Activities of Daily Living scale and total number of chronic diseases).	Frequent SMU by older adults to connect with family and friends positively predicted executive functioning through increased feelings of social support and a decreased perception of constraints.
Meshi et al. (2020) [24]	N = 213; 60 years and older; US	Cross-Sectional	SMU (self-report): 1) Average daily use for personal reasons, 2) Problematic SMU (6-item BSMAS 5-point Likert scale (1 = Very rarely to 5 = Very often)].	Perceived social isolation [PROMIS social isolation scale using a 5-point Likert scale (1 = never to 5 = always)], Depression [PROMIS depression scale using a 5-point Likert scale (1 = never to 5 = always)].	Older adults who had less problematic SMU were more likely to have low perceived social isolation.
Wu & Chiou . (2020) [31]	N = 153; 60 years and older; Taiwan	Cross-Sectional	SMU (self-report): 1) Familiar with the use of social media (Yes/No), 2) Frequency of use during a week (1−7 days), 3) Types used.	Functional ability (Barthel Index of activities of daily living 36 and Lawton's instrumental activities of daily living scale), Perceived social support (Multidimensional Scale of Perceived Social Support), Intergenerational relationships (Intergenerational Relationship Scale), Depression (GDS-15), Cmorbidities (Yes/No), Perceived health status (Poor to excellent), Medications (Yes/No), Sleep quality (Poor to excellent), Nap habits (Yes/No), Regular exercise (Yes/No), Leisure activities (Yes/No).	Older adults familiar with SMU had more social support. Those who were familiar with SMU, who had stronger intergenerational relationships, and who had higher perceived social support, had less feelings of depression.

Table 1. (continued)

Citation	Sample size, age, and country	Study design	SMU measures	Well-being measures	SMU and well-being results
2019					
Ang & Chen (2019) [33]	N = 3,401; 64 years and older; US	Longitudinal (National Health and Aging Trends Study waves 3 & 4)	Online social participation (self-report): "In the last month, have you gone on the Internet or online to visit social network sites?" (Yes/No).	Depression [PHQ-2 (0 = Not at all to 3 = Nearly every day)], Pain [1-item (Yes/No)], Offline social participation [4-items (Yes/No)], Sleep problems [1-item (1 = Never to 5 = Every night)], Comorbidity (Total number of 9 diagnoses), Disability (Reporting difficulty with ADL or IADL), Cognitive function [Clock drawing test (1 = Not recognizable as a clock to 6 = accurate description)].	SMU by older adults was found to be protective to the negative effects of pain on depression.
Hajek & Konig (2019) [15]	N = 7,837; 40 years and older; Germany	Cross-Sectional (German Ageing Survey 5th wave)	Social network use (self-report): Frequency of SMU in past 12 months (1 = Daily to 6 = Never).	Perceived social isolation [4-items (1 = Strongly agree to 4 = Strongly disagree)], Depression (CES-D), Self-rated health [subscale of SF-26 (0 = Worst to 100 = Best)].	Adults and older adults who used social media less frequently or not at all perceived themselves to be more socially isolated compared to those who used social media daily.

and older—Facebook and YouTube were 50% and 49%, respectively, followed by 18% who used Pinterest. Though Snapchat is popular with young adults (65% reported using it), only 2% of individuals aged 65 and older used this platform [7].

While it is useful to understand older adults' usage of social media in general and specific types of social media use, understanding how social media use is related to well-being is important for helping older adults to stay connected with their social ties to stave off loneliness and enhance their quality of life.

Social media use and well-being

The relationships between SMU and well-being among older adults are not well understood at this time. Does SMU lead to changes in well-being or do aspects of well-being lead older adults to use social media in particular ways? Given the lack of detailed and representative longitudinal data on the diversity of Internet use in general and SMU in particular among older adults, it is challenging to form a consensus as to how SMU and well-being are related [2,10,11]. With this caveat, we present the current state of research in these domains.

Social connection, isolation, and loneliness

Social connection, isolation, and loneliness are the most widely examined well-being outcomes of SMU among older adults. Digital social networks (e.g., Facebook groups) are suitable for providing and receiving social support (e.g., information or emotional encouragement), regardless of geographical location or time [10]. Older adults enjoy using social media, as it is an easy way to initiate contact and maintain connections with family and friends [12,13]. Among elder orphans (e.g., older adults who are unmarried, live by themselves, and don't have living children), those who had more frequent Facebook activity use had lower perceived loneliness; the relationship between Facebook use and loneliness was mediated by perceived mattering (i.e., perceiving that others are aware of you, think you are important, and rely on you) [13]. In an analysis of the U.S. Health and Retirement Study data, higher frequency of SMU was found to predict increased frequency of social contact and social engagement (i.e., less social isolation), which in turn predicted lower levels of loneliness [14]. In this same study, Byrne et al. reported that minorities (i.e., Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and others) with higher SMU reported higher levels of social contact, and that rural older adults who used social media less frequently experienced higher levels of loneliness than urban older adults with comparable levels of SMU [14]. A current European study revealed that daily users of online social networks reported lower social isolation scores

than those with less frequent or no social media use [15].

SMU has an indirect positive association with social integration mainly through social capital [16,17]; for example, the diversity in WeChat activities (i.e., social networking, information sharing and creation, payment services, and advanced creation) and the number of WeChat friends positively predicted offline social participation [18]. A study with older Chinese adults residing in long-term care found that the relationship between active WeChat use and loneliness was mediated by online social support [19]. Furthermore, using SMU for social connection could positively affect older adults' social well-being [17,20]. Older adults who spent more time using social media felt more socially connected offline [14,21] and online [22]; conversely, older adult Instagram users who were in regular contact with family and friends offline used Instagram less often to follow others, document their own lives, or engage in self-promotion [23]. Non-employed older adults who spent more time on Facebook reported feeling more socially connected; however, the same relationship was not found for employed older adults or for older adults living alone or with others [21]. Moreover, older adults who had more problematic SMU, as determined by the Bergen Social Media Addiction Scale, reported feeling more socially isolated; however, average daily SMU in this sample was not associated with perceived social isolation [24].

Life satisfaction
Like social connection, life satisfaction can be a predictor as well as an outcome of SMU. SMU has been positively associated with life satisfaction [17,25−27]. By contrast, research shows that older adult Facebook users who were satisfied with their lives were less likely to use Facebook to meet new people or to distract themselves when bored or feeling lonely [15,17]. Likewise, a sample of 306 Chinese adults aged 55 and older showed that those with lower self-esteem spent more time actively using social media for social purposes (e.g., communication and interaction, updating status, and commenting) [23].

In addition to general SMU, specific activities while using social media, such as tagging pictures of friends on Facebook, have been related to increased life satisfaction among older adults [28]. On the other hand, other social media activities, such as relationship maintenance, entertainment, photo uploads, or status updates have not been significantly associated with life satisfaction [23,28,29].

Mental health, physical health, and cognitive ability
SMU may also have varying effects on health. Kouvonen et al. [30] found that older adults with symptoms of depression had higher likelihood of social media nonuse. In contrast, one small-scale study reported that higher levels of SMU were associated with more depressive symptoms [31]. Whereas, Hofer and Hargittai [32] did not find a significant relationship between the frequency of SMU and depression or anxiety. However, there were significant associations based on the type of SMU and depression or anxiety. Older adults who were more prone to check in on someone who was missing from an online community reported higher feelings of anxiety and higher feelings of depression. Those who looked at status updates more often had lower feelings of anxiety. Older adults who spent more time looking at photos of others had more feelings of anxiety. Those with a higher likelihood to answer questions that someone else asked in a forum/on social media had higher depressive symptoms. For older adults in pain or experiencing feelings of depression, SMU can offset the decline in offline social interactions [31,33]. Older adults with higher SMU (namely, using WeChat, mobile phones, or other network communication devices) were in better physical and mental health and exhibited lower depression levels [34]. Older adults who were less mobile spent more time on Facebook daily than those who were more mobile [17]. Moreover, older adults with higher feelings of depression exhibited more problematic SMU, and those with problematic SMU felt more socially isolated [24].

Research is beginning to show that SMU for social connection may protect against cognitive decline in older adults [35]. Frequent SMU to connect with family and friends positively predicted executive functioning, through increased feelings of social support and decreased perception of their inability to control obstacles that keep them from achieving their goals [35]. Processing-speed score (TMT-A) was positively correlated with passive (e.g., browsing) and active (e.g., posting) Facebook use; however, no significant differences were found between Facebook users and non-Facebook users when comparing short-term memory, working memory, semantic fluency, verbal fluency, verbal episodic memory, or processing speed (DSST) [29].

SMU has been perceived as a way to remain cognitively engaged, improve communication, and increase social connectedness [12,29]. However, some older adults have reported social media addiction as a consequence of SMU [12]. And, barriers to SMU included the perception that the quality of communication is less personal and that, if they shared self-identifying information on social media sites, they increased their vulnerability to risks [12,29]. Given the paucity of research focusing on cognitive changes and SMU, it will be interesting to see how research advances in this area in the coming years.

As these sections have illustrated, the relationships between SMU and well-being vary depending upon the measurement of both SMU and particular aspects of well-being, as well as the samples included. Well-being may be a predictor of SMU as well as SMU predicting well-being. The next sections elaborate on current research gaps and suggest ways to advance research on these topics.

Current research gaps

Though few studies of older adults and SMU have historically relied on large, representative samples, the size of research samples is increasing. See Table 1 for an overview of studies from the past three years on older adults' SMU and well-being. Unfortunately, however, many studies have not followed older adults over time to ascertain how SMU changes [33,36].

Another limitation is that measurement of key SMU constructs and well-being outcomes are not well developed in many studies (see Table 1) [36]. For example, the National Health and Aging Trends longitudinal study of older adults (https://www.nhats.org) has valid and reliable measures of well-being outcomes, but the SMU measures are limited and often combined with other types of Internet-use activities. Research on younger age groups has shown that the effects of SMU on well-being may depend on whether the use is active or passive in nature [37]. Studies with older adults assess whether individuals have gone online to visit social media sites over the past month yet fail to ascertain how frequently this occurs or whether the SMU is active, passive, or some combination of these types. For example, the Survey of Health, Ageing, and Retirement in Europe (http://www.share-project.org) measures Internet use among people aged 50 years and older only with a Yes/No response option and does not differentiate between SMU or other Internet-related purposes [38,39]. Almost no information about daily variated SMU (e.g., dynamics in day-to-day use) has been included in recent research [40]; and of the studies that do measure SMU frequency, all have relied on self-reported use, which can be subject to recall bias [41,42]. While Pew Research often has more in-depth measures of technology use than many other larger-scale survey studies, they almost never include health or well-being measures. As Cotten et al. [43] noted a decade ago in relation to Internet use, we suggest that understanding the type, amount, purpose, and timing of use is necessary for determining how SMU may impact well-being outcomes.

An outline for advancing research on older adults' SMU and well-being

As this review has illustrated, research advancement is needed that (a) utilizes more expansive existing measures of SMU that adequately assess the potential scope of SMU activities, most of which have thus far primarily been used with younger age groups, (b) creates better measures of SMU that are tailored to older adults' lives in general, including cognitive and physical limitations, as well as new forms of social media that may increasingly appeal to older adults (i.e., gaming and virtual reality [44]), (c) monitors how SMU changes over time, and (d) ascertains the dynamics of daily use (e.g., using an ambulatory assessment method (collecting data within the everyday life of participants as they move through their social worlds given mobility and technological barriers they encounter), through the use of tracking data of SMU from participants' smartphones). Given that studies show that individuals are not good at estimating how much time they spend using technology [41,42], both objective and subjective measures of SMU should be included in future studies, and these studies should also include a range of well-being outcomes.

Longitudinal studies are also needed to parse out the causal ordering of relationships between SMU and well-being, to identify situations when SMU is beneficial versus not, and to determine how this varies over time and across situations among older adults. One possibility is to include the situational variance in everyday life (e.g., the fluctuating use of social media depending on the aspect of whether the person is alone or not) to account for the manner in which SMU differs between days and situations [45], and to measure disconnection from and switching between social media tools [46]. To fully advance research on this topic, we must also include samples that are reflective of the diversity of older adults, rather than just those that are easily accessible, mentally fit, dwelling in the community, and skilled in using digital technologies. We urge researchers to push these boundaries in the coming years to give us a better understanding of how older adults use social media and the impacts that this use has on their social lives.

Credit author statement

Cotten conceptualized the manuscript. All authors contributed to the original draft development, review, and editing of the manuscript. Schuster annotated the citations. Seifert formatted the manuscript.

Conflict of interest statement

Nothing declared.

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