

Associations of social networking service use with subjective health, depression, and social isolation in community-dwelling older adults

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地域在住高齢者におけるソーシャルネットワーキングサービスの利用と主観的健康状態、うつ病、社会的孤立の関連性

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要約

日本では、ソーシャルネットワーキングサービス (SNS) の利用が増加している。これまでの研究で、SNS の利用は健康にプラスとマイナスの効果が混在していることがわかっているが、高齢者の健康や幸福における SNS の役割についてはあまり知られておらず、高齢化が急速に進む日本では特に重要である。そこで、SNS の利用は高齢者の主観的健康と正の相関があり、社会的孤立やうつ病と負の相関があるという仮説を検証した。対象は、都市近郊のシニアグループに参加する 65 歳以上の 63 名。SNS の利用状況や主観的健康度、うつ病 (Geriatric Depression Scale-5)、社会的孤立 (Lubben Social Network Scale) について自記式質問紙調査を実施した。結果、約半数が SNS を利用しており、後期高齢者グループでは SNS 利用率が比較的低いことがわかった。年齢、性別、主観的健康状態は、SNS の利用状況と有意に関連していた。SNS の利用頻度は主観的健康と有意な正の相関があったが、うつ病や社会的孤立とは関連がなかった。本研究の対象者は、特定の社会活動において SNS を利用することで他者とつながりを保つことができたため、主観的健康感が高まったと推察される。本研究の結果は、SNS の利用と健康アウトカムとの間に負の関係があるというこれまでの報告が、高齢者には当てはまらない可能性を示している。したがって、日本の高齢者の SNS 利用は、必ずしも健康や社会的孤立の解消に寄与しないが、寄与する可能性は否定できないことが示唆された。

Key words

social networking service, older adult, subjective health, social isolation, Japan

1. Introduction

Japan is becoming a “super-aging” society. As of 2020, 28.8 % of Japan’s population was aged 65 years or older (Office, 2021). Population aging in Japan is expected to increase in the future, and deterioration of health and social isolation among older adults are regarded as problems; an approach that promotes health and social participation is required (Office, 2010).

SNSs are an efficient way to connect with others, and SNS use is highly integrated into people’s lives. According to the Ministry of Internal Affairs and Communications of Japan (MIC, 2013), 42.4 % of people in Japan used SNSs in 2012, and this percentage has increased each year, reaching 60 % in 2018 (MIC, 2019). The SNS penetration rate among people in their 20s to 40s is particularly large, exceeding 70 % (MIC, 2019). The rate of SNS use among people in their 70s in Japan is 23 % (MIC, 2019), which is lower than that found in the United States, the European Union, and other countries in East Asia (MIC, 2016). SNS use has been found to be associated with increases in the frequency of family communication, social capital, and subjective well-being (Wang, Wang, Gaskin, & Hawk, 2017). In addition, it has been reported that (Cho, 2015) SNSs deter social isolation.

There are advantages to using SNSs for older adults. SNS use by older adults can reduce depression, social isolation, and improve self-efficacy (Zhou, 2018), contributing to improved social support. SNSs can also be used to improve the quality of life of older adults by positively impacting well-being (Khosravi & Ghapanchi, 2016; Nef, Ganea, Müri, & Mosimann, 2013). However, some studies have reported that SNS use status has no relationship with depression or isolation (Aarts, Peck, & Wouters, 2015), but an insufficient amount of research has been conducted on the associations of using SNSs with subjective health and social isolation among community-dwelling older adults (Baker et al., 2018). It is unclear whether SNS has a positive effect on the elderly in Japan.

The purpose of this study was to test the hypothesis that older people who use SNSs have a relatively high level of self-rated health and relatively low levels of social isolation and depression. Our findings have important practical implications for maintaining community life and preventing social isolation by encouraging older adults to use SNSs and to interact in group settings.

2. Methods

A self-administered, anonymous questionnaire survey was conducted. To obtain informed consent, potential participants were given an information sheet explaining the study and clarifying that, by submitting the questionnaire, they were agreeing to participate in the study.

2.1 Procedure and participants

In this study, the participants were adults aged 65 years or older who participated in senior groups and in prevention care classes in the suburbs of a city. To collect sufficient data on SNS users, we targeted active people, who are relatively likely to use SNSs. The inclusion criteria were (1) having physical function that allowed them to go out on their own and (2) being able to understand and respond to the questionnaire. The exclusion criteria were (1) not being able to identify whether they used SNSs, (2) having been diagnosed with dementia, and (3) having difficulty communicating. The survey was conducted from February 8 to April 11, 2019, at each senior group's meeting center, where the questionnaires were distributed. The deadline for data collection was set as April 30, 2019.

2.2 Measures

2.2.1 SNS

Following information provided by the Ministry of Internal Affairs and Communications, we defined SNSs as the widely used SNS platforms in Japan—LINE, Facebook, Twitter, and Instagram. LINE, the most popular SNS platform in Japan, allows chatting and calls between individuals and among groups.

2.2.2 SNS Use

Our assessment of the frequency of SNS use followed a previous study (Aarts et al., 2015). A questionnaire item asked about SNS use over the past 2 months, and we defined SNS users as those who had used SNSs at least once per month. The respondents were asked to select from the following for each SNS. (1) not at all, (2) less than once a month, (3) one to three times a month, (4) once a week, (5) several times a week, (6) every day, and (7) several times a day.

2.2.3 Subjective health

Subjective health was assessed using a four-point scale in which participants had to choose from “best,” “very good,” “not so good,” and “not good” for their current health status (Nakao, Sugiyama, Kawasaki, Ohnishi, & Honda, 2018).

2.2.4 Mental health

Depressive symptoms were measured using the Geriatric Depression Scale-5 (GDS-5; (Hoyl et al., 1999)). The GDS-5 is a method of screening for depression among older adults. Participants answered each question with yes or no, and the total GDS score ranged from 0 to 5; higher scores indicated more severe

depressive states. Participants with a total GDS-5 score of <2 were defined as having no depressive symptoms, and those with a total GDS-5 score of ≥ 2 were defined as having depressive symptoms. The validity of the scale has been confirmed to be equivalent to that of the Geriatric Depression Scale 15 (Rinaldi et al., 2003).

2.2.5 Social isolation

The Lubben Social Network Scale (LSNS-6) is a social network scale for use among older adults that was developed by Lubben (Lubben, 1988). The LSNS-6 includes six items that measure the size of active and intimate networks of family members and friends with whom the respondent could talk to or call for help. The LSNS-6 is constructed from a set of three questions that assess kinship ties and a comparable set of three questions that assess friendship ties. The three items related to kinship are as follows: (1) “How many relatives do you see or hear from at least once a month?” (2) “How many relatives do you feel close to such an extent that you could call on them for help?” (3) “How many relatives do you feel at ease with such that you can talk to them about private matters?” These three questions are repeated with respect to non-kinship ties by replacing the word “relatives” with the word “friends.” Each of these questions has the same six response options: 0 = none, 1 = one, 2 = two, 3 = three or four, 4 = five to eight, and 5 = nine or more. The maximum score on the LSNS-6 is 30, which is an equally weighted sum of the six items. A LSNS-6 Family subscale is constructed from the three LSNS-6 questions about relatives. Similarly, a LSNS-6 Friends subscale is constructed from the three questions about friends.

2.2.6 Device most frequently used to access SNS

The participants were asked to choose the type of device they used most frequently to access SNSs from the following four categories: smartphones, tablets, personal computers, and feature phones.

2.3 Data Analysis

After the questionnaires were collected, the responses to all items were entered into IBM SPSS Statistics, Version 25.0 (IBM Corp., Armonk, NY, USA), and missing values were checked. If it could not be determined whether a participant used SNSs, all data from that participant were excluded from the analysis. For other missing values, only valid responses were included in the analysis. The significance level was set at less than 5%.

We began by carrying out a cross-tabulation for each item. In terms of subjective health, the responses of *best* and *very good* were combined and categorized as good subjective health, whereas the responses of *not so good* and *not good* were categorized as bad subjective health. Participants with a total GDS-5 score of <2 were defined as having no depressive symptoms, and those with a total GDS-5 score of ≥ 2 were defined as hav-

ing depressive symptoms. For social isolation, LSNS-6 score was categorized as no isolation (12 points or more) or isolation (less than 12 points).

We used the chi-square test to compare basic attributes, subjective health, depression, and social isolation between SNS users and non-users. Among SNS users, Pearson’s correlation coefficients were calculated to assess the associations of frequency of SNS use with subjective health, depression, and social isolation.

3. Results

Table 1 shows the characteristics of the study participants. In total, 123 questionnaires were distributed, and 68 completed questionnaires were collected (recovery rate: 55.3 %). We excluded five respondents for whom it was not possible to determine whether they used SNS, leaving 63 respondents in the analytical sample. The average age of the respondents was 73.2 ± 5.7 years, and 52.4 % were women. 81.0 % were living together, 57.1 % had ≥ 13 years of education, and 49.2 % had a household income of ≥ 3 million. SNS users accounted for 50.8 % of the sample. For subjective health, 80.6 % reported being in good health. For mental health, 10.3 % were found to have depressive tendencies. For social isolation, 28.1 % were categorized as showing isolation. Those aged 70 to 74 years had

the highest SNS usage rate, at 63.0 %. In contrast, the usage rate for those in their 80s or older was 22.2 %, which was the lowest rate among the age groups.

Table 2 shows the usage rate and frequency of use for each platform among SNS users. LINE, the most commonly used platform, was used by all SNS users in the sample, with 56.3 %

Table 2: Usage rate and frequency of use of each SNS platform among SNS users

SNS		<i>n</i>	%
LINE	1-3 times per months	4	12.5
	once a week	3	9.4
	several times a week	8	25.0
	every day	9	28.1
	several times per day	8	25.0
Facebook	1-3 times per months	1	3.1
	once a week	2	6.3
	several times a week	3	9.4
	every day	6	18.8
	several times per day	1	3.1
Instagram	every day	3	9.4
twitter	once a week	1	3.1
	every day	1	3.1

Table 1: Characteristics of the study participants

Category	<i>n</i>	
Age	63	73.2±5.7
Sex	Women	33 52.4 %
	Men	30 47.6 %
Living arrangement	Living alone	12 19.0 %
	Living together	51 81.0 %
Years of education	≤ 9	10 15.9 %
	10 - 12	14 22.2 %
	≥ 13	36 57.1 %
	Invalid answer	3 4.7 %
Family income	≤ 1.2 million yen	3 4.8 %
	1.2 - 3 million yen	20 31.7 %
	≥ 3 million yen	31 49.2 %
	Invalid answer	9 14.3 %
SNS	Use	32 50.8 %
	Non-use	31 49.2 %
Subjective health	Bad	21 33.3 %
	Good	36 57.1 %
	Invalid answer	6 9.5 %
Mental health	Non-depressive-symptoms	53 84.1 %
	Depressive symptoms	6 9.5 %
	Invalid answer	4 6.3 %
Social isolation	No isolation	46 73.0 %
	Isolation	17 26.9 %

of SNS users reporting using it every day. Twitter had the lowest usage rate, at 15.6 %, and about 60 % of Twitter users reported using this platform less than once a month. After LINE, Facebook had the second highest usage rate, with a daily usage of 19 %.

Table 3 shows the relationships between SNS use and the other examined variables. Age, sex, and subjective health were significantly associated with SNS use. There was no significant difference in SNS use by mental health or social isolation.

We used Pearson's correlation coefficient to assess the associations of frequency of SNS use with GDS-5, LSNS-6, and subjective health. The results are shown in Table 4. We found a statistically significant positive correlation between frequency of SNS use and subjective health.

The most frequently used device for SNS users to access SNS was that 71.9 % of participants answered that they were "Smartphones." Personal computers, feature phones, and tablets were each selected by 9.4 % of SNS users. Summing the percentage selecting smartphones and the percentage selecting tablets, which are similar to smartphones, shows that 81.3 % of SNS users most commonly used a smartphone related device to access SNSs.

4. Discussion

In this study, we tested the hypothesis that older people living in Japan who use SNSs are healthier than those who do not. The results showed that older people in Japan who use SNSs have better subjective health than those who do not. We also found a positive correlation between frequency of SNS use and subjective health. Thus, our results indicate that previous findings of negative health effects of SNS use among younger people may not be applicable to older people. Below, we present

a detailed analysis of the results.

4.1 Older adults in the younger age categories more commonly use SNS

The rate of SNS use among the respondents to this survey was higher than that reported in statistics from the Ministry of Internal Affairs and Communications. The high rate of SNS use in this survey can be attributed partially to the fact that the survey was conducted among older people who participated in community activities. Because these people had opportunities to go out and interact with others through community activities on a regular basis, their physical and mental functions were likely to be maintained, and we suspect that they tended to use SNSs as a communication tool. In addition, there were many questions about SNSs in this survey, and the response rate may thus have been higher among SNS users. The rate of SNS use decreased as the age of the respondents increased. It is possible that, as age increases, communities become smaller, and opportunities for inter-action decrease, making it unnecessary to use SNSs. Additionally, people in the oldest age categories may be reluctant to acquire devices and to learn how to use SNSs.

4.2 Older adults who use SNS have better subjective health

There was a significant relationship between SNS use and subjective sense of well-being, suggesting that SNSs allow people to feel a sense of belonging to a community by observing the communication and activities of others, even people to feel a sense of belonging to a community by observing the communication and activities of others, even if they do not communicate themselves. The survey found that LINE, which specializes in communication with known friends and acquaintances, is the

Table 3: Associations between SNS use and respondent characteristics

	Category	SNS non-use (<i>n</i>)	SNS Use (<i>n</i>)	Total (<i>n</i>)	<i>p</i>
Age	Early elderly	14	23	63	.042 *
	Late elderly	17	9		
Sex	Women	22	11	63	.005 *
	Men	9	21		
Subjective health	Bad	15	6	57	.005 *
	Good	11	25		
Mental health	Non-depressive symptoms	27	26	59	1.000
	Depressive symptoms	3	3		
Social isolation	No isolation	23	23	63	1.000
	Isolation	8	9		

Table 4: Correlations of SNS use with depression, social isolation, and subjective health

		GDS-5 score	LSNS-6 score	Subjective health
Frequency of SNS use	Pearson's correlation coefficient	-0.086	-0.049	.449 *
	Significance probability (two-sided)	0.658	0.79	0.011
	Number of times	29	32	31

most widely used SNS in terms of usage rate and frequency of use. Therefore, it is possible that communication on SNSs with known people enhances subjective health. Additionally, opportunities to go out and to communicate increase through SNSs. Prior research has reported that connecting with people at an appropriate distance enhances subjective health perceptions (Zhu, Gao, Nie, Dai, & Fu, 2019; Hung & Lau, 2019). It can be inferred that the subjects in this study have increased subjective health perceptions because SNSs helped them to stay connected with others by using SNSs in certain social activities. Subjective sense of health is an important indicator because it is related to subsequent life expectancy and chronic diseases (Idler & Benyamini, 1997; Mavaddat, Parker, Sanderson, Mant, & Kinmonth, 2014; Dong et al., 2018). Therefore, SNS use may be one solution to the problems faced by older adults in Japan.

4.3 Associations of SNS use with health and social isolation

Comparing subjective health, depression, and social isolation between SNS users and non-users, we found that SNS use was associated with subjective health but not with social isolation or depression. The fact that the survey was conducted among a healthy group and the finding of no significant difference in social isolation by SNS use suggest that the respondents maintained a relatively high level of social participation. One reason why SNS use was not associated with social isolation or depression was that the survey targeted older people who had many opportunities to go out. Some older people find it difficult to use smartphones and tablets. It can be assumed that older people who have opportunities to go out keep in touch with others regardless of whether they use SNSs and that these people are less likely to become socially isolated or depressed. These findings suggest that SNS use is unlikely to have a negative impact on older adults.

Regarding the frequency of SNS use, half of the respondents who used SNS used it daily. The use of SNSs has taken root, and older adults are adapting to using more efficient means of communication. In addition, there was a significant positive correlation between the frequency of SNS use and subjective health. One feature of SNSs is group communication and seamless communication. This feature is thought to enhance subjective health by helping people to maintain social participation and connectedness. Frequency of SNS use was not found to be significantly correlated with either depression or social isolation. Previous studies have pointed out a deterioration of health status (O’Keeffe & Clarke-Pearson, 2011; Kuss & Griffiths, 2011; Kuss & Griffiths, 2017; Pontes, Taylor, & Stavropoulos, 2018) because of SNS dependence and other factors in younger people and in other countries, but these negative effects may not apply to the older adults in Japan who participated in this study.

There are several limitations to this study. First, there is a bias in the characteristics of the target elderly population. In this

study, we targeted the elderly who participated in nursing care prevention classes and senior groups. In order to participate in these groups, it is necessary to be physically able to go out on one’s own, so those who do not maintain a certain level of physical function were inevitably dropped from the survey. Second, the use of social networking services was correlated with subjective health, but it is necessary to examine whether the elderly who are not active enough to participate in social networking services are also making use of these services.

A future task is to clarify the factors that can determine whether it is appropriate to introduce SNS to elderly people with limited physical and activity capabilities.

In conclusion, we examined whether there were differences in subjective health, depression, and social isolation among community-dwelling older adults with and without SNS use. The results showed that there were significant differences in subjective health but not in depression (GDS-5) or social isolation (LSNS-6). Therefore, although SNS use among older adults in Japan does not necessarily contribute to health or to the alleviation of social isolation, the possibility that it does cannot be denied. It appears that there are no adverse health effects associated with SNS use for older adults, in contrast to previous findings among younger people. In the future, a large-scale study expanding the target population to include older adults with fewer opportunities to interact and go out should be conducted.

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