Gender Differences and Changes in Social Participation Among the Elderly in Japan During the COVID-19 Pandemic: a Cross-Sectional Survey

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Abstract

Background: It has been recognized that keeping relationships with society and other people, such as through social participation, is important to maintaining health in the elderly. We aimed to determine changes in the social participation of the elderly from before and during the COVID-19 pandemic, and to compare differences in this status by gender.

Methods: We conducted a cross-sectional questionnaire survey in a single city in Ibaraki Prefecture, Japan. The questionnaires were sent by mail to 3,000 people aged 65 to 85 years randomly selected by the administrative staff of the city. Responses were obtained on the basic attributes of the participants (age, gender, working status, residential status), as well as their economic status, daily physical activity, and social participation status at three time points: (1) before the COVID-19 pandemic in January 2020; (2) immediately prior to the declaration of a state of emergency in April 2020; and (3) one year after (1), namely January 2021.

Results: A total of 1,301 people responded to the survey. Mean age was 73.3 (SD 5.5) years, and 690 (53.0%) were female. Significant gender differences were seen in living alone, currently working, and amount of physical activity. The number of people reporting social participation gradually decreased, from 543 respondents (41.7%) at (1), 319 (24.5%) at (2) and 251 (19.3%) at (3). On comparison by gender, a significant difference in social participation status was seen at (1), but not at (2) or (3).

Conclusions: The percentage of social participation among elderly decreased during the pandemic. The rate of decrease was particularly large among women.

Background

The super-aged society has arrived, and society needs to support the elderly in order for them to live healthy lives with purpose. It has been recognized that keeping relationships with society and other people, such as through social participation, is important to maintaining health in the elderly^{1,2}. Previous studies have reported that a poor social network is associated with the development of dementia, decreased physical function, and undernutrition^{3,4}. In Japan, the association of social participation with instrumental activities of daily living (IADL)⁵, healthy life years⁶, and death⁷ have also been reported. Thus, relationships with society and people through social participation and related activities tend to influence the maintenance of healthy lives among the elderly in local communities, and municipalities, volunteer groups, etc. have continued to play a central role in providing places for social participation to community-dwelling elderly.

However, due to the 2019 coronavirus pandemic⁸, many places providing social participation activities for the elderly ceased operations or were closed in order to secure social distancing⁹, worsening social isolation¹⁰. The amount of physical activity of the elderly reportedly decreased by approximately 30% following the spread of the infection¹¹. Given findings that social participation by the elderly aids in the

prevention of conditions requiring long-term care¹², these findings also suggest that the current closure of venues providing social participation activities for the elderly and decrease in the amount of physical activity may have negative outcomes, including both short- as well as medium- and long-term increases in the number of people in need of care and with dementia.

Looking forward, how are places for social participation of the elderly and the social roles of the elderly to be restored? Consideration of specific measures requires determining not only the current situation of social participation of the elderly, but also their amount of physical activity¹³ and the status of their social participation¹⁴, both of which are subject to gender differences, and how these have changed under the influence of the pandemic. Although decreased physical activity of the elderly¹¹ and decreased satisfaction with participation in social roles¹⁵ during the pandemic have been reported, few reports have described the status and gender differences in their social participation before and during the pandemic. We considered that determining the current status of these variables during the pandemic would provide useful information about the types of venues for social participation that should be reopened or newly established looking forward.

Here, we determined changes in the social participation of the elderly before and during the pandemic in one municipality in Japan, and compared differences in this status due to gender.

Methods

Setting and participants

We conducted a cross-sectional questionnaire survey in a single city in Ibaraki Prefecture, Japan, approximately 160 km north of Tokyo, in January 2021. The city has a population of about 40,000, and 35% of citizens were aged 65 or older as of 2020.

The target population was approximately 9,000 residents aged 65 to 85 years who were not certified to require long-term care under Japan's long-term care insurance system, i.e. people with fewer barriers to social participation resulting from physical and cognitive decline. The questionnaires were sent by mail to 3,000 people randomly selected by the administrative staff of the city. Responses were collected by mail.

The first COVID-19 case in Japan was reported in January, 2020. The government declared a state of emergency from April to May 2020. The government again declared a state of emergency in Tokyo and other major cities (not including Ibaraki Prefecture) in January 2021 due to the re-emergence of cases. Many activities in the target city that involved social interaction were temporarily suspended in April 2020, some of which were resumed in July 2020 after infection prevention measures were instituted. The first COVID-19 case in the city was reported in October 2020, and a total of 12 cases were reported as of January 2021. The prefectural governor of Ibaraki Prefecture declared a state of emergency in that month due to the spread of infection in the prefecture.

Measurement

The questionnaire survey enquired about the basic attributes of the subjects (age, gender, working status, residential status), economic status (satisfied or not), daily physical activity¹⁶, and social participation status at three time points, namely (1) before the COVID-19 pandemic in January 2020; (2) immediately prior to the declaration of a state of emergency in April 2020; and (3) one year after (1), namely January 2021.

The amount of physical activity was assessed using the Short Version of International Physical Activity Questionnaire (IPAQ)¹⁷. The IPAQ asks about the amount of high-, moderate-, and low-intensity physical activity in the preceding week.

Based on previous studies^{18, 19}, social participation in this study was defined by the question "Do you participate in any community activities or volunteer activities?"

Statistical analysis

Given previous findings of differences in social participation between males and females^{13, 14}, we compared basic attributes, daily physical activity, and social participation before and during the pandemic by gender. Analyses were done using the t-test or chi-square test on Statistical Package for the Social Sciences (SPSS), Windows version 27.0, with statistical significance set at the 5% level for all analyses.

Results

Of the 3000 citizens selected, 2963 received the questionnaire and 1307 returned it (response rate 44.1%). We excluded 6 respondents who did not describe their gender (Figure 1). The mean age of the respondents was 73.3 (SD 5.5) years, and 690 (53.0%) were female. In January 2021, 178 participants (13.7%) lived alone and 379 (29.1%) were working. With regard to physical activity, 660 (50.7%) reported low, 333 (25.6%) reported moderate and 308 (23.7%) reported high physical activity. On comparison of basic attributes and amount of physical activity by gender, significant differences were seen in whether the respondents lived alone ($p < 0.001$), were working ($p < 0.001$), and amount of physical activity ($p < 0.001$) (Table 1).

Regarding social participation, (1) 543 people (41.7%) reported participating in January 2020, (2) 319 people (24.5%) in April 2020, and (3) 251 people (19.3%) in January 2021, showing a gradual decrease in the percentage of elderly people participating in social participation (Figure 2). Furthermore, on comparison by gender, (1) a significant difference in participation was seen in January 2020 ($p = 0.002$), but not in (2) April 2020 ($p = 0.707$) or (3) January 2021 ($p = 0.348$) (Table 2).

Discussion

In this study of the status of social participation of the elderly during the COVID-19 pandemic, we showed that the proportion of elderly participating in society has gradually decreased compared to the pre-pandemic level. In addition, although the proportion of women participating in society was higher than that of men before the pandemic, there was no difference between women and men during the pandemic. We consider that the gender differences and changes in social participation among the elderly revealed in this study will be valuable in examining the infrastructure required to support social participation by community-dwelling elderly in the future.

Previous studies have shown that social participation by the elderly is associated with health maintenance^{6,20}, feelings of happiness²¹, and social participation in local communities. However, the present results indicate that the social participation activities of the elderly have decreased due to the COVID-19 pandemic. Yamada et al. reported that the amount of activity of the elderly decreased during the period of the first state of emergency in Japan (April 2020) and returned to the pre-pandemic level after the state of emergency was lifted (June 2020)²². We expected that the social participation activities of the elderly would show an increased participation rate after the state of emergency was lifted, but the rate in fact decreased. We consider that this decrease can be explained as follows. Regarding physical activity, although physical activity could be maintained by replacing it with exercise alone or with the family or by hobbies, social distancing was emphasized by the mass media as a social norm²³, and concern about infecting others increased¹⁵. This led to behaviors to avoid social participation. Given reports that men have a higher participation rate in outdoor activities such as sports and volunteer activities, whereas women have higher participation rates in hobbies and cultural activities¹⁴, these differences in the type and place of activities between men and women may have influenced the status of their social participation. Moreover, it is said that “most of the additional housework and childcare associated with COVID-19 falls on women”²⁴. It is therefore possible that women have come to accept more roles in the family and have difficulty continuing social participation.

Even before the COVID-19 pandemic, people’s decreased activity was a health problem in many countries. The proportion of individuals with decreased activity is reported to be particularly high among women^{25–27}. Our present results, obtained during the pandemic, also indicate that a greater proportion of women had low-intensity physical activity than men. A previous study²⁶ reported that “One way to explain sex differences in activity is to assess male and female participation in different domains of activity (activity at work or in the household, for transport, and during leisure time).” Since our present study also found differences between men and women in the presence/absence of a job and in the proportion of individuals living alone, we consider that different domains of activity influence the amount of physical activity between men and women. Although it is possible that a decrease in social participation activities due to the COVID-19 pandemic is linked to decreased physical activity, we cannot determine this on the basis of the present results alone, and further investigation of this putative association is needed. In this regard, our present results demonstrated decreased social participation activities of the elderly during the COVID-19 pandemic and differences between men and women in amount of physical activity, which might suggest the need to examine new social gathering places with consideration to the characteristics

of the local area and its resident, as well as gender effects,²⁸ rather than simply returning local social participation activities to a similar style and manner to those before the pandemic.

The present study has some limitations. First, since the subjects were elderly people living in an area with a lower rate of COVID-19 infection than urban areas, our results are not directly generalizable to other areas, including urban areas. However, the type of social participation and the status of participation are sometimes influenced by the local context, and we therefore consider that knowledge of the status of a single municipality in Japan during the COVID-19 pandemic is valuable. Second, since the subjects were asked to recall the status of their social participation one year ago, a degree of recall bias may be present. Finally, the meaning of social participation in the present study is broad, and more detailed investigation of specific activities is required to determine which specific activities have tended to decrease.

Conclusions

Compared with participation levels before the COVID-19 pandemic, the percentage of social participation by elderly living in a single community in Japan gradually decreased during the pandemic. The rate of decrease was particularly large among women.

Abbreviations

instrumental activities of daily living: IADL; International Physical Activity Questionnaire: IPAQ; Statistical Package for the Social Sciences: SPSS

Declarations

Ethics approval and consent to participate

All participants were informed about the study orally and with written information and provided written informed consent prior to being enrolled in the study. This study was approved by the Ethics Committee of the Faculty of Medicine, University of Tsukuba (approval number: 1602), and was performed in accordance with the Declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and analyses performed as part of the current study are not publicly available due to the consent requirements of the participants. However, participants characteristics, including sex and age stratified descriptive data, are available from the corresponding author upon reasonable request.

Competing interests

The authors report no declarations of interest.

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None.

Authors' contributions

GR, SO, SK and SY contributed to the research design and collection of data. GR and SO contributed to the analysis of the results. GR, SO, SK and SY contributed to the writing of the manuscript.

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Tables

Due to technical limitations, table 1-2 is only available as a download in the Supplemental Files section.

Figures

Figure 1

Flow chart of subjects

Figure 2

Changes in social involvement

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Table1.xlsx](#)
- [Table2.xlsx](#)