

LETTERS TO THE EDITOR
RESEARCH STUDIES

Recovery from or progression to frailty during the second year of the COVID-19 pandemic

Dear Editor,

The coronavirus disease 2019 (COVID-19) pandemic has had a huge impact on people's lives, especially those of older adults. In the first year of the pandemic, the "stay-at-home policy" to avoid COVID-19 infection led to greatly limited physical activity (PA)¹ and an increased risk of incident frailty² in community-dwelling older adults. However, in the second year of the pandemic, vaccination and other political measures were promoted, and the overall social atmosphere seemed to be different. This study aimed to observe changes in PA and social activity (SA) in older adults during this pandemic and to explore the factors associated with recovery from or progression to frailty in older adults from January 2021 to January 2022.

We conducted online baseline¹ and first³ and second follow-up surveys in April 2020, January 2021, and January 2022, respectively. This study excluded older adults who were frail at the baseline survey and those who did not respond to the follow-up surveys. Among the 1600 baseline survey participants, 388 were already frail, and 275 and 140 older adults did not respond to the first and second follow-up survey, respectively (final number of participants: 797; follow-up rate: 65.8%).

We investigated PA and SA at six time points according to the waves of the COVID-19 pandemic in Japan: January 2020 (by recalled answer at baseline survey), April 2020 (at baseline survey, PA only), August 2020 (by recalled answer at follow-up survey), January 2021 (at first follow-up survey), August 2021 (by recalled answer at second follow-up survey), and January 2022

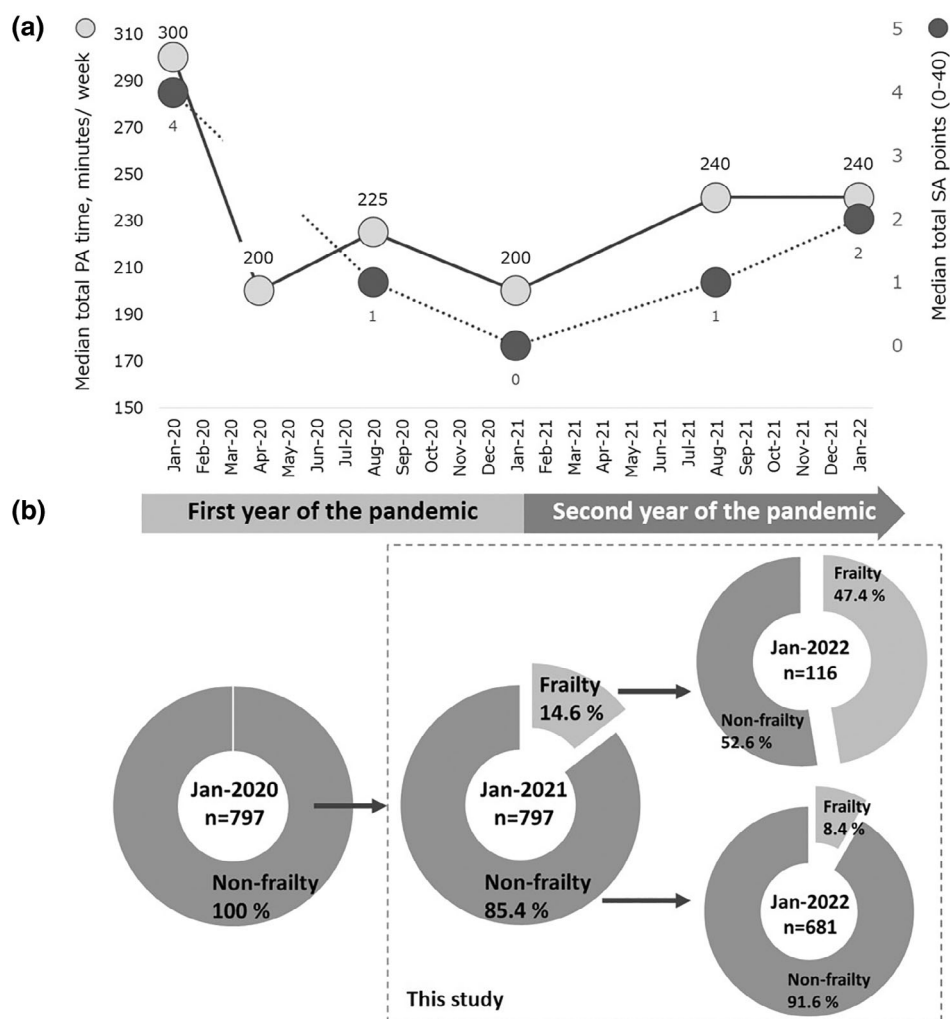


Figure 1 PA, physical activity; SA, social activity. Both PA and SA showed a worsening trend in the first year but a recovery trend in the second year of the pandemic (a). Of the 116 participants who were frail in January 2021, 61 (52.6%) had recovered to non-frailty in January 2022, and of the 681 participants who were non-frail in January 2021, 57 (8.4%) had progressed to frailty in January 2022 (b).

(at second follow-up survey). We assessed PA using a questionnaire based on a short version of the International Physical Activity Questionnaire⁴ and determined the total PA time.¹ We also assessed SA using a social participation score operationally defined by the frequency of participation in eight kinds of social activity on a 6-point scale. The eight categories of social participation were volunteer groups, sports groups, hobby groups, cultural clubs, senior citizen clubs, neighborhood associations, town events, and jobs. The frequency of participation was assessed on a 6-point scale (0–5 points): four or more times a week, 5 points; two to three times a week, 4 points; once a week, 3 points; one to three times a month, 2 points; several times a year, 1 point; and not participating, 0 points. Higher/ lower PA and SA were defined by the median PA and SA values in August 2021, and participants were categorized into four groups based on their combination of higher/lower PA and SA.

We assessed frailty, as defined by the Kihon Checklist,⁵ at three time points: January 2020, January 2021, and January 2022. Outcomes were defined as recovery from or progression to frailty from January 2021 to January 2022. We examined the relationship between these outcomes and PA and SA status using multivariate logistic regression analyses adjusted for age, sex, being underweight, living alone, polypharmacy, and lower health literacy.

The mean age, proportion of women, mean body mass index, and proportion of frailty at January 2021 were 73.1 ± 5.4 years, 46.3% ($n = 369$), 22.4 ± 2.8 kg/m², and 14.6% ($n = 116$), respectively. Both PA and SA showed a worsening trend in the first year but a recovery trend in the second year of the pandemic (Fig. 1). Of the 116 participants who were frail in January 2021, 61 (52.6%) had recovered to non-frailty in January 2022 (Fig. 1). Those in the higher PA and higher SA group (adjusted odds ratio [OR]: 9.51, 95% confidence interval [CI]: 3.05–29.66) and in the higher PA and lower SA group (adjusted OR: 5.24, 95% CI: 1.46–18.83) were more likely to recover from frailty than those in the lower PA and lower SA group, but not in the lower PA and higher SA group. On the other hand, of the 681 participants who were not frail in January 2021, 57 participants (8.4%) had progressed to frailty in January 2022 (Fig. 1), and those in the higher PA and higher SA group (adjusted OR: 0.35, 95% CI: 0.16–0.73) were less likely to progress to frailty than those in the lower PA and lower SA group.

During the COVID-19 pandemic, managing frailty in older adults has become more important than ever before. Our findings

suggest that the frailty caused by the pandemic is reversible and influenced by various factors such as PA and SA. However, a major limitation of the current study is that we could not investigate deterioration from frailty, such as the incidence of disability and death.

Disclosure Statement

None.

Data Availability Statement

We cannot publicly provide individual data due to participants' privacy, as specified by the ethics committee. The informed consent obtained does not include a provision for publicly sharing data.

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The inability to open a polyethylene terephthalate bottle cap can predict sarcopenia

Keywords: elderly, hand strength, polyethylene terephthalate bottle, PET bottle, sarcopenia.

Dear Editor,

Revisions of the diagnostic criteria for sarcopenia from the Asian Working Group for Sarcopenia (AWGS) and the European Working Group on Sarcopenia in Older People have made screening to identify early signs more important.^{1,2} We developed a novel self-screening method for sarcopenia using polyethylene terephthalate (PET) bottles, focusing on the most popular sizes to address the aforementioned concerns. PET bottles have become

the most commonly used packaging material for beverages worldwide.^{3,4} Previous reports have shown that opening the cap of a PET bottle is associated with muscle and grip strength, and that it is a basic activity of daily living.^{5–7}

The present study included 129 older adults (mean age 78.5 ± 8.3 years, 79 men and 50 women) who were users of daycare for older adults facilitated by the Japanese long-term care insurance system. This cross-sectional study was carried out at a